Ministry of Infrastructure
and Water Management

Affordable mobility?

An exploration of mobility prices, household spending on transport and affordability issues

Netherlands Institute for Transport Policy Analysis | KiM

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Summary

1 in 10 Dutch people say they struggle to pay for their mobility. These are often people with low incomes, single-parent families and unemployed individuals.

In the Netherlands, 10% of the adult population is experiencing problems with mobility affordability. They struggle to pay for their trips, spend more money on mobility than they can afford, or cut back on other things to pay for transportation, more so than the remaining 90% of the population. They also report that they generally have difficulty making ends meet or expect to struggle with this within the next year.

Affordability problems can pile up – 2% of respondents say they experience all three of the above problems, while also finding it difficult to make ends meet in general. Moreover, between 1% and 5.5% of the Dutch population say that they do not participate or participate less in certain activities (such as family or hospital visits) because they cannot afford the transport costs involved.

As there is no single widely accepted definition of what constitutes affordable or unaffordable mobility, research on affordability issues related to mobility can take different forms. Surveying perceived affordability problems is one method, but there are other ways of measuring these issues (or the likelihood of them occurring). For instance, we can use different indicators to compare and monitor groups at risk of experiencing affordability problems. Each approach has its advantages and disadvantages.

It should also be noted that mobility affordability includes aspects other than affordability issues: we also analyse household spending on mobility, as well as transport prices and price trends in the Netherlands. On average, Dutch households spend 14% of their income on mobility. The prices of air travel and fossil fuels for vehicles have especially increased in recent years, while the costs of other types of transport have followed more general price trends.

The concept of affordability

Although high inflation and the rise in energy prices in 2022 have contributed to an increased focus on 'affordable mobility', there is no widely accepted definition of the term.

Affordability is interpreted, explained and operationalised in different ways. Some use the term in the same breath as inflation or purchasing power, referring to across-the-board price changes in transport (and income trends). Others use it in the context of affordability issues, referring to people who are struggling to make ends meet or who no longer make certain trips due to travel costs.

In this brochure, we therefore explore mobility affordability from three perspectives: price changes, household spending and affordability issues. Because the study this brochure is based on looked at the current situation regarding mobility affordability, it focused on means of transport currently used on a daily basis. Follow-up research on the affordability of the future mobility system should also look at means of transport that are currently relatively underrepresented in household spending, such as shared transport and electric vehicles.

Contents

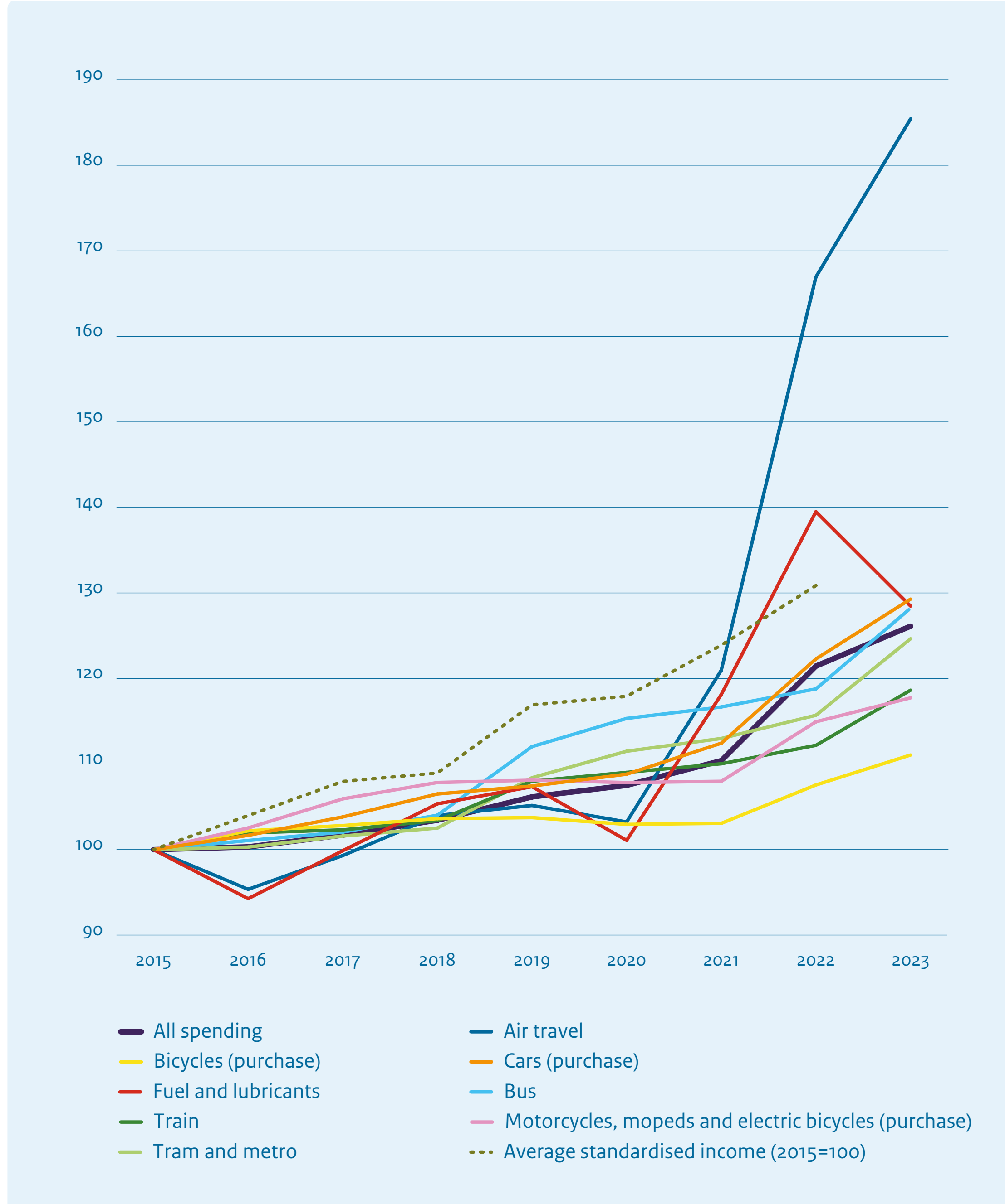
Price changes

Price changes are the first component of mobility affordability. From 2015 to 2023, the price of transport increased by almost 30%. This was slightly higher than inflation – the increase in all spending on products and services – over the same period, which was 26%.

Petrol, diesel and LPG prices rose much more than inflation in 2022, as a direct result of the Russian invasion of Ukraine. This increase was partly reversed in 2023, supported by a reduction in excise duties. Air travel has become significantly more expensive in the years following the COVID-19 pandemic. The average price of flight tickets was 85% higher in 2023 than in 2015. Meanwhile, car prices have just outpaced inflation, driven by a sharp rise in the price of new cars.

Used cars prices, on the other hand, have lagged behind inflation, and the same is true for motorcycles, bicycles (including electric bicycles) and train, tram and metro tickets.

Consumer Price Index 2015-2023



Source: CBS, compiled by KiM

2 Household spending on mobility

Household spending on mobility is the second component of mobility affordability.

Monthly spending on mobility

In 2015, households spent an average of €434 per month on mobility. In general, however, this amount varies widely between households, as higher income households, larger households and households in less urban areas tend to spend significantly more on mobility.

The average household spends significantly more on private vehicles than on public transport, but vehicle purchases, which are incidental, account for a large proportion of these expenses. Still, there are regular expenses as well, such as fuel and other cost items, including insurance and maintenance. Transport costs paid for by someone else, such as student travel products and company fuel cards, are not included in this household expenditure overview.

The most recent data on household expenditure is from 2020 and shows that transport expenditure was lower in 2020 than in 2015. However, this data is most likely influenced by the COVID measures in force that year, which resulted in fewer trips and subsequently lower travel costs.

Average spending (€) on transport in 2015, by month

	Total spending[1]	Spending by category			
		Private vehicles			Public transport
		Purchase	Other[2]	Fuel	
Standardised household income quintile (from low to high)					
0 to 20%	153	28	47	43	20
20 to 40%	247	60	88	72	16
40 to 60%	400	116	137	110	17
60 to 80%	539	156	202	138	21
80 to 100%	833	277	313	167	26
Household type					
Single-person household, below state pension age	232	56	76	60	19
Single-person household, above state pension age	167	40	58	41	16
Couple without children, below state pension age	611	211	206	139	23
Couple without children, above state pension age	442	136	161	108	16
Couple with children	661	194	259	160	21
Single-parent household	284	53	103	86	23
Degree of urbanisation					
Very highly urbanised	336	86	116	73	29
Highly urbanised	420	118	154	104	21
Moderately urbanised	486	153	177	118	18
Sparsely urbanised	505	163	184	125	14
Not urbanised	505	147	189	142	12
Total average	**434**	**127**	**157**	**106**	**20**

Source: CBS Budget Survey

1 *The totals in this column are not equal to the sum of the other columns because we have not included all means of transport here.*
2 *Other includes maintenance, repairs, insurance, taxes, parking and tolls.*

Expenses in relation to income

The share of income households spend on transport is called the mobility expenditure-to-income ratio.

$$Ratio_{\text{mobility expenditure-to-income}} = \frac{Expenses_{\text{mobility}}}{Income}$$

The mobility expenditure-to-income ratio data shows that relative spending on mobility varies less between income groups than absolute spending. The share of income spent by households on mobility ranged from 12% to 16% across income groups in 2015. However, as car ownership is relatively low among the lowest income households, large differences in relative mobility expenditure between households with and without a car are to be expected in this group. After all, car travel accounts for a large proportion of mobility spending.

Share of income spent on mobility (mobility expenditure-to-income ratio)

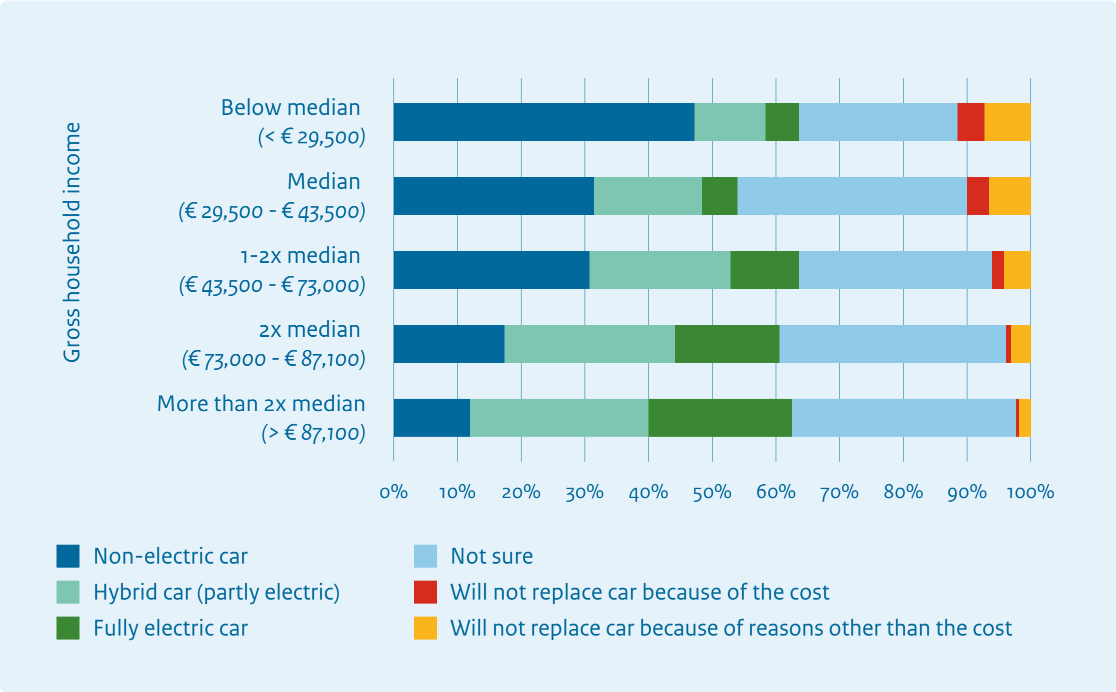
	% 2015	% 2020
Standardised household income quintile (from low to high)		
0 to 20%	12.0	9.0
20 to 40%	12.4	11.1
40 to 60%	14.6	11.8
60 to 80%	15.4	11.4
80 to 100%	15.7	10.9
Household type		
Single-person household, below state pension age	12.6	10.5
Single-person household, above state pension age	8.4	8.1
Couple without children, below state pension age	17.4	11.7
Couple without children, above state pension age	14.5	12.6
Couple with children	15.6	11.3
Single-parent household	11.6	10.6
Degree of urbanisation		
Very highly urbanised	12.1	8.3
Highly urbanised	13.3	10.9
Moderately urbanised	15.1	12.3
Sparsely urbanised	15.9	13.0

Source: CBS Budget Survey

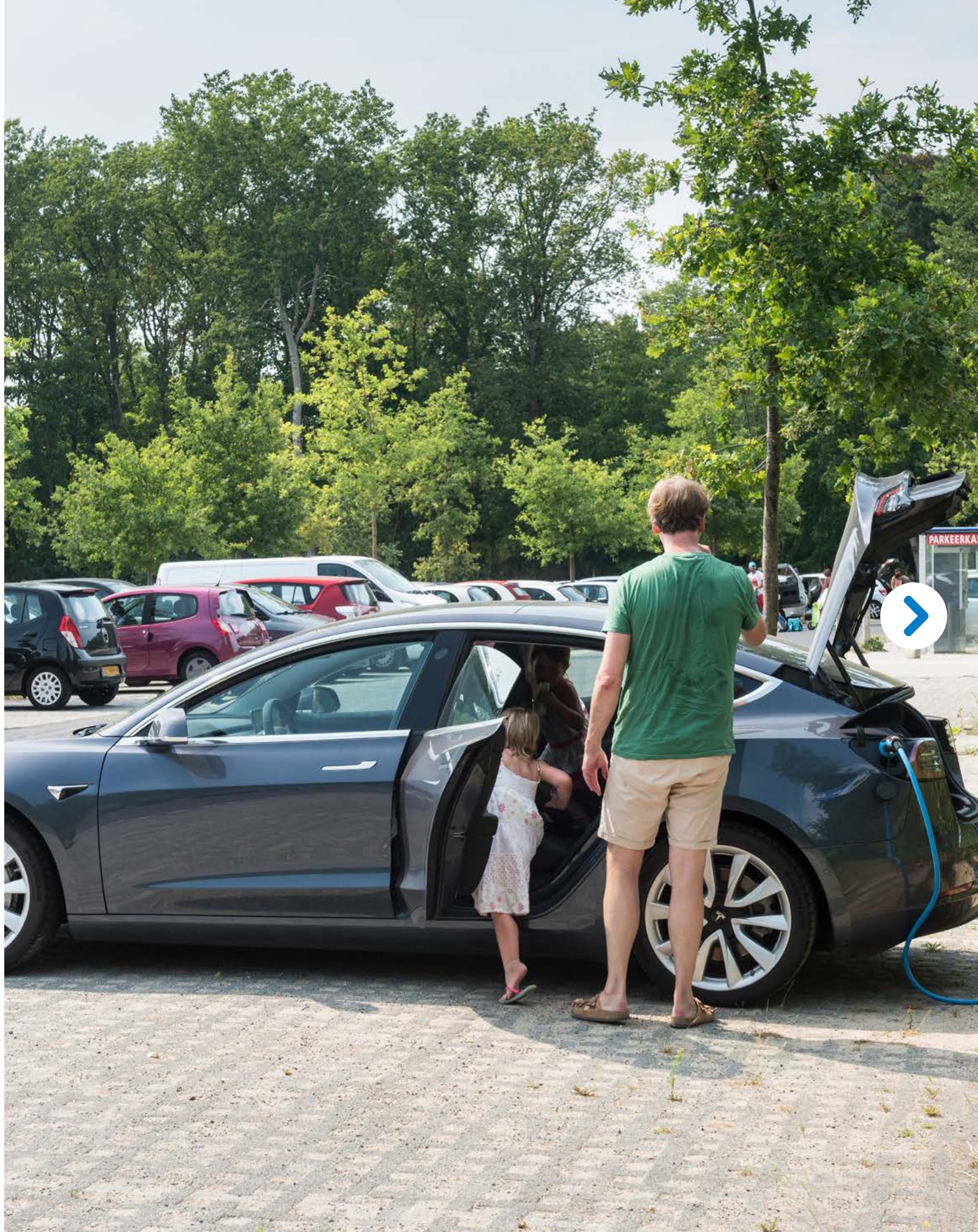
Expected expenditure on next car and bicycle

In 2023, 2% of car owners did not expect to replace their car because of the cost. This statistic rises to 5% for households with an income below the median. There are also clear differences between income groups in terms of respondents' intentions to replace their current car with a fully electric or hybrid model. Among car owners with a household income of more than twice the median, 51% say their next car will be fully electric or hybrid, compared to 17% of car owners with a household income below the median.

Responses from car owners on whether their next car will be electric or non-electric

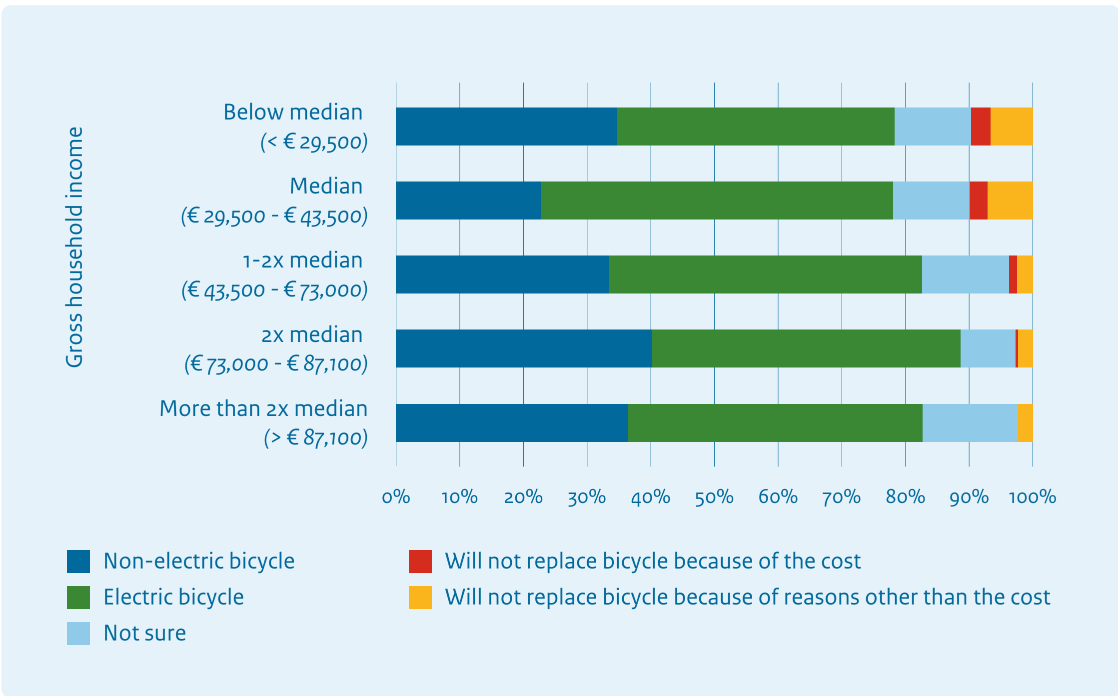


Source: MPN (2023)

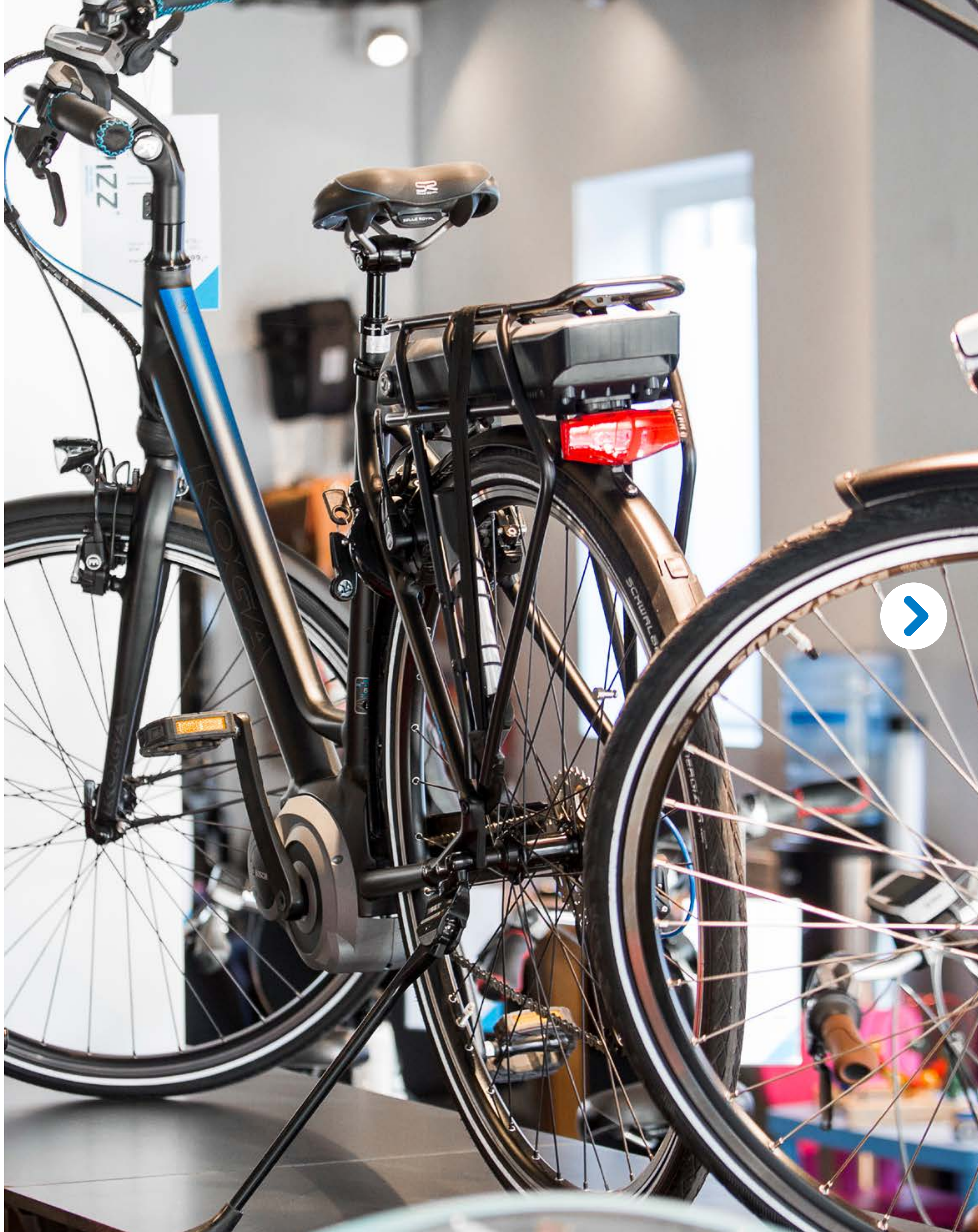


Among bicycle owners, 2% say they do not intend to replace their bicycle because of the cost, but the differences between income groups are less pronounced than among car owners. Lower income households are just as likely as higher income households to have plans to buy an electric bicycle. One possible explanation for this is that people in these income groups are more dependent on a good electric (or non-electric) bicycle, as a cheap alternative to travelling by car.

Responses from bicycle owners on whether their next bicycle will be electric or non-electric



Source: MPN (2023)



3 Affordability problems

Affordability problems are the third component of affordability we explore here.

Three ways to measure affordability problems

To date, there has been little quantitative research on affordability problems related to mobility. The literature, drawing on studies on energy poverty, suggests three ways of approaching this.

A. Expenditure/income indicators. This approach uses different indicators to estimate how likely a household is to face affordability problems. This is done by using different variations of the mobility expenditure-to-income ratio.
B. Perceived affordability problems. In this approach, people are asked to what extent they experience affordability problems related to mobility.
C. The budget approach, using a calculation of the minimum transport expenditure required per household to determine how many households are unable to afford this minimum expenditure based on their income.

We applied the first two approaches to measure affordability problems in the Netherlands, albeit exploratively due to the limitations of the available data. According to the literature, the budget approach is not an effective way of measuring mobility affordability, as there is too much variation in people’s transport needs.

(A) Expenditure/income indicators

One of the indicators, **2M***, shows which households spend a relatively large share of their income on transport (twice or more than the median[1] ratio) and at the same time have a relatively low income (below the median).

Another indicator is the Low Income High Mobility Expend (**LIHM**) indicator. This expresses which households, after deducting their transport expenditure, are left with an income that is insufficient to live on (less than 60% of the median income in the Netherlands) while spending a relatively large amount on transport (above the median).

The 2M* indicator shows that the 40% of households with the lowest incomes (first and second quintiles), single-person households below the state pension age and single-parent families are more likely to face affordability problems than the average household. The LIHM indicator gives a similar picture, but mainly points up the bottom 20% of households in terms of income.

While these indicators can be used to compare and monitor groups, they should not be seen as a measure of the extent of affordability problems. Indeed, the results are heavily dependent on the criteria selected by the researcher and their cut-off values. Another important limitation of these indicators is that they only look at actual spending, and do not take into account the possibility that people may have adjusted their mobility behaviour as a result of affordability problems.

Share of households at risk of experiencing affordability problems related to mobility

	2015 2M*	2015 LIHM	2020 2M*	2020 LIHM
Standardised household income quintile (from low to high)	**%**	**%**	**%**	**%**
0 to 20%	19.5	19.3	17.8	16.7
20 to 40%	14	3.5	19.1	2.1
40 to 60%	8.6	0.1	9.5	0.2
60 to 80%	0	0	0	0
80 to 100%	0	0	0	0
Household type	**%**	**%**	**%**	**%**
Single-person household, below state pension age	12.3	8.4	13.5	7.1
Single-person household, above state pension age	3.6	1.2	7.1	2.7
Couple without children, below state pension age	7	4.4	5.8	2.7
Couple without children, above state pension age	5.6	1.9	9.1	3.4
Couple with children	7.6	3.1	7	2
Single-parent household	13.7	6.1	14.5	3.7
Degree of urbanisation	**%**	**%**	**%**	**%**
Very highly urbanised	8.6	5.9	7.5	3.6
Highly urbanised	8.5	3.9	9	3.5
Moderately urbanised	8	4.5	10	5
Sparsely urbanised	8.3	4.1	11.1	3.6

Source: CBS Budget Survey

1 *The median is the middle number when you sort a list of numbers from lowest to highest. The median is less sensitive to outliers than the mean (such as a small group of people with high incomes and high spending).*

(B) Perceived affordability problems

In 2023, 22% of adults in the Netherlands had difficulty making ends meet, or expected to struggle with this within the next year. Almost half of this group experienced problems paying for their mobility.

Overall, 10% of respondents reported that they were struggling to make ends meet *and* experiencing at least one of the following affordability problems:

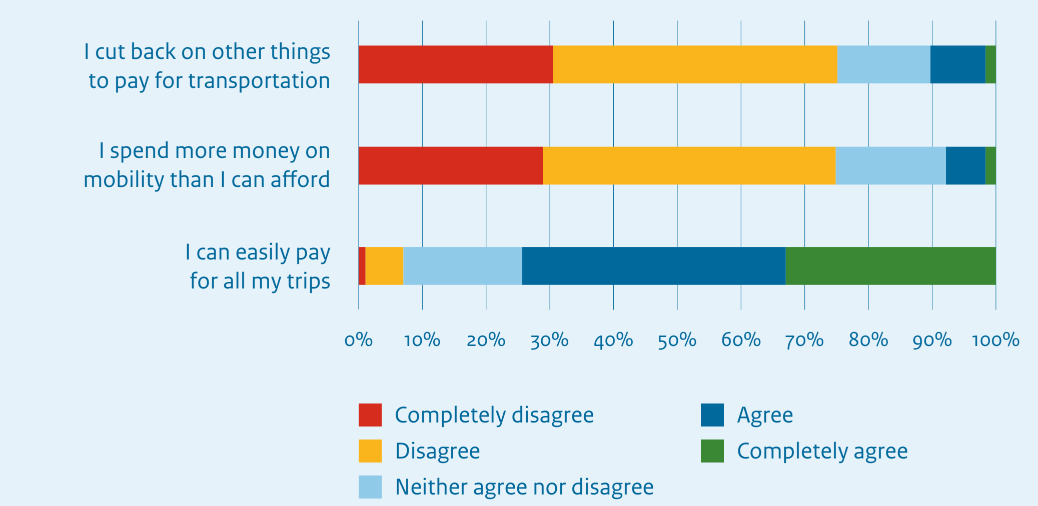
- struggling to pay for all trips;
- spending more money on mobility than they could afford;
- having to cut back on other things to pay for transportation.

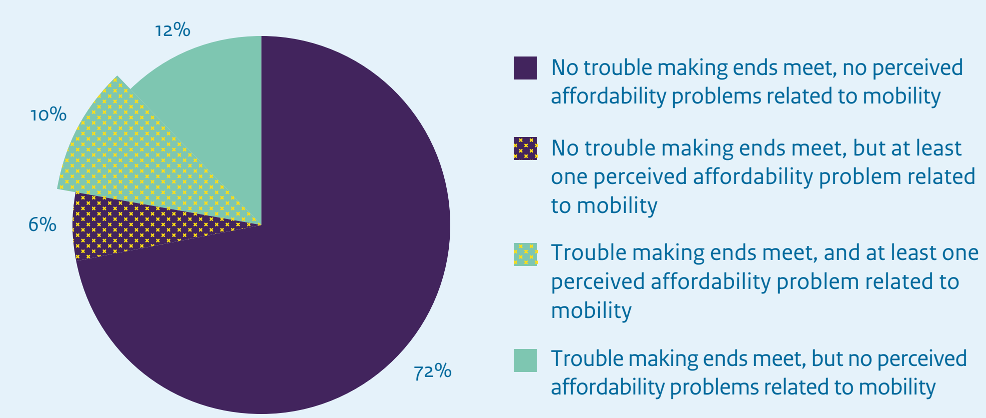
Affordability problems can pile up – 2% experience all three affordability problems, combined with problems making ends meet in general.

Characteristics of households experiencing affordability problems

Both approaches used in this study identify similar groups with (or at risk of) affordability problems. Income is the best predictor of perceived mobility affordability problems, with low-income households more likely to experience affordability problems than others. In addition, people who are unemployed, incapacitated or on welfare, vocational education graduates, those who have only completed primary education, single parents and large families most often experience mobility affordability problems.

Perceived mobility affordability problems, among adult residents of the Netherlands





Source: MPN (2023)

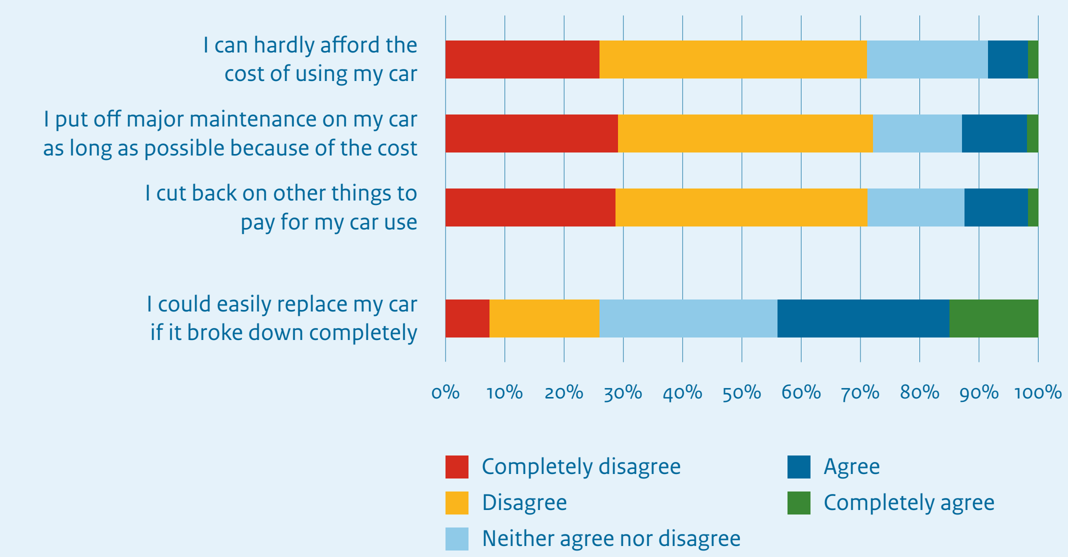
Problems among car owners, public transport users and cyclists

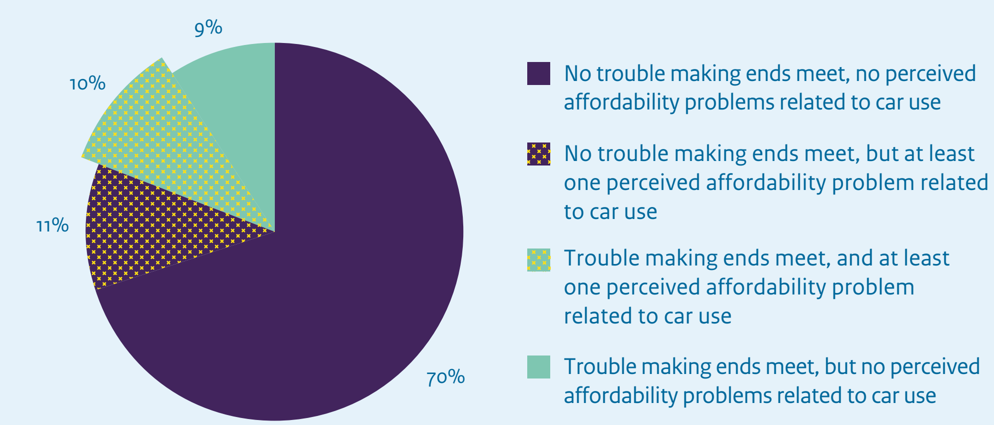
Among car owners, 10% report that they generally have difficulty making ends meet (or expect to struggle with this within the next year), and that they experience at least one affordability problem related to their car use. These are car owners who say they can barely afford the cost of using their car, are putting off major maintenance because of the cost, or are cutting back on other things in order to keep driving.

In addition, a third of car owners in the Netherlands do not consider it financially feasible to drive electric in the future. What stands out here is that two-thirds of this group are not currently experiencing affordability problems related to car use.
When it comes to public transport, 7% of Dutch residents aged 18 and above say they are reluctant to use bus, train, tram and metro services because of the costs involved. The people in this group also struggle to make ends meet in general. There are few differences between frequent and infrequent public transport users.

Among bicycle owners, 14% say they are putting off maintenance because of the cost, or that they would find it difficult to afford a new bicycle if their current one broke down. The people in this group also struggle to make ends meet in general.

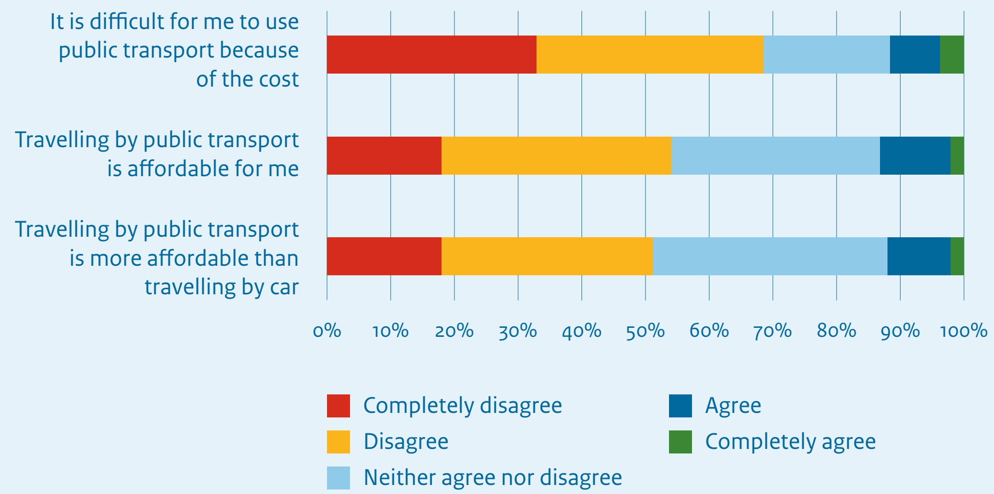
Perceived affordability problems related to car use, among car owners

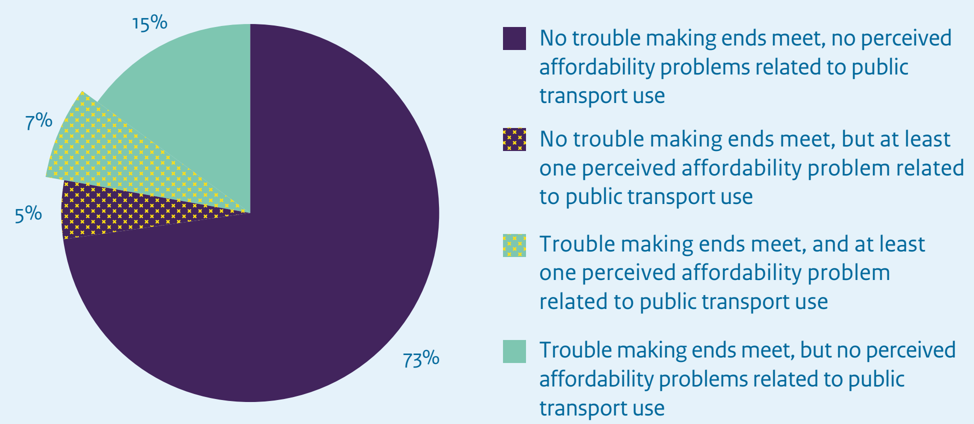




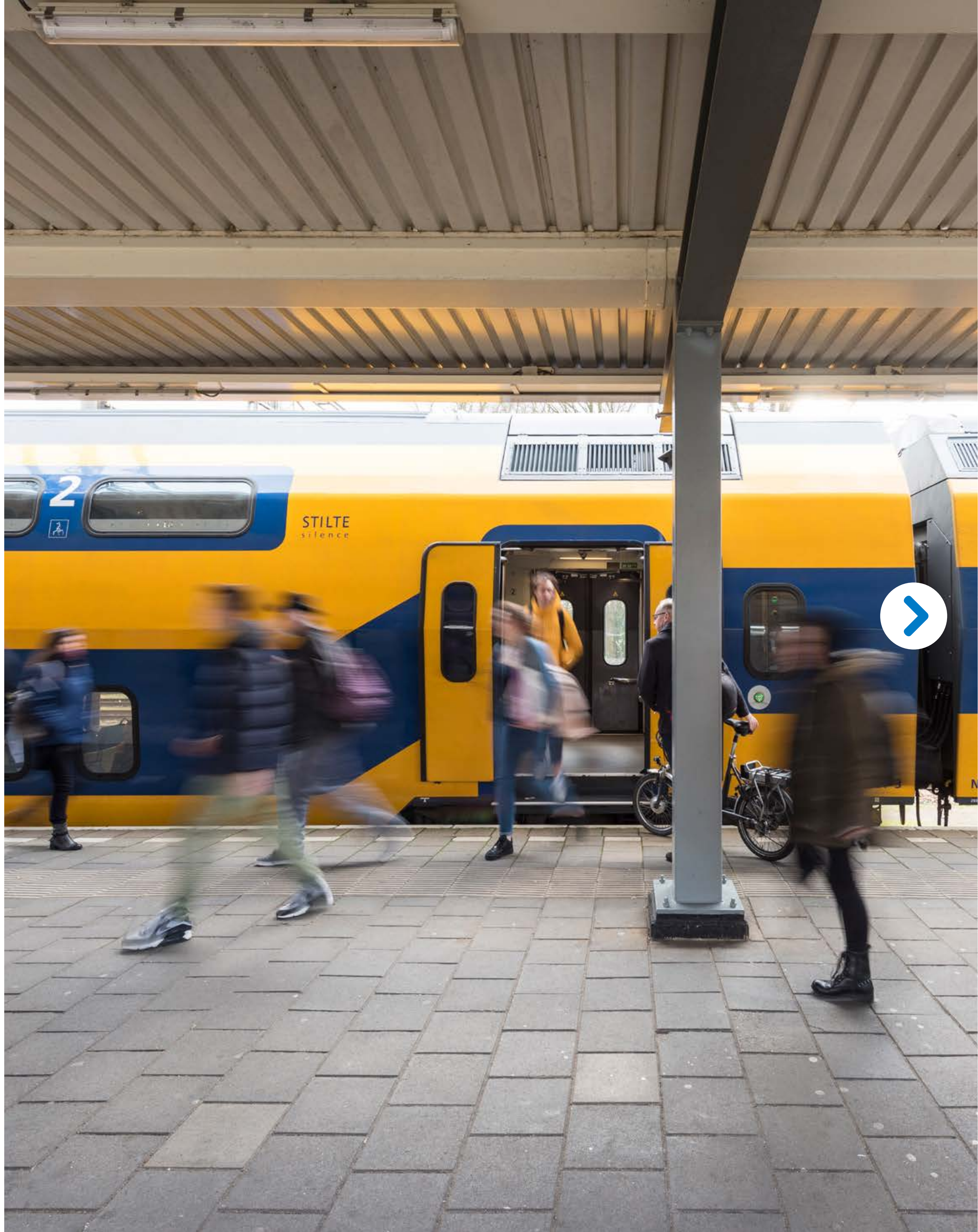
Source: MPN (2023)

Perceived public transport affordability problems, among adult residents of the Netherlands

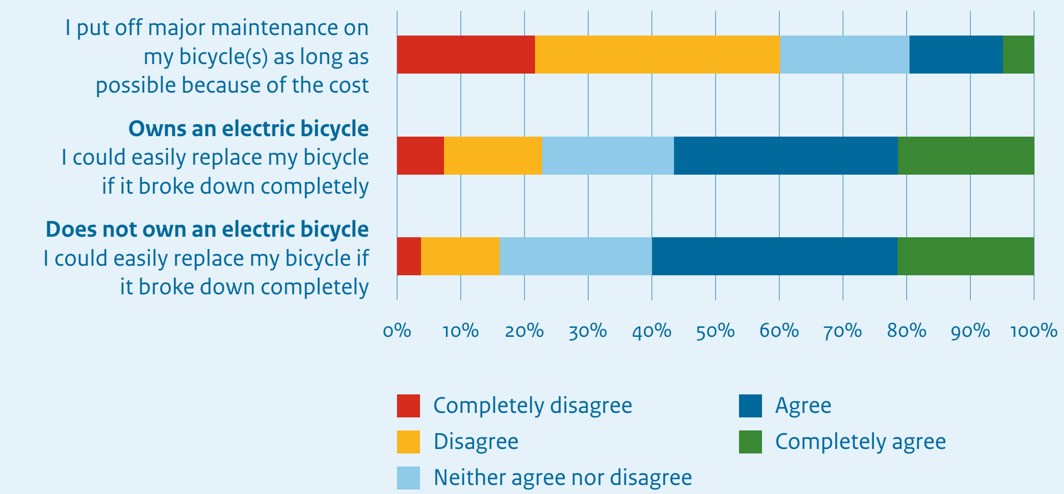


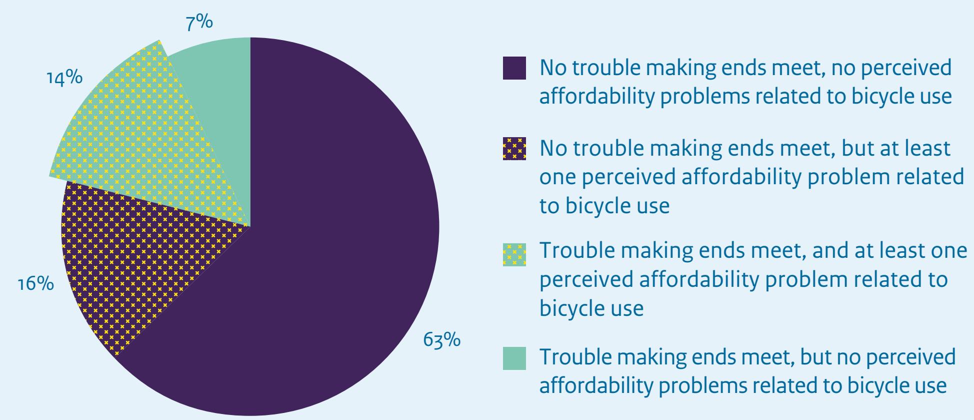


Source: MPN (2023)



Perceived affordability problems related to bicycle use, among bicycle owners





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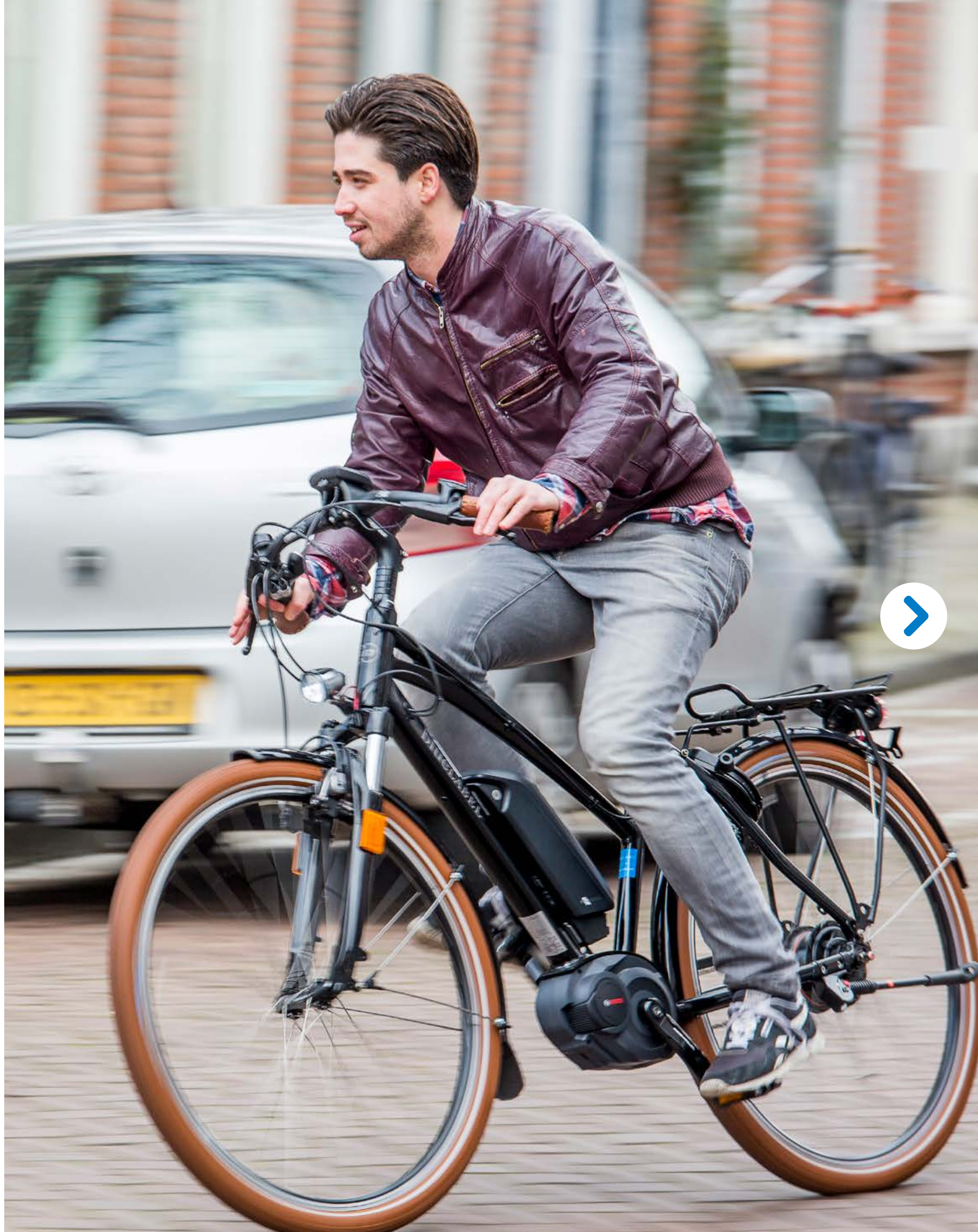
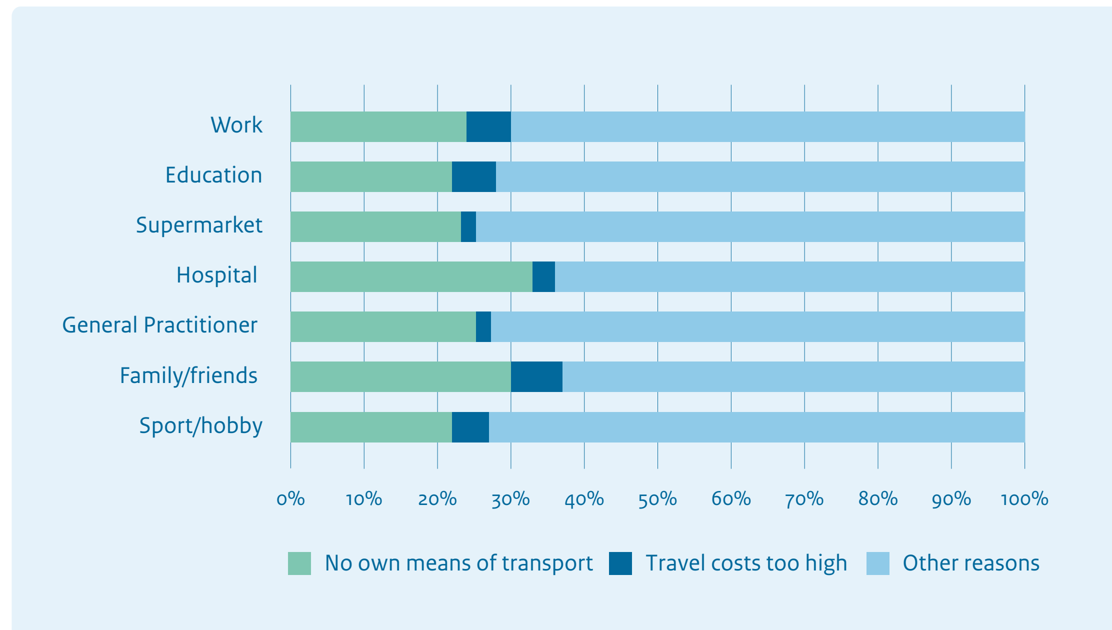


4 Consequences of affordability problems and coping strategies

We all have strategies to keep our mobility spending under control. This is especially true for people experiencing affordability problems. Some people will seek support from family and friends, even though they may be reluctant to talk about their finances. Another strategy is to cut back on other expenses. Studies conducted in the Netherlands and abroad show that households cut back on groceries, hobbies and energy use to afford mobility expenses. Others may choose to adjust their travel behaviour, for example by travelling shorter distances or less frequently, or by using cheaper alternatives (cycling instead of driving, or not having a car at all).

The main reason people sometimes cannot get to a destination

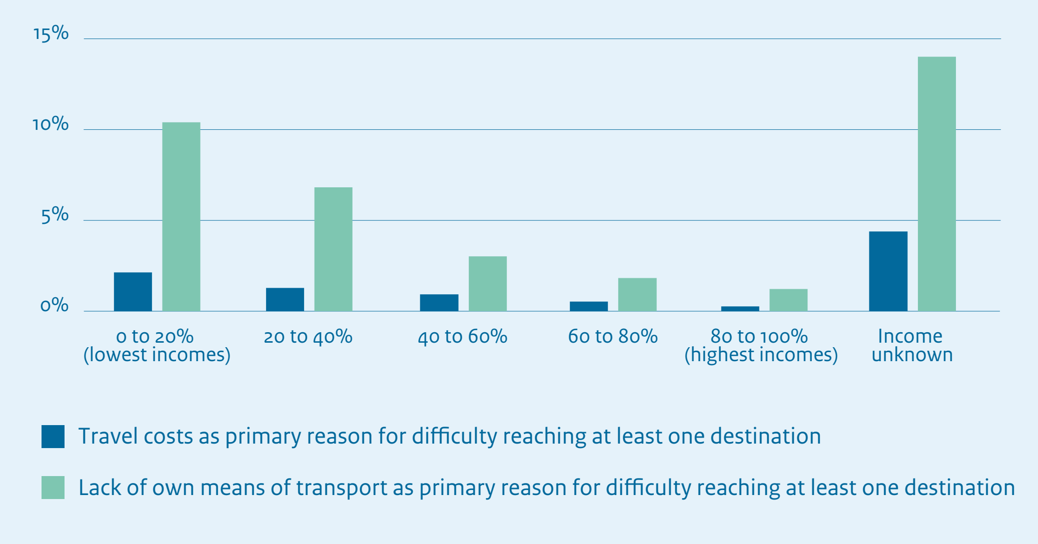


Source: ODiN (2023), CBS, compiled by KiM

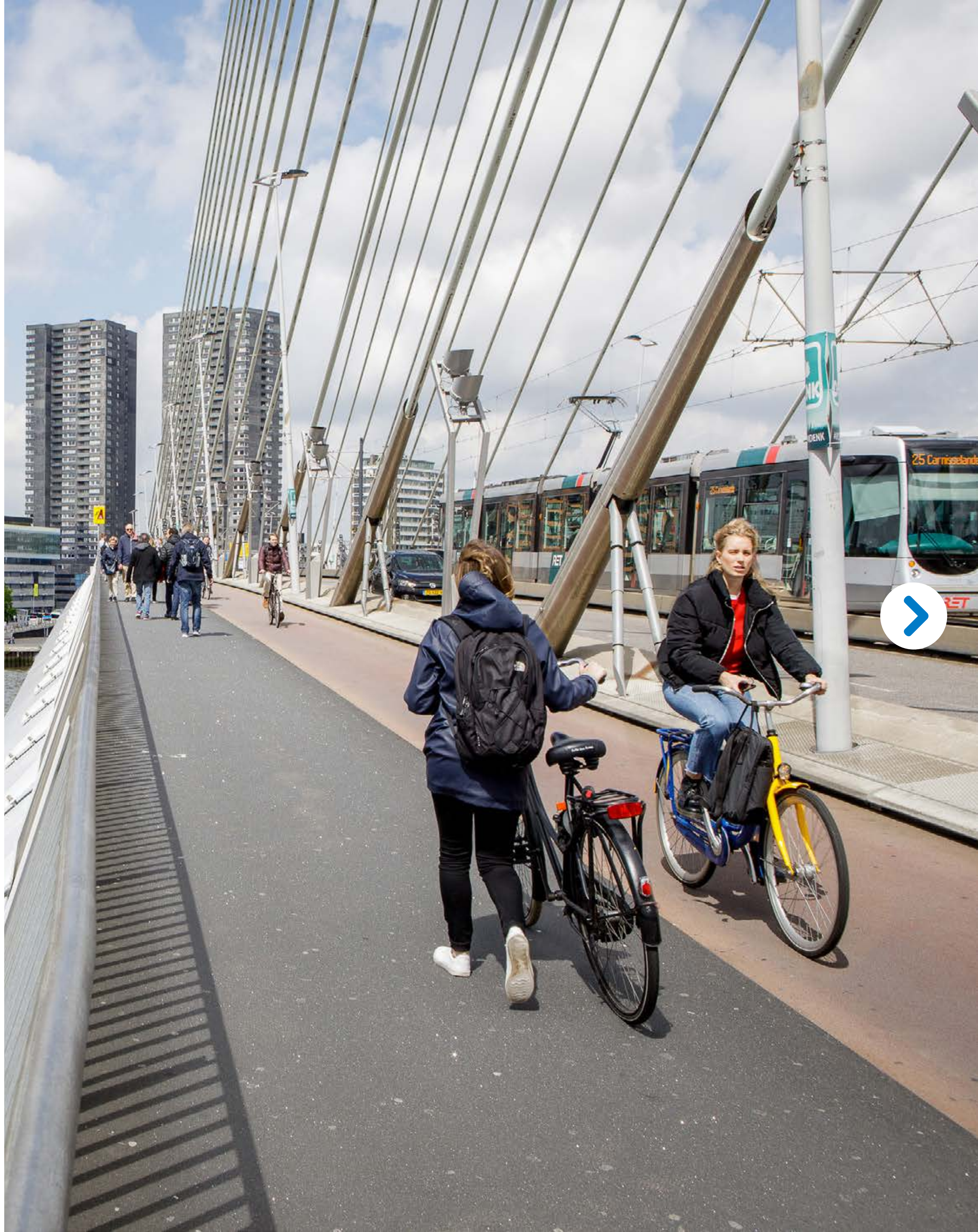
Between 1% and 5.5% of adults in the Netherlands sometimes cannot reach certain activities because they have mobility affordability problems. This group consists of 150,000 to 765,000 people. The wide range is due to the fact that we cannot always determine the extent to which affordability problems are actually the reason why people cannot reach an activity. The two reasons we looked at were 'Travel costs too high' and 'No own means of transport'. However, it may also be that someone does not own a car because they have made a conscious decision not to buy one, and not because they were put off by the high cost of purchase.

It is clear that affordability problems can lead to reduced mobility. Previous studies have also shown a relationship between mobility affordability problems and lower mental wellbeing.

Reasons for accessibility problems by household income quintile



Source: ODiN (2023), CBS, compiled by KiM



5 Possible solutions

If the government wants to reduce affordability problems related to mobility, it can take several types of measures.

First, affordability problems can be reduced through general income policies. After all, mobility is just one of the areas where households may face affordability problems. If low-income households see an increase in their disposable income, they will be able to spend more money on tackling their most pressing problems.

A second possible solution would be to specifically address mobility affordability problems. Measures that reduce the cost of train or car use for everyone are generally not very effective in alleviating affordability problems though. It would therefore be better to implement measures aimed at specific target groups (making public transport free or cheap for low-income households) or at making means of transport used mainly by low-income households more affordable (lowering bus, tram and metro fares or making light cars more affordable). After all, affordability problems are most prevalent among low-income households.

A third possible solution would be to prevent affordability problems by focusing on reducing the distance between where low-income households live, and the amenities they use.

In our study, we show that some households forego certain activities due to affordability issues related to mobility. This is a form of accessibility poverty: difficulty or reduced ability to participate in society because of accessibility problems. While there is an overlap between affordability problems and accessibility poverty, the two should not be seen as synonymous, as accessibility poverty involves more than just affordability problems.

About this study

Method

As ‘affordability’ is still a relatively new concept in mobility research, this study is exploratory in nature. We used a variety of sources (including data sources) to conduct our research. The overview of approaches to measuring affordability problems is based on international literature that draws on studies on energy poverty. As yet, these approaches have only been applied to a limited extent in the mobility sector. For the quantitative analyses, we used the 2015 and 2020 Budget Surveys to map household spending on mobility, and the Consumer Price Index for price trend data (both from CBS). The figures on perceived affordability problems are based on 2023 data from the Onderweg in Nederland travel survey (ODiN, from CBS) and KiM’s Netherlands Mobility Panel (MPN). See the accompanying background report for more information and more explanation about the method.

Background report

More information on the method and results can be found in the background report (report only available in Dutch, contact KiM for more information), which is available for download at www.kimnet.nl.

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