EFFECTS OF COVID-19 MEASURES ON MOBILITY OF MEN AND WOMEN

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The coronavirus–officially COVID-19–has rapidly spread around the world in recent months. Various measures have been taken to ensure that as few inhabitants as possible contract the coronavirus or spread the infections over time. Since March 16th, the Dutch government has called on people to stay home as much as possible. However, the care sector and other vital sectors in society, where working remotely is not possible, have been excluded from these measures.

We wondered: are there differences in the impact of these measures on the mobility of men and women in the Netherlands? And with these potential differences in mind, we also look ahead. In the coming weeks and months, the measures will be relaxed step-by-step, meaning we will have to continue to deal with some restrictive measures for a longer period of time. We are therefore trying to answer the question of whether governments, companies or organizations could do something in the near future to mitigate the different effects of the measures on different groups in society?

Motivation

The motivation for our research into the (expected) differences in effects of the COVID-19 measures on the mobility of men and women came from a request through our international network. The Women Mobilize Women initiative, part of the Transformative Urban Mobility Initiative (TUMI), is collecting data, news and experiences about the gender effect of COVID-19 and asked if we wanted to contribute with information from the Netherlands. We were happy to respond to this request, and to share the results of our findings within and outside of the Netherlands. The findings provide food for thought, discussion and action on how the mobility sector can contribute to mitigating the effects on groups in society that are affected by the measures the most.

Method

The main method used for this study was to perform a data analysis. We used data from Apple, Google and Translink about changes in mobility in recent weeks, as well as data from

Statistics Netherlands and the Netherlands Institute for Social Research. We combined data relating to mobility, such as the distribution of modalities, with data about professions in which men and women work. We then related them to the effects of COVID-19 measures on the ability to practice those professions, and were able to make a descriptive analysis of the expected differences of the effects of COVID-19 measures on the mobility of men and women. We also collected additional relevant data and conducted two interviews with organizations that are in direct contact with people for whom we consider it plausible that COVID-19 measures have a major impact on their mobility. The aim was to get an idea of whether governments, companies or organizations could do something in the near future to mitigate the effects of the measures on these vulnerable groups in society.

Results

A general picture of the impact of the coronavirus on Dutch mobility can be found, for example, in data from Apple and Google[1]. They collect anonymous data from users, which can be used to see how many people travel, in which ways and to which destinations. These data are not 100% reliable, but do provide an indication of mobility habits.

Figure 1 shows that there has been a significant decrease in the number of trips of the Dutch population since the introduction of the strict corona measures. According to these data, travel for work has decreased by a quarter. The strongest decrease in the number of travelers in these figures can be seen in public transport. The sharp decline is confirmed by data

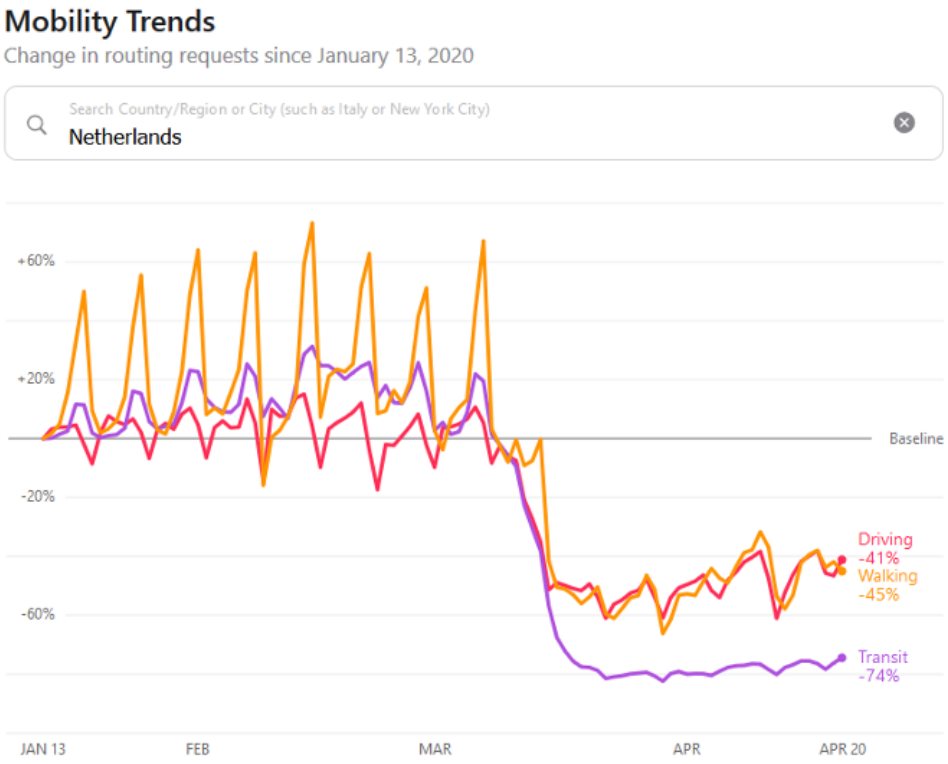

***Figure 1**: Increase or decrease in mobility per modality from 13 January to 20 April 2020, (bicycle data not included). Taken from Apple, 2020.*

from Translink[2]. For this reason, combined with the reduced number of personnel available due to the corona virus, most public transport operators have largely depleted their timetables. Public transport that continues to run is only intended for people with a vital occupation.

[1] *Apple. (2020, April 20). Mobility Trends Reports. Consulted on April 22, 2020, from https://www.apple.com/COVID19/mobility and Google. (2020, April 11). COVID-19 Community Mobility Reports. Consulted on April 22, 2020, from https://www.google.com/COVID19/mobility*

[2] *https://app.powerbi.com/view?r=eyJrIjoiMDNmZWQ5ZDYtMmI5OS00ZTgyLWI2NjgtY2I0NDhmNzQ5OWZhIiwidCI6IjVjMTM0ZjEzLWE1MmUtNDFhNi1iOGIwLWNiYzY0ND-hiMzczYSIsImMiOjh9*

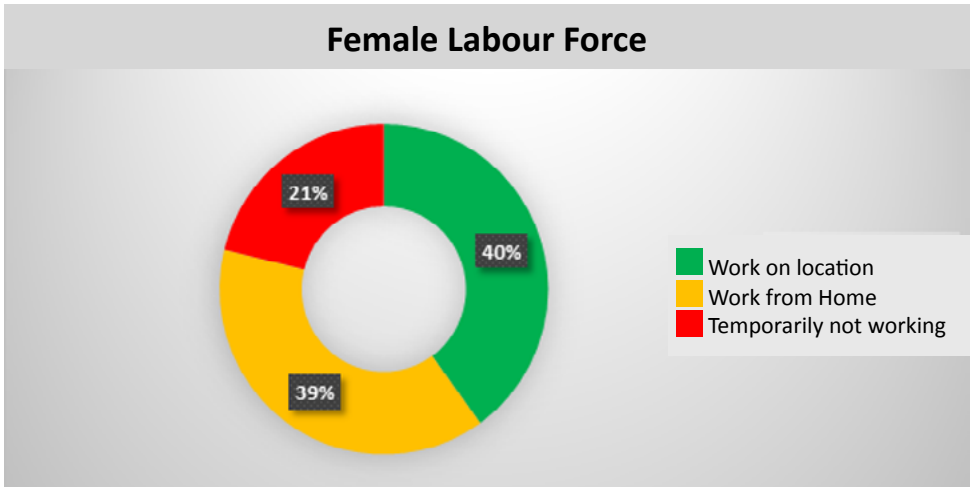

***Figure 2**: Distribution of female labour force during the corona crisis (source: CBS, 2019)*

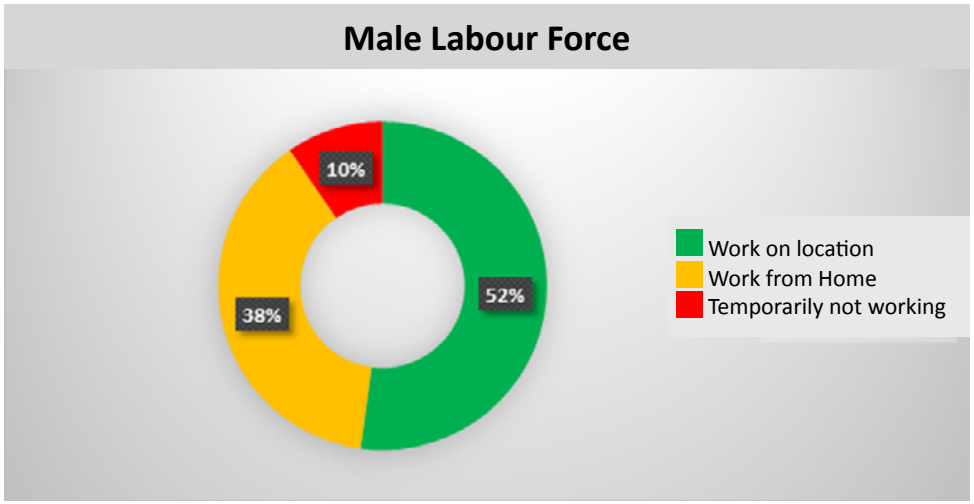

***Figure 3**: Distribution of male labour force during the corona crisis (source: CBS, 2019)*

People who depend on public transport can also continue to use it for necessary journeys.

To get an idea of the differences in effects of the measures on the mobility of men and women, we looked at the distribution between men and women across different professions. After all, we know that certain professions fall under the vital sectors, and that other professions have come to a standstill, or have mainly started working from home. Based on the most up-to-date Statistics Netherlands data on the working population, it can be expected that there are large differences between men and women when it comes to mobility during the corona crisis (see **figures 2 and 3**).

More than half of the men were probably still travelling to or for work, while this was the case for only 40% of women. The proportion of women who stayed at home or were temporarily out of work due to the corona crisis can be estimated at 21%. Among men, this is only 10%. Women are overrepresented in professions that temporarily can/could not be performed. Think, for example, of professions such as beauticians, hairdressers, cleaners or administrative employees. Despite the corona crisis, technical professions such as construction workers, car mechanics, drivers, gardeners, police or fire departments largely continued. Men are overrepresented in these sector. It is striking that there are fewer opportunities for the less educated to continue working during this period, because many professions at this level are not feasible to be conducted from home, or even temporarily shut down. **Figure 4** shows that women in the Netherlands are more often less educated than men. This confirms the view that the measures have a greater–negative–effect on mobility for women than for men, and this applies in particular to less educated women.

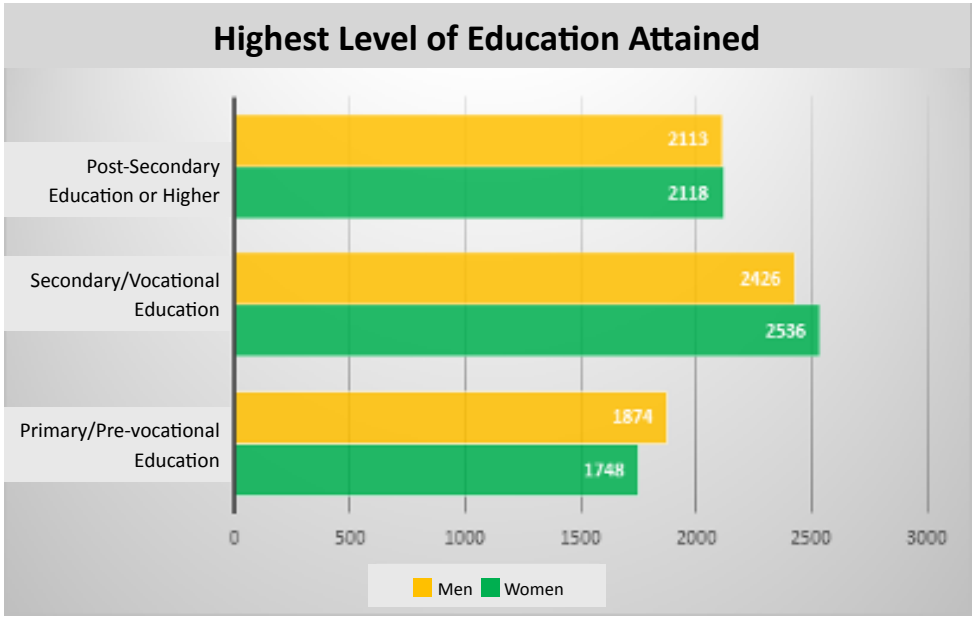

Figure 4: *Highest level of education attained between the ages of 15 and 75 in 2019 (source: CBS, 2019)*
- Lower educated: primary education, pre-vocational secondary education, lower secondary education, pre-vocational secondary education and MBO-1
- Secondary education: havo, vwo, mbo-2, mbo-3 and mbo-4
- Higher educated: HBO, WO (or higher)

A relaxation of the measures from 11 May 2020, further adjustments from 1 June 2020

With the relaxation of measures, a new situation is emerging. An important question is: how do people who normally travel by public transport or travel with a colleague who travels by car, now travel to work or to other important destinations? Despite relaxing restrictions, it is still advised to travel as little as possible by public transport, and travel by car is only possible with someone from your own household. As a result, the above-stated question is especially relevant for people who do not work in vital sectors and those who want to limit their health risks. The mandatory mask when traveling by public transport in the Netherlands, as of 1 June, is also new.

We are interested in the question: “Are the options for alternatives to public transport and travelling by car as a passenger with someone from outside the household different for men and women?” In order to answer this question, we looked into the variance in use of different modalities between men and women under normal circumstances, and have translated this to the new situation.

How men and women traveled by bus/tram/metro and by car as passengers before March 2020

In the Netherlands, the average number of trips per day by bus/tram/metro in 2017 was 0.07. For men it was just below average (0.06) and for women just above (0.08). **Table 1** shows these figures for the bus/tram/metro and the other modalities. If we delve further into the data, it can be seen that for people with a non-Western migration background this number is 0.18 trips, more than twice the national average. For women with a non-western migration background, it is more than three times higher, with 0.22 trips by bus/tram/metro per day. The average distance of these journeys, which will need to be replaced as long as the measures last, is considerable. In 2017, an average bus/tram/metro ride for women was 7.6 kilometers. For men, this distance was 8.3 kilometers.

When riding as a passenger, it is striking that on average women make far more passenger journeys per day than men: 0.43 trips per day for women versus 0.26 for men. If we look at the average distance of a ride as a passenger in a car, it is a bit further for women than for men with 18.1 versus 17.2 kilometers.

The modalities that can compensate for the lack of the possibility to use public transport and to ride along as a passenger with someone from outside your own household are the (electric) bicycle, the (light) moped and the car[3]. We walk through these options one by one below.

Mode of Transport	Average number of trips per day (combined)	Men	Women	Average trip distance in km per day (combined)	Men	Women
Car (driver)	0.83	0.92	0.75	18	21.2	14.2
Car (passenger)	0.35	0.26	0.43	17.8	17.2	18.1
Train	0.07	0.07	0.06	43.1	41.47	44.7
Bus/Tram/Metro	0.07	0.07	0.08	7.9	8.3	7.6
Scooter or Moped	0.03	0.03	0.02	5.9	6	5.7
Bicycle (electric)	0.67	0.62	0.73	3.4	3.9 (4.4)	3 (4.2)

***Table 1**: The average number of trips per day and the average trip distance per day in km in 2017, for the different modes of transport for men and women (source: CBS and OViN 2017)*

Travel by bus/tram/metro and travel by car as a passenger with someone who is not a member of the same household replaced by the (electric) bicycle

The (electric) bicycle was somewhat more popular among women with on average 0.73 trips per day in 2017, compared to 0.62 trips among men (see **Table 1**). If we look at the average distance of a bicycle ride, it is noticable that it is somewhat greater for men than for women: an average bicycle ride for men in 2017 was 3.9 kilometers and for women it was 3 kilometers. For the electric bicycle, this was 4.4 and 4.2 kilometers respectively. In order to replace the average bus/tram/metro ride during the corona crisis, men must be prepared to cycle more than twice as far as an average bicycle ride for men; women must be prepared to cycle more than 2.5 times as far as the average ride for women (See table 2). With the electric bicycle, this is just under 2 times for men and women. To replace the average ride that a passenger rode in the car, men should be prepared to cycle nearly 4.5 times as far as an average bike ride for men, and women 6 times as far as an average bike ride for women. With the electric bicycle, this is almost 4 times for men and over 4 times for women.

[3] *We assume that the option to replace movements with walking will often drop, although we are aware that this is not always justified.*

Trip to be replaced (km):	Replacement Trip Mode (km)	Number of times
Bus trip man 8.3	Cycle trip man 3.9	2.1
Bus trip woman 7.6	Cycle trip woman 3	2.5
Bus trip man 8.3	E-Bike trip man 4.4	1.9
Bus trip woman 7.6	E-bike trip women 4.2	1.8
Bus trip man 8.3	Moped trip man 6	1.4
Bus trip woman 7.6	Moped trip woman 5.7	1.3
Car trip as passenger man 17.2	Cycle trip mann 3.9	4.4
Car trip as passenger woman 18.1	Cycle trip woman 3	6
Autorit als passagier man 17.2	E-Bike trip man 4.4	3.9
Car trip as passenger woman 18.1	E-bike trip women 4.2	4.3
Car trip as passenger man 17.2	Moped trip 6	2.9
Car trip as passenger woman 18.1	Moped trip woman 5.7	3.2

Table 2: *The number of times the average distance of a means of transport must be used, to replace a ride on the bus/tram/metro or as a passenger in the car, by the bicycle, the electric bicycle or the moped / scooter, for men and women in 2017 (based on data from Statistics Netherlands and OViN 2017).*

When looking at the (electric) bicycle as an alternative to bus/tram/metro, we have to take into account that there are people for whom this alternative is not realistic. There are people who cannot or should not cycle due to health problems or old age. We do not know whether there are differences in this aspect in the Netherlands between men and women. There are also adults who have never learned to cycle. Although there are no exact figures, it is known that this mainly concerns women with a non-Western migration background[4]. As we have already seen, this group made relatively large use of the bus/tram/metro for the COVID-19 measures.

Traveling by bus/tram/metro and traveling by car as a passenger with someone who is not a member of the same household replaced by the (light) moped

The (light) moped was somewhat more popular among men in 2017 than among women, with an average of 0.03 trips per day for men and 0.02 for women, respectively (see **Table 1**). The average distance of a (light) moped ride for men was 6 kilometers and for women it was 5.7 kilometers. In **table 2** we see that men and women who are willing to ride the (light) moped to travel nearly one and a half times as far as the average for men or women in 2017, could replace their ride on the bus/tram/metro with a (light) moped ride. Men can replace the average ride they would otherwise ride as a passenger in the car by driving 2.9 times as far with the (light) moped. For women, this is slightly higher at 3.2 times (see **Table 2**).

[4] *See, for example Blijvend anders onderweg - Mobiliteit allochtonen nader bekeken. Kennisinstituut voor Mobiliteitsbeleid, 2008*

Traveling by bus/tram/metro and traveling by car as a passenger with someone who is not a member of the same household replaced by driving a car yourself

Another option is to drive the car yourself, as an alternative to bus/tram/metro and to ride along as a passenger with someone from another household. The car was by far the most used mode in 2017, with an average number of 0.83 trips per day. There is a clear difference between men and women. Men make an average of 0.92 trips by car per day and cover an average of 21.2 kilometers. Women, on the other hand, make an average of 0.75 trips by car per day and cover an average of 14.2 kilometers.

In order to be able to use the car, a driving license and car ownership, or another way of access to a car are important indicators. There is a difference in driving license and car ownership between men and women. The percentage of men in possession of a driver's license is 85%, which is considerably higher than among women (75%)[5]. The difference in car ownership is even greater. Only half of the women have a car to their name, compared to more than two thirds of the men[6].

[5] https://www.cbs.nl/nl-nl/nieuws/2019/09/80-procent-volwassenen-heeft-rijbewijs
[6] https://opendata.cbs.nl/#/CBS/nl/dataset/81844NED/table

Economic independence

One of the reasons that fewer women than men own a car is that there are relatively fewer women than men who are economically independent. In the Netherlands, a person is considered as economically independent when he or she earns at least 70% of the net minimum wage (which does not mean that these people are financially self-sufficient). In 2018 this was an amount of € 1,115.94 per month[7] and in total 62.3% of all women earned at least this amount, compared to 80.5% of all men[8], see **table 3**. If we again zoom in on the numbers, we see large differences between women[9]. Among women with a partner and children, 64.7% were economically independent, followed by single women with 63.1%. Among women with a partner and without children living at home, the percentage is 59.7% and the lowest percentage of women who are economically independent are single mothers with 56.7%. Two thirds of these single mothers perform paid work[10].

If we do not look at family composition, but at origin, it is striking that 66% of women with a Dutch background are economically independent, and the second generation of women with a non-Western migration background are not far behind with 62.5%. First-generation women with a non-Western background, on the other hand, are economically independent for only 37.2%. This first generation of women with a non-western background are not just the group of women who came to live in the Netherlands in the 1970s or 1980s. It also concerns more recent family migrants and refugees.

[7] https://www.rijksoverheid.nl/onderwerpen/minimumloon/bedragen-minimumloon/bedragen-minimumloon-2018
[8] https://www.cbs.nl/nl-nl/nieuws/2019/47/vooral-meer-moeders-economisch-zelfstandig
[9] *The differences among men are much smaller (see: Leren van Verschillen, SCP, april 2017)*
[10] https://digitaal.scp.nl/emancipatiemonitor2018/assets/pdf/emancipatiemonitor-2018-SCP.pdf

Groep / Group	Economic Independence
Men	80.5%
Women	62.3%
Married/Commonlaw women with children	64.7%
Single women	63.1%
Married/Commonlaw women without children living at home	59.7%
Single mothers	56.7%
Women of Dutch heritage	66%
Second generation women with non-Western background	62.5%
First generation women with non-Western background	37.2%

***Table 3**: Percentage of economically independent persons among men and women, by family situation of women, and by migration background of women in 2018 (in percentages of the total of the group, excluding pupils and students) (source: Statistics Netherlands)*

Car sharing

Someone with a driving license, without owning a car, can also use car sharing. Of course this raises questions, because the corona virus can also be spread via a shared car. Since the introduction of the COVID-19 measures, the use of shared cars has decreased enormously[11] and providers of shared cars pay much attention on their websites[12] to whether it is safe to travel with a shared car. They provide tips, or guidelines, for cleaning the car. Many providers also offer the possibility to look in the app or on the website to see when the car was last used. People can then pick up the car that has stood still the longest. For now, we will keep in mind that under certain circumstances a shared car can currently be an alternative to traveling by bus/tram/metro or riding along as a passenger with someone who is not a member of the same household.

According to carshare provider MyWheels, the male-female distribution among the users of their services is normally 50/50. After the introduction of the COVID-19 measures, there has been a considerable growth in the number of journeys. It was also noticeable that the proportion of men is higher than normal, namely 64%[13]. It is not yet known why this is the case.

However, a study into shared car use in 2014 and 2015 by the Netherlands Institute for Transport Policy Analysis[14] revealed that car sharers are mainly young, highly educated, city dwellers. With this knowledge, it can be

[11] https://autodelen.info/publicaties/2020/4/10/autodelen-lijdt-onder-corona

[12] *See for example:* https://www.buurauto.nl/autodelen-en-corona/, https://www.greenwheels.com/nl/nl/de/nl/nl/prive/nieuws/greenwheels-het-corona-COVID-19-virus *and* https://wegocarsharing.com/autodelen-en-corona-hoe-werkt-dat/

[13] *See LinkedIn post:* https://www.linkedin.com/in/karina-tiekstra-9177434/

[14] https://www.cvs-congres.nl/cvspdfdocs_2015/cvs15_022.pdf

assumed that lower income groups are less familiar with the possibilities of car sharing. It is also known that shared mobility services are not easily accessible to lower income groups[15]. They experience digital payment systems, websites and apps as not easily accessible. As we saw earlier, more women than men are not economically independent and are more likely to belong to the lower income bracket. There are also more women than men among the low-literate[16].

Differences between men and women in driving license ownership, car ownership and the degree of economic independence make it clear that for women, driving a car by yourself is expected to be a less accessible alternative for traveling by bus/tram/metro or riding as a passenger with someone who is not a member of the same household, compared to men. Especially for single mothers and first generation women with a non-Western background, it is often not a realistic alternative financially.

Conclusion

From our exploratory study, it can be concluded that the impact of the corona virus on mobility figures in recent weeks will be greatest among women, especially women with a lower level of education. Lower educated people generally have fewer opportunities to work during this period and therefore travel a lot less. As a result, there is not only more uncertainty for less educated women during the corona crisis, but also a risk of financial problems and social isolation.

If we look ahead and list the alternatives for bus/tram/metro and for riding a car as a passenger with someone who is not a member of the same household, it turns out that there is a great chance that women will get off less favorably than men. Women will have to put in relatively more effort than men to get to their destination, although the difference with the electric bicycle and moped is smaller than with a regular bicycle. It can also be expected that women will have fewer alternatives at their disposal, compared to men. In particular, first-generation women with a non-Western background, less educated women and single mothers are more likely to experience problems with their mobility, because they have few alternatives to urban public transport.

Recommendations

It has been said multiple times in recent weeks that this crisis will widen the gap between people in society who have opportunities and those who do not[17]. Our survey confirms that it is very likely that those already in a more vulnerable position will be most affected by the COVID-19 measures, due to financial uncertainty, less access to different mobility options and greater risk of social isolation. We wondered whether governments,

[15] *See for example the results of this study: https://www.verkeersonderneming.nl/wp-content/uploads/2019/11/2019_Rapport_Rotterdam-Maasbeleving.pdf*

[16] *https://www.lezenenschrijven.nl/over-laaggeletterdheid/feiten-cijfers/gegevens-laaggeletterden-in-nederland/*

[17] *See for example Corona treft de armsten misschien nog wel het meest, Leo Lucassen, 30 March 2020: https://www.rtlz.nl/opinie/column/5074016/coronavirus-sociale-ongelijkheid-rijk-arm-zorg-politie-openbaar-vervoer*

companies or organizations could do things in the near future to mitigate the effect of the measures on these vulnerable groups in society. To get ideas for this, we interviewed two social organizations in Tilburg (a city in the south of the Netherlands, with about 210.000 inhabitants), which are in direct contact with vulnerable groups in the city and have been offering bicycle lessons and (bicycle) repair courses for women for years. We spoke to Gerda de Vries, director of Feniks, the emancipation expertise center in Tilburg, and Fatima Elabbassi of ContourdeTwern.

The interviews inspired us to offer the following recommendations:

<u>When using urban public transport</u>
Some of the vulnerable groups in the city make use of a social scheme that pays for an urban public transport pass. These people could benefit from receiving good information, tips and concrete support for the use of public transport. Consider, for example, the following:

- **Don't discourage people from using their subscription too much**. In Tilburg, people with a low income or on social benefit receive, for example, a bus subscription. For these people, participating in a course or doing voluntary work can be of great importance for mental health and opportunities for the future. Being able to provide informal care is also necessary. (Having said that, the rules regarding keeping a distance of one and a half meters, washing your hands often and coughing and sneezing in your elbow, must of course be observed).

- **Be clear about how to use public transport as safely as possible and what the rules are without frightening people too much.** Make sure that there is also good information available in different languages. Recently, translations have often taken too long. Partly because of this, people will search for their information via media from the country of origin. The rules can be much stricter there, which means that people withdraw more than is necessary according to the rules in the Netherlands.

- **Provide information** about the occupancy rate of public transport so that people can plan their journey at quieter times.

- **Give people in a vulnerable situation the means to travel by public transport as safely as possible.** Hand out (recyclable) mouth masks and gloves, and bottles of disinfectant hand gel for on the go. These are costly products that people who have to live on a minimum budget cannot afford. Such public transport packages could be distributed through the Food Banks, or through local initiatives such as the "Sop and Soap Plank" in Tilburg[18].

[18] *https://www.rondetafelhuistilburg.nl/project/sop-en-zeep/*

- **In addition to actions aimed at vulnerable groups, it is also possible to target other groups.** The use of (urban) public transport can, for example, be further discouraged among students if they have an (electric) bicycle or moped as an alternative. In Amsterdam, for example, not all students have a bicycle, and the municipality therefore makes 1600 free bicycle subscriptions available until July 4th. Schools receive digital vouchers that they give to students who need a bicycle. The student can use this to subscribe with a bike rental company[19].

- **Talk proactively with people who use urban public transport passes.** Find out where they can use help, what their wishes and possibilities are, and whether they would benefit from a package of mouth masks and the like. Also discuss whether the bicycle could be a good alternative, or the use of a shared car, and if not, what it would take to start using those modes of transport.

<u>Increase opportunities for bicycle mobility</u>

There are various groups for whom cycling is not self-evident. Think of people with health problems, or (young) adults who have never learned to cycle. It can also be people who have not cycled for a long time and who have become insecure, or people who have experienced an accident and are struggling to pick up the routine again. These people could benefit from support in picking up the bicycle, or increasing ownership of a suitable bicycle, or the temporary use of a bicycle. Specifically, for example, the following could be done:

- **A refresher course for the bicycle can be offered.** This can be offered one on one, with a distance of 1.5 meters.

- **A crash course on learning to repair a flat tire and other small bicycle repairs can be offered.** Preferably in small numbers (which is highly recommended anyway) and sex-specific, because it is known that when technical classes are offered in general groups, women take less opportunities to exercise. Low-literate people can also be helped to find YouTube videos showing you how to repair a flat tire, and the like.

- **Start a municipal fund for people who want to start cycling again, but who cannot afford a bicycle.** This can also apply to people who cannot afford a (second-hand) electric bicycle, and who now have to travel long distances that they would otherwise travel by public transport. As well as for people who have to use an adapted bicycle that is too expensive, or where it is expected that it will only be used in this temporary situation. There are special assistance schemes for this type of request in several municipalities, but these have certainly not been introduced in all municipalities and are often not generous. Support for the

[19] *https://www.amsterdam.nl/nieuws/nieuwsoverzicht/scholen-vervoer/*

purchase of a bicycle is nowadays often provided as a loan instead of as a gift. This should not apply to the municipal fund during this period.

- **Set up a a "bicycle library"[20] (in extension of above).** In such a facility, people can borrow a bicycle for a certain period of time. A bicycle library generally has a range of different types of bicycles, so that many people can find a suitable bicycle.

- **Like France[21] and the UK[22], bicycle repair vouchers can be issued.** In France, people receive € 50 which they can use to have their bicycles repaired.

- **Offer cycling lessons for adults.** Although learning to cycle from scratch takes some time, and therefore this will not be a short-term solution for everyone, it remains important to offer cycling lessons to adults. Everyone who has not (sufficiently) had the opportunity to learn to cycle in daily traffic in the Netherlands now has an extra reason to master this. It remains important that these classes are offered sex-specific, so that as many women as possible can participate. In many municipalities there are initiatives for such cycling lessons, which deserve extra support and motivation to reach even more people. For example, the mobility / traffic department can engage in dialogue with local initiatives for cycling lessons, to discuss whether it is desirable to make more space on the street at certain places and times. Cycling lessons can be further stimulated and supported.

Carshare

- **Reach potential new users.** The Green Deal Car Sharing II aims to achieve 100,000 shared cars by 2021 and 700,000 users of car sharing[23]. Use this Green Deal to reach new groups for car sharing. In some municipalities, people who have just obtained their driving license, and therefore do not yet have a car, receive credit to try car sharing for free[24]. Various car-sharing companies already give discounts for certain target groups, such as nurses[25]. These arrangements, in combination with good information about the safe use and proper cleaning of shared cars, could be extended to other groups in the near future.

- **Ensure cars available where people need them.** For car sharers it is important that the car is available nearby. Therefore, pay attention to the availability of shared cars in neighborhoods with residents who extensively use urban public transport under normal circumstances.

Organize an alternative bus

Group-specific public transport options. Organizations that work with vulnerable groups, where there is a high probability that they have become more isolated due to the corona crisis, can investigate the possibilities of picking up people by bus themselves. This allows them to participate in a small group activity once or several times a week, while respecting hygiene rules and keeping a distance of one and a half meters. In any case, this can help to prevent further social isolation.

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[20] *See examples here: https://en.wikipedia.org/wiki/Bicycle_library. In Belgium several bicycle libraries have been set up in recent years. Those are aimed at lending children's bicycles.*

[21] *https://www.bicycling.com/nl/nieuws/a32373054/frankrijk-geeft-geld-fietsreparatie/*

[22] *https://cyclingindustry.news/bike-repair-vouchers-part-of-2-billion-cycling-and-walking-cash-injection/*

[23] *https://www.crow.nl/over-crow/nieuws/2019/september/autodelen-wordt-steeds*

[24] *https://eenvandaag.avrotros.nl/item/van-mn-auto-blijf-je-af-waarom-het-met-deelautos-nog-niet-zo-wil-lukken/*

[25] *See for example: https://www.greenwheels.com/nl/nl/de/nl/nl/prive/nieuws/green-wheels-bijzonder-voor-zorghelden*

Talk with people

- **Be aware that there are groups in society for whom the consequences of the COVID-19 measures are greater than for others.** And that groups that were already more vulnerable are now more affected. They experience a lot of (financial) uncertainty and the associated stress. As we saw in the analysis, women are overrepresented in this group. Especially if they have the responsibility for children, they will put their own wishes aside and let the family go first. It is important to engage with these groups, and to encourage them to indicate what they need to pick activities up again.

- **Also be aware that there are adults in the Netherlands who are not yet able to cycle, and that many would like to learn it.** Do not assume that everyone (children and adults) owns a bicycle[26].

Conduct research

In this exploratory study, we used existing data and made a descriptive analysis of the effects we expect from the COVID-19 measures on the mobility of men and women in the Netherlands. Extensive research is needed to gain a good insight into the actual differences in effects and the implications of those differences. Our exploration can be read as a stepping stone to such research.
The above ideas for measures are not complete. Research can be conducted into the needs and plans that exist among organizations that work with the groups that are now especially vulnerable, such as lower educated women, single mothers and first generation women with a non-western migration background.

Certain measures, as recommended above, may be implemented in locations in the Netherlands. It would be good to research how this is organized, by whom and with what motivation. And investigate how these measures work out and why it is successful or not. This allows us to learn for the future.

Finally

The motivation for this exploratory study was a question from our international network. It is much more common in the international world of traffic and mobility than in the Netherlands, to ask whether certain measures or trends have different effects for men and women. We hope that we have succeeded in showing that it is worth asking this question, because it leads to new, in-depth insights. We are therefore looking forward to more questions and research from this perspective.

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You can read the research that Mobycon conducted prior to this article here.

[26] *A survey by the 'Quiet Community' amongst people in poverty in Tilburg in 2018 showed that within this group only 0.3 bicycle per persoon was available, whereas the national average bicycle ownership rate is above 1 bicycle per person (Source: Mobiliteitsarmoede verzachten door fietsgebruik (maart 2019), Angela van der Kloof & Kamieke van de Riet, maart 2019). Similar figures have been found in the research Vervoersarmoede in de grote stad ontrafelen, Van der Bijl en Van der Kamp, augustus 2018.*