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# Long term fuel price elasticity: Effect of price changes on mobility tool ownership

Alexander Erath

Kay W. Axhausen

Travel Survey Metadata Series

50  
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## **Long term fuel price elasticity: Effect of price changes on mobility tool ownership**

Alexander Erath  
IVT, ETH Zürich  
CH-8093 Zürich

Kay W. Axhausen  
IVT, ETH Zürich  
CH-8093 Zürich

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### **Abstract**

The study analyzes how mobility tool usage and ownership as well as residence location choice are affected by rising fuel costs. Based on econometric models, long-term fuel price elasticities are derived.

Based on data collected in stated choice and stated adaptation experiments that were conducted as computer-based face-to-face surveys, a structural equation model was estimated. The resulting fuel price elasticities are primarily dependent on fuel type and fuel price level, but sociodemographic variables, such as income, also have significant effects on elasticity. The price elasticity of gasoline for a prices of 1.5 CHF/l and 5 CH/l ranges between -0.31 and -0.60. For diesel and natural gas, the elasticities range between 0.32 and -0.67 and 2.74 and -0.93 whereas the positive elasticity values are caused by substitution effects. The mainly observed demand reactions given higher fuel prices are the reduction of mileage and the consideration of smaller engine and diesel cars. As natural gas and electric engined cars were hardly considered in the survey, the results of the natural gas model can only serve as trend whereas no stable model could be estimated for the demand and usage of electric cars. Although the results presented herein are based on the for this topic novel stated adaption approach, the results are comparable to other studies, namely to the recent time series based fuel price elasticity study of Baranzini et al. (2009). They report a long term price elasticity of -0.27 for all fuels and -0.34 for gasoline.

In terms of a possible impact of fuel prices on residence location choice, the results suggest a high aversion to moving away from the current type of residence location. The willingness to pay more before moving to a more central location that has lower mobility costs is dependent on income and the spatial types of both the old and envisaged residence location. For an average income, mobility costs range between 463 CHF/month in the case of a residence location change from an agglomeration to an urban area and 2040 CHF/month when moving from a rural area to the city center. In addition, differences in the valuations of housing, car and public transport costs are identified, in which car costs are generally the least negatively valued.

### **SP1: Effect of price changes on mobility tool ownership**

The first of three stated preference experiments is designed as a stated adaption experiment. Given today's residence, but a new price regime of mobility costs, the respondent has to indicate the respective choice and usage of mobility tools for all household members. Each respondent is confronted with six such situations, which are predefined by the experiment plan. The experiment plan is constructed by orthogonal design and combines three variables with different levels. For each situation, only one incentive type is considered.

## **Keywords**

Stated Preference, fuel price, mobility tool ownership

## **Preferred citation style**

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# 1.0 Document Description

## Citation

Title: Long term fuel price elasticity: Effect of price changes on mobility tool ownership

Identification Number: FuelPriceElasticitySP1

Authoring Entity: Alexander Erath (IVT, ETH Zürich)  
Kay W. Axhausen (IVT, ETH Zürich)

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## 2.0 Study Description

### Citation

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Identification Number:	FuelPriceElasticitySP1
Authoring Entity:	Alexander Erath (IVT, ETH Zürich) Kay W. Axhausen (IVT, ETH Zürich)
Date of Production:	2013-04-15
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## Study Scope

Abstract:

The study analyzes how mobility tool usage and ownership as well as residence location choice are affected by rising fuel costs. Based on econometric models, long-term fuel price elasticities are derived. Based on data collected in stated choice and stated adaptation experiments that were conducted as computer-based face-to-face surveys, a structural equation model was estimated. The resulting fuel price elasticities are primarily dependent on fuel type and fuel price level, but sociodemographic variables, such as income, also have significant effects on elasticity. The price elasticity of gasoline for a prices of 1.5 CHF/l and 5 CH/l ranges between -0.31 and -0.60. For diesel and natural gas, the elasticities range between 0.32 and -0.67 and 2.74 and -0.93 whereas the positive elasticity values are caused by substitution effects. The mainly observed demand reactions given higher fuel prices are the reduction of mileage and the consideration of smaller engine and diesel cars. As natural gas and electric engined cars were hardly considered in the survey, the results of the natural gas model can only serve as trend whereas no stable model could be estimated for the demand and usage of electric cars. Although the results presented herein are based on the for this topic novel stated adaption approach, the results are comparable to other studies, namely to the recent time series based fuel price elasticity study of Baranzini et al. (2009). They report a long term price elasticity of -0.27 for all fuels and -0.34 for gasoline. In terms of a possible impact of fuel prices on residence location choice, the results suggest a high aversion to moving away from the current type of residence location. The willingness to pay more before moving to a more central location that has lower mobility costs is dependent on income and the spatial types of both the old and envisaged residence location. For an average income, mobility costs range between 463 CHF/month in the case of a residence location change from an agglomeration to an urban area and 2040 CHF/month when moving from a rural area to the city center. In addition, differences in the valuations of housing, car and public transport costs are identified, in which car costs are generally the least negatively valued. SP1: Effect of price changes on mobility tool ownership The first of three stated preference experiments is designed as a stated adaption experiment. Given today's residence, but a new price regime of mobility costs, the respondent has to indicate the respective choice and usage of mobility tools for all household members. Each respondent is confronted with six such situations, which are predefined by the experiment plan. The experiment plan is constructed by orthogonal design and combines three variables with different levels. For each situation, only one incentive type is considered.

## **3.0 File Description**

### **File: Fuel Price Elasticity SP1.NSDstat**

- Number of cases: 2436
- No. of variables per record: 159
- Type of File: NSDstat 200501

# 4.0 Variable Description

## Variable Groups

- [Household and Residence](#)
- [SP](#)

### Household and Residence

Variables within *Household and Residence*

- [Number of stated preference exercise](#)
- [Number of adaptations](#)
- [Refers to experimental design](#)
- [Fuel cost \[CHF/l\]](#)
- [Travel time to work with car \[min\]](#)
- [Travel time to work with public transport \[min\]](#)
- [Travel time by car to local centre \(with diverse amenities such as supermarket, doctor, post office etc\) \[min\]](#)
- [Travel time by public transport to local centre \(with diverse amenities such as supermarket, doctor, post office etc\) \[min\]](#)
- [Cost of housing \[CHF/month\] including heating cost \(heating cost is variable and pegged to fuel cost\)](#)
- [Cost of mobility and housing for entire household \[CHF/month\]](#)
- [Type of first car](#)
- [Engine type of first car](#)
- [Household workload: total full time equivalent](#)
- [Number of working persons](#)
- [Number of trips to and back from work in household per week](#)
- [Number of adults in household](#)
- [Total yearly driven mileage by car and public transport in household](#)
- [Mileage paid by employer or other entity](#)
- [Share of car mileage paid by employer or other entity](#)
- [Share of public transport mileage paid by employer or other entity](#)
- [Postal code of resident municipality](#)
- [Number of rooms in apartment/house](#)
- [Monthly rent of apartment/house \(if owned: mortgage and maintenance cost\)](#)
- [Monthly cost of parking at home \(all cars\)](#)
- [Actual travel time by car to local centre \(with diverse amenities such as supermarket, doctor, post office etc\) \[min\]](#)
- [Actual travel time by public transport to local centre \(with diverse amenities such as supermarket, doctor, post office etc\) \[min\]](#)
- [Distance to next public transport stop \[m\]](#)
- [Average service headway at next public transport stop \[min\]](#)
- [Distance to next railway station](#)
- [Travel time by car to next railway station \[min\]](#)
- [Travel time by public transport to next railway station \[min\]](#)
- [Household income \[CHF/month\]](#)
- [Household income \[CHF/month\]](#)



- [Household income \[CHF/month\]](#)
- [Household income \[CHF/month\]](#)
- [Number of persons living in household, incl children](#)
- [Number of regularly used cars in household \(no veteran cars\)](#)
- [Age of respondent \(person 1\)](#)
- [Number of GA travel cards in hh \(free travel on all Swiss public transport\)](#)
- [Number of Half-Fare travel cards in hh \(allows to buy all public transport tickets at 50% discount\)](#)
- [Number of regional travel card in hh \(free travel on all public transport restricted to certain region or town\)](#)
- [Number of selected GA travel cards in hh \(free travel on all Swiss public transport\)](#)
- [Number of selected Half-Fare travel cards in hh \(allows to buy all public transport tickets at 50% discount\)](#)
- [Number of selected regional travel card in hh \(free travel on all public transport restricted to certain region or town\)](#)
- [Number of persons in hh without any card](#)
- [Indicated total mileage by public transport \[km/\(y\\*hh\)\]](#)
- [Actual total mileage by public transport \[km/\(y\\*hh\)\]](#)
- [Total cost for travelling with public transport \[CHF/\(y\\*hh\)\]](#)
- [Actual total cost for travelling with public transport \[CHF/\(y\\*hh\)\]](#)
- [Actual number of GA travel cards in hh \(free travel on all Swiss public transport\)](#)
- [Actual number of Half-Fare travel cards in hh \(allows to buy all public transport tickets at 50% discount\)](#)
- [Actual number of regional travel card in hh \(free travel on all public transport restricted to certain region or town\)](#)
- [Actual number of persons in hh without any card](#)
- [Type of offered CO2 bonus malus](#)
- [Specification of CO2 bonus malus](#)
- [Price level of public transport fares](#)
- [Residential location](#)
- [Type of housing](#)
- [Type of parking](#)
- [Availability of balcony](#)
- [Availability of garden](#)
- [Preferred mode to get to local centre](#)
- [Sex of respondent \(person 1\)](#)
- [Education level of respondent \(person 1\)](#)
- [Effective fuel costs \(without incentives\)](#)
- [Actual total mileage](#)
- [Change of yearly car mileage \[km/\(hh\\*y\)\]](#)
- [Percentage of male household members](#)
- [Change of fuel consumption \(l/year\)](#)
- [Workload respondent \(person 1\)](#)
- [Linearised income \(and imputed for n.a.\)](#)

SP

Variables within SP

- [Number of stated preference exercise](#)
- [Phase of interview \(survey software and attributes of experimental](#)

plan were updated along the process)

- timestamp used as unique identifier (survey software was distributed to different, unconnected computers)
- 
- Number of adaptations
- Refers to experimental design
- Fuel cost [CHF/l]
- Travel time to work with car [min]
- Cost of mobility and housing for entire household [CHF/month]
- Type of first car
- Engine type of first car
- Engine size of first car
- First car is a used/second hand car
- Intended yearly milage with first cart [km]
- Fuel consumption of first car [l/100km]
- Energy efficiency label according to <http://www.bfe.admin.ch/energieetikette/00886/index.html?lang=en>
- Type of second car
- Engine type of second car
- Engine size of second car
- Second car is a used/second hand car
- Intended yearly milage with second cart [km]
- Fuel consumption of second car [l/100km]
- Energy efficiency label according to <http://www.bfe.admin.ch/energieetikette/00886/index.html?lang=en>
- Type of third car
- Engine type of third car
- Engine size of third car
- Third car is a used/second hand car
- Intended yearly milage with third cart [km]
- Fuel consumption of third car [l/100km]
- Energy efficiency label according to <http://www.bfe.admin.ch/energieetikette/00886/index.html?lang=en>
- Type of forth car
- Engine type of forth car
- Engine size of forth car
- Forth car is a used/second hand car
- Intended yearly milage with forth cart [km]
- Fuel consumption of forth car [l/100km]
- Energy efficiency label according to <http://www.bfe.admin.ch/energieetikette/00886/index.html?lang=en>
- First car: yearly petrol consumption [l/y]
- First car: yearly diesel consumption [l/y]
- First car: yearly natural gas consumption [l/y]
- First car: yearly natural energy consumption [l-equivalent/y]
- Second car: yearly petrol consumption [l/y]
- Second car: yearly diesel consumption [l/y]
- Second car: yearly natural gas consumption [l/y]
- Second car: yearly natural energy consumption [l-equivalent/y]
- Third car: yearly petrol consumption [l/y]
- Third car: yearly diesel consumption [l/y]
- Third car: yearly natural gas consumption [l/y]
- Third car: yearly natural energy consumption [l-equivalent/y]
- Fourth car: yearly petrol consumption [l/y]

- [Fourth car: yearly diesel consumption \[l/y\]](#)
- [Fourth car: yearly natural gas consumption \[l/y\]](#)
- [Fourth car: yearly natural energy consumption \[l-equivalent/y\]](#)
- [Total yearly mileage all cars \[km/y\]](#)
- [Total diesel consumption all cars \[l/y\]](#)
- [Total petrol consumption all cars \[l/y\]](#)
- [Total natural gas consumption all cars \[l/y\]](#)
- [Total energy consumption all cars \[l-equivalent/y\]](#)
- [Total consumptions all cars all fuel types](#)
- [Actual first car: type](#)
- [Actual first car: consumption \[l/100km\]](#)
- [Actual first car: yearly mileage \[km/y\]](#)
- [Actual first car: engine type](#)
- [Actual first car: energy class](#)
- [Actual second car: type](#)
- [Actual second car: consumption \[l/100km\]](#)
- [Actual second car: yearly mileage \[km/y\]](#)
- [Actual second car: engine type](#)
- [Actual second car: energy class](#)
- [Actual third car: type](#)
- [Actual third car: consumption \[l/100km\]](#)
- [Actual third car: yearly mileage \[km/y\]](#)
- [Actual third car: engine type](#)
- [Actual third car: energy class](#)
- [Actual fourth car: type](#)
- [Actual fourth car: consumption \[l/100km\]](#)
- [Actual fourth car: yearly mileage \[km/y\]](#)
- [Actual fourth car: engine type](#)
- [Actual fourth car: energy class](#)
- [Actual diesel consumption](#)
- [Actual petrol consumption](#)
- [Actual natural gas consumption](#)
- [Energy label of first car](#)
- [Energy label of second car](#)
- [Energy label of third car](#)
- [Energy label of fourth car](#)
- [First car has energy label class 'A'](#)
- [Second car has energy label class 'A'](#)
- [Third car has energy label class 'A'](#)
- [Fourth car has energy label class 'A'](#)
- [Actual first car has energy label class 'A'](#)
- [Actual second car has energy label class 'A'](#)
- [Actual third car has energy label class 'A'](#)
- [Actual fourth car has energy label class 'A'](#)
- [Change to smaller car](#)
- [Less car chosen \(in sp experiment\)](#)

# Variables

**Variable: Number of stated preference exercise**

Location:	Value	Label	Frequency
Width: 11	1 .		2436

*Range of Valid Data Values: 1 to 1*

**Summary Statistics:**

*Variable Format: numeric*

**Variable: Phase of interview (survey software and attributes of experimental plan were updated along the process)**

Location:	Value	Label	Frequency
Width: 11	1 .		485
	2 .		1951

*Range of Valid Data Values: 1 to 2*

**Summary Statistics:**

*Variable Format: numeric*

**Variable: timestamp used as unique identifier (survey software was distributed to different, unconnected computers)**

Location: *Range of Valid Data Values: 893492 to 695711411*

Width: 11 **Summary Statistics:**

*Minimum : 893492*

*Maximum : 695711411*

*Mean : 5154029.789*

*Standard deviation : 34448958.948*

*Variable Format: numeric*

***Variable:***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 11	1 .		2436

*Range of Valid Data Values: 1 to 1*

**Summary Statistics:**

*Variable Format: numeric*



***Variable: Number of adaptations***

Location: *Range of Valid Data Values: 0 to 116*

Width: 11 **Summary Statistics:**

*Minimum : 0*

*Maximum : 116*

*Mean : 19.231*

*Standard deviation : 9.459*

*Variable Format: numeric*

***Variable: Refers to experimental design***

Location: *Range of Valid Data Values: 1 to 24*

Width: 11 **Summary Statistics:**

*Minimum : 1*

*Maximum : 24*

*Mean : 14.209*

*Standard deviation : 6.036*

*Variable Format: numeric*

**Variable: Fuel cost [CHF/l]**

Location: *Range of Valid Data Values: 1.5 to 5.5*

Width: 8 **Summary Statistics:**

*Minimum : 1.5*

*Maximum : 5.5*

*Mean : 3.22*

*Standard deviation : 1.31*

*Variable Format: numeric*

***Variable: Travel time to work with car [min]***

Location: *Range of Valid Data Values: 0 to 99*

Width: 11

**Summary Statistics:**

*Minimum : 0*

*Maximum : 99*

*Mean : 12.113*

*Standard deviation : 13.24*

*Variable Format: numeric*

***Variable: Travel time to work with public transport [min]***

Location: *Range of Valid Data Values: 0 to 99*

Width: 11

**Summary Statistics:**

*Minimum : 0*

*Maximum : 99*

*Mean : 20.445*

*Standard deviation : 26.766*

*Variable Format: numeric*

**Variable: Travel time by car to local centre (with diverse amenities such as supermarket, doctor, post office etc) [min]**

Location:                      *Range of Valid Data Values: 0 to 30*

Width: 11                      **Summary Statistics:**

*Minimum : 0*

*Maximum : 30*

*Mean : 6.603*

*Standard deviation : 5.083*

*Variable Format: numeric*

**Variable: Travel time by public transport to local centre (with diverse amenities such as supermarket, doctor, post office etc) [min]**

Location: *Range of Valid Data Values: 0 to 99*

Width: 11

**Summary Statistics:**

*Minimum : 0*

*Maximum : 99*

*Mean : 12.096*

*Standard deviation : 18.262*

*Variable Format: numeric*

**Variable: Cost of housing [CHF/month] including heating cost (heating cost is variable and pegged to fuel cost)**

Location: *Range of Valid Data Values: -20.4 to 13136.53*

Width: 8 **Summary Statistics:**

*Minimum : -20.4*

*Maximum : 13136.53*

*Mean : 1932.76*

*Standard deviation : 1023.57*

*Variable Format: numeric*



**Variable: Cost of mobility and housing for entire household [CHF/month]**

Location: *Range of Valid Data Values: -20.4 to 15551.02*

Width: 8 **Summary Statistics:**

*Minimum : -20.4*

*Maximum : 15551.02*

*Mean : 2958.405*

*Standard deviation : 1416.083*

*Variable Format: numeric*

***Variable: Type of first car***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 11	0 .	Micro	248
	1 .	Subcompact	881
	2 .	Compact	1036
	3 .	Mini MPV	180
	4 .	Mid-size Car	0
	5 .	Minivan	0
	6 .	Full-size Car	0
	7 .	SUV/Luxury vehicle	0
	8 .	Sportscar	0
	9 .	Mobility (CarSharing)	0
	10 .	no Car	91

*Range of Valid Data Values: 0 to 10*

**Summary Statistics:**

*Variable Format: numeric*

***Variable: Engine type of first car***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 11	0 .	diesel	703
	1 .	petrol	1477
	2 .	natural gas	62
	3 .	hybrid	170
	4 .	electric	24

*Range of Valid Data Values: 0 to 4*

**Summary Statistics:**

*Variable Format: numeric*

***Variable: Engine size of first car***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 11	0 .	below 1500cc	1027
	1 .	below 2000cc	910
	2 .	below 2500cc	253
	3 .	below 3000cc	152
	4 .	above 3000cc	80
	Sysmiss .		14

*Range of Valid Data Values: 0 to 4*

**Summary Statistics:**

*Variable Format: numeric*

***Variable: First car is a used/second hand car***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 11	0 .	false	1175
	1 .	true	1261

*Range of Valid Data Values: 0 to 1*

**Summary Statistics:**

*Variable Format: numeric*

**Variable: Intended yearly milage with first cart [km]**

Location: *Range of Valid Data Values: 0 to 80000*

Width: 11 **Summary Statistics:**

*Minimum : 0*

*Maximum : 80000*

*Mean : 10786.864*

*Standard deviation : 7882.532*

*Variable Format: numeric*

**Variable: Fuel consumption of first car [l/100km]**

Location: *Range of Valid Data Values: 0 to 15.4*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 15.4*

*Mean : 6.167*

*Standard deviation : 2.459*

*Variable Format: numeric*

**Variable: Energy efficiency label according to**  
**<http://www.bfe.admin.ch/energieetikette/00886/index.html?lang=en>**

Location:	Value	Label	Frequency
Width: 8	A .		171
	B .		1039
	C .		193
	F .		483
	G .		278
	n.v.	not available	181

**Summary Statistics:**

*Variable Format:* character



***Variable: Type of second car***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 11	0 .	Micro	104
	1 .	Subcompact	116
	2 .	Compact	101
	3 .	Mini MPV	57
	4 .	Mid-size Car	111
	5 .	Minivan	2
	6 .	Full-size Car	52
	7 .	SUV/Luxury vehicle	32
	8 .	Sportscar	64
	9 .	Mobility (CarSharing)	0
	10 .	no Car	1797

*Range of Valid Data Values: 0 to 10*

**Summary Statistics:**

*Variable Format: numeric*

***Variable: Engine type of second car***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 11	0 .	diesel	1963
	1 .	petrol	444
	2 .	natural gas	2
	3 .	hybrid	20
	4 .	electric	7

*Range of Valid Data Values: 0 to 4*

**Summary Statistics:**

*Variable Format: numeric*

***Variable: Engine size of second car***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 11	0 .	below 1500cc	2030
	1 .	below 2000cc	261
	2 .	below 2500cc	81
	3 .	below 3000cc	20
	4 .	above 3000cc	44

*Range of Valid Data Values: 0 to 4*

**Summary Statistics:**

*Variable Format: numeric*

***Variable: Second car is a used/second hand car***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 11	0 .	false	2126
	1 .	true	310

*Range of Valid Data Values: 0 to 1*

**Summary Statistics:**

*Variable Format: numeric*

**Variable: Intended yearly milage with second cart [km]**

Location: *Range of Valid Data Values: 0 to 50000*

Width: 11

**Summary Statistics:**

*Minimum : 0*

*Maximum : 50000*

*Mean : 2266.749*

*Standard deviation : 5524.093*

*Variable Format: numeric*

***Variable: Fuel consumption of second car [l/100km]***

Location: *Range of Valid Data Values: 0 to 15.4*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 15.4*

*Mean : 1.793*

*Standard deviation : 3.278*

*Variable Format: numeric*

**Variable: Energy efficiency label according to**  
**<http://www.bfe.admin.ch/energieetikette/00886/index.html?lang=en>**

Location:	Value	Label	Frequency
Width: 8	A .		69
	B .		269
	C .		65
	F .		81
	G .		84
	n.v.	not available	1777

**Summary Statistics:**

*Variable Format:* character

***Variable: Type of third car***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 11	0 .	Micro	4
	1 .	Subcompact	27
	2 .	Compact	21
	3 .	Mini MPV	10
	4 .	Mid-size Car	6
	5 .	Minivan	0
	6 .	Full-size Car	1
	7 .	SUV/Luxury vehicle	0
	8 .	Sportscar	30
	9 .	Mobility (CarSharing)	0
	10 .	no Car	2337

*Range of Valid Data Values: 0 to 10*

**Summary Statistics:**

*Variable Format: numeric*



***Variable: Engine type of third car***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 11	0 .	diesel	2343
	1 .	petrol	82
	2 .	natural gas	8
	3 .	hybrid	3
	4 .	electric	0

*Range of Valid Data Values: 0 to 4*

**Summary Statistics:**

*Variable Format: numeric*

***Variable: Engine size of third car***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 11	0 .	below 1500cc	2044
	1 .	below 2000cc	255
	2 .	below 2500cc	67
	3 .	below 3000cc	26
	4 .	above 3000cc	44

*Range of Valid Data Values: 0 to 4*

**Summary Statistics:**

*Variable Format: numeric*

***Variable: Third car is a used/second hand car***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 11	0 .	false	2372
	1 .	true	64

*Range of Valid Data Values: 0 to 1*

**Summary Statistics:**

*Variable Format: numeric*

**Variable: Intended yearly milage with third cart [km]**

Location: *Range of Valid Data Values: 0 to 20000*

Width: 11

**Summary Statistics:**

*Minimum : 0*

*Maximum : 20000*

*Mean : 365.764*

*Standard deviation : 2178.022*

*Variable Format: numeric*

***Variable: Fuel consumption of third car [l/100km]***

Location: *Range of Valid Data Values: 0 to 15.4*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 15.4*

*Mean : 0.308*

*Standard deviation : 1.63*

*Variable Format: numeric*

**Variable: Energy efficiency label according to**  
**<http://www.bfe.admin.ch/energieetikette/00886/index.html?lang=en>**

Location:	Value	Label	Frequency
Width: 8	A .		4
	B .		37
	C .		4
	F .		27
	G .		1
	n.v.	not available	2272

**Summary Statistics:**

*Variable Format:* character

***Variable: Type of forth car***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 11	0 .	Micro	0
	1 .	Subcompact	6
	2 .	Compact	3
	3 .	Mini MPV	0
	4 .	Mid-size Car	3
	5 .	Minivan	0
	6 .	Full-size Car	0
	7 .	SUV/Luxury vehicle	0
	8 .	Sportscar	6
	9 .	Mobility (CarSharing)	0
	10 .	no Car	2418

*Range of Valid Data Values: 0 to 10*

**Summary Statistics:**

*Variable Format: numeric*

***Variable: Engine type of forth car***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 11	0 .	diesel	2423
	1 .	petrol	12
	2 .	natural gas	0
	3 .	hybrid	1
	4 .	electric	0

*Range of Valid Data Values: 0 to 4*

**Summary Statistics:**

*Variable Format: numeric*



***Variable: Engine size of forth car***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 11	0 .	below 1500cc	2424
	1 .	below 2000cc	6
	2 .	below 2500cc	0
	3 .	below 3000cc	0
	4 .	above 3000cc	6

*Range of Valid Data Values: 0 to 4*

**Summary Statistics:**

*Variable Format: numeric*

***Variable: Forth car is a used/second hand car***

Location:	Value	Label	Frequency
Width: 11	0 .		2426
	1 .		10

*Range of Valid Data Values: 0 to 1*

**Summary Statistics:**

*Variable Format: numeric*

**Variable: Intended yearly milage with forth cart [km]**

Location: *Range of Valid Data Values: 0 to 5000*

Width: 11

**Summary Statistics:**

*Minimum : 0*

*Maximum : 5000*

*Mean : 27.094*

*Standard deviation : 353.459*

*Variable Format: numeric*

**Variable: Fuel consumption of forth car [l/100km]**

Location: *Range of Valid Data Values: 0 to 15.4*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 15.4*

*Mean : 0.0644*

*Standard deviation : 0.851*

*Variable Format: numeric*

**Variable: Energy efficiency label according to**  
**<http://www.bfe.admin.ch/energieetikette/00886/index.html?lang=en>**

Location:	Value	Label	Frequency
Width: 8	B .		6
	F .		6
	n.v.	not available	2333

**Summary Statistics:**

*Variable Format:* character

**Variable:** First car: yearly petrol consumption [l/y]

Location: *Range of Valid Data Values: 0 to 6800*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 6800*

*Mean : 460.647*

*Standard deviation : 621.415*

*Variable Format: numeric*

**Variable:** First car: yearly diesel consumption [l/y]

Location: *Range of Valid Data Values: 0 to 5104*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 5104*

*Mean : 223.023*

*Standard deviation : 456.418*

*Variable Format: numeric*

**Variable: First car: yearly natural gas consumption [l/y]**

Location: *Range of Valid Data Values: 0 to 1386*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 1386*

*Mean : 14.525*

*Standard deviation : 102.86*

*Variable Format: numeric*



**Variable: First car: yearly natural energy consumption [l-equivalent/y]**

Location: *Range of Valid Data Values: 0 to 660*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 660*

*Mean : 3.479*

*Standard deviation : 42.772*

*Variable Format: numeric*

**Variable:** Second car: yearly petrol consumption [l/y]

Location:                    *Range of Valid Data Values:* 0 to 3250

Width: 8                    **Summary Statistics:**

*Minimum :* 0

*Maximum :* 3250

*Mean :* 105.144

*Standard deviation :* 300.05

*Variable Format:* numeric

**Variable:** Second car: yearly diesel consumption [l/y]

Location: *Range of Valid Data Values: 0 to 3095*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 3095*

*Mean : 44.681*

*Standard deviation : 231.272*

*Variable Format: numeric*

***Variable: Second car: yearly natural gas consumption [l/y]***

Location: *Range of Valid Data Values: 0 to 1635*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 1635*

*Mean : 0.832*

*Standard deviation : 34.064*

*Variable Format: numeric*

**Variable: Second car: yearly natural energy consumption [l-equivalent/y]**

Location: *Range of Valid Data Values: 0 to 675*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 675*

*Mean : 1.159*

*Standard deviation : 26.691*

*Variable Format: numeric*

***Variable: Third car: yearly petrol consumption [l/y]***

Location: *Range of Valid Data Values: 0 to 3080*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 3080*

*Mean : 26.13*

*Standard deviation : 202.492*

*Variable Format: numeric*

***Variable: Third car: yearly diesel consumption [l/y]***

Location: *Range of Valid Data Values: 0 to 675*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 675*

*Mean : 1.66*

*Standard deviation : 29.913*

*Variable Format: numeric*

**Variable: Third car: yearly natural gas consumption [l/y]**

Location: *Range of Valid Data Values: 0 to 630*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 630*

*Mean : 1.099*

*Standard deviation : 20.943*

*Variable Format: numeric*



***Variable: Third car: yearly natural energy consumption [l-equivalent/y]***

Location:	Value	Label	Frequency
Width: 8	0 .		2436

*Range of Valid Data Values: 0 to 0*

**Summary Statistics:**

*Variable Format: numeric*

**Variable:** Fourth car: yearly petrol consumption [l/y]

Location: *Range of Valid Data Values: 0 to 770*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 770*

*Mean : 2.172*

*Standard deviation : 38.93*

*Variable Format: numeric*

***Variable: Fourth car: yearly diesel consumption [l/y]***

Location: *Range of Valid Data Values: 0 to 268*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 268*

*Mean : 0.533*

*Standard deviation : 11.771*

*Variable Format: numeric*

**Variable: Fourth car: yearly natural gas consumption [l/y]**

Location:	Value	Label	Frequency
Width: 8	0 .		2436

*Range of Valid Data Values: 0 to 0*

**Summary Statistics:**

*Variable Format: numeric*

**Variable: Fourth car: yearly natural energy consumption [l-equivalent/y]**

Location:	Value	Label	Frequency
Width: 8	0 .		2436

*Range of Valid Data Values: 0 to 0*

**Summary Statistics:**

*Variable Format: numeric*

***Variable: Total yearly mileage all cars [km/y]***

Location: *Range of Valid Data Values: 0 to 80000*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 80000*

*Mean : 13446.47*

*Standard deviation : 10211.4*

*Variable Format: numeric*

***Variable: Total diesel consumption all cars [l/y]***

Location: *Range of Valid Data Values: 0 to 5104*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 5104*

*Mean : 269.898*

*Standard deviation : 518.422*

*Variable Format: numeric*

***Variable: Total petrol consumption all cars [l/y]***

Location: *Range of Valid Data Values: 0 to 6800*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 6800*

*Mean : 594.094*

*Standard deviation : 771.176*

*Variable Format: numeric*



**Variable: Total natural gas consumption all cars [l/y]**

Location: *Range of Valid Data Values: 0 to 1635*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 1635*

*Mean : 16.456*

*Standard deviation : 110.097*

*Variable Format: numeric*

**Variable: Total energy consumption all cars [l-equivalent/y**

Location: *Range of Valid Data Values: 0 to 1009.8*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 1009.8*

*Mean : 4.638*

*Standard deviation : 52.351*

*Variable Format: numeric*

**Variable: Total consumptions all cars all fuel types**

Location: *Range of Valid Data Values: 0 to 6800*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 6800*

*Mean : 885.086*

*Standard deviation : 795.272*

*Variable Format: numeric*

***Variable: Actual first car: type***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 8	0 .	Micro	150
	1 .	Subcompact	455
	2 .	Compact	515
	3 .	Mini MPV	358
	4 .	Mid-size Car	446
	5 .	Minivan	0
	6 .	Full-size Car	197
	7 .	SUV/Luxury vehicle	151
	8 .	Sportscar	150
	9 .	Mobility (CarSharing)	0
	10 .	no Car	14

*Range of Valid Data Values: 0 to 10*

**Summary Statistics:**

*Minimum : 0*

*Maximum : 10*

*Variable Format: numeric*

**Variable: Actual first car: consumption [l/100km]**

Location: *Range of Valid Data Values: 3.15 to 99*

Width: 8 **Summary Statistics:**

*Minimum : 3.15*

*Maximum : 99*

*Mean : 7.349*

*Standard deviation : 4.23*

*Variable Format: numeric*

**Variable: Actual first car: yearly mileage [km/y]**

Location: *Range of Valid Data Values: 0 to 80000*

Width: 11

**Summary Statistics:**

*Minimum : 0*

*Maximum : 80000*

*Mean : 12238.424*

*Standard deviation : 8178.197*

*Variable Format: numeric*

***Variable: Actual first car: engine type***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 11	0 .	diesel	330
	1 .	petrol	2094
	2 .	natural gas	6
	3 .	hybrid	6
	4 .	electric	0

*Range of Valid Data Values: 0 to 4*

**Summary Statistics:**

*Variable Format: numeric*

***Variable: Actual first car: energy class***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 8	A .		864
	C .		12
	D .		12
	E .		849
	F .		699

**Summary Statistics:**

*Variable Format:* character



**Variable: Actual second car: type**

Location:	Value	Label	Frequency
Width: 8	0 .	Micro	102
	1 .	Subcompact	93
	2 .	Compact	121
	3 .	Mini MPV	60
	4 .	Mid-size Car	114
	5 .	Minivan	0
	6 .	Full-size Car	54
	7 .	SUV/Luxury vehicle	44
	8 .	Sportscar	72
	9 .	Mobility (CarSharing)	0
	10 .	no Car	1776

*Range of Valid Data Values: 0 to 10*

**Summary Statistics:**

*Minimum : 0*

*Maximum : 10*

*Variable Format: numeric*

**Variable: Actual second car: consumption [l/100km]**

Location: *Range of Valid Data Values: 0 to 99*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 99*

*Mean : 2.018*

*Standard deviation : 4.408*

*Variable Format: numeric*

**Variable: Actual second car: yearly mileage [km/y]**

Location: *Range of Valid Data Values: 0 to 50000*

Width: 11

**Summary Statistics:**

*Minimum : 0*

*Maximum : 50000*

*Mean : 2492.118*

*Standard deviation : 5995.032*

*Variable Format: numeric*

***Variable: Actual second car: engine type***

Location:	Value	Label	Frequency
Width: 11	0 .		1917
	1 .		519

*Range of Valid Data Values: 0 to 1*

**Summary Statistics:**

*Variable Format: numeric*

***Variable: Actual second car: energy class***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 8	A .		202
	B .		24
	C .		6
	D .		42
	E .		317
	F .		30
	n.v.		1815

**Summary Statistics:**

*Variable Format:* character

**Variable: Actual third car: type**

Location:	Value	Label	Frequency
Width: 8	0 .	Micro	6
	1 .	Subcompact	24
	2 .	Compact	18
	3 .	Mini MPV	12
	4 .	Mid-size Car	6
	5 .	Minivan	0
	6 .	Full-size Car	6
	7 .	SUV/Luxury vehicle	0
	8 .	Sportscar	30
	9 .	Mobility (CarSharing)	0
	10 .	no Car	2334

*Range of Valid Data Values: 0 to 10*

**Summary Statistics:**

*Minimum : 0*

*Maximum : 10*

*Variable Format: numeric*

**Variable: Actual third car: consumption [l/100km]**

Location:                    *Range of Valid Data Values: 0 to 14*

Width: 8                    **Summary Statistics:**

*Minimum : 0*

*Maximum : 14*

*Mean : 0.33*

*Standard deviation : 1.678*

*Variable Format: numeric*

**Variable:** Actual third car: yearly mileage [km/y]

Location: *Range of Valid Data Values: 0 to 20000*

Width: 11

**Summary Statistics:**

*Minimum : 0*

*Maximum : 20000*

*Mean : 394.91*

*Standard deviation : 2280.089*

*Variable Format: numeric*



***Variable: Actual third car: engine type***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 11	0 .		2334
	1 .		96
	2 .		6

*Range of Valid Data Values: 0 to 2*

**Summary Statistics:**

*Variable Format: numeric*

***Variable: Actual third car: energy class***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 8	A .		30
	B .		6
	C .		6
	D .		6
	E .		42
	F .		12
	n.v.		2334

**Summary Statistics:**

*Variable Format:* character

***Variable: Actual fourth car: type***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 8	0 .	Micro	0
	1 .	Subcompact	6
	2 .	Compact	0
	3 .	Mini MPV	0
	4 .	Mid-size Car	6
	5 .	Minivan	0
	6 .	Full-size Car	0
	7 .	SUV/Luxury vehicle	0
	8 .	Sportscar	6
	9 .	Mobility (CarSharing)	0
	10 .	no Car	2418

*Range of Valid Data Values: 0 to 10*

**Summary Statistics:**

*Minimum : 1*

*Maximum : 10*

*Variable Format: numeric*

**Variable: Actual fourth car: consumption [l/100km]**

Location:                    *Range of Valid Data Values: 0 to 14*

Width: 8                    **Summary Statistics:**

*Minimum : 0*

*Maximum : 14*

*Mean : 0.067*

*Standard deviation : 0.836*

*Variable Format: numeric*

**Variable: Actual fourth car: yearly mileage [km/y]**

Location: *Range of Valid Data Values: 0 to 5000*

Width: 11 **Summary Statistics:**

*Minimum : 0*

*Maximum : 5000*

*Mean : 27.094*

*Standard deviation : 353.459*

*Variable Format: numeric*

***Variable: Actual fourth car: engine type***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 11	0 .		2418
	1 .		18

*Range of Valid Data Values: 0 to 1*

**Summary Statistics:**

*Variable Format: numeric*

**Variable: Actual fourth car: energy class**

Location:	Value	Label	Frequency
Width: 8	A .		6
	E .		6
	F .		6
	n.v.		2418

**Summary Statistics:**

*Variable Format:* character

***Variable: Actual diesel consumption***

Location: *Range of Valid Data Values: 0 to 19800*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 19800*

*Mean : 190.446*

*Standard deviation : 736.418*

*Variable Format: numeric*



**Variable: Actual petrol consumption**

Location: *Range of Valid Data Values: 0 to 22380*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 22380*

*Mean : 976.654*

*Standard deviation : 1259.168*

*Variable Format: numeric*

**Variable: Actual natural gas consumption**

Location: *Range of Valid Data Values: 0 to 1015*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 1015*

*Mean : 4.802*

*Standard deviation : 61.008*

*Variable Format: numeric*

**Variable: Household workload: total full time equivalent**

Location: *Range of Valid Data Values: 0 to 400*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 400*

*Mean : 88.461*

*Standard deviation : 62.63*

*Variable Format: numeric*

**Variable: Number of working persons**

Location:	Value	Label	Frequency
Width: 11	0 .		588
	1 .		1248
	2 .		552
	3 .		36
	4 .		12

*Range of Valid Data Values: 0 to 4*

**Summary Statistics:**

*Variable Format: numeric*

**Variable: Number of trips to and back from work in household per week**

Location: *Range of Valid Data Values: 0 to 70*

Width: 11 **Summary Statistics:**

*Minimum : 0*

*Maximum : 70*

*Mean : 9.895*

*Standard deviation : 9.879*

*Variable Format: numeric*

***Variable: Number of adults in household***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 11	1 .		981
	2 .		1311
	3 .		120
	4 .		18
	5 .		6

*Range of Valid Data Values: 1 to 5*

**Summary Statistics:**

*Variable Format: numeric*

**Variable: Total yearly driven mileage by car and public transport in household**

Location: *Range of Valid Data Values: 1000 to 80000*

Width: 8 **Summary Statistics:**

*Minimum : 1000*

*Maximum : 80000*

*Mean : 15066.338*

*Standard deviation : 10546.268*

*Variable Format: numeric*

**Variable: Mileage paid by employer or other entity**

Location: *Range of Valid Data Values: 0 to 50000*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 50000*

*Mean : 790.148*

*Standard deviation : 4348.187*

*Variable Format: numeric*



**Variable: Share of car mileage paid by employer or other entity**

Location: *Range of Valid Data Values: 0 to 1*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 1*

*Mean : 0.0325*

*Standard deviation : 0.159*

*Variable Format: numeric*

**Variable: Share of public transport mileage paid by employer or other entity**

Location: *Range of Valid Data Values: 0 to 1*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 1*

*Mean : 0.0327*

*Standard deviation : 0.169*

*Variable Format: numeric*

**Variable: Postal code of resident municipality**

Location: *Range of Valid Data Values: 0 to 8967*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 8967*

*Mean : 5015.535*

*Standard deviation : 2511.191*

*Variable Format: numeric*

***Variable: Number of rooms in apartment/house***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 8	0 .		18
	1 .		48
	2 .		234
	3 .		723
	4 .		692
	5 .		553
	6 .		126
	7 .		12
	8 .		18
	9 .		6
	10 .		6

*Range of Valid Data Values: 0 to 10*

**Summary Statistics:**

*Variable Format: numeric*

**Variable: Monthly rent of apartment/house (if owned: mortgage and maintenance cost)**

Location: *Range of Valid Data Values: 0 to 12000*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 12000*

*Mean : 1705.206*

*Standard deviation : 957.603*

*Variable Format: numeric*

**Variable: Monthly cost of parking at home (all cars)**

Location: *Range of Valid Data Values: 0 to 800*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 800*

*Mean : 61.051*

*Standard deviation : 70.19*

*Variable Format: numeric*

**Variable: Actual travel time by car to local centre (with diverse amenities such as supermarket, doctor, post office etc) [min]**

Location: *Range of Valid Data Values: 0 to 30*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 30*

*Mean : 6.603*

*Standard deviation : 5.083*

*Variable Format: numeric*

**Variable: Actual travel time by public transport to local centre (with diverse amenities such as supermarket, doctor, post office etc) [min]**

Location: *Range of Valid Data Values: 0 to 99*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 99*

*Mean : 12.096*

*Standard deviation : 18.262*

*Variable Format: numeric*



**Variable: Distance to next public transport stop [m]**

Location: *Range of Valid Data Values: 0 to 9999*

Width: 8

**Summary Statistics:**

*Minimum : 0*

*Maximum : 9999*

*Mean : 362.207*

*Standard deviation : 684.077*

*Variable Format: numeric*

**Variable: Average service headway at next public transport stop [min**

Location:	Value	Label	Frequency
Width: 8	0 .		78
	1 .		6
	2 .		18
	3 .		18
	4 .		12
	5 .		112
	6 .		72
	7 .		6
	8 .		6
	10 .		336
	11 .		6
	12 .		6
	15 .		552
	20 .		192
	30 .		485
	40 .		12
	45 .		24
	60 .		275
	90 .		18
	99 .	not applicable	202

*Range of Valid Data Values: 0 to 99*

**Summary Statistics:**

*Variable Format: numeric*

**Variable: Distance to next railway station**

Location: *Range of Valid Data Values: 0 to 15000*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 15000*

*Mean : 1845.406*

*Standard deviation : 2400.234*

*Variable Format: numeric*

**Variable: Travel time by car to next railway station [min]**

Location: *Range of Valid Data Values: 0 to 99*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 99*

*Mean : 10.917*

*Standard deviation : 11.252*

*Variable Format: numeric*

**Variable: Travel time by public transport to next railway station [min]**

Location: *Range of Valid Data Values: 0 to 99*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 99*

*Mean : 20.538*

*Standard deviation : 26.159*

*Variable Format: numeric*

***Variable: Household income [CHF/month]***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 255	10000 - 13000 .		251
	13000 - 16000 .		114
	2000 - 4000 .		306
	4000 - 6000 .		628
	6000 - 8000 .		431
	8000 - 10000 .		375
	<2000 .		60
	>16000 .		108
	k.A.		163

**Summary Statistics:**

*Variable Format:* character

***Variable:*** Household income [CHF/month]

Location: **Summary Statistics:**

Width: 255 *Variable Format:* character

***Variable:* Household income [CHF/month]**

Location: **Summary Statistics:**

Width: 255 *Variable Format:* character



***Variable:*** Household income [CHF/month]

Location: **Summary Statistics:**

Width: 9 *Variable Format:* character

**Variable: Number of persons living in household, incl children**

Location:	Value	Label	Frequency
Width: 8	1 .		843
	2 .		948
	3 .		268
	4 .		293
	5 .		84

*Range of Valid Data Values: 1 to 5*

**Summary Statistics:**

*Variable Format: numeric*

**Variable: Number of regularly used cars in household (no veteran cars)**

Location:	Value	Label	Frequency
Width: 8	1 .		1771
	2 .		563
	3 .		84
	4 .		18

*Range of Valid Data Values: 1 to 4*

**Summary Statistics:**

*Variable Format: numeric*

**Variable: Age of respondent (person 1)**

Location: *Range of Valid Data Values: 0 to 75*

Width: 11

**Summary Statistics:**

*Minimum : 0*

*Maximum : 75*

*Mean : 46.374*

*Standard deviation : 13.377*

*Variable Format: numeric*

**Variable: Number of GA travel cards in hh (free travel on all Swiss public transport)**

Location:	Value	Label	Frequency
Width: 11	1 .		114
	2 .		6
	3 .		6
	Sysmiss .		2310

*Range of Valid Data Values: 1 to 3*

**Summary Statistics:**

*Variable Format: numeric*

**Variable: Number of Half-Fare travel cards in hh (allows to buy all public transport tickets at 50% discount)**

Location:	Value	Label	Frequency
Width: 11	1 .		304
	2 .		167
	Sysmiss .		1965

*Range of Valid Data Values: 1 to 2*

**Summary Statistics:**

*Variable Format: numeric*

**Variable: Number of regional travel card in hh (free travel on all public transport restricted to certain region or town)**

Location:	Value	Label	Frequency
Width: 11	1 .		198
	2 .		42
	Sysmiss .		2196

*Range of Valid Data Values: 1 to 2*

**Summary Statistics:**

*Variable Format: numeric*

**Variable: Number of selected GA travel cards in hh (free travel on all Swiss public transport)**

Location:	Value	Label	Frequency
Width: 8	0 .		2284
	1 .		113
	2 .		4
	3 .		6
	Sysmiss .		29

*Range of Valid Data Values: 0 to 3*

**Summary Statistics:**

*Variable Format: numeric*



**Variable: Number of selected Half-Fare travel cards in hh (allows to buy all public transport tickets at 50% discount)**

Location:	Value	Label	Frequency
Width: 8	0 .		1918
	1 .		316
	2 .		173
	Sysmiss .		29

*Range of Valid Data Values: 0 to 2*

**Summary Statistics:**

*Variable Format: numeric*

**Variable: Number of selected regional travel card in hh (free travel on all public transport restricted to certain region or town)**

Location:	Value	Label	Frequency
Width: 8	0 .		2066
	1 .		289
	2 .		52
	Sysmiss .		29

*Range of Valid Data Values: 0 to 2*

**Summary Statistics:**

*Variable Format: numeric*

**Variable: Number of persons in hhwithout any card**

Location:	Value	Label	Frequency
Width: 8	0 .		282
	1 .		844
	2 .		758
	3 .		255
	4 .		203
	5 .		65
	Sysmiss .		29

*Range of Valid Data Values: 0 to 5*

**Summary Statistics:**

*Variable Format: numeric*

**Variable: Indicated total mileage by public transport [km/(y\*hh)]**

Location: *Range of Valid Data Values: 0 to 141000*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 141000*

*Mean : 3367.778*

*Standard deviation : 7209.569*

*Variable Format: numeric*

**Variable: Actual total mileage by public transport [km/(y\*hh)]**

Location: *Range of Valid Data Values: 0 to 65000*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 65000*

*Mean : 2910.17*

*Standard deviation : 5891.02*

*Variable Format: numeric*

**Variable: Total cost for travelling with public transport [CHF/(y\*hh)]**

Location: *Range of Valid Data Values: 0 to 2070.83*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 2070.83*

*Mean : 97.826*

*Standard deviation : 146.635*

*Variable Format: numeric*

**Variable: Actual total cost for travelling with public transport [CHF/(y\*hh)]**

Location: *Range of Valid Data Values: -538.76 to 1929.17*

Width: 8 **Summary Statistics:**

*Minimum : -538.76*

*Maximum : 1929.17*

*Mean : 9.036*

*Standard deviation : 86.918*

*Variable Format: numeric*

**Variable: Actual number of GA travel cards in hh (free travel on all Swiss public transport)**

Location:	Value	Label	Frequency
Width: 8	0 .		2310
	1 .		114
	2 .		6
	3 .		6

*Range of Valid Data Values: 0 to 3*

**Summary Statistics:**

*Variable Format: numeric*



**Variable: Actual number of Half-Fare travel cards in hh (allows to buy all public transport tickets at 50% discount)**

Location:	Value	Label	Frequency
Width: 9	0 .		1965
	1 .		304
	2 .		167

*Range of Valid Data Values: 0 to 2*

**Summary Statistics:**

*Variable Format: numeric*

**Variable: Actual number of regional travel card in hh (free travel on all public transport restricted to certain region or town)**

Location:	Value	Label	Frequency
Width: 8	0 .		2196
	1 .		198
	2 .		42

*Range of Valid Data Values: 0 to 2*

**Summary Statistics:**

*Variable Format: numeric*

**Variable: Actual number of persons in hhwithout any card**

Location:	Value	Label	Frequency
Width: 11	1 .		1095
	2 .		1341

*Range of Valid Data Values: 1 to 2*

**Summary Statistics:**

*Variable Format: numeric*

**Variable: Type of offered CO2 bonus malus**

Location:	Value	Label	Frequency
Width: 1	1 .	CO2 tax on fuel tax	580
	2 .	One time pay off for cars with energy label 'A'	30
	3 .	Reduction of car tax	579
	4 .		202
	5 .		204
	6 .		30
	7 .		30
	8 .		204
	9 .		577

*Range of Valid Data Values: 1 to 9*

**Summary Statistics:**

*Variable Format: numeric*

**Variable: Specification of CO2 bonus malus**

Location:	Value	Label	Frequency
Width: 2	1 .	-432 CHF/y for energy label 'A', +432 CHF/year for energy la	405
	2 .	-864 CHF/y for energy label 'A', +864 CHF/year for energy la	406
	3 .	With purchase of new car: -1500 CHF	0
	4 .	With purchase of new car: -3000 CHF	0
	5 .	Additional CO2-fuel tax 0.2 CHF/L	441
	6 .	Additional CO2-fuel tax 0.5 CHF/L	372
	7 .	For new cars with energy label 'A': One time payoff 1500 CHF	439
	8 .	For new cars with energy label 'A': One time payoff 3000 CHF	373

*Range of Valid Data Values: 1 to 8*

**Summary Statistics:**

*Variable Format: numeric*

***Variable: Price level of public transport fares***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 1	1 .	-10%	848
	2 .	+20%	807
	3 .	+50%	781

*Range of Valid Data Values: 1 to 3*

**Summary Statistics:**

*Variable Format: numeric*

***Variable: Residential location***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 1	1 .	Suburban	683
	2 .	City centre/inner core	209
	3 .	Rural	718
	4 .	Urban	826

*Range of Valid Data Values: 1 to 4*

**Summary Statistics:**

*Variable Format: numeric*

***Variable: Energy label of first car***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 2	1 .	---	46
	2 .	A	1184
	3 .	B	575
	4 .	C	124
	5 .	D	157
	6 .	E	161
	7 .	F	68
	8 .	G	73
	9 .	n.v.	0
	10 .	X	48

*Range of Valid Data Values: 1 to 10*

**Summary Statistics:**

*Variable Format: numeric*



***Variable: Energy label of second car***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 2	1 .	---	13
	2 .	A	307
	3 .	B	165
	4 .	C	29
	5 .	D	28
	6 .	E	51
	7 .	F	27
	8 .	G	32
	9 .	n.v.	0
	10 .	X	1784

*Range of Valid Data Values: 1 to 10*

**Summary Statistics:**

*Variable Format: numeric*

***Variable: Energy label of third car***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 1	1 .	---	3
	2 .	A	47
	3 .	B	25
	4 .	C	6
	5 .	D	4
	6 .	E	0
	7 .	F	6
	8 .	G	12
	9 .	X	2333

*Range of Valid Data Values: 1 to 9*

**Summary Statistics:**

*Variable Format: numeric*

***Variable: Energy label of forth car***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 1	1 .	A	9
	2 .	B	3
	3 .	G	6
	4 .	X	2418

*Range of Valid Data Values: 1 to 4*

**Summary Statistics:**

*Variable Format: numeric*

***Variable: Type of housing***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 1	1 .	Detached house	462
	2 .	Terraced house	288
	3 .	Apartment	1686

*Range of Valid Data Values: 1 to 3*

**Summary Statistics:**

*Variable Format: numeric*

***Variable: Type of parking***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 1	1 .	Garage	1037
	2 .	None	30
	3 .	Private parking lot	1135
	4 .	On-street with costs	36
	5 .	On-street no cost	198

*Range of Valid Data Values: 1 to 5*

**Summary Statistics:**

*Variable Format: numeric*

**Variable: Availability of balkony**

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 1	1 .	yes	1750
	2 .	no	686

*Range of Valid Data Values: 1 to 2*

**Summary Statistics:**

*Variable Format: numeric*

***Variable: Availability of garden***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 1	1 .	yes	954
	2 .	no	1189
	3 .	shared use	293

*Range of Valid Data Values: 1 to 3*

**Summary Statistics:**

*Variable Format: numeric*

**Variable: Preferred mode to get to local centre**

Location:	Value	Label	Frequency
Width: 1	1 .	Bicycle	190
	2 .	Car	1394
	3 .	Motorcycle	6
	4 .	Public transport	144
	5 .	on foot	702

*Range of Valid Data Values: 1 to 5*

**Summary Statistics:**

*Variable Format: numeric*



***Variable: Sex of respondent (person 1)***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 1	0 .	female	1088
	1 .	male	1348

*Range of Valid Data Values: 0 to 1*

**Summary Statistics:**

*Variable Format: numeric*

***Variable: Education level of respondent (person 1)***

Location:	Value	Label	Frequency
Width: 2	1 .		6
	2 .	Apprenticeship	1005
	3 .	Higher learning	388
	4 .	No formation finished	84
	5 .	Matura (A-levels)	222
	6 .	Compulsory education	198
	7 .	Polytechnic	155
	8 .	University	132
	9 .	Vocational school	246

*Range of Valid Data Values: 1 to 9*

**Summary Statistics:**

*Variable Format: numeric*

**Variable: Effective fuel costs (without incentives)**

Location: *Range of Valid Data Values: 1.5 to 5*

Width: 8 **Summary Statistics:**

*Minimum : 1.5*

*Maximum : 5*

*Mean : 3.109*

*Standard deviation : 1.23*

*Variable Format: numeric*

***Variable: Actual total mileage***

Location: *Range of Valid Data Values: 1000 to 80000*

Width: 8 **Summary Statistics:**

*Minimum : 1000*

*Maximum : 80000*

*Mean : 15290.476*

*Standard deviation : 10669.903*

*Variable Format: numeric*

**Variable: Change of yearly car mileage [km/(hh\*y)]**

Location: *Range of Valid Data Values: -55000 to 14000*

Width: 8 **Summary Statistics:**

*Minimum : -55000*

*Maximum : 14000*

*Mean : -1844.007*

*Standard deviation : 4495.624*

*Variable Format: numeric*

**Variable: Percentage of male household members**

Location: *Range of Valid Data Values: 0 to 1*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 1*

*Mean : 0.481*

*Standard deviation : 0.333*

*Variable Format: numeric*

**Variable: Change of fuel consumption (l/year)**

Location: *Range of Valid Data Values: -20940 to 1147.2*

Width: 8 **Summary Statistics:**

*Minimum : -20940*

*Maximum : 1147.2*

*Mean : -240.613*

*Standard deviation : 912.958*

*Variable Format: numeric*

**Variable: First car has energy label class 'A'**

Location:	Value	Label	Frequency
Width: 8	0 .	no	2265
	1 .	yes	171

*Range of Valid Data Values: 0 to 1*

**Summary Statistics:**

*Minimum : 0*

*Maximum : 1*

*Variable Format: numeric*



**Variable: Second car has energy label class 'A'**

Location:	Value	Label	Frequency
Width: 8	0 .	no	2367
	1 .	yes	69

*Range of Valid Data Values: 0 to 1*

**Summary Statistics:**

*Minimum : 0*

*Maximum : 1*

*Variable Format: numeric*

**Variable: Third car has energy label class 'A'**

Location:	Value	Label	Frequency
Width: 8	0 .	no	2432
	1 .	yes	4

*Range of Valid Data Values: 0 to 1*

**Summary Statistics:**

*Minimum : 0*

*Maximum : 1*

*Variable Format: numeric*

**Variable: Fourth car has energy label class 'A'**

Location:	Value	Label	Frequency
Width: 8	0 .	no	2436
	1 .	yes	0

*Range of Valid Data Values: 0 to 1*

**Summary Statistics:**

*Minimum : 0*

*Maximum : 0*

*Variable Format: numeric*

**Variable: Actual first car has energy label class 'A'**

Location:	Value	Label	Frequency
Width: 8	0 .	no	1572
	1 .	yes	864

*Range of Valid Data Values: 0 to 1*

**Summary Statistics:**

*Minimum : 0*

*Maximum : 1*

*Variable Format: numeric*

**Variable: Actual second car has energy label class 'A'**

Location:	Value	Label	Frequency
Width: 8	0 .	no	2406
	1 .	yes	30

*Range of Valid Data Values: 0 to 1*

**Summary Statistics:**

*Minimum : 0*

*Maximum : 1*

*Variable Format: numeric*

**Variable: Actual third car has energy label class 'A'**

Location:	Value	Label	Frequency
Width: 8	0 .	no	2234
	1 .	yes	202

*Range of Valid Data Values: 0 to 1*

**Summary Statistics:**

*Minimum : 0*

*Maximum : 1*

*Variable Format: numeric*

**Variable: Actual forth car has energy label class 'A'**

Location:	Value	Label	Frequency
Width: 8	0 .	no	2430
	1 .	yes	6

*Range of Valid Data Values: 0 to 1*

**Summary Statistics:**

*Minimum : 0*

*Maximum : 1*

*Variable Format: numeric*

***Variable: Change to smaller car***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 8	-1 .		519
	0 .		1276
	1 .		641

*Range of Valid Data Values: -1 to 1*

**Summary Statistics:**

*Variable Format: numeric*



**Variable: Workload respondent (person 1)**

Location: *Range of Valid Data Values: 0 to 100*

Width: 8 **Summary Statistics:**

*Minimum : 0*

*Maximum : 100*

*Mean : 67.504*

*Standard deviation : 41.054*

*Variable Format: numeric*

***Variable: Linearised income (and imputed for n.a.)***

Location: *Range of Valid Data Values: 1750 to 18000*

Width: 8 **Summary Statistics:**

*Minimum : 1750*

*Maximum : 18000*

*Mean : 7585.026*

*Standard deviation : 3894.005*

*Variable Format: numeric*

***Variable: Less car chosen (in sp experiment)***

Location:	<b>Value</b>	<b>Label</b>	<b>Frequency</b>
Width: 8	-2 .		5
	-1 .		144
	0 .		2287

*Range of Valid Data Values: -2 to 0*

**Summary Statistics:**

*Variable Format: numeric*