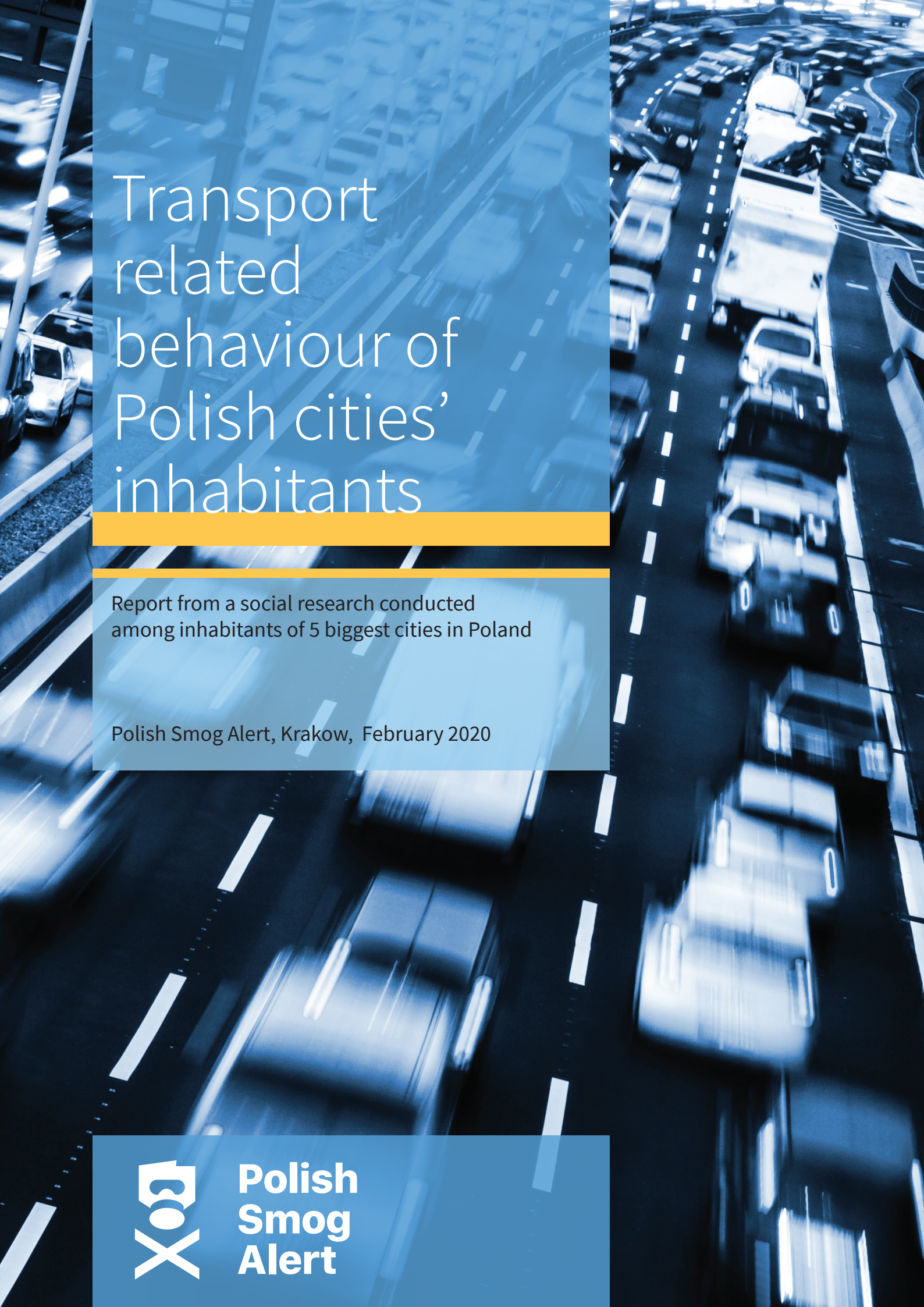

Transport related behaviour of Polish cities' inhabitants

Report from a social research conducted among inhabitants of 5 biggest cities in Poland

Polish Smog Alert, Krakow, February 2020

Polish Smog Alert

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Information about the research

Research execution period

The research was conducted by the Market and Public Opinion Research Institute CEM between December 2019 and January 2020.

Research execution technique

The research was conducted with the use of CATI by trained interviewers from a CATI studio situated in the headquarters of the CEM Institute in Krakow.

Research tool

The research made use of a questionnaire comprising mostly closed questions. The average response time amounted to app. 14 minutes.

Sample size

The research was conducted on a random sample of 1500 adult inhabitants of five big Polish cities: Warsaw, Krakow, Wroclaw, Poznan and Katowice (including satellite towns). The sample for each city amounted to 300 interviews. Databases containing fixed and cellular phone numbers served as a sampling frame. During the process of sampling the structure of the sample in terms of gender and age were controlled for each city separately.

Introduction

According to the information comprised in the base of the Centralna Ewidencja Pojazdów [Central Records of Vehicles] CEPiK there are about 30 million vehicles registered in Poland, out of which more than 20 million are passenger cars. According to Eurostat in 2016 our country ranked 6th among the member states of the European Union in terms of the number of vehicles registered per 1000 inhabitants[1]. Therefore we come before such automotive powers as Germany, the United Kingdom or France, leaving the European Union's average far behind. In spite of the fact that both the CEPiK's statistics and the calculations of Eurostat based on them probably significantly overestimate real values,[2] still the vehicle density in Poland can be defined as very high, especially in the context of purchasing power compared to the "old" member states of the European Union.

Not only the number of cars on our roads should be worrying, but also their age. In 2019 about one million second-hand cars were brought to Poland. Western Europe systematically gets rid of used, exploited, not meeting the environmental standards vehicles. A considerable part thereof comes to our country, where it is meant to live its second life after superficial repairs. **The average age of cars brought to Poland amounts to app. 12 years.**[3] According to the statistics of the European Automobile Manufacturers' Association (ACEA) in 2018 only 30% of cars on Polish roads were 10 years old or younger and only one car out of ten was app. 4 years old. According to the data of insurance companies, **the average age of cars on Polish roads exceeds 13 years.**[4]

We basically drive old, not environmentally friendly vehicles and their main, often only quality is low price, which in turn makes them easily available. Many households have two or even three vehicles and the owners of vehicles are ever younger. Not only because the society sill perceives it as a status symbol and a telling indicator of financial status. A very important factor multiplying the quantity of vehicles is the poor offer of public transport, especially outside big cities – without a car many Poles could not reach their school, workplace, do groceries or go to a doctor.

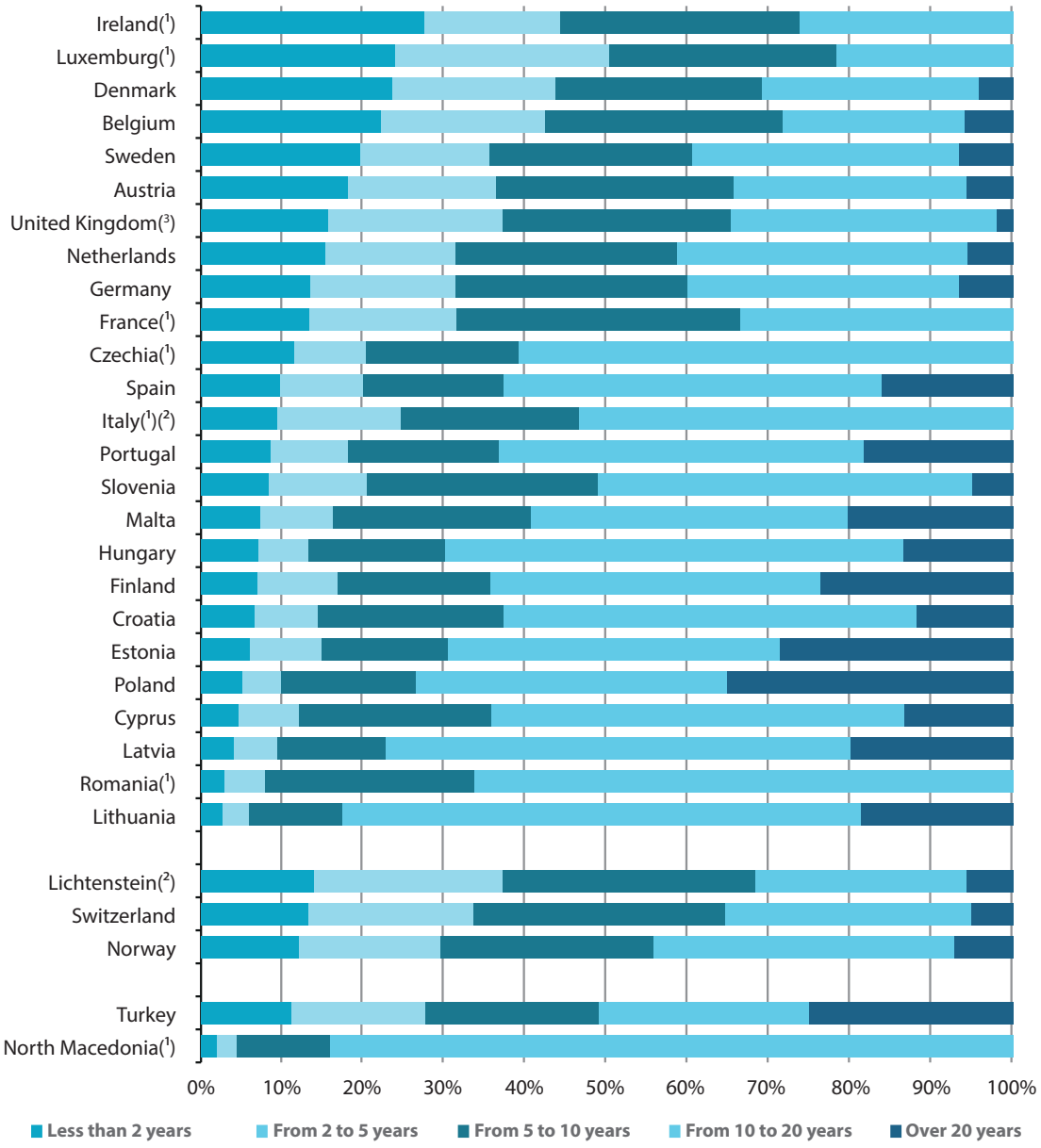
Mobility exclusion is the result of the progressing degradation of public transport over the last decades. The decline of intercity buses, the liquidation of rail connections, the reduced frequency of public transport circulation and the never ending renovation of transport infrastructure all made Poles so much car dependent.

Therefore, the fact that almost each and every adult inhabitant of a household situated in the countryside owns his/her own car comes as no surprise nowadays. This model derives from a relative economic calculation, which clearly shows that public transport in less urbanised areas has no chance to defend itself without a considerable support from local authorities' budgets in the light of free economy based on a simple profit and loss account.

1. Eurostat 2016.
2. According to experts app. 20-25%, which results from the presence in the database of a considerable group of vehicles which do not circulate on roads any more as the lack of roadworthiness examinations and insurance policies indicate.
3. Data of the Samar Automobile Market Research Institute
4. European Automobile Manufacturers' Association (ACEA) 2018

It is much more difficult to explain why such a high dependency on everyday usage of cars is also characteristic of inhabitants of big cities. Contrarily to small towns, the quality of urban public transport improved over the last decades thanks to the modernisation of rolling stock, the increased frequency of circulation and investments in infrastructure. However, all of the above didn't discourage inhabitants of Polish metropolises from intensive investments in their own means of transport. Referring to the data from the latest "Report on the city's condition" from Warsaw, at the end of 2018 there were over 1.5 million cars registered in the city (out of which nearly 1 thousand electric).[5] With 661 passenger cars per 1000 inhabitants our capital city considerably outnumbers other European capital cities.[6]

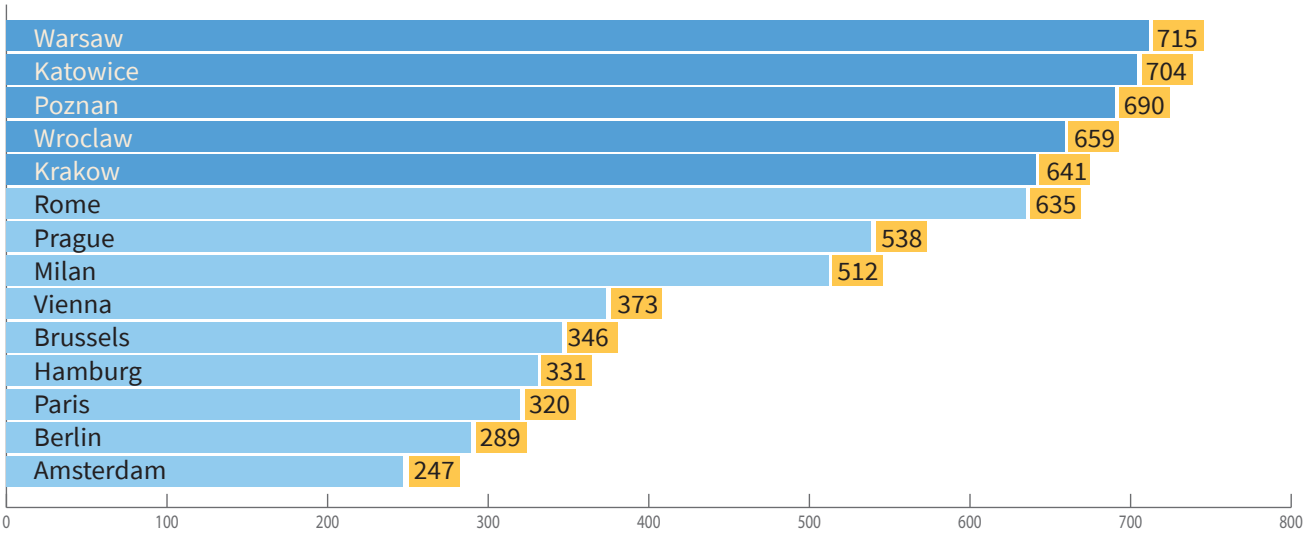
Figure 1. Passenger cars by age, 2017
(% of all passenger cars)



Note: Bulgaria, Greece, Slovakia and Iceland: data not available.
(1) the "from 10 to 20 years" breakdown includes passanger cars over 20 years
(2) 2015 data instead of 2016
(3) Great Britain only

5. It is true that the registration data for the city and the entire Poland are exaggerated due to imperfections of the CEPiK's database, but experts agree that the gap is in 100% compensated anyways by cars entering the city from satellite towns as well as cars officially registered in other cities, which in fact circulate everyday around Warsaw.
6. "Report on the city's condition 2018" Warsaw 2019

Figure 2. The number of cars per 1000 inhabitants in individual cities:



The situation is not any different in other biggest Polish cities. For example there are over 600 thousand vehicles registered in Krakow and the number of passenger cars per 1000 inhabitants amounts to 641. On top of that the vehicle density in Krakow increases systematically. In the recent years this increase amounted to app. 5% annually.[7] In other European cities the opposite trend can be observed. In Berlin the vehicle density per 1000 inhabitants decreased from 365 vehicles in 2002 to 289 vehicles in 2018, in the capital cities of Denmark and the Netherlands it does not exceed 250 for a long time.

It is not only the quantity of cars that differs Polish cities from cities of Western Europe, but also their emissivity. At present already several hundreds of cities in Europe have introduced clean transport zones, eliminating from public traffic cars emitting most pollutants. For example you cannot enter Paris if you drive a car with a diesel engine below the EURO4 standard and from 2024 all vehicles with a diesel engine are meant to be banned from traffic. In London restrictions encompass cars not meeting the Euro 6 standard (diesel) and the Euro 4 standard (petrol). If you want to enter Stuttgart your car needs to meet the Euro 5 standard (diesel). It is however impossible to introduce such rules in Poland, because there are no national legal provisions, which would give cities such competences. As a result, Polish cities' roads are full of old diesel cars, which emit very high quantities of pollutants such as particular matter or nitrogen oxide.

On weekdays Polish cities are stuck in traffic and suffocate from exhaust fumes. Could improving the functioning of public transport make the situation of the biggest Polish cities better? Maybe the solution is to develop the infrastructure of more environmentally friendly means of transport such as bikes or electric scooters? How to convince inhabitants to abandon cars? Is reducing the traffic of cars emitting the most pollutants supported by inhabitants of the cities? The present report attempts to answer these and other questions related to the functioning of transport in the biggest Polish cities.

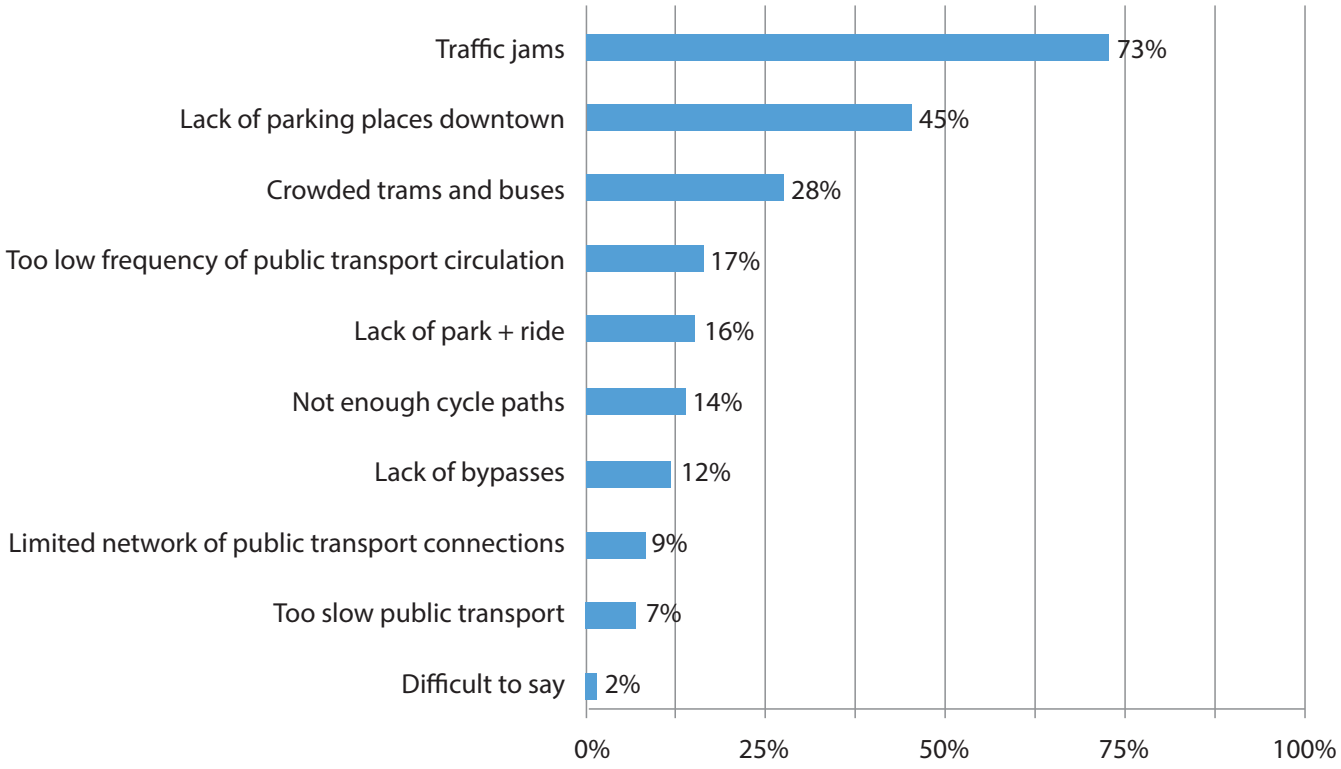
7. "Report on the city's condition 2018" Krakow 2019

Urban transport related problems according to the inhabitants

Over the last two decades the transport policy management in most big Polish cities was dominated by declarations of the development of effective public transport and a simultaneous continuation of investments in individual car transport. The increasing number of cars circulating on urban roads made passengers of collective transport devote more time to their journeys whereas the car drivers continue to be stuck in traffic. The negative experience of public transport users lead to the conclusion that if everyday journey is meant to last long anyways, it is better to spend that time in one's own car than in public transport means.

The above mechanisms define the optics through which the inhabitants of cities look at the transport system. Usually the social perspective identifies problems related to urban transport with inconveniences related to driving one's own car. What is annoying for car drivers has a direct impact on the comfort of the journey of public transport users too. Busy roads, lack of separate bus lanes or tram tracks create the same reality for both passengers of buses or trams and drivers of private cars. This thesis is unequivocally confirmed by the results of the research. More than 70% of respondents find traffic jams to be the biggest problem related to transport. Other issues lag far behind in the social perception of inconveniences related to transport experience and shape the image of the quality of transport in big cities.

Figure 3. The biggest urban transport related problems



Traffic jams are the main problem of inhabitants of Krakow and Wroclaw, where the percentage of respondents bringing them up among the most serious urban transport related problems amounts to nearly 80%. However, it should be stressed that inhabitants of other researched agglomerations also claim traffic jams are a definitely leading transport issue.

Traffic jams are the main problem of inhabitants of Krakow and Wroclaw, where the percentage of respondents bringing them up among the most serious urban transport related problems amounts to nearly 80%.

Yet another worry, the nature of which is directly linked to using cars in cities, is the lack of parking places downtown. This is an issue touching the inhabitants of Katowice the most. Over one half of respondents from that city pointed it. In other agglomerations the lack of parking places as a key transport problem is pointed by over 40% of respondents.

Therefore, the opinion of the inhabitants of the biggest cities is that the traffic jams and the lack of parking places constitute the biggest nuisance of the transport system in their cities. We should add that this choice is by no means correlated with demographic variables such as age or gender. This opinion is shared both by younger and older respondents, by men and women. What differs among various demographic groups is the frequency of pointing another researched issue, i.e. crowded buses and trams. 28% of all respondents point this issue, however the frequency of this indication depends on age – the younger the respondent, the more often it appears (as many as 52% of indications in the age group 18-24 years against only 12% in the group 59+ years). Gender also plays a role (33% of indications for women against 22% for men).

Table 1. The biggest urban transport related problems

	Total	Katowice	Krakow	Poznan	Wroclaw	Warsaw
Traffic jams	73%	67%	76%	70%	77%	72%
Lack of parking places downtown	45%	51%	44%	45%	41%	44%
Crowded trams and buses	28%	19%	28%	32%	21%	37%
Too low frequency of public transport circulation	17%	13%	17%	16%	18%	19%
Lack of park + ride	16%	16%	15%	15%	16%	16%
Not enough cycle paths	14%	20%	14%	13%	8%	14%
Lack of bypasses	12%	10%	16%	8%	12%	13%
Limited network of public transport connections	9%	8%	8%	9%	8%	10%
Too slow public transport	7%	7%	6%	7%	9%	8%
Difficult to say	2%	2%	2%	2%	1%	1%

Low frequency of circulation of public transport ranks next on the list of transport related problems in cities. Inhabitants of the biggest cities point it as a problem twice as often as the limited connection network. The speed of traveling by public transport was pointed even more seldom. The data show clearly that the inhabitants expect persons in charge of public transport in big cities to make public transport means circulate more often, which will naturally make the crowds decrease and the speed of traveling increase.

The lack of park + ride is pointed among the biggest issues related to urban transport by 16% of respondents, so it does not seem to be a key problem. However the analysis within individual age groups shows that it is a particularly important issue for persons aged 35-59 as well as for people living outside city centres. The frequency of pointing insufficient cycle paths is also strongly correlated with age. Among people aged 25-44 20% of respondents pointed this issue, whereas in other age groups only 10% did so. The magnitude of this problem varies between cities. Inhabitants of Katowice are the ones to point this issue the most often whereas those of Wroclaw the least often.

Table 2. The biggest urban transport related problems according to the most frequently used means of transport

	Total	Drivers	Public transportation passengers
Traffic jams	73%	77%	70%
Lack of parking places downtown	45%	56%	37%
Crowded trams and buses	28%	17%	40%
Too low frequency of public transport circulation	17%	11%	22%
Lack of park + ride	16%	21%	12%
Not enough cycle paths	14%	12%	13%
Lack of bypasses	12%	16%	9%
Limited network of public transport connections	9%	7%	9%
Too slow public transport	7%	5%	9%
Difficult to say	2%	1%	1%

The way of perceiving transport related problems depends also on the dominant way of moving around the city in everyday life, which is understandable. Whereas the magnitude of the most frequently pointed transport related issue in big cities, i.e. the omnipresent traffic jams, does not differ much between drivers and public transport users (77% and 70% of respondents in both groups respectively), the assessment of matters such as road infrastructure availability and public transport quality in its broad sense, varies considerably.

The main problem of drivers seem to be the lack of parking places downtown. 56% of them point it against only 37% of regular users of public transport. In turn, crowded trams and buses are an issue for as many as 40% of public transport passengers and one in five from this group complains about a too low frequency of circulation of public transport. Drivers notice this kind of issues less often – 17% of them point crowded public transport and 11% of them low frequency of circulation.

Moving around the city

The necessity to move around the city every day is an evident and normal phenomenon for most inhabitants. The biggest traffic is generated by working individuals. Work makes over 70% of people commute every day.

Figure 4. Main everyday city destinations

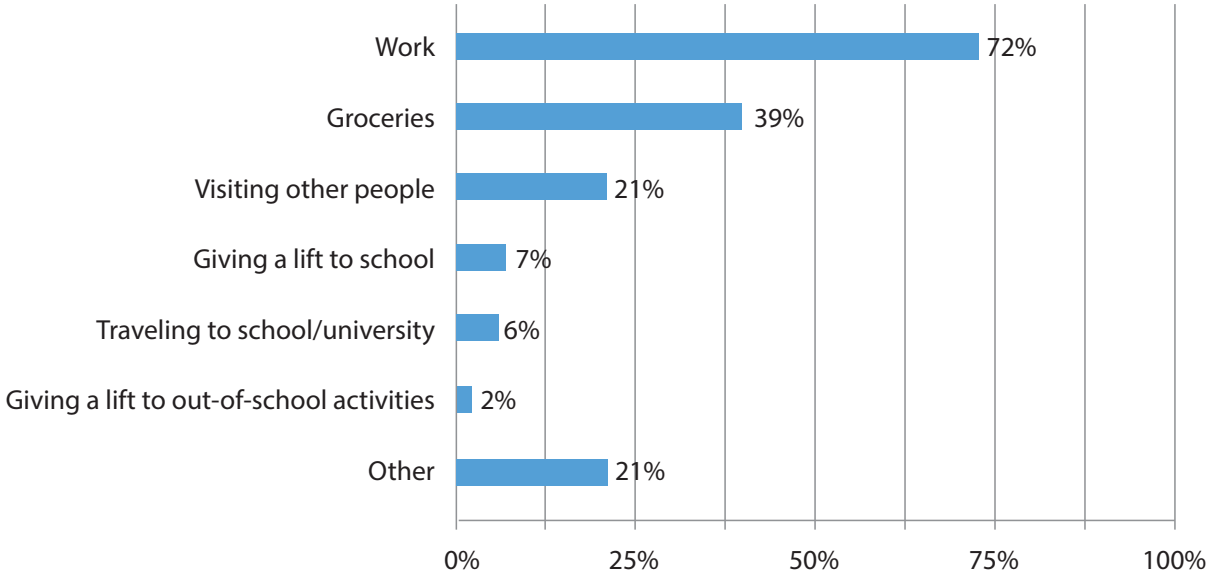


Table 3. Main everyday city destinations

	Total	Katowice	Krakow	Poznan	Wroclaw	Warsaw
Work	72%	69%	71%	73%	74%	73%
Groceries	39%	43%	41%	42%	37%	33%
Visiting other people	21%	22%	24%	20%	18%	19%
Giving a lift to school	7%	7%	7%	8%	7%	4%
Traveling to school/university	6%	6%	7%	4%	7%	3%
Giving a lift to out-of-school activities	2%	4%	2%	3%	1%	1%
Other	21%	24%	22%	17%	20%	21%

The age and the related life cycle phase determine the destinations the most.

The age and the related life cycle phase determine the destinations the most. Among persons aged 25-59 the percentage of individuals commuting to work oscillates between 80 and 90%, whereas among the younger it is nearly 70% and among individuals aged 60+ it is 30%. Yet another factor pushing people to commute are groceries. They constitute the main reason of any activity involving transport mostly for the elderly. The third most frequent indication would be traveling aimed at participating in social life. One in five claims it is one of the main reasons to travel daily and usually these are people from the youngest or

the eldest age group. Giving a lift to children, either to school or out-of-school activities, is common in the age group 25-44 years, which reflects the course of a natural family life cycle. Gender also determines everyday transport destinations. Men more frequently commute to work whereas women more often go to do groceries or give a lift to children.

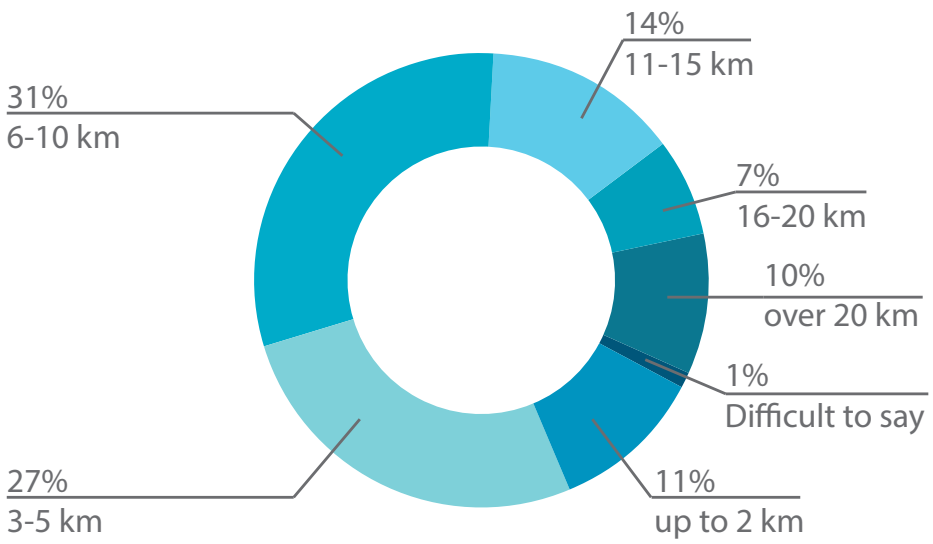
Table 4. Main everyday city destinations in gender and age groups

	Total	Woman	Man	18-24	25-34	35-44	45-59	60+
Work	72%	65%	80%	68%	86%	87%	84%	30%
Groceries	39%	46%	32%	31%	30%	34%	34%	64%
Visiting other people	21%	25%	17%	24%	12%	13%	16%	42%
Giving a lift to school	7%	9%	5%	2%	9%	16%	3%	2%
Traveling to school/university	6%	6%	5%	45%	4%	0%	1%	0%
Giving a lift to out-of-school activities	2%	2%	2%	1%	2%	5%	2%	1%
Other	21%	24%	17%	10%	14%	9%	17%	51%

In spite of the fact that the population of the biggest Polish cities does not grow fast, the inaccurate urban policy (or rather the lack thereof) makes housing investments concentrate in remote urban areas. It makes the already long itineraries even longer. The urban and functional scheme of most Polish cities pushes inhabitants to devote a considerable amount of time to commuting.

The research results confirm it. Only one respondents in ten makes up to 2 km one way. This holds true especially for the eldest (60+ years) or the youngest (up to 25 years), i.e. the ones who travel mostly to do groceries or for educational or social reasons. However over 35% of respondents from the most professionally active group, i.e. the ones aged 25-59, travel over 10 km per day. One in ten of the respondents has to travel over 20 km per day.

Figure 3. Distance to the main destination of everyday journey (one way)



The longer the distance of everyday journey, the higher the probability of using a car. As many as 43% of people using a car on a regular basis travel at least 10 km. Among passengers of public transport only 24% travels equally far. The remaining 76% of respondents from this group make up to 10 km.

Naturally, due to the city size, the inhabitants of Warsaw make the longest everyday distances. As many as 43% of them travel over 10 km per day to reach their daily destination. The analogue value for Krakow, Poznan or Wroclaw does not exceed 30%. Katowice are an exception, since it constitutes the destination for the inhabitants of smaller satellite towns of the Silesian Agglomeration. Hence, one in three respondents points distances exceeding 10 km.

Table 5. Distance to the main destination of everyday journey (one way)

	Total	Katowice	Krakow	Poznan	Wroclaw	Warsaw
Up to 2 km	11%	11%	14%	12%	9%	9%
3-5 km	27%	25%	28%	31%	29%	19%
6-10 km	31%	30%	32%	30%	35%	28%
11-15 km	14%	11%	15%	13%	11%	19%
16-20 km	7%	8%	4%	7%	4%	11%
Over 20 km	10%	13%	5%	6%	11%	13%
Difficult to say	1%	2%	2%	1%	1%	1%

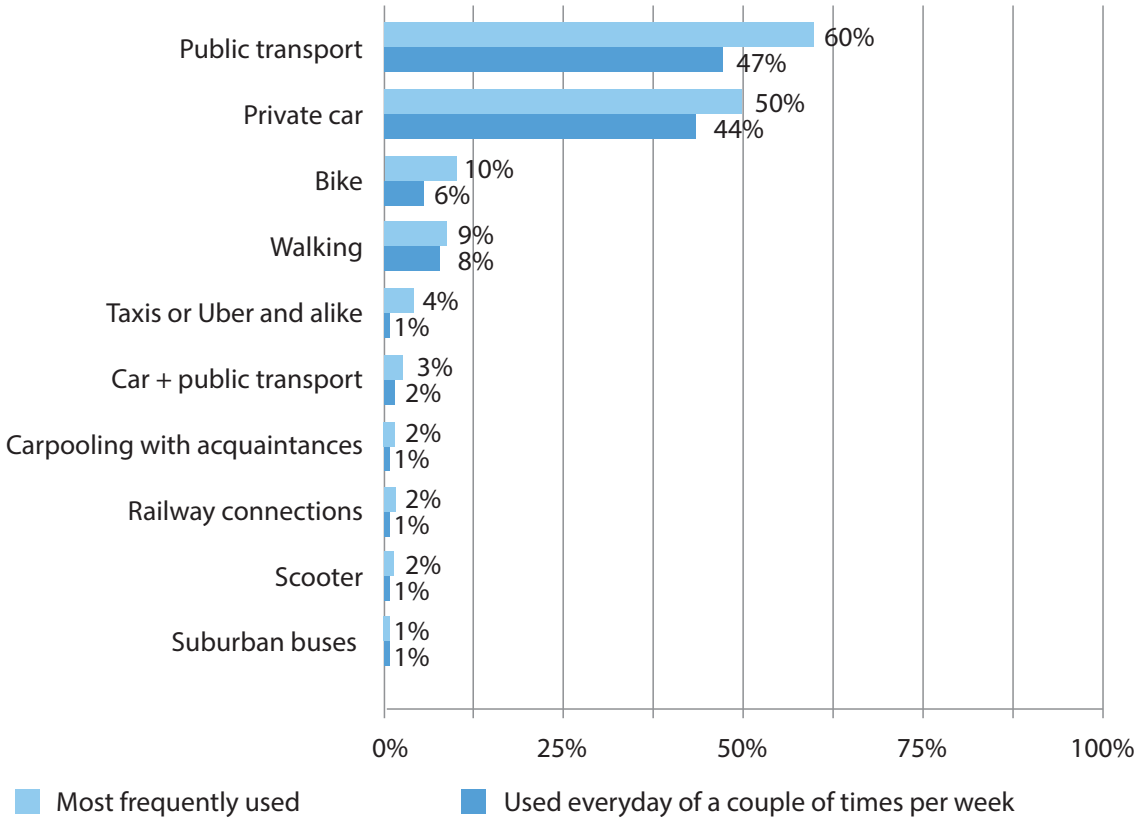
A car is a regular means of transport for 44% of inhabitants. It is only 3% less than the percentage of passengers using public transport daily. **Half of respondents perceives their private car to be their main or one of the main transport means in town.** For public transport the analogue value amounts to 60%. Carpooling together with friends or family is rare.

The above results clearly show that inhabitants of Polish cities are attached to their cars. At the same time it should be noted that this attachment is conditioned also by objective factors – long distances are usually at stake. The further the journey the more often the respondents decide to use their own car. In such cases public transport, even though certainly cheaper, does not constitute a sufficiently attractive, comfortable and time effective alternative. The demographic variables conditioning the use of cars to be taken into account are gender and age. A car is more frequently used by men and by individuals aged 35-59.

A car is a regular means of transport for 44% of inhabitants. It is only 3% less than the percentage of passengers using public transport daily.

The growing popularity of bikes may be encouraging, in turn. One in ten respondents claims to use a bike as one of their main means of transport and 6% use it on a regular basis, i.e. every day or a couple of times per week. Contrarily to what we might expect, not only the youngest one belong to that group. The highest share of persons declaring to use a bike every day or at least a couple of times per week is to be noted in the age group 35-44 years, although differences for all age groups below 60 - when using a bike becomes considerably less popular - are insignificant.

Figure 6. Most frequently used means of transport



A regular usage of a car in everyday urban travels is more frequently declared by inhabitants of Katowice and Wroclaw. At the same time inhabitants of these cities point more rarely the usage of public transport. The situation is different in Krakow or Poznan, where roughly one half points the usage of public transport means daily or almost daily whereas in Warsaw the analogue figure amounts to nearly 60%.

Table 6. Transport means used daily or at least a couple of times per week

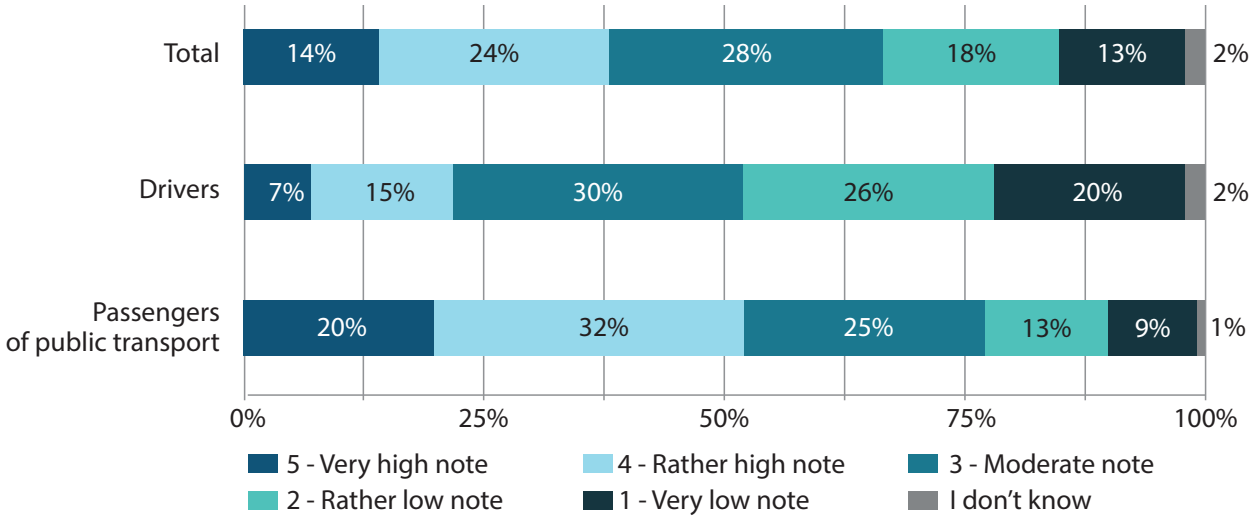
	Total	Katowice	Krakow	Poznan	Wroclaw	Warsaw
Public transport	47%	38%	50%	48%	41%	59%
Private car	44%	49%	38%	43%	49%	36%
Bike	8%	10%	8%	8%	7%	7%
Walking	6%	4%	8%	7%	7%	3%
Taxis or Uber and alike	2%	2%	2%	1%	2%	1%
Car + public transport	1%	2%	0%	1%	1%	1%
Carpooling with acquaintances	1%	0%	2%	0%	1%	1%
Railway connections	1%	1%	0%	1%	1%	0%
Scooter	1%	0%	1%	1%	0%	1%
Suburban buses	1%	1%	1%	0%	0%	0%

Assessment of urban transport

Inhabitants vary in their views on urban transport. On one hand, almost 40% of respondents rank the possibility to move around the city on weekdays high or even very high. On the other hand one in three has a negative opinion about travel conditions, which should be interpreted as a moderate assessment with a negative note.

The above assessment is determined above all by the kind of transport means used in everyday travel – users of public transport are much more satisfied. In this group the percentage of persons inclined to give the transport options offered by their city a ”4” or a ”5” amounts to 52% with 22% of negative opinions. Meanwhile, the analogue values for drivers show almost the exact opposite distribution – 22% of positive opinions against 46% of negative ones. Demographic variables are almost irrelevant in this context and the slightly more negative opinion in the age group 35-44 years is due to the higher frequency of using a car in this very age group, which, as it was stated beforehand, conditions the tendency towards a negative assessment of urban transport options.

Figure 7. General assessment of urban transport on weekdays



The assessment of transport options differs significantly between cities. The highest level of satisfaction is to be noted with inhabitants of Warsaw and Poznan. The most negative opinions appear in responses from inhabitants of Wroclaw.

Table 7. General assessment of transport means on weekdays

	Total	Katowice	Krakow	Poznan	Wroclaw	Warsaw
High note (4+5)	39%	36%	35%	45%	27%	50%
Moderate note (3)	28%	30%	26%	31%	28%	23%
Low note (1+2)	32%	32%	36%	23%	44%	25%
I don't know	2%	2%	3%	1%	2%	2%

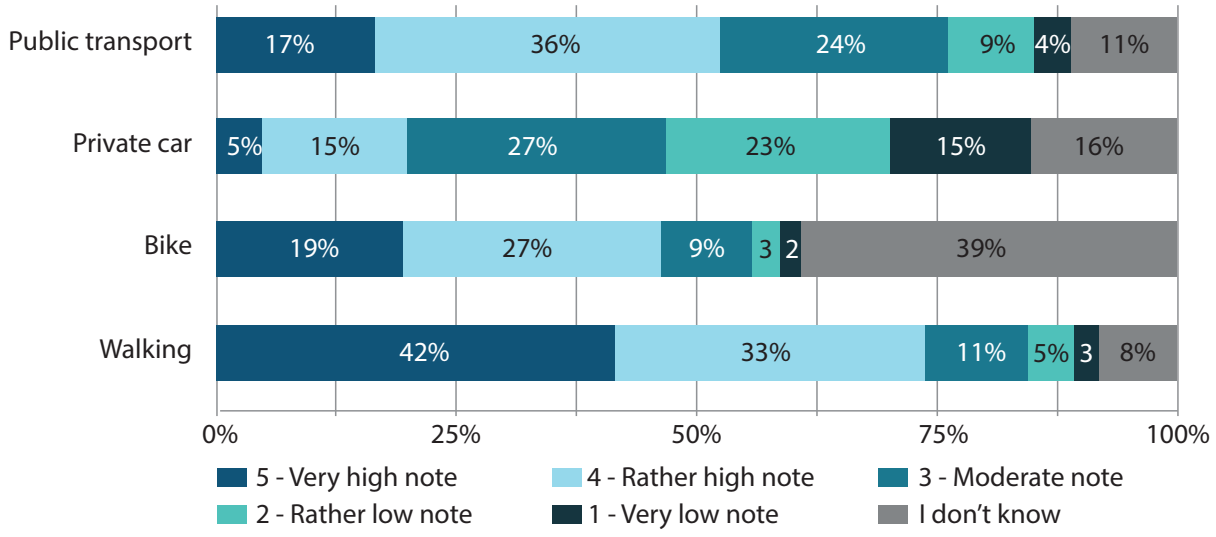
Comparing the assessment of particular types of transport in the biggest Polish cities leads to a conclusion that it is most effective to walk around them. This means of transport was pointed as effective by 80% of respondents. From the remaining three means of transport, i.e. collective transport, bike and private car, the latter ranked the lowest. The effectiveness of driving a car in a city is criticised by 38% of respondents. The percentage of negative assessments increases to 42% in the group of drivers themselves, whereas among those who use public transport to travel daily it does not exceed 33%.

Comparing the assessment of particular types of transport in the biggest Polish cities leads to a conclusion that it is most effective to walk around them.

Over 50% of respondents rank the effectiveness of moving around the city by public transport high or very high, and only one in seven is unequivocally negative in their opinion.

A bike is generally perceived by inhabitants of cities as an effective means of transport. A considerable part of respondents sees it as a good mobility choice whereas only 5% of respondents say the opposite. However it should be noted that a considerable group of respondents does not feel competent to make an assessment in this regard. Therefore, this opinion has a primarily intuitive character, because most respondents do not use a bike as a means of transport on a daily basis (hence many responses ”I don’t know”). In this case it is worth looking closer at evaluations delivered by the most competent ones, i.e. persons who do use a bike daily or at least a couple of times a week, whose percentage of respondents in the research amounts only to 6%. Among bike riders the opinion about a bike’s effectiveness as a means of transport is unequivocally positive. 90% of researched bike riders give this type of transport a “5” or a “4”.

Figure 8. Assessment of the effectiveness of moving around the city by different means of transport



The assessment of collective transport differs significantly between researched cities. The most positive opinions were expressed for Warsaw, Poznan and Krakow. Public transport is evaluated considerably poorer in Wroclaw, where one in five respondent expresses a negative opinion about

it. Using a private car is not appreciated in Wroclaw either, the same holds true for Krakow. Inhabitants of Katowice and Warsaw appreciate their cities more in this respect. The most bike friendly cities are Wroclaw, Krakow and Poznan, according to their respective inhabitants, whereas the lowest note goes to Katowice.

Table 8. Assessment of the effectiveness of moving around the city by different means of transport

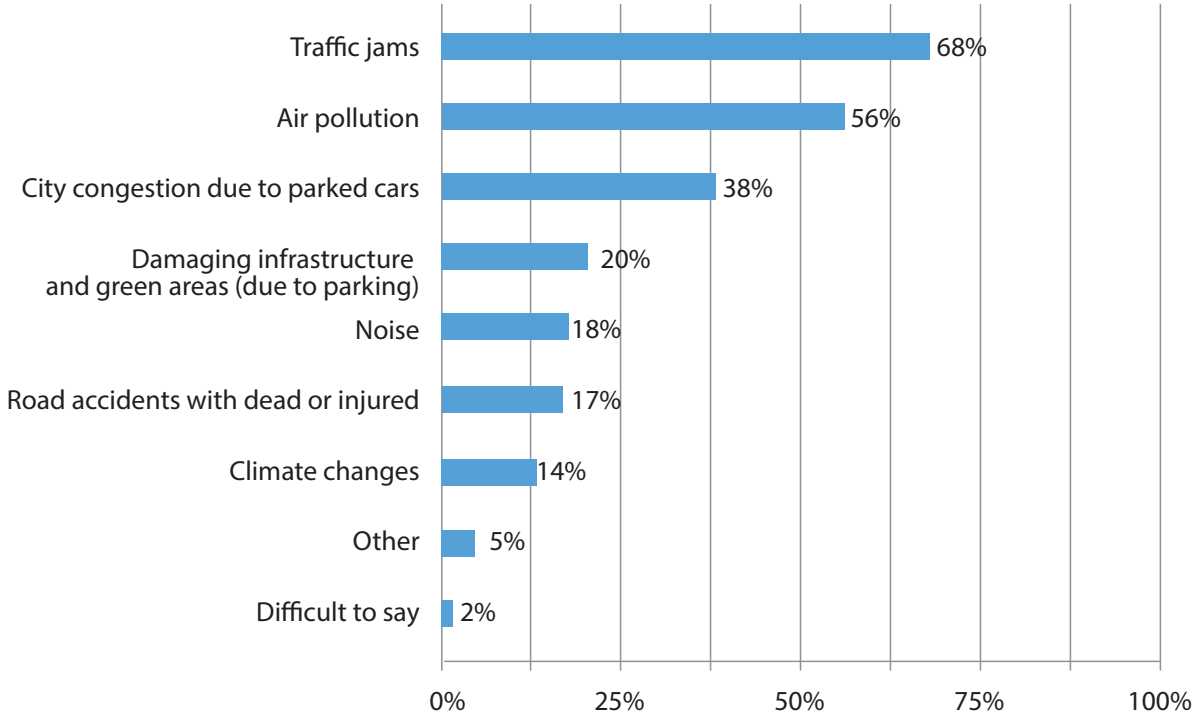
Public transport	Total	Katowice	Krakow	Poznan	Wroclaw	Warsaw
High note (4+5)	52%	45%	56%	60%	40%	59%
Moderate note (3)	24%	26%	21%	22%	25%	25%
Low note (1+2)	13%	12%	13%	8%	22%	8%
I don't know	11%	16%	10%	9%	13%	7%
Private car	Total	Katowice	Krakow	Poznan	Wroclaw	Warsaw
High note (4+5)	20%	30%	12%	20%	15%	22%
Moderate note (3)	27%	27%	24%	31%	24%	28%
Low note (1+2)	38%	29%	46%	35%	48%	31%
I don't know	16%	14%	18%	14%	12%	19%
Bike	Total	Katowice	Krakow	Poznan	Wroclaw	Warsaw
High note (4+5)	46%	41%	49%	47%	50%	44%
Moderate note (3)	9%	13%	7%	10%	9%	8%
Low note (1+2)	5%	9%	4%	5%	3%	4%
I don't know	39%	37%	40%	38%	37%	44%
Walking	Total	Katowice	Krakow	Poznan	Wroclaw	Warsaw
High note (4+5)	74%	77%	73%	72%	74%	74%
Moderate note (3)	11%	7%	12%	12%	11%	10%
Low note (1+2)	8%	7%	6%	9%	8%	7%
I don't know	8%	9%	9%	6%	8%	9%

Assessment of car transport related nuisance in the city

It would be banal to state that the inhabitants of the biggest Polish cities have no doubt that **car traffic** in cities generates many problems. But while it is no wonder that the biggest problem resulting from car traffic appears to be traffic jams - the symbol of Polish main roads - it is somewhat surprising that the runner up in that ranking appears to be **air pollution**. This could mean that the inhabitants of cities pay a growing attention to air quality and that they are aware of the impact of transport on the quantity of pollutants in cities.

Another negative factor resulting from car traffic in cities to be pointed is the **congestion of city space with parked cars**. 38% of respondents point this factor. Damaging road infrastructure or green areas by parked cars was pointed less often; the same holds true for noise generated by car traffic or road accidents, although between 17 and 20% of respondents pointed these factors.

Table 9. The biggest problems resulting from car traffic in cities



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Generally traffic jams dominate the indications of respondents from all researched cities asked about problems resulting from traffic. Over 60% of respondents point them for their individual cities, although for Krakow the percentage exceeds 70%. Inhabitants of Krakow are also slightly more inclined towards pointing this phenomenon as being part of the most serious problems. 62% of inhabitants of this city consider the decreased air quality to be one of the most troublesome results of traffic in the city. For comparison, the analogue percentage for Warsaw, Katowice and Wroclaw

Generally traffic jams dominate the indications of respondents from all researched cities asked about problems resulting from traffic.

amounted to 56-57% and for Poznan to 49%. Women are more sensitive to the problem of air pollution than men. The inclination to point this phenomenon is weakly correlated with age or using a car versus public transport on a daily basis.

Table 9. The biggest problems resulting from traffic in cities

	Total	Katowice	Krakow	Poznan	Wroclaw	Warsaw
Traffic jams	68%	65%	73%	65%	69%	68%
Air pollution	56%	57%	62%	49%	56%	56%
City congestion due to parked cars	38%	47%	38%	34%	34%	37%
Damaging infrastructure	20%	16%	18%	21%	24%	21%
Noise	18%	15%	17%	20%	18%	17%
Road accidents with dead or injured	17%	18%	13%	20%	14%	22%
Climate changes	14%	14%	11%	16%	14%	12%
Other	5%	3%	4%	5%	7%	5%
Difficult to say	2%	2%	3%	3%	1%	2%

The respondents, asked directly about the impact of traffic on air pollution in cities, confirm the conclusions from the analysis of responses to the question about the biggest problems resulting from traffic. Only one in seven respondents is inclined to assess the magnitude of this impact as insignificant or claims that such an impact does not even exist. **A vast majority - 83% of respondents – claims that the impact of traffic on air quality is a fact.** Generally 37% of researched city inhabitants claim it to be very high and the level of such responses is similar in all researched cities.

Figure 10. Assessment of the impact of traffic on air pollution in cities

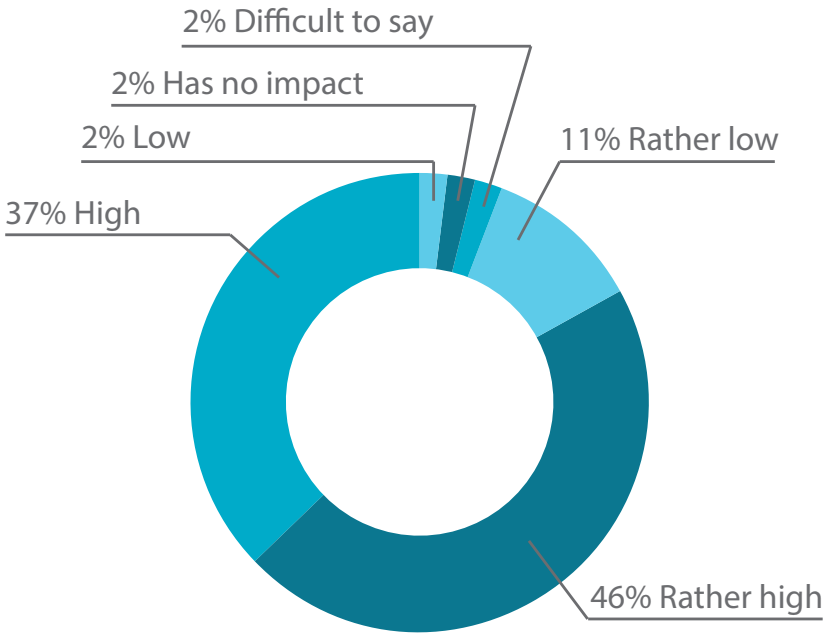


Table 10. Assessment of the impact of traffic on air pollution in cities

	Total	Katowice	Krakow	Poznan	Wroclaw	Warsaw
High	83%	81%	81%	85%	82%	86%
Low	13%	14%	16%	12%	14%	9%
Has no impact	2%	2%	1%	1%	2%	2%
Difficult to say	2%	3%	2%	2%	2%	3%

Respondents claim that, with regard to transport pollution, there is still much to be done. A vast majority of inhabitants of cities is of the opinion that both central and local authorities should do much more in this respect. **80% of respondents claim that the Polish government has an obligation to pay more attention and resources to solving the problems of transport related pollution in cities.** Only one in ten is of the opinion that everything that could be done in that matter has already been done.

Figure 11. Assessment of the commitment of the Polish government to actions for reducing air pollution resulting from traffic

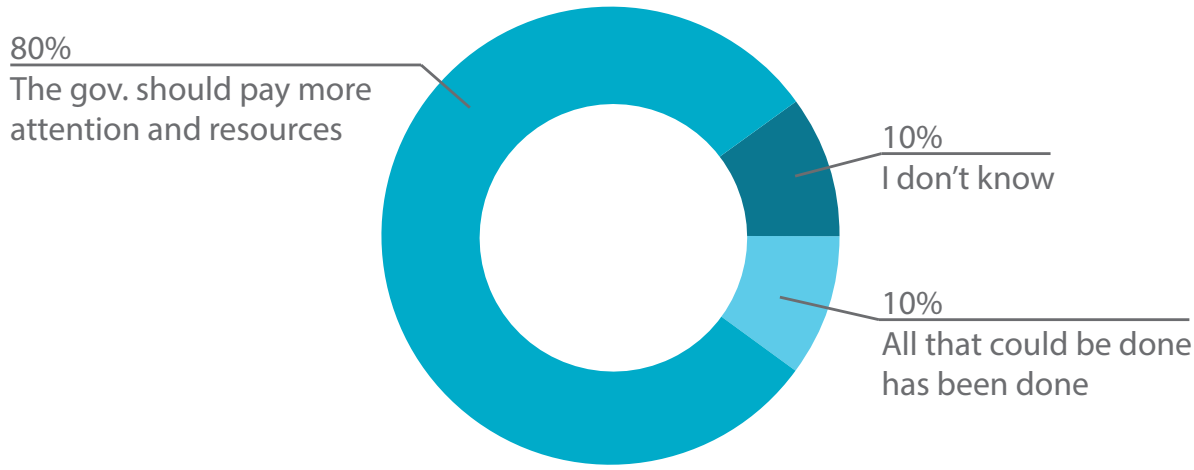


Table 11. Assessment of the commitment of the Polish government to actions for reducing air pollution resulting from traffic

	Total	Katowice	Krakow	Poznan	Wroclaw	Warsaw
The gov. should pay more attention and resources	80%	75%	82%	84%	81%	80%
All that could be done has been done	10%	10%	11%	7%	9%	11%
I don't know	10%	14%	7%	9%	10%	9%

Inhabitants expect more action with regard to transport related pollution also from their local authorities. In this case, however, the percentage of respondents pointing the adequacy of to date actions undertaken by the city with regard to the magnitude of the problem is twice higher than for central authorities. Inhabitants are more frequently inclined to note actions of local authorities than central authorities with regard to tasks linked to the reduction of transport related pollution. However, still a vast majority of respondents considers that cities should do more in this regard.

Figure 12. Assessment of the commitment of local authorities to the reduction of air pollution resulting from traffic

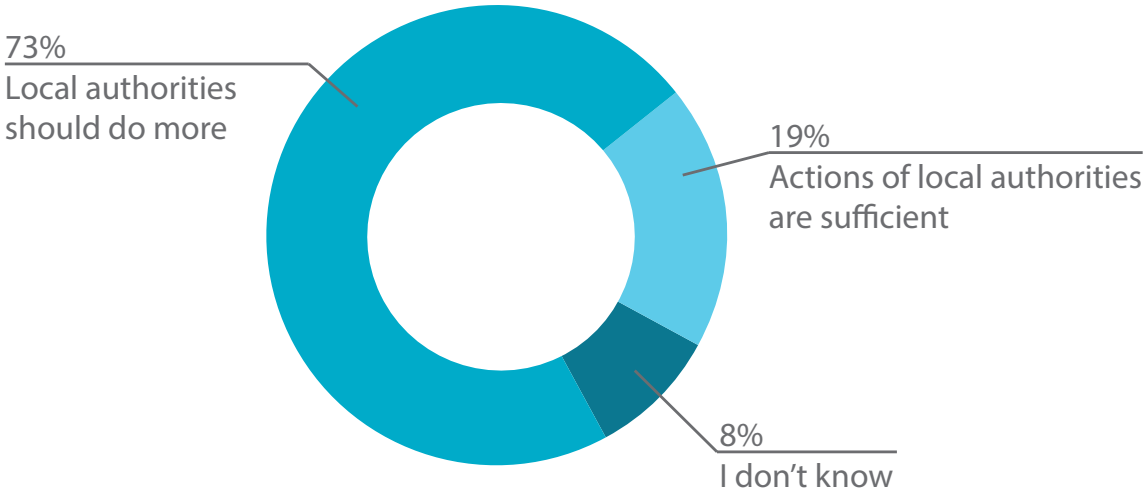


Table 12. Assessment of the commitment of local authorities to the reduction of air pollution resulting from car traffic

	Total	Katowice	Krakow	Poznan	Wroclaw	Warsaw
Local authorities should do more	73%	72%	73%	74%	70%	74%
Actions of local authorities are sufficient	19%	16%	20%	21%	18%	18%
I don't know	8%	11%	7%	5%	11%	8%

Factors of change in transport related behaviour

One half of drivers who regularly use their own vehicle to move daily around the city declares that they would be inclined to give up on the car. This attitude is slightly more frequent among inhabitants of Warsaw, Poznan and Krakow. In case of Wroclaw and Katowice the percentage of persons unequivocally rejecting such a solution is higher.

The following question arises naturally: what factors could motivate inhabitants of cities to abandon cars for the benefit of public transport. It turns out that these are mainly ecological aspects as well as a simple profit and loss account. According to respondents, using public transport is undoubtedly cheaper than regular traveling by car. On top of that it gives rise to the feeling that our journey is considerably less onerous to the environment.

Figure 13. Would you consider giving up on your car or considerably limiting its usage (100% - using a car in town on a regular basis)?

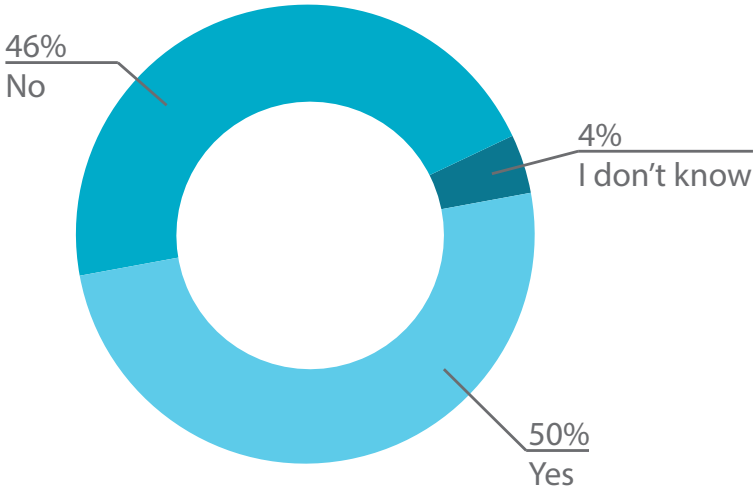


Table 13. Would you consider giving up on your car or considerably limiting its usage (100% - using a car in town on a regular basis)?

	Total	Katowice	Krakow	Poznan	Wroclaw	Warsaw
Yes	50%	48%	52%	51%	45%	56%
No	46%	47%	43%	44%	51%	42%
I don't know	4%	6%	5%	6%	4%	2%

The main motivation to choose a car is above all the comfort of traveling. Respondents claim that in spite of omnipresent traffic jams a car still constitutes the fastest means of transport for those who travel at long distances. A big distance to a stop/station, a too low frequency of departures

and hence a potentially long waiting time in case of a stopover make persons forced to travel far from home opt for a car. After all, the time spent in traffic jams does not differ from the time spent in public transport and it is oftentimes actually shorter.

The research results show that a lack of direct connections to destination rank at the top of all barriers making it difficult to give up on one's own car for the benefit of public transport.

The necessity to stop over discourages from using public transport as many as 36% of respondents using a car on a daily basis. Among respondents from all researched cities, drivers from Warsaw are the ones to point it most often as the main factor discouraging them from using public transport.

Another issue, which arose already before in the context of problems related to urban transport functioning, is the **unsatisfying frequency of circulation of public transport**. This inconvenience was pointed by 30% of respondents from the analysed group. Among the researched cities this issue was raised more often in Krakow, where the problem was mentioned by 35% of drivers, whereas the analogue indicator for Katowice amounted to 26%. Further concerns are the speed of public transport, the big distance of a stop/station from home, the number of park + ride available as well as the crowded means of public transport. **Only one in ten respondents declared straight forwardly that there is nothing that could make him/her give up on a car for the benefit of public transport.**

The remote position of park + ride in the ranking may come as a surprise. However, it should be noted that as a rule the research was conducted among inhabitants living within administrative boarders of cities (with the exception of Katowice, where the research involved also inhabitants of satellite towns), whereas park + rides are mostly used by persons living outside these boarders.

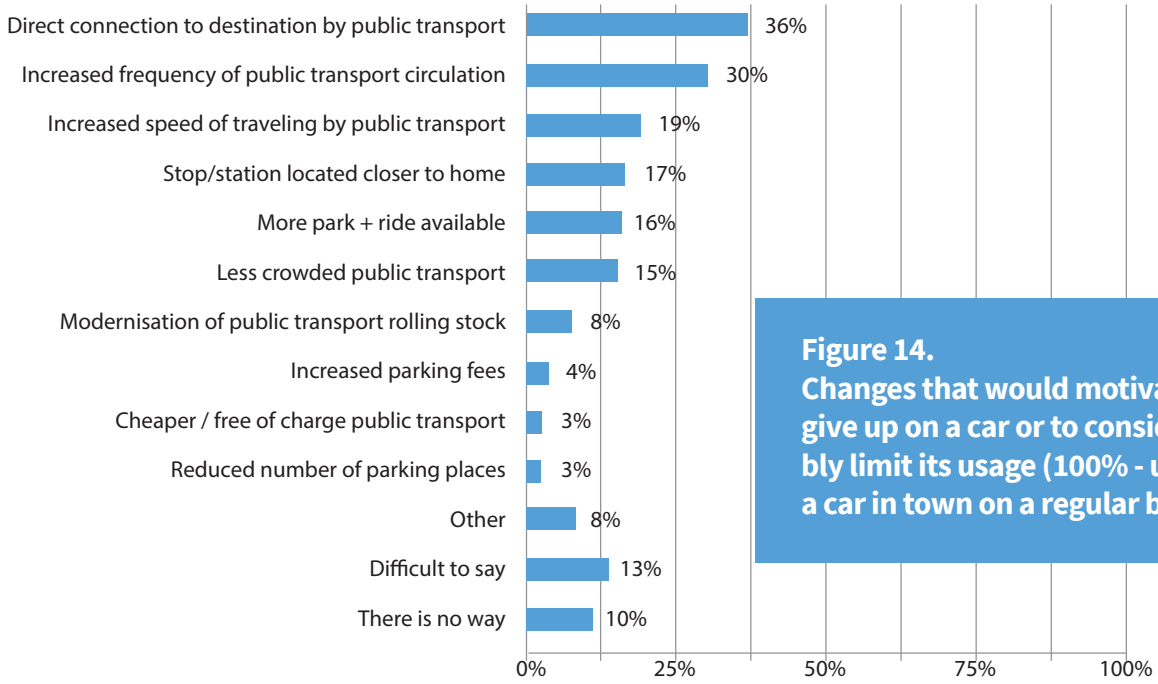


Figure 14.
Changes that would motivate to give up on a car or to considerably limit its usage (100% - using a car in town on a regular basis)

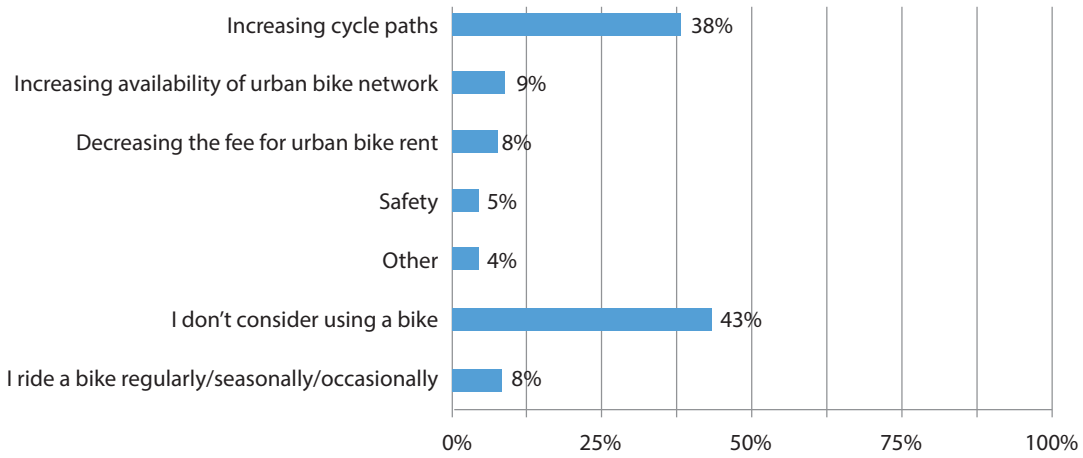
Table 14. Changes that would motivate to give up on a car or to considerably limit its usage (100% - using a car in town on a regular basis)

	Total	Katowice	Krakow	Poznan	Wroclaw	Warsaw
Direct connection to destination by public transport	36%	36%	35%	35%	35%	43%
Increased frequency of public transport circulation	30%	26%	35%	31%	29%	30%
Increased speed of traveling by public transport	19%	21%	19%	12%	20%	22%
Stop/station located closer to home	17%	16%	17%	25%	11%	15%
More park + ride available	16%	15%	16%	17%	15%	17%
Less crowded public transport	15%	9%	13%	18%	16%	20%
Modernisation of public transport rolling stock	8%	9%	5%	8%	10%	6%
Increased parking fees	4%	4%	6%	6%	1%	2%
Cheaper / free of charge public transport	3%	4%	2%	5%	3%	2%
Reduced number of parking places	3%	4%	4%	1%	3%	2%
Other	8%	8%	5%	6%	14%	8%
Difficult to say	13%	15%	12%	16%	13%	11%
There is no way	10%	10%	11%	9%	10%	11%

All respondents were asked a question about changes that would possibly motivate them to use a bike as a means of transport in town. **43% of respondents reply straight forwardly that independently on the circumstances they would not consider using a bike in daily traveling**. As expected, this statement is strongly correlated with age. It comes as no surprise that the percentage of rejecting a bike as a means of everyday transport reaches 70% among persons aged 60+, but it is somewhat surprising that one in five persons from the group aged 18-25 is reluctant to use a bike in their everyday life.

One of the factors pointed most often as motivating to use a bike in town is the development of cycle paths. The respondents point that the cycling infrastructure in Polish cities: usually poor, scattered, full of gaps and sometimes even barriers, does not encourage to use a bike for daily traveling. It is because of this, among other reasons, that a bike is still perceived above all as recreational tool and not as a full-fledged means of urban transport.

Figure 15. Changes that would motivate you to use a bike as a means of urban transport



A factor motivating the youngest participants of the research – up to 24 years – to use a bike on a daily basis is the development of the system of urban bikes.

A factor motivating the youngest participants of the research – up to 24 years – to use a bike on a daily basis is the **development of the system of urban bikes**. It is about increasing the availability of bikes as well as decreasing the price of their rent. In the group aged 25-59, in turn, **arguments related to increased safety of using a bike as a means of transport**, are often raised.

In this case security is very widely understood. It is linked to issues such as privileging a bike over other means of transport present in road traffic, separating bike traffic from other vehicle traffic, lack of culture in relations between drivers, bike riders and pedestrians, assuring safe and comfortable parking places for bikes where they could be left over longer time periods as well as air quality and consequences of using a bike for human health.

Table 15. Changes that would motivate you to use a bike as a means of urban transport

	Total	Katowice	Krakow	Poznan	Wroclaw	Warsaw
Increasing cycle paths	38%	47%	36%	36%	33%	38%
Increasing availability of urban bike network	9%	11%	8%	11%	6%	8%
Decreasing the fee for urban bike rent	8%	8%	8%	10%	7%	6%
Safety	5%	4%	3%	4%	6%	5%
Other	4%	4%	4%	2%	5%	6%
I don't consider using a bike	43%	39%	48%	40%	43%	45%
I ride a bike regularly/seasonally/occasionally	8%	6%	6%	12%	11%	7%

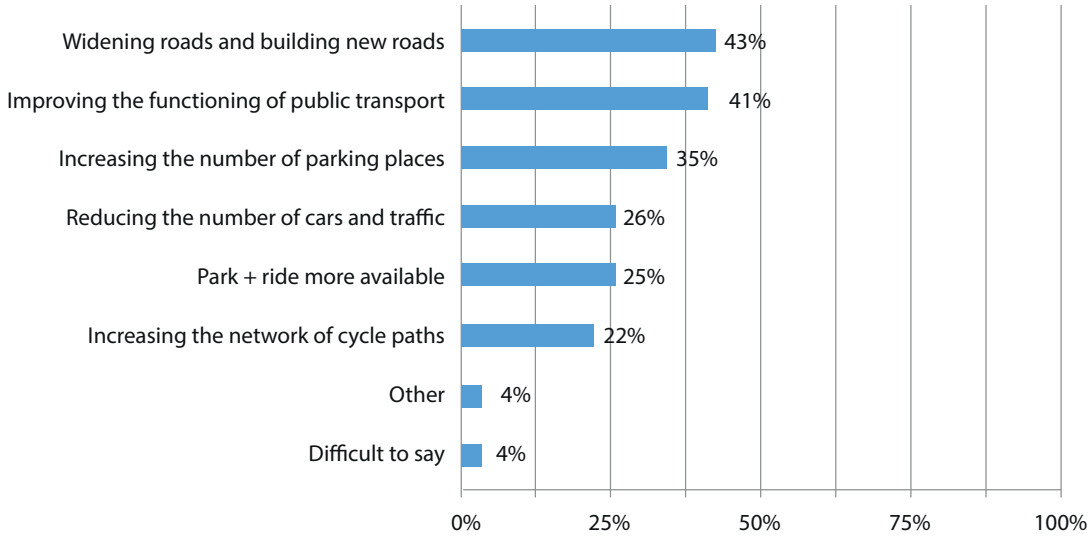
Desired directions of urban transport functioning evolution

According to inhabitants, the multitude of cars on roads and air pollution are the biggest transport related problems of Polish cities. Respondents rank public transport high, but facing longer distances they most often choose their own cars, which usually ends up complaining about travel time, exhaust fumes and endless traffic jams. How to change the situation? How to raise the comfort and shorten the time of travel in our cities? What are the solutions that we would be willing to accept? And would we be able to give up on our habits for the benefit of all?

It turns out that we are rarely inclined to radically change our habits or the perspective through which we look at the world around us. A considerable part of inhabitants of big cities, in spite of being tired of traffic jams, would privilege further works on road infrastructure as a solution to the problem over improving public transport or looking for alternative ways of moving around the city.

It is true that **41% of respondents consider the improvement of public transport functioning as an opportunity to increase quality of moving around the city, but as many as 43% expect new roads to be built and old roads to be widened and one in three would like cities to offer more parking places.** Only one in four inhabitants points in this context the reduction of the number of cars and the traffic thereof and only one in five points investments in the development of cycle paths.

Figure 16. Desired actions to improve urban transport functioning



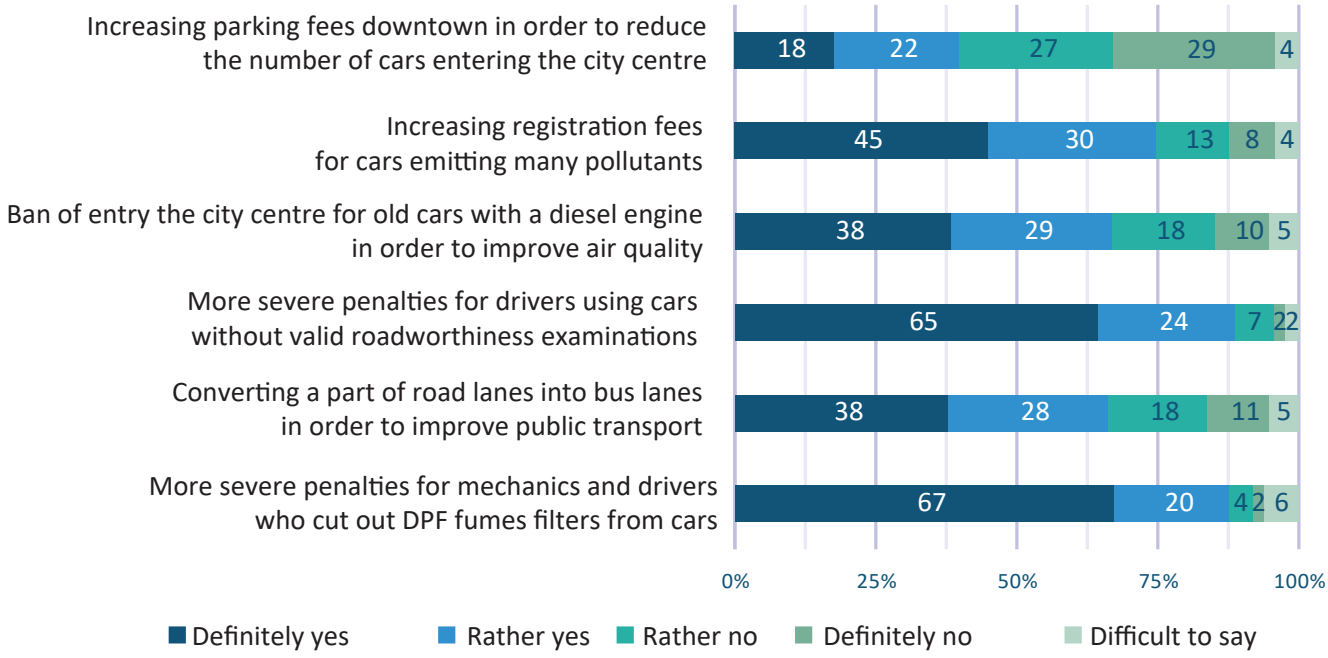
The reduction of the number of cars and of the traffic thereof is expected slightly more often by inhabitants of Krakow and Warsaw. For a change, Wroclaw most often claims widening existing roads and building new ones. Investments in expanding cycle path network was pointed the least here.

Table 16. Desired actions to improve urban transport functioning

	Total	Katowice	Krakow	Poznan	Wroclaw	Warsaw
Widening roads and building new roads	43%	40%	38%	42%	51%	42%
Improving the functioning of public transport	41%	38%	38%	43%	43%	45%
Increasing the number of parking places	35%	38%	34%	39%	28%	33%
Reducing the number of cars and traffic	26%	24%	28%	24%	22%	30%
Park + ride more available	25%	25%	28%	25%	23%	26%
Increasing the network of cycle paths	22%	27%	23%	22%	14%	23%
Other	4%	3%	4%	3%	6%	2%
Difficult to say	4%	4%	2%	3%	4%	4%

We are most often inclined to support solutions which do not limit our own comfort. Among the six actions aimed at reducing air pollution in town, presented to the respondents, **the biggest support was given to solutions that aim at penalising persons breaking the law – increasing penalties for drivers and mechanics cutting out filters and more severe penalties for drivers driving cars without roadworthiness tests. Nearly 90% of respondents expect actions in this regard. The idea of increasing fees payable at registration of vehicles emitting many pollutants enjoys a high support.**

Figure 17. Support for actions aimed at reducing air pollution in town



Most actions whose implementation is linked to imposing limitations on moving around the city also enjoys high support. The idea of converting a part of road lanes into bus lanes was supported by 66% of respondents. The approval of a ban of entry downtown for cars with a diesel engine is also high – such actions are supported by 67% of respondents. The biggest objections evolved arose around the idea of increasing the fee for parking downtown. Over a half of respondents is against such increase. However, this solution is still supported by 40% of respondents. The approval of solutions consisting in the introduction of various types of limitations for private cars is

usually not correlated with demographic variables such as gender or age, however, as expected, it is strongly correlated with the means of transport used in everyday life.

Definitely, the highest support for increasing fees for parking downtown was noted in Warsaw. This idea was approved by nearly half of respondents, whereas in other cities the support for this solution oscillates around 40%. It is also in Warsaw that a considerable percentage of respondents opt for increasing the number of bus lanes. This solution is supported by 76% of respondents from Warsaw, whereas in Wroclaw almost half of respondents are against the development of bus lanes. Inhabitants of individual cities differ in their attitude towards the idea of introducing a ban to enter city centres for old cars with a diesel engine. The share of supporters and opponents of this ban is similar in all researched agglomerations.

Table 17. Support for actions aimed at reducing air pollution in town

Increasing parking fees downtown in order to reduce the number of cars entering the city centre	Total	Katowice	Krakow	Poznan	Wroclaw	Warsaw
Definitely/rather yes	40%	37%	36%	42%	38%	47%
Definitely/rather no	56%	58%	61%	52%	59%	50%
Difficult to say	4%	6%	3%	6%	3%	3%
Increasing registration fees for cars emitting many pollutants	Total	Katowice	Krakow	Poznan	Wroclaw	Warsaw
Definitely/rather yes	75%	66%	76%	78%	77%	78%
Definitely/rather no	21%	27%	22%	19%	21%	18%
Difficult to say	4%	7%	3%	4%	3%	4%
Ban of entry the city centre for old cars with a diesel engine in order to improve air quality	Total	Katowice	Krakow	Poznan	Wroclaw	Warsaw
Definitely/rather yes	67%	67%	67%	68%	66%	67%
Definitely/rather no	28%	29%	26%	26%	29%	28%
Difficult to say	5%	4%	7%	6%	4%	5%
More severe penalties for drivers using cars without valid roadworthiness examinations	Total	Katowice	Krakow	Poznan	Wroclaw	Warsaw
Definitely/rather yes	89%	85%	87%	90%	91%	91%
Definitely/rather no	9%	12%	11%	6%	8%	7%
Difficult to say	2%	3%	2%	3%	1%	2%
Converting a part of road lanes into bus lanes in order to improve public transport	Total	Katowice	Krakow	Poznan	Wroclaw	Warsaw
Definitely/rather yes	66%	67%	70%	69%	49%	76%
Definitely/rather no	29%	24%	26%	25%	48%	21%
Difficult to say	5%	9%	4%	6%	3%	3%
More severe penalties for mechanics and drivers who cut out DPF fumes filters from cars	Total	Katowice	Krakow	Poznan	Wroclaw	Warsaw
Definitely/rather yes	88%	87%	85%	90%	88%	88%
Definitely/rather no	6%	6%	8%	4%	7%	7%
Difficult to say	6%	7%	7%	5%	5%	5%