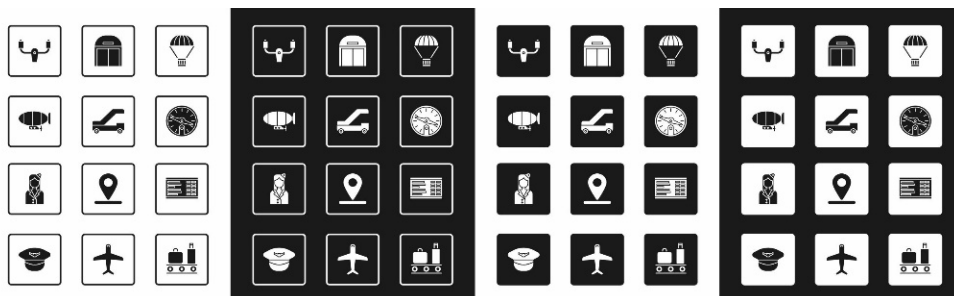


STUDY

Requested by the FEMM committee



Women and transport



Policy Department for Citizens' Rights and Constitutional Affairs
Directorate-General for Internal Policies
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EN

Women and transport

Abstract

This study, commissioned by the European Parliament's Policy Department for Citizens' Rights and Constitutional Affairs at the request of the FEMM Committee, summarises achievements in gender and transport in the EU in regard to knowledge and policies considering women as transport users and as workers in the transport sector. It introduces the most recent data and concepts, presents promising practices and provides EU policy indications in the context of the European Green Deal to effectively support the enhancement of gender equality in transport.

This document was requested by the European Parliament's Committee on Women's Rights and Gender Equality (FEMM).

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LIST OF ABBREVIATIONS

AGRI	Agriculture and Rural Development Committee
ALDE	Alliance of Liberals and Democrats for Europe
BAS	Brake-assist systems
AV	Automated Vehicles
BES	Business enterprise sector
CEF	Connecting Europe Facility
CF	Cohesion Fund
CIE	Cycling Industries Europe
CONEBI	Confederation of the European Bicycle Industry
DG MOVE	Directorate-General for Mobility and Transport
DG RTD	Directorate-General for Research and Innovation
EC	European Commission
ECF	European Cyclists' Federation
EESC	European Economic and Social Committee
EIC	Educative Information Centre
EP	European Parliament
ERDF	European Regional Development Fund
ESF+	European Social Fund Plus
EV	Electric Vehicles
EU	European Union
EU-27	European Union of 27 Member States
FP7	7 th Framework Programme
GOV	Governmental sector

H2020	Horizon 2020
JRC	Joint Research Centre
MS	Member State
NACE	Nomenclature statistique des Activités économiques dans la Communauté Européenne
Q&A	Questions and answers
R&I	Research and innovation
R&D	Research and development
STEM	Science, technology, engineering and mathematics
STRIA	Strategic Transport Research and Innovation Agenda
TEN-T	Trans European Transport
TFEU	Treaty of Functioning of the European Union
TInnGO	Transport Innovation Gender Observatory
TRIMIS	Transport Research and Innovation Monitoring and Information System
UMP	Urban Mobility Package
WAVE	Women and Vehicles in Europe
WIC	Women in Cycling
WIM	Women in Motion

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EXECUTIVE SUMMARY

Background

Since its inception, the European Union (EU) has been exercising its competence in transport policy. This focus has evolved from reducing barriers to the development of common policy. The EU first explored how to develop a common framework followed by consideration of a system of rights and obligations for transport users. Subsequent attention focused on how to facilitate sustainable urban mobility. Following the 2009 Communication, 'A sustainable future for transport: Towards an integrated, technology-led and user-friendly system' COM(2009) 279 of 17 June 2009,¹ gender issues were introduced into the policy dialogue. Further documents considered the lack of female workers in the transport sector and the need for policies to address the needs of female transport users. A European Parliament resolution² in 2015 calling for equal pay and representation of female workers was followed by the European Commission initiating a round of consultations in 2016 and the establishment of a platform in 2017³ to promote gender equality in transport employment. This has facilitated studies, good practice exchanges and research projects considering how to best promote gender inclusion in the sector. Further European policy attention to regulating for gender equality in transport was applied through Regulation (EU) 2020/1054.⁴ The focus of EU institutions' intervention was on promoting research and knowledge acquisition as well as policy interventions on both the causes of the low feminisation of transport as a sector of economic activity and the gender-specific needs of transport users.

This study summarises the achievements in gender and transport in the EU from both points of view: knowledge and policies considering women as transport users and as workers in the transport sector. It is structured in two main parts. The first focuses on women as service users and their specific needs, presenting the most recent data on mobility choices of women and men in the European Union, introducing concepts like mobility of care and transport poverty. The second part focuses on women as workers and discusses the barriers to women's participation in transport occupations, despite the existing labour and skills shortages in the sector. A preliminary section introduces the EU legal framework for intervention in the sector while a final section contains conclusions mapping the current EU funding for transport, suggesting where interventions of the European Parliament might effectively support further policy developments for gender equality in transport.

Aim

The present study provides an overview of existing data, institutional documentation and scholarly literature produced in the EU and at the international level, on evidence and good practices for addressing women's specific needs as both users and workers in the transport economy.

¹ European Commission (2009). A sustainable future for transport: Towards an integrated, technology-led and user friendly system. COM(2009) 279 of 17 June 2009. <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0279:FIN:EN:PDF>.

² P8_TA(2015)0351

³ <https://www.eesc.europa.eu/en/agenda/our-events/events/women-transport-eu-platform-change>

⁴ Regulation (EU) 2020/1054 of the European Parliament and of the Council of 15 July 2020 amending Regulation (EC) No 561/2006 as regards minimum requirements on maximum daily and weekly driving times, minimum breaks and daily and weekly rest periods and Regulation (EU) No 165/2014 as regards positioning by means of tachographs. https://eur-lex.europa.eu/legal-content/IT/TXT/?uri=uriserv:OJ.L_.2020.249.01.0001.01.ENG.

Main findings

In recent years, the EU's agenda has developed to promote gender mainstreaming in transport. This has influenced policy both in transport system planning to improve access and mobility and initiatives to desegregate employment in what remains a heavily male-dominated sector. Despite progress, there is still a long way to go to improve the current conditions.

An important result of the study is the clear evidence of a lack of gender-disaggregated data on transport service use. The data analysed for this study was produced by the Eurobarometer survey in 2019 upon request. The gender analysis could only be conducted at the EU level and not at the Member State level as publicly available data does not allow for such analysis. The relevant knowledge gap should be addressed to adequately monitor the implementation in Member States of the interventions on mobility undertaken by the EU in the context of the European Green Deal.

Despite these limitations, the analysis conducted in the course of this study on Eurobarometer data for 2019 confirms existing accumulated knowledge (as also discussed here) and suggests interesting new findings. EU women prefer walking, using urban public transport and non-urban trains, while EU men more often choose individual means of transport including cars, bikes, mopeds and scooters. When opting for car use, women are more likely than men to use privately owned vehicles. Women have fewer alternatives than men in choosing their modes of transports. They seem to care more for the frequency of the service and the environment while men care more about 'pleasure', 'price', 'privacy' and availability of infrastructure and facilities.⁵ In regard to future challenges and solutions for daily mobility, men worry slightly more than women about costs and congestion. Urban traffic and pollution is also caused by home delivery of goods with women more aware of these negative implications. Automation and connectivity (as well as shared mobility services), the new frontiers of mobility are more enthusiastically welcomed by men. Finally, a previous edition of the Eurobarometer survey from 2014 reveals significant gender differences about road safety: men think that road maintenance is pivotal to improvement while women worry about alcohol and driving and low attention to the rules.

Mobility of care is a concept elaborated by scholars to identify the gender differences in the use of means of transport due to caring activities for which women are still mainly responsible. Evidence from studies conducted in EU Member States and summarised in this report points to gender differences in the type of daily trips made. Men more often travel for personal purposes including leisure while women travel more often for caring activities.

Transport is a factor that reinforces poverty and social exclusion, hence the development of the concept of 'transport poverty' by scholars. The analysis conducted for this study of corresponding data points to an increase in the share of transport service expenditure at the household level in the countries that have been most affected by the 2008–2013 economic crisis and debt restructuring (e.g. Greece and Ireland) and in countries where more efforts have been made to shift from private to public mobility to reduce CO₂ emissions (e.g. Sweden). People with a higher risk of poverty and social exclusion also have a higher risk of transport poverty. Data analysis conducted in this study show that women in poverty often suffer a double disadvantage at the intersection of gender and other vulnerable conditions; therefore, policies on affordability should account for their specific situations.

Finally, the literature review point to the relevant issue of women's safety using transport, including the high risk of their sexual harassment on public transport, as well as the scarce attention to female physiology when designing the ergonomics of vehicles and their safety systems. Despite raising these

⁵ In brackets the wording from the Eurobarometer survey (Eurobarometer, 2020a).

issues, there is still limited attention to women's needs in transport planning, including safety issues. This is due to the low presence of women as experts and decision-makers in the transport sector.

The second part of the study discusses relevant data and investigates the possible causes for the low presence of women employed in the sector through a review of existing literature. Existing data, specifically elaborated for this study, shows the persistence of gender segregation by economic sector in the European Union and confirms the low presence of women in the transport sector across EU Member States. This phenomenon raises issues of labour market efficiency as it signals a biased and suboptimal allocation of human resources in the labour market.

According to the literature review conducted for the study, there are several reasons why the transport sector is not attractive for women. Firstly, it is perceived as a typically male sector and therefore women fear forms of possible discrimination. There is also a lack of attention to work-life balance measures and working time flexibility; female-friendly equipment and services; attention to women's safety issues (including violence, as sexual harassment is widespread in the sector); training, lifelong learning and career opportunities; and improvements in the quality of work (including of working contracts) benefiting all workers. Another important issue is technical expertise as women are traditionally underrepresented in the group of disciplines (science, technology, engineering and mathematics) that are key for the sector. Gender stereotyping and its influence on girls' education choices can also contribute to limiting their career opportunities.

Policy recommendations

The data analysis and the literature review conducted for this study point to the following recommendations. They have been elaborated in the context of the current policy debate:

- Further gender mainstreaming is needed to address the gender gap in transport and mobility, which is being highlighted by a growing body of evidence. As gender mainstreaming needs to build on reliable data, improved data collection should be established. Improved data can elaborate gender differences in usage, requirements (particularly gender-specific differences in the extent of caring responsibilities), attitudes and modes of transport. This can give further weight to arguments for policy changes to redress the transport poverty suffered disproportionately by women and contributing to their overall greater risk of poverty and social exclusion. Initiatives by the Parliament to call on the Commission (particularly Eurostat) and on the Council and Member States in improving data collection as a basis for gender mainstreaming are very much needed.
- The labour shortages in transport can offer opportunities for women. This will require the implementation of policies to combat barriers to female employment and increased awareness on the part of employers of the existence and implications of these barriers. To this end, the European Parliament can call on the European Foundation for the Improvement of Living and Working Conditions (Eurofound) in its role as social dialogue promoter and within the Commission to involve European and national stakeholders in discussing relevant issues at the EU level and in Member States.
- A number of tools are available to EU Member States to enable positive interventions. Particularly notable are the funding instruments for the European Green Deal and the Sustainable and Smart Mobility Strategy. Both infrastructure investment and transitions to carbon-neutral transport from these initiatives can be adopted as tools to remove obstacles to female employment. The Parliament can call on the Commission and Member States to closely monitor gender equality achievements in implementation and disbursement of EU funding.

- The implementation of the European Green Deal funding instruments offers the opportunity to promote women's participation in transport planning as experts and policymakers. The aim would be to effectively meet women's specific transport needs. The European Parliament can call on the Commission, the Council and Member States to promote the adoption of these participatory tools in planning funded interventions.
- The European Regional Development Fund (ERDF) includes among its objectives the development of transport infrastructure and innovation for small and medium-sized enterprises. In implementing the fund, special attention to women's mobility and female employment, in the sector can therefore be pursued. The Parliament can call on the Commission and on Member States, reminding them to pay attention to gender equality issues in the implementation and monitoring of the ERDF, including recommending specific attention to women's mobility needs and female employment, including through the adoption of participatory planning tools (e.g. 'Living Labs').
- Horizon Europe will contribute to the European Green Deal through research and innovation. The Parliament can call on the Commission to closely monitor the implementation of calls in the area of transport to ensure that gender equality requirements requested of research organisations are fulfilled and not just formally and that projects are gender-sensitive in their development and in the outcomes achieved.
- European Social Fund Plus (ESF+) investment can support programmes and projects aimed at improving the entry and progression of women in the labour market as well as supporting the improvement of living conditions for vulnerable groups. The Parliament can call on the Commission and on Member States to closely monitor the implementation of the fund from a gender perspective and to promote activities aimed at contrasting the phenomenon of gender segregation by sector and type of occupations. This is particularly important in technical disciplines related to transport to combat gender stereotyping in training and retraining.
- ESF+ and the proposed Social Climate Fund are both instruments that may contribute to redressing transport poverty and therefore effectively support the social inclusion of vulnerable groups. The Parliament should actively promote gender mainstreaming in these funds and call on the Commission and Member States to ensure that it is properly implemented.
- The Cohesion Fund can be utilised to guarantee equality through investment in the environment and infrastructure. Similarly, the Connecting Europe Facility (CEF) for transport can support transport infrastructure, which facilitates female inclusion. The Parliament can call on the Commission to closely monitor their implementation to ensure that women's needs are considered.
- Policy interventions, including the use of the previously mentioned funding and income streams, are needed to optimise the integration of gender-sensitive design into all aspects of the transport sector. This is necessary to promote female employment in the delivery of transport services and to ensure that gender equality is mainstreamed in all areas of planning and provision to assist in facilitating female access to the full range of employment opportunities to overcome social, economic and labour market exclusion. Closer monitoring of gender issues in transport policies should be enacted by all European institutions within the boundaries of their specific roles on the design, implementation and monitoring and evaluation of transport policies.

1. INTRODUCTION: ACTIONS AND POLICIES IN THE EUROPEAN UNION

Key points

- Transport policy has always been a core competence of the European Union; however, gender issues did not initially feature in discussions.
- There are now a number of policy decisions, recommendations and funding streams which provide a framework within which Member States can establish gender mainstreaming within transport strategy, design and provision.
- The European Green Deal is an opportunity that cannot be wasted to take action and promote women's presence in the sector at all levels and render transport policies more gender-sensitive and better able to effectively address women's needs. Women's involvement is likely to improve the performance of the plan as women have shown they are more attentive to environmental issues.

1.1. EU action in transport

Transport has been a competency of the European Union since its foundation, explicitly mentioned in Title VI and Article 4, paragraph 2 of the Treaty of Functioning of the European Union (TFEU). Initially, policy initiatives were mainly focused at harmonising the market and reducing barriers across borders. Since the early 1990s, the Commission took concrete steps to develop a common policy with the first White Paper on 'The future development of the common transport policy'.⁶ In 1998, the second White Paper on transport entitled 'Fair payment for infrastructure use: a phased approach to a common transport infrastructure charging framework in the EU' focused attention on how to tackle differences between Member States.⁷ The third White Paper in 2001, 'European Transport Policy for 2010: Time to decide', focused on the eastern enlargement of the EU and took into account the rights and obligations of transport users, made provisions for an action plan on road safety, and consolidated users' rights and cost transparency.⁸

In that context, the European Commission created ELTIS, the Urban Mobility Observatory,⁹ and launched the programme CIVITAS,¹⁰ both of which are still operating. The former is a knowledge centre on sustainable urban mobility; the latter utilises a selected network of European cities to promote the

⁶ European Commission (1992). Communication from the Commission – The future development of the common transport policy. COM(1992) 494 of 2 December 1992. <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=COM%3A1992%3A0494%3AFIN>. See for more details: <https://www.europarl.europa.eu/factsheets/en/sheet/123/politica-comune-dei-trasporti-principi-generalj>.

⁷ European Commission (1998). Fair payment for infrastructure use: a phased approach to a common transport infrastructure charging framework in the EU – White Paper. COM(1998) 466 of 22 July 1998. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A1998%3A0466%3AFIN>. See for more details: <https://www.europarl.europa.eu/factsheets/en/sheet/123/politica-comune-dei-trasporti-principi-generalj>.

⁸ European Commission (2001). White Paper – European Transport Policy for 2010: Time to decide. COM(2001) 370 of 12 September 2001. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52001DC0370>. See for more details: <https://www.europarl.europa.eu/factsheets/en/sheet/123/politica-comune-dei-trasporti-principi-generalj>.

⁹ See ELTIS at: <https://www.eltis.org/>.

¹⁰ See CIVITAS at: <https://civitas.eu/>.

adoption of sustainable urban mobility measures across Europe through peer exchange, networking and training.¹¹ In 2003, the European Parliament adopted a resolution on the Commission's 2001 White Paper stressing the importance of the sustainability principle.¹² Increasing attention to urban mobility and sustainability can be identified since then. In 2007, the Commission published a Green Paper entitled 'Towards a new culture for urban mobility',¹³ which the European Parliament followed up by adopting a resolution in 2008 under the same title.¹⁴ The European Parliament also adopted another resolution in 2009 entitled 'An action plan on urban mobility', calling for action in this specific area.¹⁵ The European Commission responded with the 2009 Action plan on urban mobility.¹⁶

1.2. EU transport policies and gender equality

Unfortunately, no attention was paid to gender issues in transport until the European Commission's, 'A sustainable future for transport: Towards an integrated, technology-led and user friendly system',¹⁷ which introduced gender as an important transport policy issue. Attention to gender equality was primarily to the low female employment in the transport sector. Policies to combat this (desegregation policies) were therefore proposed with the aim to increase and improve the pool of human resources available to this sector of the economy. These were contained in the subsequent 2011 White Paper, 'Roadmap to a single European transport area: towards a competitive and resource-efficient transport system'.¹⁸ An even stronger intention was contained in the accompanying European Commission staff working document which made reference to the promotion of gender equality by encouraging better working conditions and job quality.¹⁹

One year later, the attention of the EU institutions shifted to women as transport users and the specificities of female mobility needs. In 2012, a resolution of the European Parliament on the role of women in the green economy called on the European Commission and on Member States to improve the quality of existing public transport services (safety, comfort and accessibility), increase quantity with the introduction of more efficient means of public transport (including at the local level and in

¹¹ CIVITAS promotes projects (living lab projects, research projects, support projects) on 10 thematic areas. See for more details: <https://civitas.eu/>.

¹² European Parliament Resolution on the Commission White Paper European transport policy for 2010: time to decide. COM(2001) 370 of 12 September 2001. <https://op.europa.eu/en/publication-detail/-/publication/844e7a94-c4cf-4a12-9b71-9ad114fb407e/language-en>.

¹³ European Commission (2007). Green Paper – Towards a new culture for urban mobility. COM(2007) 551 of 25 September 2007. <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52007DC0551>.

¹⁴ European Parliament Resolution of 9 July 2008, 'Towards a new culture of urban mobility'. 2008/2041 (INI). <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52008IP0356>.

¹⁵ European Parliament Resolution of 23 April 2009 on an action plan on urban mobility. 2008/2217 (INI). https://www.europarl.europa.eu/doceo/document/TA-6-2009-0307_EN.pdf.

¹⁶ European Commission (2009). Action plan on urban mobility. COM(2009) 490 of 23 September 2009. <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex:52009DC0490>.

¹⁷ European Commission (2009). A sustainable future for transport: Towards an integrated, technology-led and user friendly system. COM(2009) 279 of 17 June 2009. <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0279:FIN:EN:PDF>.

¹⁸ European Commission (2011). White Paper – Roadmap to a single European transport area: towards a competitive and resource-efficient transport system. COM(2011) 144 final of 28 March 2011. <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0144:FIN:EN:PDF>.

¹⁹ European Commission (2011). Commission Staff Working Document: Accompanying the White Paper – Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system. SEC(2011) 391 final of 28 May 2011. <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52011SC0391&from=EN>. See also EIGE (2016) and the European Commission dedicated website at: https://ec.europa.eu/transport/themes/european-strategies/white-paper-2011_en.

rural areas), and to develop innovative and environmentally friendly means of transportation that would better meet women's mobility needs.²⁰

The Commission published a dedicated report in 2014 with its plans to take action in this area, 'She Moves – Women's issues in transportation' (European Commission, 2014²¹). Further encouragement was provided in 2015 by an opinion requested from the European Economic and Social Committee (EESC) and by a resolution of the European Parliament. The EESC opinion supported the integration of a gender equality perspective in all aspects of transport (the opinion explicitly referred to the Strategy for Growth and Jobs) while the European Parliament resolution called for removing barriers including in pay for the equal participation of female and male workers in the sector.²²

In 2016, the European Commission organised three public consultations and a conference regarding women in transport (Ortega et al., 2019) involving: EU Member States, EU Transport Trade Unions and EU associations of transport operators. The aim of the consultations was to collect stakeholders' opinions on how to intervene in the sector to promote women's employment and on their expectations regarding specific initiatives to support this change.²³

In 2017, the European Commission set up a platform: Women in Transport – EU Platform for change, which is still working, with the aim of promoting women's employment and equal opportunities in the sector (Ortega et al., 2019). It promotes discussion and cooperation among stakeholders and the exchange of good practices.²⁴ Between 2017 and 2019, the Commission contracted two studies and organised two conferences to explore how to increase the interest of future generations, women and improve diversity. Projects on women and transport have been financed within the European funding for research and innovation. The Horizon 2020 (H2020) Programme funded two projects: the three-year TInnGO project (Transport Innovation Gender Observatory) that provides for the European Observatory for Gender Smart Transport²⁵; and the project DIAMOND, by which the Directorate-General for Research and Innovation (DG RTD) has supported the integration of gender equality in transport research with H2020 (Ortega et al., 2019).

To conclude this overview, it is worth mentioning Regulation (EU) 2020/1054 on working conditions in the transport sector. It attempts, among the other regulatory objectives, to promote women's participation in this sector.²⁶

In the last decade, increased attention to women in transport has emerged. Several actions have been undertaken to mainstream gender equality in transport, either supporting gender equality initiatives

²⁰ European Parliament Resolution of 11 September 2012 on the role of women in the green economy. 2012/2035(INI). <https://op.europa.eu/en/publication-detail/-/publication/87d8f4b8-5c48-11e3-914b-01aa75ed71a1/language-en>.

²¹ European Commission, published on 2014-05-14

²² European Economic and Social Committee Opinion 2015/C 383/01 of the 509th Plenary Session, 1 and 2 July 2015, on 'Women and Transport' (exploratory opinion requested by the Commission). <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52015AE1773&from=SL>; European Parliament Resolution of 9 September 2015 on the implementation of the 2011 White Paper on Transport: taking stock and the way forward towards sustainable mobility. 2015/2005(INI). https://www.europarl.europa.eu/doceo/document/TA-8-2015-0310_EN.html.

²³ More information on the three public consultation and the public event is respectively available at: https://ec.europa.eu/transport/themes/social/consultations/2016-women-in-transport_en and https://ec.europa.eu/transport/themes/social/events/women-transport_en.

²⁴ See more on the initiative at: https://ec.europa.eu/transport/themes/social/women-transport-eu-platform-change_en.

²⁵ See TInnGO at: <https://www.tinnngo.eu/>.

²⁶ Regulation (EU) 2020/1054 of the European Parliament and of the Council of 15 July 2020 amending Regulation (EC) No 561/2006 as regards minimum requirements on maximum daily and weekly driving times, minimum breaks and daily and weekly rest periods and Regulation (EU) No 165/2014 as regards positioning by means of tachographs. https://eur-lex.europa.eu/legal-content/IT/TXT/?uri=uriserv:OJ.L_.2020.249.01.0001.01.ENG.

for policies aimed at improving mobility of European women and men or for desegregating (i.e.: reduce gender segregation) the transport sector at all levels thereby also encouraging access of women to management careers. The stress upon gender mainstreaming as a tool to achieve more gender equality has enabled the inclusion of gender equality in the planning and evaluation of policy measures in areas which are not traditionally considered 'typically female' as is the case for transport. However, this is still a 'new' area of intervention requiring consolidation. Among the key actions envisaged are opportunities from the European Green Deal given that transport contributes to the emission of CO₂ and is responsible for 25 % of the EU's total greenhouse gas emissions.²⁷

At the same time, mainstreaming gender in the European Green Deal is an opportunity for the environment; including women in decisions about transport planning, involving them in the sector as employees at all levels and taking into account their needs is likely to improve green performance (Kronsell et al., 2015).²⁸

²⁷ The 'Sustainable and Smart Mobility Strategy' is supported by an action plan of 82 initiatives that are meant to guide the next four years of activities of the European Commission in this policy area. The strategy is expected to achieve the 90 % cut in emissions by 2050.

²⁸ The European Commission is carefully considering this aspect. There are plans to include women in transport in the EIGE database on gender equality in the EU with the entry point of women and men in decision-making.

PART I – THE GENERAL USE OF PUBLIC AND PRIVATE TRANSPORT BY WOMEN COMPARED BY MEN

1. WOMEN'S EVERYDAY LIFE AND TRANSPORT

Key points

- There is lack of regular gender-disaggregated data collection on transport service use across the EU. The data analysed for this study is produced by the Eurobarometer survey but is not sufficient to draw EU-wide conclusions by Member State concerning men's and women's transport choices.
- Existing data and research reveal that due to persistent gender inequalities in roles within society, women and men have different transport needs.
- Women's mobility patterns are more complex than men's. They require more varied means of transport as they are the main responsible persons for care within households. As they use more public transport, they are more interested in the frequency and quality of service. They are also more interested in the environmental impact of mobility and goods delivery.
- Men's travel patterns are more linear and regular. They travel more often for personal purposes including for leisure and choose individual means of transport including the car, bike, moped and scooter. In terms of future challenges and solutions for daily mobility, men worry slightly more than women about costs and congestion and are more interested in automation and connectivity.
- Affordability is a relevant issue as indicated by the concept 'transport poverty'. Transport poverty points to the direct relationship between difficulties in mobility and poverty and social exclusion. Women in poverty often suffer a double disadvantage at the intersection of gender and other vulnerable conditions; therefore, policies on affordability should account for their specific situations.
- Safety in connection to gender and transport has several implications. As users of public transport, women are subject to the worrying phenomenon of sexual harassment. At the same time, the ergonomics of vehicles and safety systems do not account for women's physiology, so they are at greater risk in case of accidents than men.
- Women's transport needs are not properly addressed in transport planning strategies due to the low presence of women as experts and decision-makers in the transport sector. Strategies should ensure that female transport requirements are met and actively promote gender inequality.

1.1. Women's transport use: what we know

Gender is an important aspect to consider when analysing individual mobility strategies. Men and women do not tend to use the same means of transport and when they do, they use different modalities. Women's mobility patterns are more complex, requiring more varied means of transports than men's. Existing research in European Union Member States and beyond (Gil Solá, 2016; Ng and Acker, 2020; Ramboll Smart Mobility, 2021) reveals that due to their role as primary caregivers for the

family (responsible for domestic chores and care of dependent children, elderly relatives and the sick), women's transfers are more numerous than those of men (EIGE, 2016). Women's individual journey times are shorter than men's. They combine several stop and start stages whereas men's travel patterns are more linear. Women travel more often during off-peak hours while men are more likely to travel during peak hours (European Commission, 2014²⁹). In a typical day, women may take children to school, go to work, take a relative to the doctor and take the children to afternoon activities and in doing so, they may change means of transport several times (Gil Solá, 2016).

A multimethod study conducted in 2004 in the region of Northumbria in United Kingdom found that individual characteristics, e.g. geographic location, age, class, economic position, ethnic origin, influence the mobility behaviour of women and that access to private transport (a driving licence and access to use a car) is a key factor enabling them to negotiate work and family commitments (Dobbs, 2005; Duchéne, 2011), and therefore secure and maintain full-time employment opportunities, i.e. good quality jobs.³⁰ Unfortunately, data collected by EU-funded research in 17 Member States in 2010 shows that women were not proportionally represented in the driving population. They should constitute just over half but in several Member States, the share was lower (European Commission, 2014³¹). Women are less likely to own a car (Duchéne, 2011) and less likely to use it daily. In 2014, 49 % of women and 59 % of men owned cars (Eurobarometer, 2014). However, in the past decade, the number of women with a driving licence has been increasing as has the share of women that use a car every day, which is 59 % for women and 66 % for men (Eurobarometer, 2020a).

Data on gender differences and modes of transport (Eurobarometer, 2020a) confirms that 31 % of women use public transport compared to 24 % of men, up from 2014 when 22 % of women and 15 % of men used public transport (Eurobarometer, 2014). As women use public transport more than men, they are more affected by delays due to connection failures: consequently, they lose more time in travelling (EIGE, 2016).³²

Travelling time is also very strongly conditioned by the area of residency. Public transport is more developed in urban areas, particularly in city centres and less developed in the peripheries of cities and in rural areas. Routes are often planned following radial patterns to connect suburbs or rural areas to city centres with schedules set around commuter travel hours, also known as 'rush hours'. Connections between suburbs or different rural areas are often neglected making it very difficult to reach a final destination even though it may be very close (Duchéne, 2011).

Safety considerations strongly influence women's travel choices (Stark and Meschik, 2018). Mobility planners should pay more attention to this area to ensure effective choices for women to travel and more effective transport planning for all. For example, if travelling by bus at night is too risky, more women would choose private cars but this would increase urban traffic in general. Issues like this need to be considered.

²⁹ European Commission, published on 2014-05-14

³⁰ As mentioned by Duchéne (2011: 11), balancing work and family commitments requires them to 'overcome innumerable obstacles and in particular:

- Non-proximity between the place of residence, workplace and shops;
- Insufficient public transport, particularly in suburbs and outside rush hours;
- Public transports schedules aimed primarily at journey-to-work trips;
- Opening hours of service centres which operate on the principle that users and customers are free during working hours;
- Scarcity of and lack of access to childcare'.

³¹ European Commission, published on 2014-05-14

³² The COVID-19 pandemic has changed mobility choices of women and men as people are afraid of sharing public transport for epidemiological reasons. Habits are still differentiated by gender but now appear more similar (JRC, interview 2021).

Two safety risks affect women's mobility: the risk of accidents and the risk of experiencing sexual harassment. In regard to the risk of accidents, several studies show that women are better car drivers than men (Duchéne, 2011) or at least they take fewer risks when driving (González-Sánchez et al., 2018), especially younger female drivers. Overall, women are also safer pedestrians; they are more attentive though older women have a greater risk of incidents than men of a similar age. This can be attributed to older women generally encountering more mobility issues, being less likely to have a driving licence or to own a private car. Finally, older women are more attuned to and concerned about negative experiences of using public transport which may prevent them from using these services (Sundling et al., 2016).

Women's travel behaviour is also affected by the specific high risk of experiencing sexual harassment (Duchéne, 2011; Ortega et al., 2019). Private transport is perceived as being safer, given the worrying prevalence of sexual harassment on public transport. For example, a 2017 French study estimated that 220 000 women had been sexually harassed on public transport over a two-year period. This is a conservative estimate as such incidents tend to be underreported (Ortega et al., 2019). Preventative measures including lighting, security cameras, availability of surveillance staff and the design of transport interchanges (Chowdhury and van Wee, 2020) are all pivotal to increasing safety and thereby encouraging women to use public transport (Gardner et al., 2017).

Another interesting result from studies on gender and transport concerns women's attitudes towards fossil-fuel vehicles. Women are more aware than men of the environmental issues related to transport and more interested in effective alternatives to such vehicles for both private and public transport (CIVITAS, 2014). However, women seem to be less enthusiastic than men about innovative technologies such as Electric Vehicles (EV) (Sovacool et al., 2018) and Automated Vehicles (AV) (Berliner et al., 2019). These attitudes may reflect women's risk aversion to the use of new technologies: women generally prefer to adopt new technologies only when they have been consolidated (Ortega et al., 2019). Furthermore, decarbonisation of the transport sector and the introduction of new innovative technologies are not necessarily gender-neutral. The high costs of transition may hinder access to new technologies for the most vulnerable in society, who are disproportionately female.

A gender gap continues to exist in European transport and mobility. Further mainstreaming of gender into policy is therefore needed to close this gap. This requires developing a robust evidence base on which to formulate policies that meet the travel and mobility needs of women.

1.2. Statistics on transport use

Currently, there is no dedicated periodic EU-wide survey on the mobility of European Union citizens conducted by national statistical offices in EU Member States and coordinated by Eurostat. Existing statistics on the use of time include information on this subject (Households European Time Use Survey, HETUS) though, as they deal with mobility only in terms of time and do not provide spatial information, they therefore do not match the knowledge needs for this policy area.³³ As commented by Ortega et al., 'the availability of national gender-disaggregated mobility data needs to be addressed to gain a greater understanding of gender and transport issues across the EU'. (Ortega et al., 2019: 5) Addressing the gender-disaggregated data gap in mobility appears extremely urgent in the framework of actions

³³ EU-wide comparable HETUS data dates back to 2010 while the implementation of the most recent new wave planned for 2020 has been affected by COVID-19 pandemic and no more updated information on its implementation is currently available on the Eurostat HETUS website consulted on 09 September 2021: <https://ec.europa.eu/eurostat/web/time-use-surveys/overview>.

to be undertaken on everyday mobility to effectively address climate change and use the opportunity of decarbonisation policies to reduce existing socioeconomic inequalities (CIVITAS, 2021).

To illustrate the current situation, it is necessary to refer to the limited available material drawn from the most recent and complete Eurobarometer surveys. In addition, information can be drawn from international comparative research by academics, consultancies and international institutions and compared with other countries or cities from outside of the EU, even though the research only covers a few countries and even fewer cities from the European Union. Given the limited number of cases in Eurobarometer surveys, gender-disaggregated data is available at the EU level only. Data collected for the Eurobarometer survey cannot be gender-disaggregated by single European Union Member States.

In 2020, a special issue of Eurobarometer on mobility and transport was published covering all EU Member States (Eurobarometer, 2020a), followed by another special issue on connected and automated driving (Eurobarometer, 2020b), both refer to data collected in 2019. The former includes data on daily and long-distance mobility, sustainability issues considering both behaviours and the reasons behind choices, and challenges to everyday mobility and perceptions on means of both new and traditional transport. The latter focuses on public attitudes towards the most recent technological developments in transport. A previous edition of the Eurobarometer from 2014 (Eurobarometer, 2014) included gender-disaggregated information on transport preferences and related motivations while an older issue (Eurobarometer, 2013) reported gender data only about preferences for private car use.

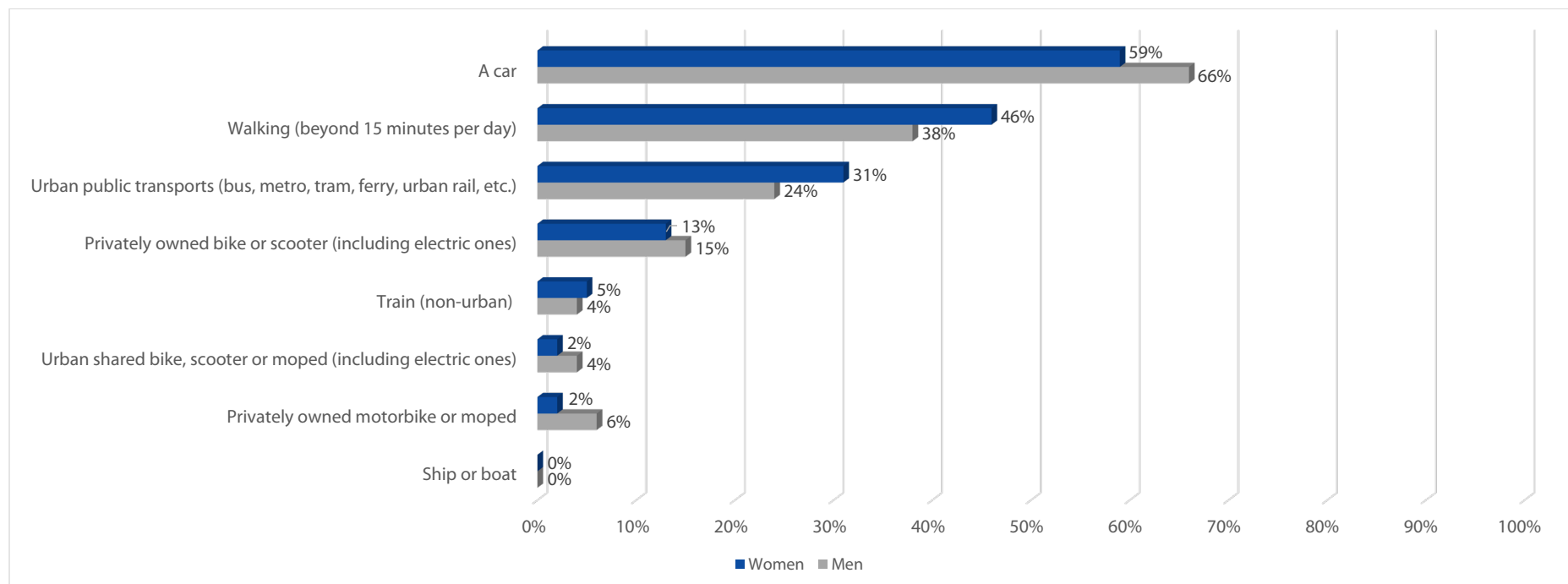
1.3. What needs do statistics identify?

1.3.1. Mobility choices of women and men in the European Union

The Eurobarometer survey published in 2020 includes interesting gender-disaggregated results about transport modalities. As mentioned above, results disaggregated by gender are available only as European Union averages.³⁴ Figure 1 shows that the car is the most frequently chosen option for both women and men in EU Member States. However, EU women prefer walking, using urban public transport and non-urban trains more than EU men, while EU men more often choose individual means of transport including cars, bikes, mopeds and scooters, whether or not they own them. Women favour walking and public transport when they do not need to rush to combine work and family commitments (Duchéne, 2011).

³⁴ The EU averages include all 28 Member States belonging to the European Union at the time of the survey (September 2019). The survey was conducted on a sample of 27 565 units statistically representative of the population aged 15+ of the respective nationalities of the European Union Member States.

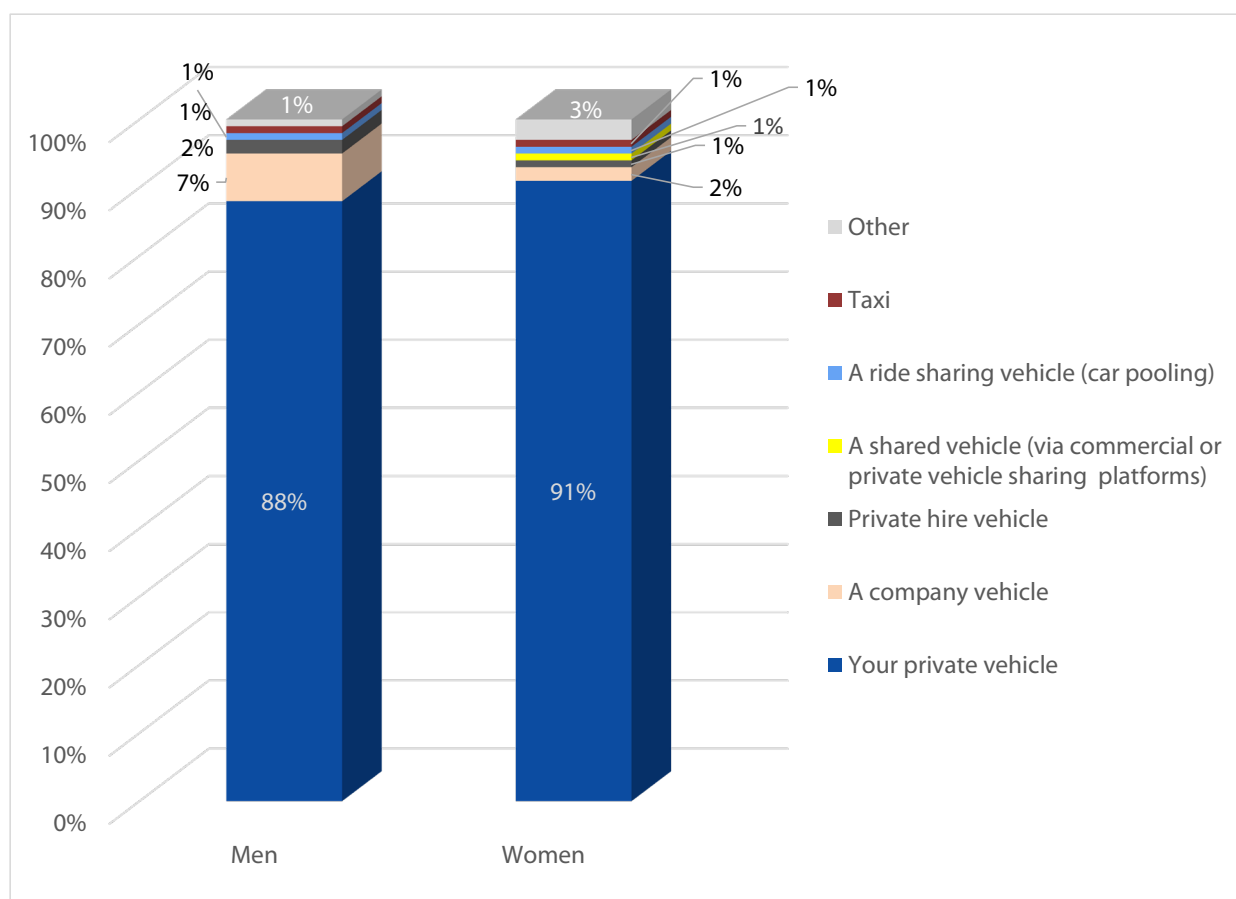
Figure 1: On a typical day what is your main mode of transport? Is your main mode of transport used in combination with ...? (multiple answers).



Source: Eurobarometer (2020a).

Figure 2 shows out that if opting to use a car, women are more likely than men to use privately owned vehicles (91 % versus 88%). This is probably because women do not have the same access as men to cars as a company fringe benefit (7 % of men versus only 2 % of women). While no relevant gender differences emerge for the remaining options, it is interesting to note that car sharing through commercial or private vehicle-sharing platforms remains uncommon among women. Unfortunately, no gender-disaggregated data is available in the Eurobarometer report on the combinations of various means of transport.

Figure 2: Is the car you use most...?

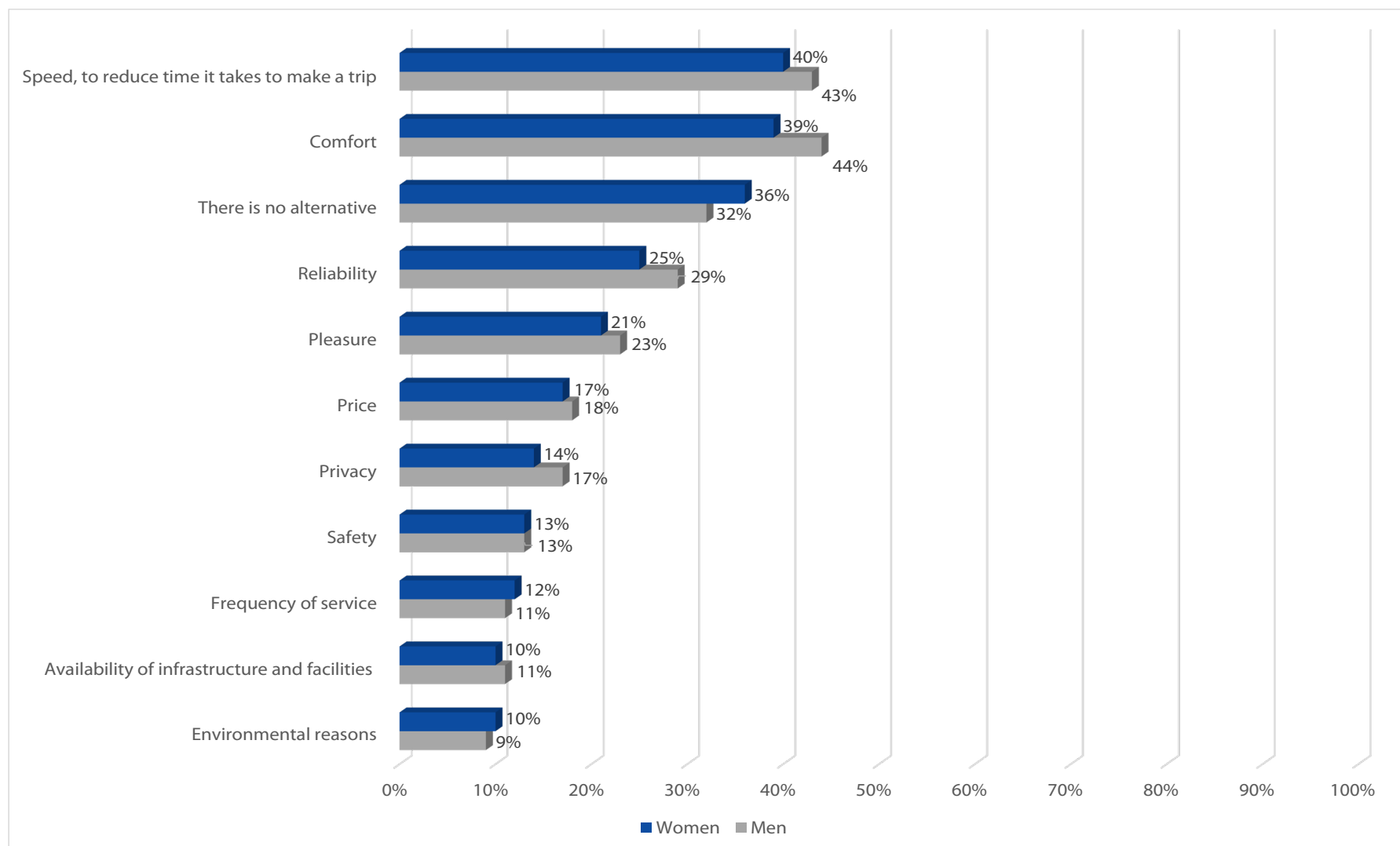


Source: Eurobarometer (2020a).

Figure 3 shows that women and men have different reasons for choosing a mode of transport. More women, 36 %, have no alternative to their main mode of transport than men at 32 %. Time constraints and comfort are the most important reasons behind the choice, for both women (40 % for the former and 39 % for the latter) and men (43 % and 44 %) with gender differences ranging from 3 p.p. to 5 p.p. Another aspect that men considerably prioritise more than women is reliability (29 % versus 25 %). 'Pleasure', 'price', 'privacy' and availability of infrastructure and facilities seem slightly more important for men while women seem to care more for the frequency of the service and the environment.³⁵

³⁵ In brackets the wording from the Eurobarometer survey (Eurobarometer, 2020a).

Figure 3: What are the reasons for using this main mode of transport? Firstly? And then?



Source: Eurobarometer (2020a).

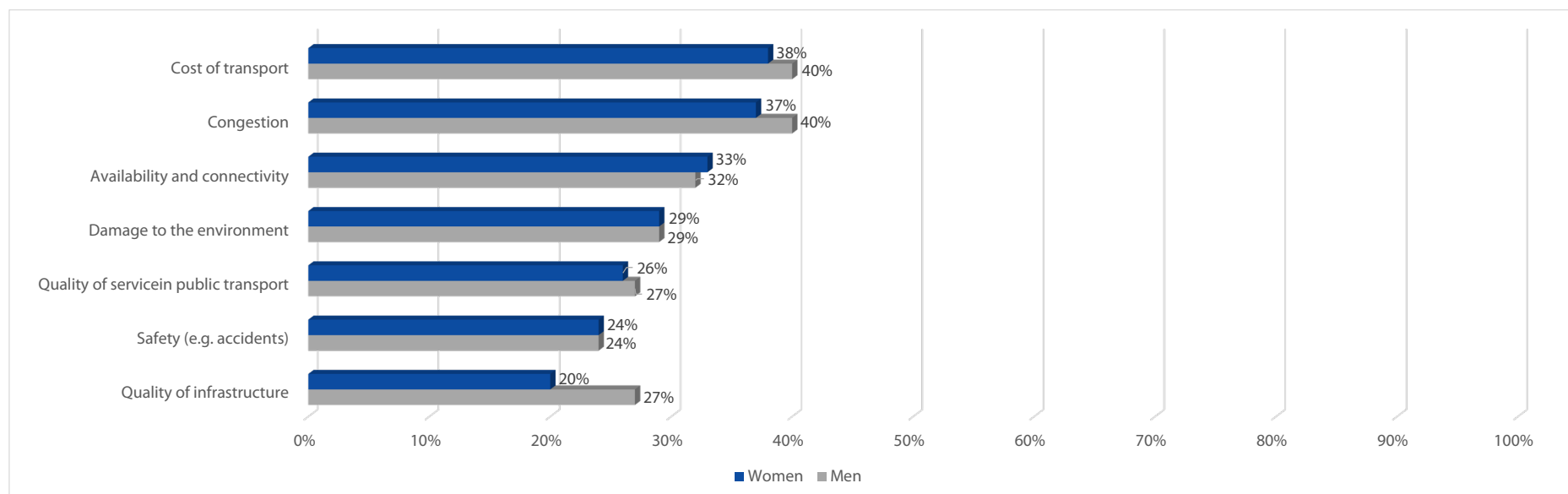
Figure 4 and Figure 5 report on EU women and men and what they think about future challenges and solutions for daily mobility. Two future challenges (Figure 4), costs and congestion, worry all respondents although slightly more men (40 % for both challenges) than women (38 % and 37 %, respectively). Men are also concerned more than women with the quality of infrastructure (27 % versus 20 %). No relevant gender differences emerge concerning other aspects such as the availability of connectivity and environmental damage. No gender differences appear among interviewees' thinking about future challenges for transport despite other research (Duchéne, 2011), clearly indicating that women and men diverge in their behaviour on roads: women are more respectful of rules and more attentive than men. Availability and connectivity is the third most relevant challenge identified by interviewees (33 % of men and 32 % of women) while damage to the environment comes fourth (29 % for both men and women interviewed). This last result may be explained by the following Figure 5 (although in the absence of appropriate statistical analysis, this remains as a hypothesis), where the possibility of participating in a voluntary scheme to offset individual carbon footprints is the option most frequently chosen to ease personal mobility by both women (32 %) and men (33 %). Only 17 % of both female and male respondents attribute importance to the information about the carbon/environmental footprint of transport options.

For women (20 %), the second most useful option for improving personal modality is securing automatic reimbursement and compensation for the infringement of passenger rights (25 % for men) while for men this place is taken by faster airport check-in procedures (28 %, a modality that gathers the attention of only 19 % of women). This result probably relates to flying frequency as more men than women use airplanes for business travel. Solutions to facilitate urban mobility across EU cities are still not viewed as a priority for the interviewees: 'a digital driving licence valid anywhere in EU' (16 % of men and 13 % of women) and 'a single ticketing tool for urban journeys usable in all EU cities' (12 % for both women and men) are still not considered to be priorities.

As written in the conclusions of the Eurobarometer report, the 'survey highlighted the dominance of the car as the preferred mode of transport for both daily and longer trips, particularly for those living in central areas of the EU'. Respondents also indicated 'congestion and maintenance' as the most serious problems affecting roads'.

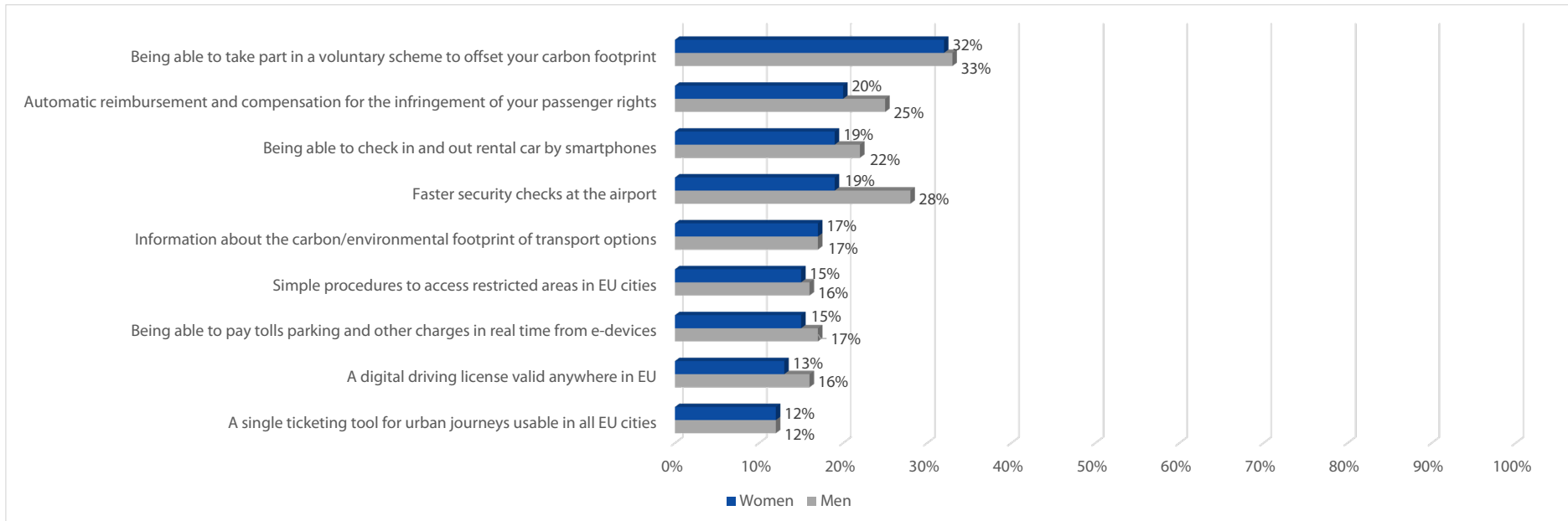
A previous edition of the Eurobarometer from 2014 included gender-disaggregated information on road safety. A significant majority of men (59 %) think that road maintenance should be improved while only 53 % of women agreed with this. Women are more worried by alcoholism (52 % think more should be done in this respect versus 45 % of men) and women care more for respecting the rules as they call for more police control (28 % versus 23 % of men). Other gender differences reported concern the availability of information on a vehicles' location online: men are more open to this (54 % of men versus 48 % of women). The majority of male respondents think that air transport services have improved in their country (39 %) while the majority of female respondents did not know.

Figure 4: Thinking about daily mobility, what do you see as the biggest challenges for transport? Firstly and then?



Source: Eurobarometer (2020a).

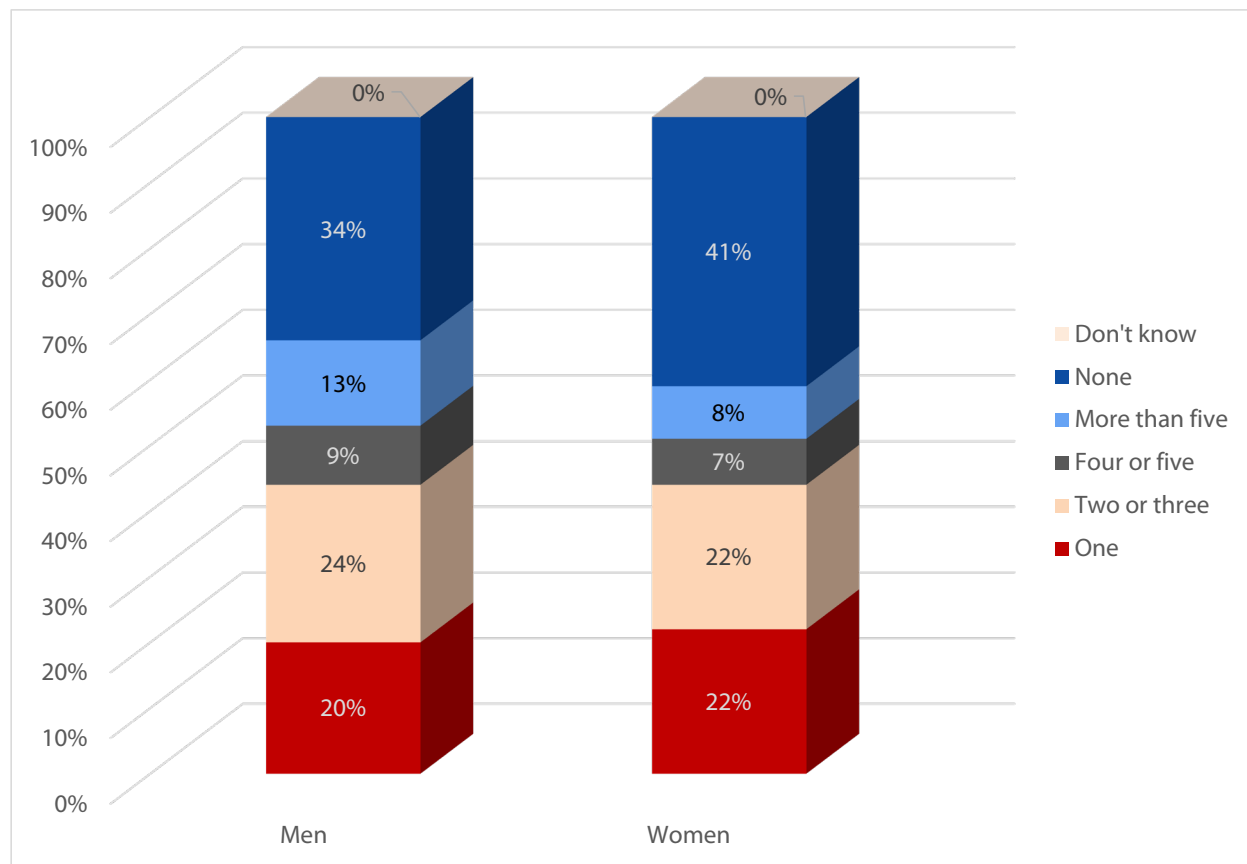
Figure 5: For the future of your personal mobility, which of the following would you find the most useful? Firstly and then?



Source: Eurobarometer (2020a).

Despite the constant growth in travel until the 2020 COVID-19 pandemic, at the time of the data collection (2019), 41 % of women and 34 % of men did not make any long journeys (more than 300 km) in the year preceding the interview. The significant gender difference was probably related to work activities and the more frequent availability of private cars to men. 24 % of men and the 22 % of women made two or three journeys, and 20 % of men and the 22 % of women one journey. Only 15 % of women and 22 % of men made four journeys or more in the same time span.

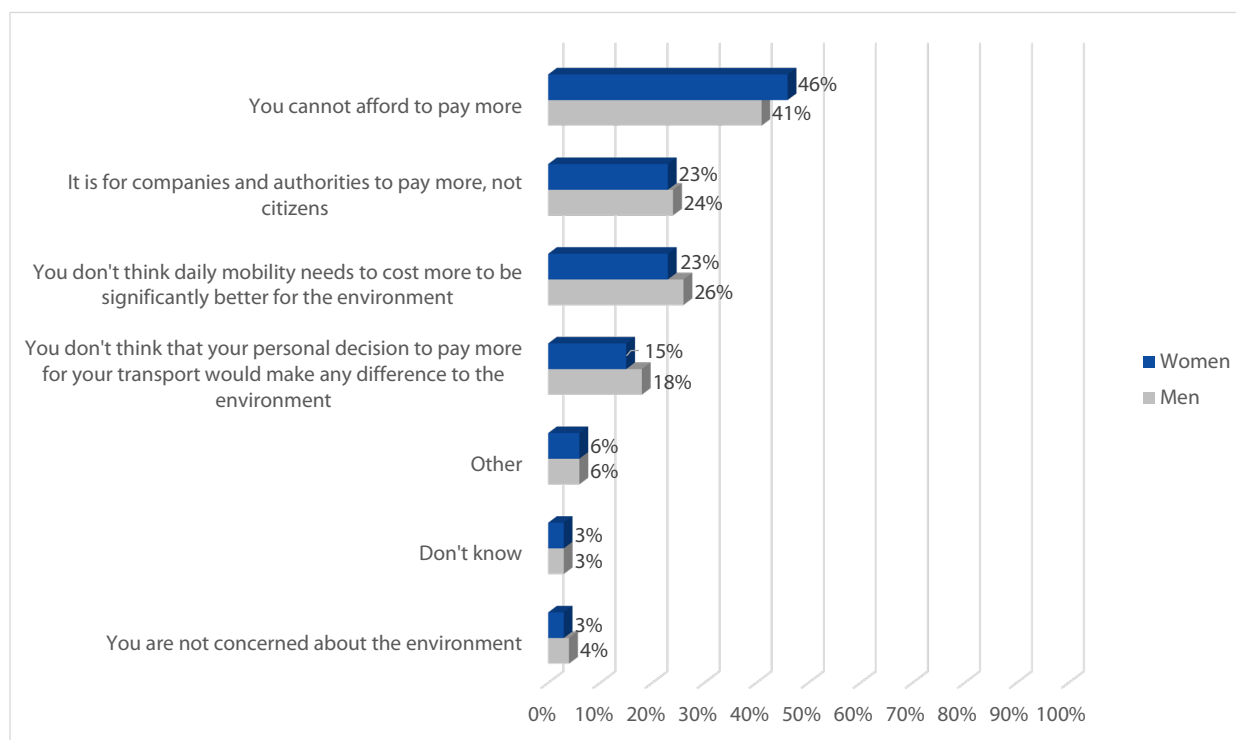
Figure 6: How many domestic or international journeys of 300 km or more have you made in the last 12 months?



Source: Eurobarometer (2020a).

Gender differences and the extent of sensitivity about environmental issues were also identified in the replies to a question relating to costs and environmental mobility. In cases where more environmentally friendly solutions for mobility are available, more women (46 %) than men (41 %) would not adopt them as they would be unable to pay more. More men than women think that environmentally friendly mobility would necessarily be more expensive (26 % versus 23 %) and that it is the responsibility of companies and authorities, not of citizens, to cover extra costs (24 % versus 23 %).

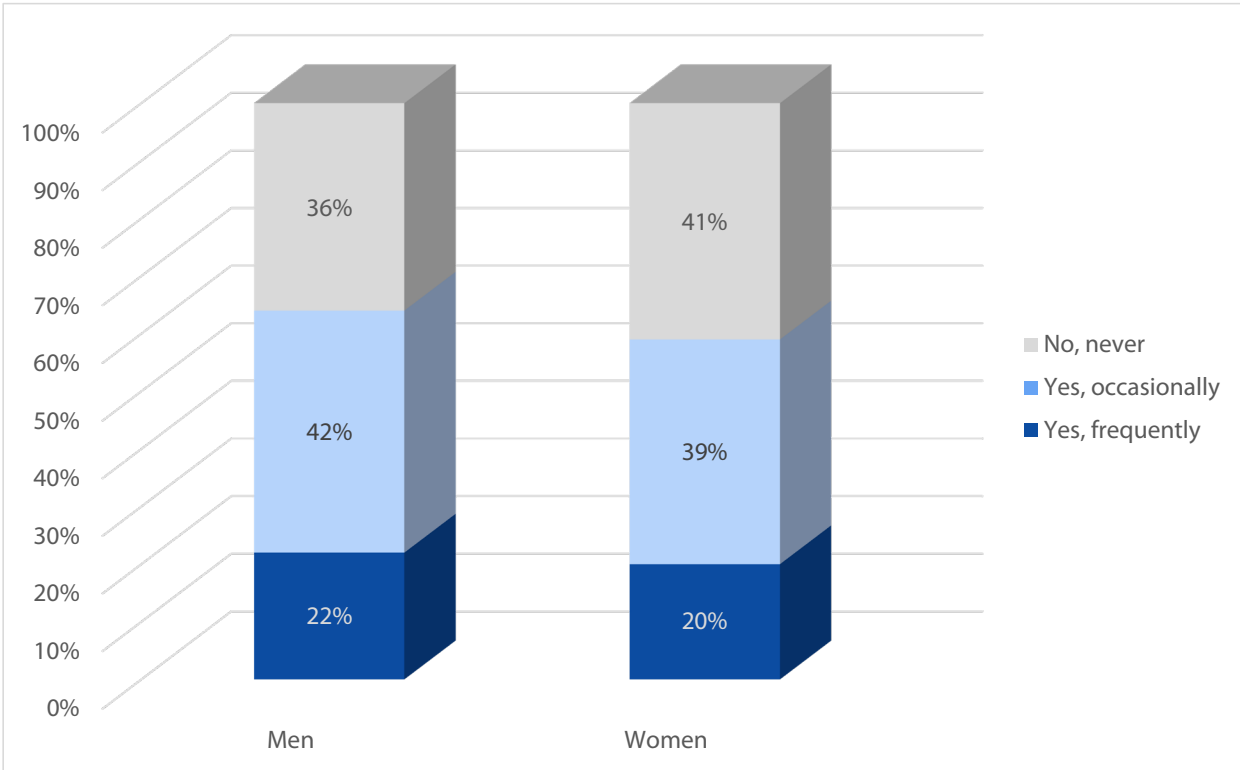
Figure 7: Why would you not pay more for more environmentally friendly mobility?



Source: Eurobarometer (2020a).

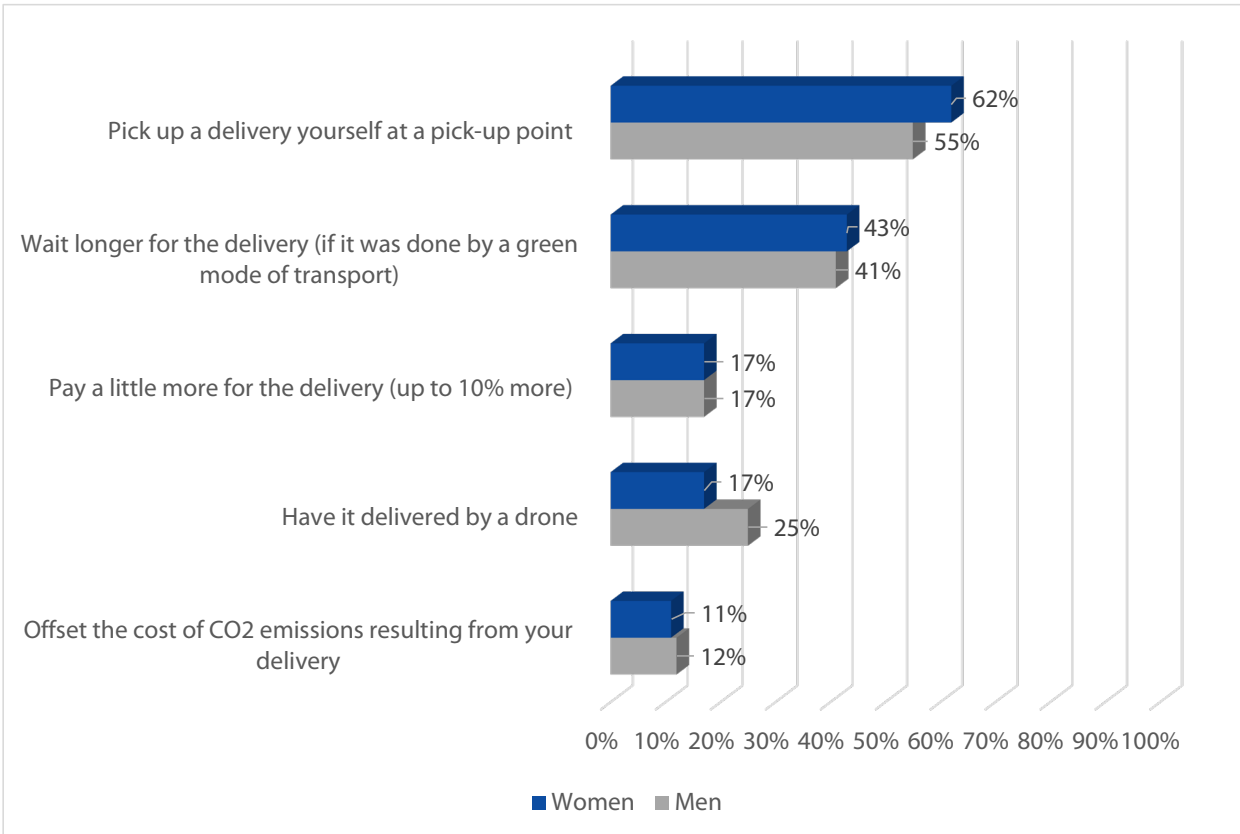
A very relevant issue in terms of urban traffic and pollution is the use of home delivery. Overall, 59% of female interviewees and 64% of male interviewees buy goods online and have them delivered to their homes (see Figure 8). More women than men are available to collect deliveries by themselves at a pick-up point (62% versus 55%) or to wait longer for the delivery (43% versus 41%) while men would appreciate more deliveries by drone (25% versus 17%), see Figure 9. Finally, (see Figure 10) the majority of respondents, especially women (61% versus 55%), care about the environmental impact (CO2 emission) of their deliveries frequently but more men care only occasionally (42% versus 36%).

Figure 8: Do you buy goods online or by phone and have them delivered to your home?



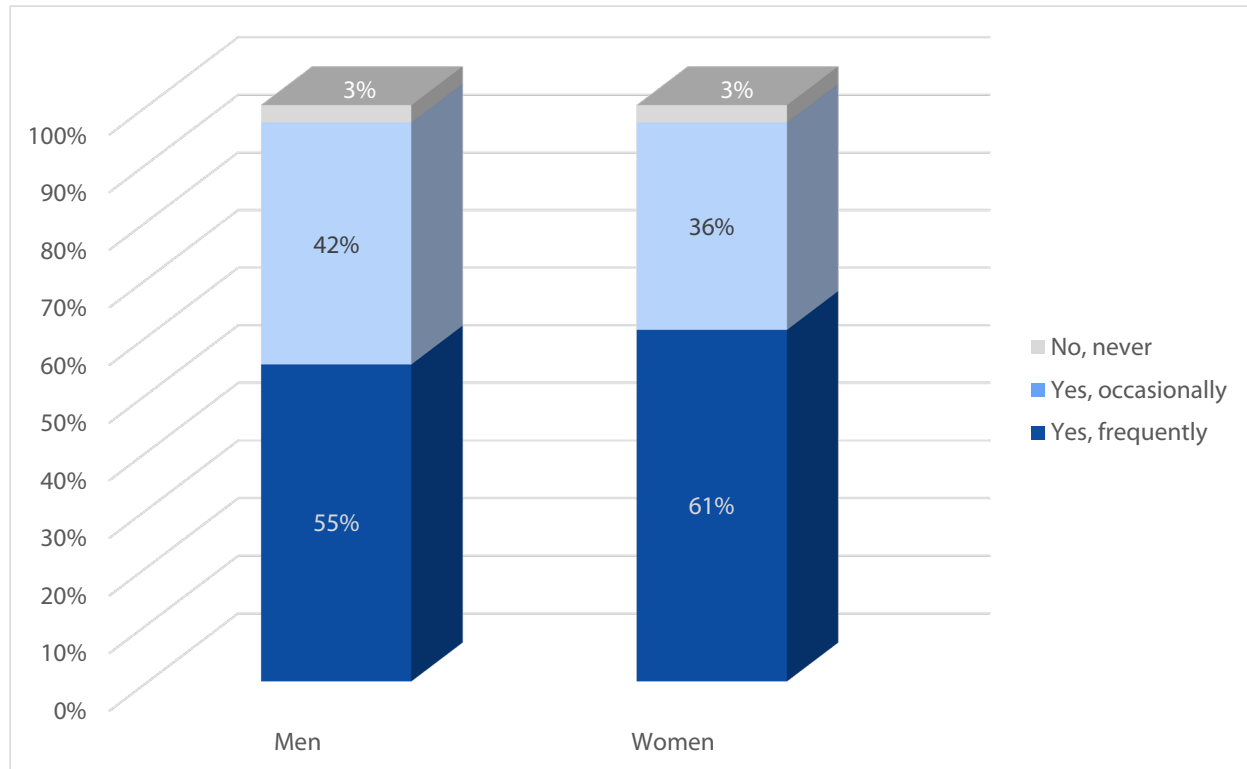
Source: Eurobarometer (2020a).

Figure 9: In order to make these deliveries more environmentally friendly, would you be willing to...?



Source: Eurobarometer (2020a).

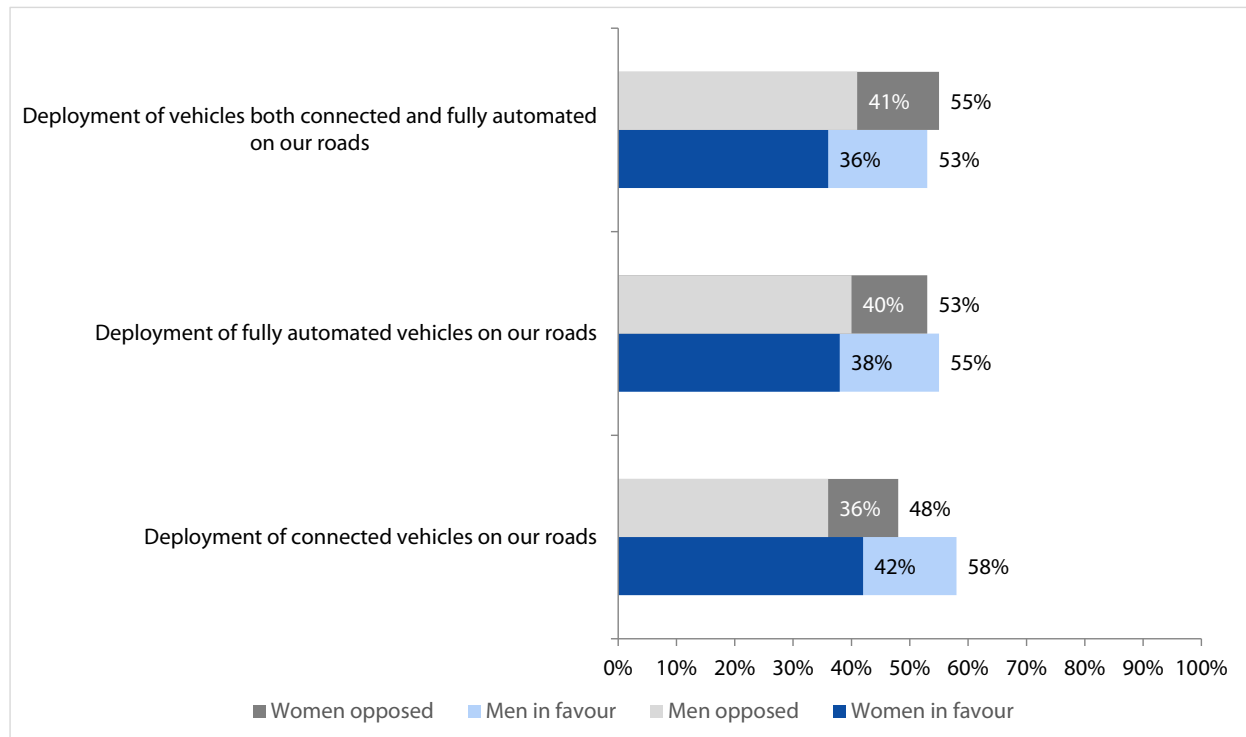
Figure 10: Would more information about the CO2 emissions generated by your delivery influence your choice of delivery method?



Source: Eurobarometer (2020a).

In another issue of the Eurobarometer published in the same year (Eurobarometer, 2020b), the opinions of EU citizens about technological developments in transport were investigated. The new frontiers of technology in mobility are related to automation and connectivity. Automated means of transport enabled by connectivity can be remotely controlled, which is why they are considered together. Gender differences emerge: women are more sceptical than men about these technologies, both when adopted separately or together. The majority of men have the opposite view (see Figure 11).

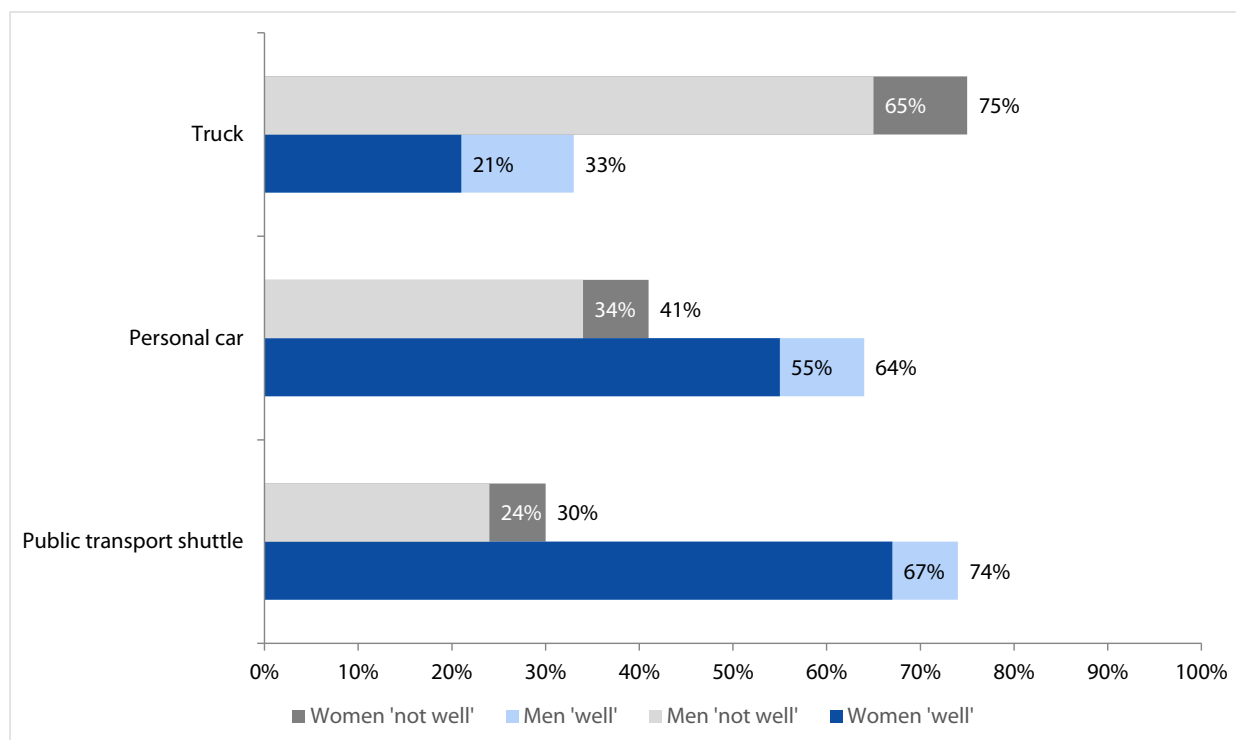
Figure 11: To what extent are you in favour or opposed to the following?



Source: Eurobarometer (2020b).

However, women’s trust increases in cases where automation is applied to certain vehicles such as public transport shuttles or personal cars. This confirms that women are more confident with established technologies but more sceptical about new ones (see Figure 12).

Figure 12: To what extent does this picture corresponds to your idea of an automated vehicle?



Source: Eurobarometer (2020a).

1.3.2. Mobility of care

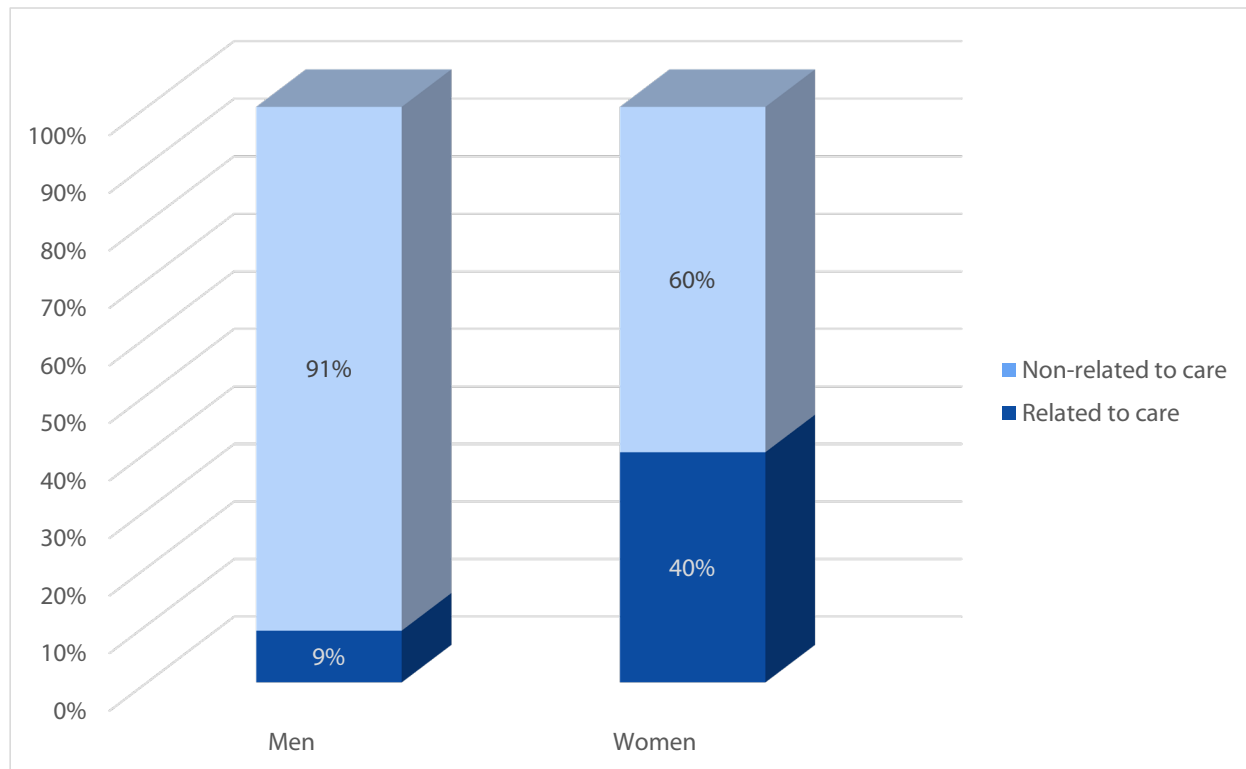
Unpaid work for caring includes the time spent accompanying non-autonomous people in daily activities. This is also defined in the literature as the ‘mobility of care’ (Sánchez de Madariaga, 2013; 2018), i.e. taking relatives to the doctor, accompanying children to school, sports and other activities, home shopping and carrying out other household duties at public offices or service providers. Unfortunately, there is no comparable and updated gender-disaggregated data on EU-27 countries on this subject.³⁶ There is some interesting analysis at the country and local levels, as shown below while discussing recent results.

Analysis of data collected in the city of Madrid surveying 800 people (50 % women and 50 % men), aged 30 to 45, about their mobility over 24 hours (Sánchez de Madariaga and Zucchini, 2019) shows interesting evidence about the mobility of care. The sample dimension for this survey is proportional to the number of inhabitants of the city and includes participants from five different areas: two central areas, two suburban areas and one semi-peripheral area. Out of the total 3 323 trips made, 66 % were made by women, with the average exceeding 5 trips a day, and the remaining 34 % of trips were made by men, with an average of 2.8 trips a day. Considering all participants, the number of trips made for working reasons equals the number of trips made to carry out care duties (29 % for the former and 33 % for the latter). Women’s urban mobility is widely related to care activities while men’s urban mobility for the same purpose amounts to only 9 % (see Figure 13). For men, most of their mobility is related to work (53 %); this share is only 23 % for women. Women’s leisure trips and those for personal purposes account for only 4 % of the total although when more details are gathered, some women’s

³⁶ This is indirectly confirmed by EIGE’s methodological choices. For the year 2019, the Gender Equality Index (GEI) included a thematic focus on work–life balance: the methodology adopted by EIGE to account for inequalities in time spent on the mobility of care was ‘commuting time for the population aged 15+’.

personal trips are actually made to take care of others. Finally, escorting, the activity of accompanying someone by car represents only 1.4 % of men's trips while for women, this represents 20 % of daily trips.

Figure 13: Care-related trips for women and men in Madrid.



Source: Sánchez de Madariaga and Zucchini (2019).

Comparative research in 2019 focusing on child-related travel based on time-use data (Craig and Tienoven, 2019), from Spain (2009), Finland (2009), United Kingdom (2014) and Australia (2006) shows that Spanish men and women devote about the same time to daily travel on average (1 hour and 20 minutes and 1 hour and 22 minutes respectively), some minutes more than Finnish men and women (1 hour 11 minutes and 1 hour 13 minutes) but the proportions of the amount of time devoted to care activities by women in the two countries are very similar: 37.5 % for Spanish women and 34.5 % for Finnish women. On the other hand, men devote less time to care activities although Spanish men seem more active than Finnish men (22 % versus 15.5 %). The authors of that study coupled the descriptive data analysis with an accurate multivariate (multiple regression) to account for several contextual factors of each country. They concluded that even if the services provided by the Finnish welfare system and the whole organizational context (including transport) enables less time to be devoted to childcare by parents, this is unfortunately still insufficient to promote more equal sharing.

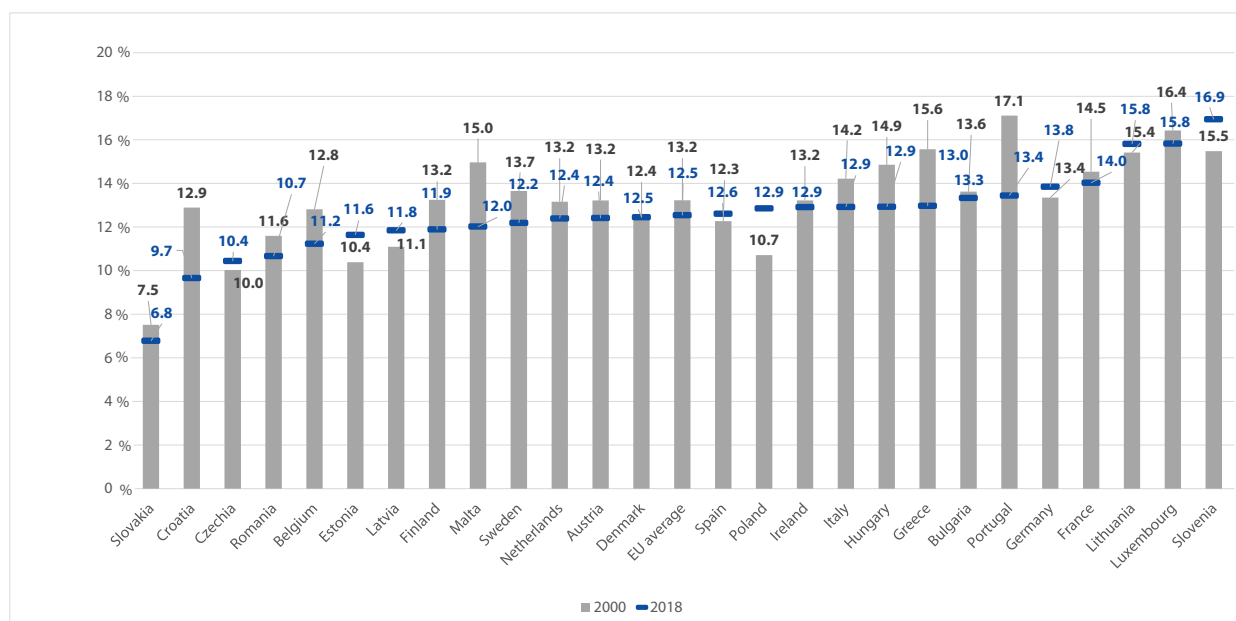
1.3.3. Affordability of transport

The costs and price of transport, for instance, the costs of car maintenance and use and the price of bus tickets, are important factors behind transport users' individual choices. When they are high compared to available income (all other characteristics such as accessibility, adequacy and availability being constant), individuals' mobility and access to services (e.g. healthcare, education) and opportunities (e.g. employment, cultural events) might be limited (Kuttler and Moraglio, 2021a). Transport is therefore a factor that intervenes in reinforcing poverty and social exclusion but at the same time might be used as key lever to break barriers causing them (Lucas, 2012).

This concept is defined as 'transport poverty' (Litman, 2016). Two indicators are here adopted to measure it: the 'share of expenditure for transport and transport services on household income'. However, both the concept and the indicators are still being developed as an area of study and research has only recently blossomed (Kuttler and Moraglio, 2021a). The indicators, in particular, have been constructed using household information on income and expenditures as a whole – as in the case of other poverty and social exclusion indicators – and therefore are not able to measure living conditions at the individual level. This means that the indicators are inadequate for this study focusing on gender equality and transport. However, reflections on the living conditions of women, as presented in the previous sections, can help in the interpretation of corresponding data. Data covers all EU Member States except Cyprus and refers to the period 2000–2018.

Figure 14 shows the differences between EU Member States between 2000 and 2018. In the majority (17 out of 26), there is a reduction in the share of household expenditure while increases are recorded in 9 Member States.

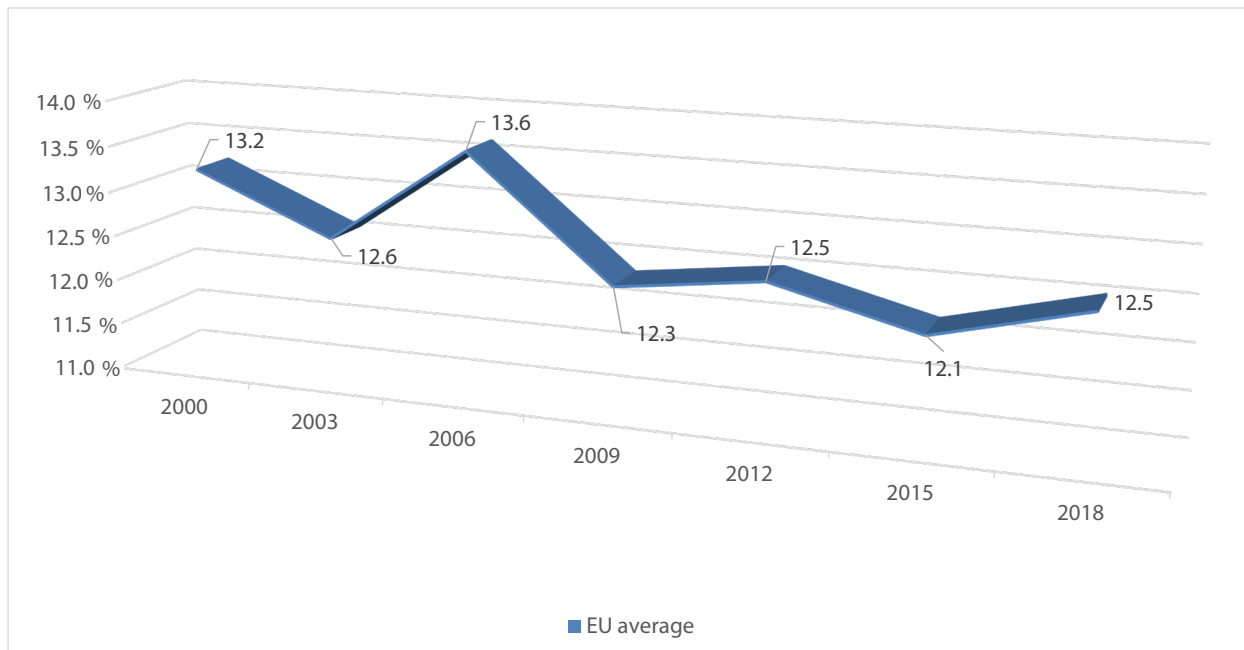
Figure 14: Share of household expenditure for transport in total household expenditure in EU Member States, years 2000 and 2018.



Source: OECD Transport database (2021). The EU average includes only 26 EU Member States as data for Cyprus is missing.

The prevailing decreasing trend is related to the 2008–2013 economic crisis since, as is clearly indicated by Figure 15, the major reduction over the time series is recorded at the EU level in 2009.

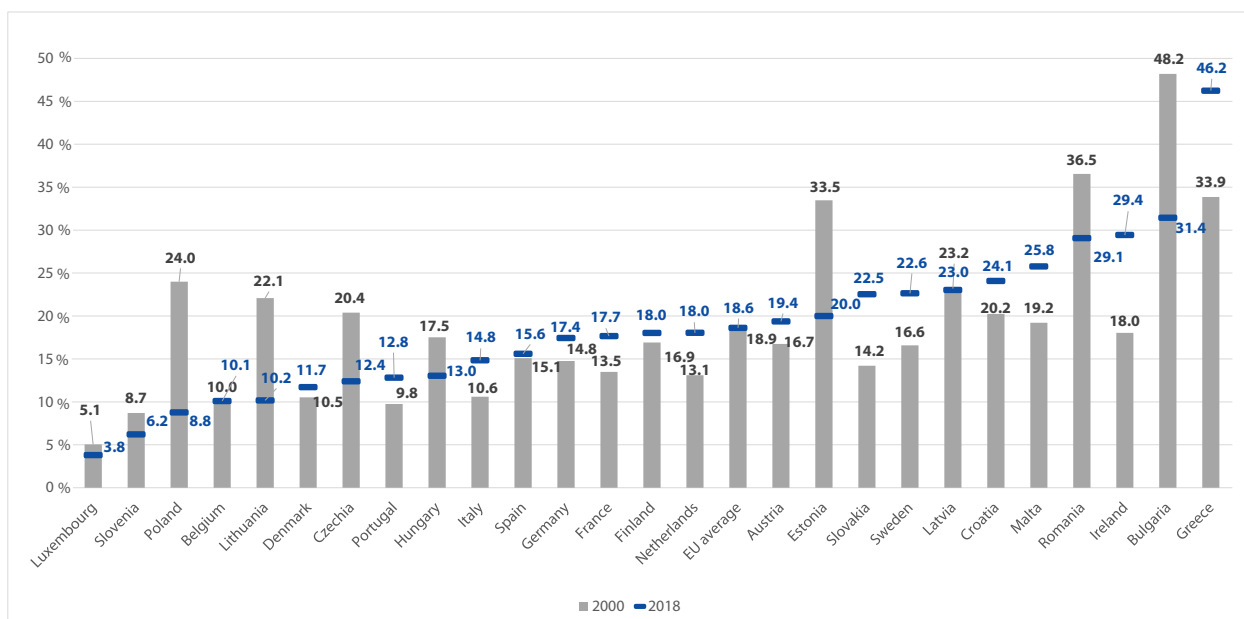
Figure 15: Share of household expenditure for transport in total household expenditure, EU average, years 2000–2018.



Source: OECD Transport database (2021). The EU average includes only 26 EU Member States as data for Cyprus is missing.

Figure 16 shows the share of households' transport expenditure as a proportion of total household expenditure for transport. A significant reduction can be noticed in Central European countries between 2000 and 2018, signalling the increase in the use of private forms of mobility. The only exceptions are Slovakia and Croatia where the use of transport services has increased and Latvia where the expenditure allocation remains unchanged.

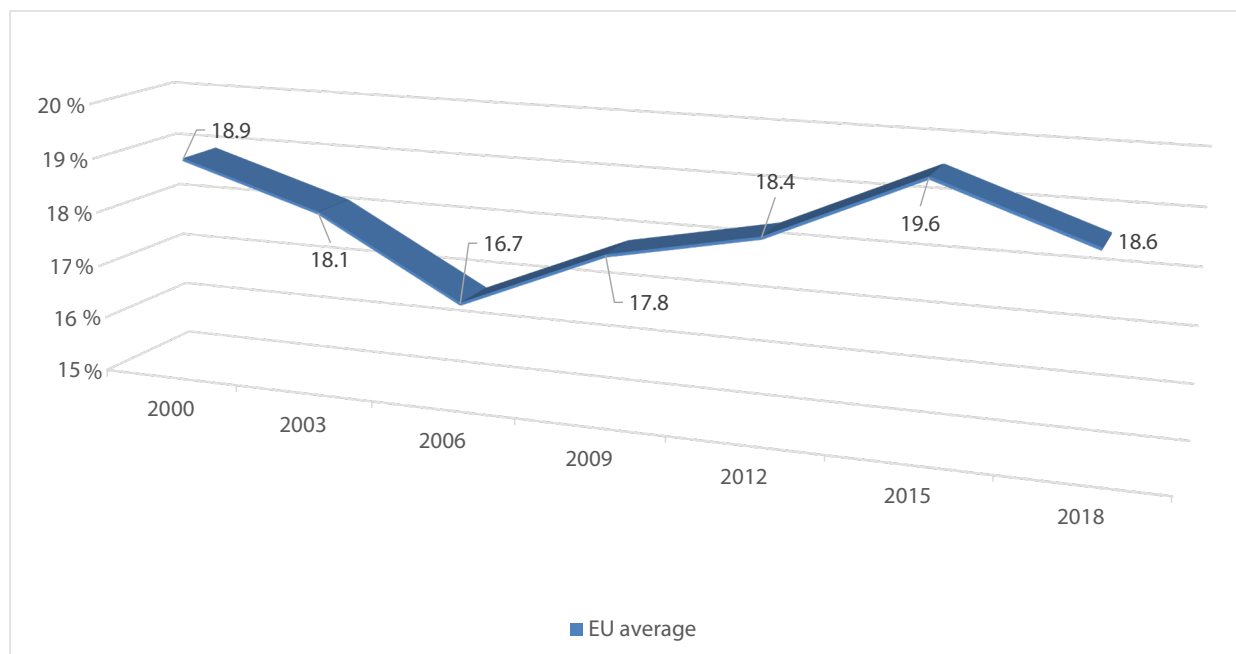
Figure 16: Share of household expenditure for transport services in total household expenditure for transport in EU Member States, years 2000 and 2018.



Source: OECD Transport database (2021). The EU average includes only 26 EU Member States as data for Cyprus is missing.

In all other EU Member States, the share of transport service expenditure has increased, especially in the countries most affected by the 2008–2013 economic crisis and debt restructuring, such as Greece and Ireland, and in countries where more efforts have been made to shift from private to public mobility to reduce CO₂ emissions as in Sweden. The different trends recorded result in a highly variable trend; the EU average is illustrated in Figure 17.

Figure 17: Share of household expenditure for transport services in total household expenditure for transport, EU average, 2000–2018.



Source: OECD Transport database (2021). The EU average includes only 26 EU Member States as data for Cyprus is missing.

Variations in the share of transport expenditure as a proportion of total household expenditure and in the share of transport services compared to overall transport expenditure point to relevant changes in their affordability and the mobility choices of the European population. For instance, an increase in the first indicator and a decrease in the second may point to an increase in the cost of car usage. This is not necessarily only a symptom of improved standards of living or of the homogenisation of lifestyles across EU Member States but may also signal the limited availability of affordable public transport services, especially in rural or remote regions where individual car mobility is often the only option available (Kuttler and Moraglio, 2021a).

There is the question of how data can be interpreted from a gendered point of view. Evidence should be considered in the context of women's mobility needs. As mentioned in previous sections, women more often work part-time, care for children and relatives, live longer, are less likely to have a driving licence and to own a car, and use public transport and walk more frequently than men. They have more complex daily mobility patterns compared to men. At the same time, women often exercise limited control over household finances as they are more likely to be the second earners in a household (Borgato et al., 2021; Rastrigina and Verashchagina, 2015). In general, women are more likely to be at risk of poverty and social exclusion (EIGE, 2020) as they are more likely to belong to vulnerable groups and affordability is a crucial element for their mobility.

In this context, reductions in the share of household expenses for transport as a proportion of total expenses, and of transport services expenses as a share of total transport expenses, in times of crisis, are worrying symptoms of increasing transport poverty. This is expected to have the greatest impact on the most vulnerable individuals in society, particularly if they are women. In countries where the

household expenditure for transport has increased while the household expenditure for transport services has decreased, there may be substitution of private for public services. However, this may have a negative impact on the actual mobility of women who are less likely to have a driving licence and own a car and are more likely to experience stronger disadvantages, especially in peripheral and rural regions. When the household expenditure for transport over household expenditure decreases while the household expenditure for transport services increases, there might be an increase in the use of public transport that signals a positive development despite an overall negative trend. Finally, when both indicators increase, transport poverty decreases and women are likely to see their access to services and opportunities improving.

In conclusion, several characteristics of women, including higher risk of poverty and social exclusion, affect their risk of transport poverty. Therefore, policies on affordability should account for the specific conditions and situations of women, particularly those who are vulnerable (Kuttler and Moraglio, 2021b).

2. WHAT POLICIES ARE NEEDED TO ADDRESS WOMEN'S NEEDS?

Key points

- Although women use public transport more than men, provision still fails to meet their transport needs, including for safety and affordability. It is essential that gender mainstreaming is incorporated into transport planning to ensure equal access for women and promising/good practices are developed and identified.
- In the city of Malmö in Sweden, women's needs in urban planning are reflected through the promotion of gender-sensitive open consultations. A similar initiative in Vienna, Austria uses a methodology that promotes women's participation in the various steps of the decision-making process for building pedestrian pathways.
- In several cities in Italy, special taxi services offering discounts for night trips to women have been established. The prevention of violence on public transport is among the objectives of the French national plan against sexual harassment and sexual violence.

2.1. Promising practices from countries already using gender-sensitive policies in transport

Promising initiatives for women as users of transports from public authorities, stakeholders and private companies are presented here. Attempts were made to include representative examples from different countries of the European Union.

Women in Europe use public transport more than men, but this use is not free of problems. In fact, women often declare that they do not feel safe when using public transport, especially during the dark hours of the day and in isolated neighbourhoods. Some initiatives have been implemented by the Port of Rotterdam to encourage the mobility of women, such as the Port Angels Women's Network, to attract a greater number of women to the port. Dublin Bus also seeks to provide a diversity-friendly service to their customers.

The following pages include a list of the initiatives that EIGE (European Institute for Gender Equality) reported as promising/good practices for the mobility of women in Europe.³⁷ The state and local authorities in France, Sweden and Austria have committed to combat cases of sexual abuse on public transport and to involve women in urban planning, while Italian taxi drivers have agreed to provide discounts for women who use taxis at night.

a. Sweden: gender mainstreaming in urban planning

Sweden's transport policy foresees gender mainstreaming as one of its major objectives. The city of Malmö carried out consultations with secondary school students, employees and stakeholders to discuss gender issues in public transport. According to the consultation results, the public transport system was adapted by removing bushes near the bus stops or dark access ways, such as *tunnelsor*, allowing passengers to be dropped off in between regular bus stops at night, so that passengers could be closer to their destinations. During the planning of two new tram lines in Malmö, women and men

³⁷ EIGE (2016: 16-17). Information therein contained have been whenever possible updated. Respective references are provided in notes.

participated equally in the planning process, adopting a specific methodology during planning meetings.³⁸

b. Austria: the Gender Mainstreaming Model Districts

The Gender Mainstreaming Model Districts have been developed to promote gender equality in Austrian transport. This project supports gender mainstreaming in the decision-making processes for planning footpath networks in every district of the city. Maps of the footpath networks were designed which show, for instance, where walking is dangerous for pedestrians.

c. Italy: pink taxi and parking

In recent years, several Italian cities starting with Bolzano³⁹ have introduced the '*taxi rosa*' (pink taxi), a dedicated taxi service for women during evening and night hours (from 10 pm to 6 am). The service includes a discount of EUR 3 per journey. Also, '*parcheggi rosa*' (pink parking) has been implemented, which are dedicated parking areas for women or pregnant women or women with small children. These areas are placed near public services, are easily accessible and near exits in the parking areas.

d. France: national plan against sexual harassment on public transport

In 2015, the French Government presented the first national plan of action for fighting sexual harassment on public transport systems. All actors were involved in the discussion of the plan. It included training for professionals to deal with sexual harassment and sexual violence and innovation in the organisation of the public transport system. A national awareness-raising campaign was organised on equality and sexuality, ensuring a better application of the law and the necessary human and financial resources to implement the national action plan.⁴⁰

³⁸ See for further details: <https://www.includegender.org/gender-equality-in-practice/%20planning-and-urban-development/making-public-transport-%20gender-equal/>.

³⁹ See for further details: https://www.comune.bolzano.it/servizi_context02.jsp?ID_LINK=726&area=51.

⁴⁰ See for further details: <https://www.haut-conseil-egalite.gouv.fr/violences-de-genre/actualites/article/avis-du-hcef-relatif-au>.

PART II – REPRESENTATION OF WOMEN IN THE TRANSPORT SECTOR

3. WOMEN'S POSITION IN THE TRANSPORT SECTOR

Key points

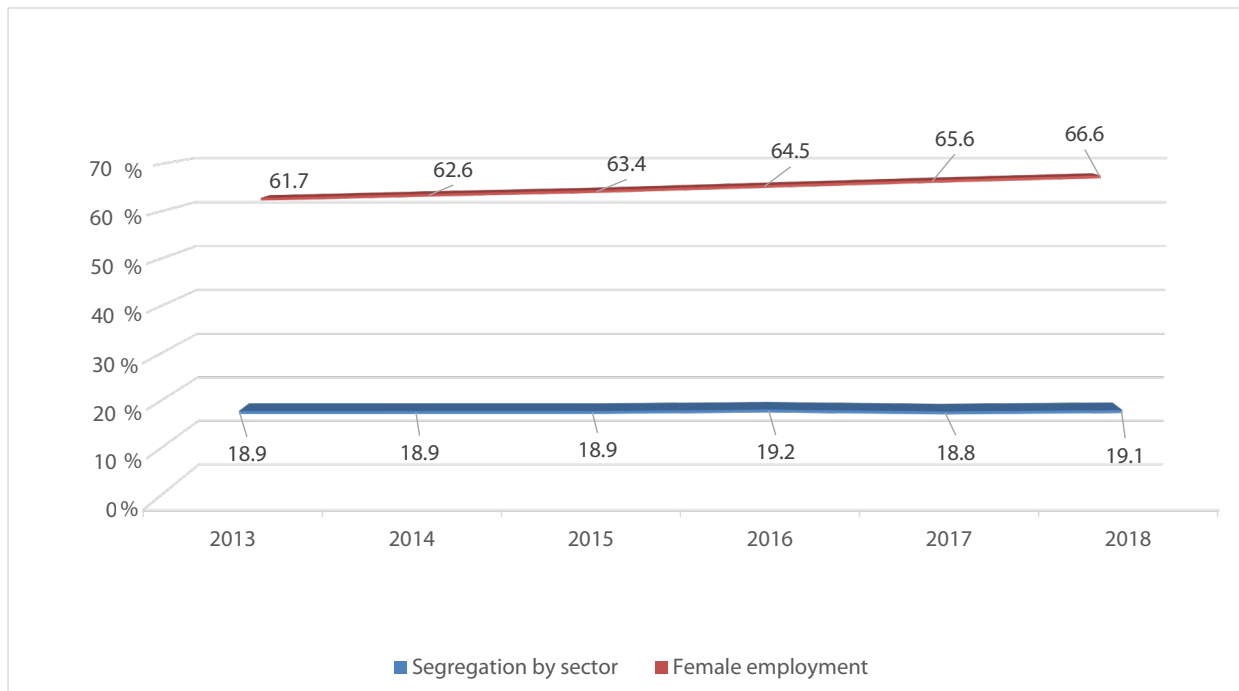
- Gender segregation is especially pronounced in the transport sector, where women continue to face significant barriers in entering and securing employment. This phenomenon raises issues of labour market efficiency and needs to be addressed as the sector is experiencing labour shortages, which are expected to increase in the future.
- The sector is unattractive for women because of the overall low quality of work (including work contracts), working patterns unsuited to women's needs in terms of work-life balance and time flexibility (including part-time work), low wages for women (as well as poor career prospects and limited training opportunities), a lack of workplace facilities, safety concerns including widespread sexual harassment, and possible gender discrimination.
- The unattractiveness of the sector for women needs to be broken by policy initiatives and social dialogue.
- Gender stereotyping and its influence on girls' education choices contributes to limiting their access, length of employment and career opportunities in the transport sector, as women are traditionally underrepresented in courses key for acquiring technical expertise for the sector (science, technology, engineering and mathematics – STEM).

3.1. Women in the transport sector

Men and women tend to do different jobs according to their gender. This is the phenomenon of segregation (Burchell, et al 2013; Bettio and Verashchagina, 2009), tightly connected to gender stereotyping which shapes the educational and consequently job choices of individuals (Sansonetti, 2016). Segregation may apply and be increased by a varying extent by the type of occupation, sector, workplace and form of employment contract. Strong segregation happens when some sectors are dominated by one gender, as in the case of the transport sector. Weak segregation occurs when one gender is over-represented in relation to the share of total employment by a relatively small amount (Sansonetti, 2016). Figure 18 presents the time series for the EU average of segregation by sector.⁴¹ The indicator fluctuates slightly around the 19.0 value over time, so does not show any relevant reduction in the six-year period covered. In the same time span, the female employment rate has improved: the respective EU average has been constantly increasing from 61.7 % to 66.6 %, by about 5 p.p.

⁴¹ This indicator was calculated by Eurostat and published yearly by the European Commission in the yearly monitoring reports on gender equality in the European Union between 2015 and 2020.

Figure 18: Female employment rate and gender segregation by economic sector age 20–64, EU average, 2013–2019.



Source: Data for gender segregation by sector 20–64 are from European Commission: Gender equality monitoring reports, 2013–2019. Female employment rate 20–64 [lfsi_emp_a], Eurostat database. The averages calculation includes the United Kingdom.

The increasing integration of women in employment has been associated with some reduction in gender segregation (Bettio and Verashchagina, 2009) but also with new and more subtle forms of the phenomenon, including, for instance, gender differences in the type of employment contracts or greater differentiation within an occupation (Grimshaw and Rubery, 2007; Bettio and Verashchagina, 2009; Rubery and Fagan, 2019). Segregation is highly relevant because it plays a pivotal role in determining pay gaps: highly feminised sectors are characterised by low pay levels (e.g. education, health and social work) while typically male sectors are better paid (e.g. construction and chemical products).

According to Burchell et al. (2013)⁴², data on the feminisation of economic sectors shows a clear differentiation in the EU. Women are more concentrated in public administration⁴³ and the service sector including real estate activities; financial and insurance activities; and professional, scientific, technical, administration and support services. Other sectors such as transport, information and communication, manufacturing, agriculture, forestry and fishery, mining, quarrying and construction are, conversely, poorly feminised.

For this study, Labour Force Survey data for 2020 was considered and only occupations related to the transport sector were selected.⁴⁴ Figure 19 shows the limited share of women in the transport sector in

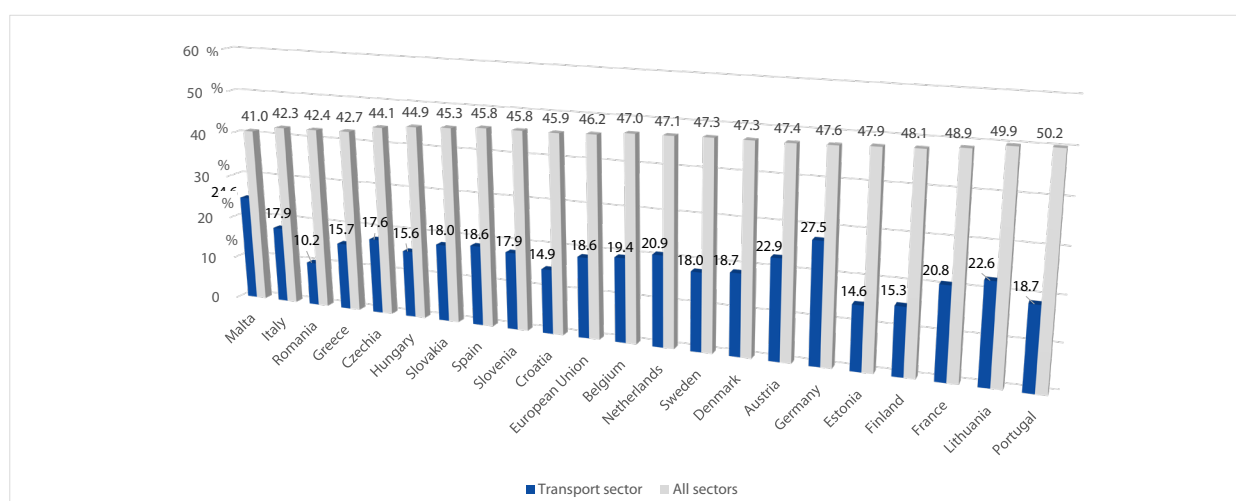
⁴² In Burchell et al. (2013:87).

⁴³ In this case, public administration includes the following: defence, education, health and social work.

⁴⁴ The official classification of the European Union is here adopted (Nomenclature statistique des Activités économiques dans la Communauté Européenne - NACE Rev. 2; Regulation (EC) No 1893/2006 of the European Parliament and of the Council of 20 December 2006 establishing the statistical classification of economic activities NACE Revision 2 and amending Council Regulation (EEC) No 3037/90 as well as certain EC Regulations on specific statistical domains. OJ L 393, 30.12.2006, p. 1–39. <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32006R1893>). See also

every EU Member State and on average across the EU, compared to the share of women in total employment. Results refer to the year 2020, thus accounting for the impact of the COVID-19 pandemic on employment in EU Member States. These indicators present highly differentiated distributions in EU Member States, as the average values are 18.6 % for the transport sector and 46.2 % for total employment. The presence of women in employment varies between the lowest – 41.0% in Malta and 42.3 % in Italy – to the highest – 49.9 % in Lithuania and 50.2 % in Portugal. The presence of women in the transport sector ranges from the lowest shares – 10.2 % in Romania and 14.6 % in Estonia – to the highest shares – 27.5 % in Germany and 22.9 % in Austria.⁴⁵ It is clear that there is no relationship between overall female employment and that in the transport sector. For instance, Portugal shows a high degree of feminisation in employment (50.2 %) and a degree of feminisation of the transport sector close to the EU average, while for Estonia, which shows a high presence of women in employment, a low feminisation of the transport sector is recorded.

Figure 19: Feminisation of employment, ages 20–64, in total and for the transport sector by EU Member States, 2020.



Source: Own calculations. Employment by sex, age and detailed economic activity, Eurostat database [lfsa_egan22d]. Data for Bulgaria, Cyprus, Ireland, Latvia, Luxembourg and Poland is not available.

Sectoral gender segregation is not only one of the main causes of gender pay differentials but it also raises issues of labour market and overall economic efficiency. The scarce presence of women in one or more sectors points to a biased and suboptimal allocation of human resources in the labour market that needs to be addressed to improve its efficiency. More explicitly, it would be convenient for the economy to access more varied human resources (in this case, to allow more women to enter the transport sector) to improve both the quality and the quantity of goods and services offered.

The transport sector would benefit in several ways from higher female participation.⁴⁶ Organisations would have a wider choice among candidates' skills and talents and easier access to the right candidates, as the number of potential employees would increase in absolute terms. As women are considered to have better soft skills and the ability to deal with clients, their increased participation

https://ec.europa.eu/eurostat/statistics-explained/index.php?title=NACE_background#The_international_system_of_economic_classifications. Two occupations are included: Land transport and transport via pipelines; Travel agency, tour operator and other reservation service and related activities.

⁴⁵ Please note the employment rate for workers ages 20–64 is a rough indicator as it does not account for the 'quality' of the employment. For instance, in some EU Member States as for instance in Germany and the Netherlands, the total female employment rate is high but there is a high incidence of part-time working among women workers.

⁴⁶ See also European Commission (2018) for more details.

would improve customer service (Mestre et al., 2009). More diversity within an organisation has been seen to lead to more engagement (better retention of employees) and positive attitudes among employees (reducing absenteeism). Diversity also helps to create a positive work climate and promote innovation and creativity. As women are more careful and efficient in driving vehicles (Sarma et al., 2013), it can be expected that employing more women in transport would improve safety at work and efficiency in terms of driving duties. Finally, in the context of the 'European Green Deal', as women are more sensitive to environmental issues, the increased presence of women in the sector could positively contribute to the development of green technologies and policies (Ortega et al., 2019).

All these factors would result in the transport sector's improved public image and thereby increase its attractiveness for women. However, the sector is currently unattractive to women for several reasons, among them:⁴⁷

- The perception of a typically male sector where women suffer from explicit and implicit forms of discrimination
- A lack of work–life balance measures
- Workplace and equipment not being adapted to women (e.g. lack of sanitary facilities for women)
- Safety issues for women (including sexual harassment)
- A lack of training, lifelong learning and career opportunities.

A more detailed analysis of the causes of the low attractiveness of the sector is in the next section.

3.2. Barriers to women's participation in the transport sector

There are several barriers to women's participation in the transport sector. The fundamental one regards prejudices deeply rooted in our culture about what is considered as typically male or typically female, in other words, 'gender stereotyping' (Turnbull, 2013). Driving or piloting vehicles of any type is considered typically male. For instance, despite the evidence that women are more cautious than men in these types of activities and therefore less likely to incur accidents (González-Sánchez et al., 2018), they are still a minority among drivers of public transport. Through generalisation, women have been systematically excluded from all activities related to driving and piloting.

In Part I of this study, reference is made to the low presence of women among policymakers in planning public transport services (e.g. urban planners) but women are also rare among professionals designing and project managing different types of transport schemes (e.g. concerning cars, airplanes and trains) and the corresponding infrastructure (e.g. roads, airports, railways and train stations). The systematic exclusion of women from these areas through the application of various forms of direct, indirect, explicit and subtle discrimination reduces the variety of solutions being made available and prevents the implementation of measures that can effectively address women's transport needs. It has been illustrated how car safety equipment does not account for women's physiology and thus fails to protect women (European Commission, 2014⁴⁸).

Professional choices are a barrier to female access to the transport sector (Turnbull, 2013). The professions relating to the transport sector require scientific and technical expertise such as engineering and technology, disciplines belonging to the so-called STEM group (STEM is the acronym for science, technology, engineering and mathematics). These are technical and scientific fields of study where women are underrepresented, again due to gender stereotyping. Education has been pivotal in perpetuating prejudices but can be turned into the key tool to combat them. This is why

⁴⁷ See also European Commission (2018).

⁴⁸ European Commission, published on 2014-05-14

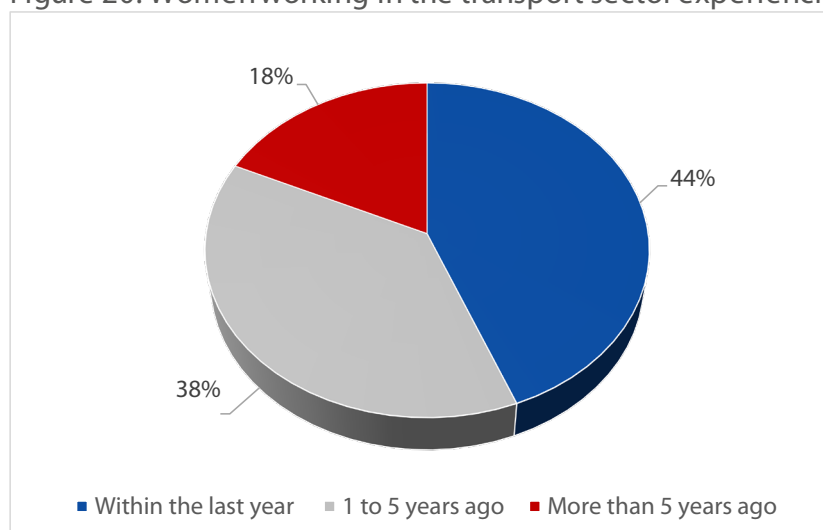
programmes to encourage girls to enter these fields of studies and in particular professions applicable to the transport sector should be adopted as priorities in education.⁴⁹

Cultural barriers operate in several ways, generating further practical barriers to women accessing and remaining in transport sector employment. As an example, the selection mechanisms for hiring drivers for public transport have been shown to be geared towards typically male characteristics and to put at a disadvantage candidates with 'typically female' characteristics, for instance the so-called 'soft skills', even though soft skills would be helpful in occupations where workers are constantly in direct contact with the public as the public transport service (Duchéne, 2011).

Beside cultural barriers, women's access to the transport sector is also hindered by prevailing labour conditions (Turnbull, 2013). Firstly, organisations in this sector do not routinely adopt working times or other forms of flexibility which favour balancing work and family commitments (e.g. part-time working). In spite of low flexibility in working times, flexibility is widespread for labour contracts and atypical working conditions, which makes the sector unattractive to all workers including women (European Commission, 2018). Another barrier is the gender gap in wages. As women in the sector are employed in occupations that require lower degrees of specialisation, they often earn less than men. At the same time, they have weaker future career prospects as they are offered fewer opportunities to advance in their positions. Finally, there is a lack of policies to support women in organisations as, for example, networking activities that can make them feel less isolated in a male-dominated work context are rarely implemented (Deloitte and Automotive News Europe, 2016).

Another practical barrier to the participation of women in the sector is the low attention to the needs of female workers. Restrooms or dressing rooms for women employees are often scarce or lacking (European Commission, 2018). Here again, this relates to the assumption that women are not the 'typical' workers in the sector. Women also experience serious safety issues such as sexual harassment. The low number of female workers can aggravate the situation (Pillinger, 2017). It is unfortunate that violence is still considered part of the work culture of the transport sector. As research conducted across 13 countries (including 11 EU Member States) in 2017 showed (Pillinger, 2017), 82 % of female workers in the sector interviewed had experienced some form of violence in the previous 5 years (see Figure 20).

Figure 20: Women working in the transport sector experiencing forms of violence, 2017.



Source: Chart 1 from Pillinger (2017:6).

⁴⁹ The European Commission is currently developing a toolkit for pupils and students with the aim of supporting teachers.

The same study reported that perpetrators were colleagues (22 %), managers (17 %), customers (49 %), or other people (12 %). The author pointed out that violence is not a one-off event in the sector: 20 % of respondents experienced at least 5 incidents at work. More generally, women working in the transport sector often found themselves in difficult situations and were not adequately trained to manage them.

3.3. Labour shortages and attractiveness of the transport sector

Cultural prejudices, labour conditions and forms of violence contribute to barriers to both women's and men's participation in the transport sector. Interventions to enhance the quality of labour conditions would therefore not only benefit women but would make the sector more attractive for all.

The attractiveness of the sector is a very relevant issue given the current labour shortages (European Commission, 2017), which are expected to increase in the medium term in several occupations. Employers do not seem to be aware of the challenges and their worrying implications; there is limited awareness that actions need to be undertaken now to avoid future bottlenecks and shortages (Pomoni et al., 2020).

There are substantial interventions planned for the sector within the European Green Deal, and particularly the investments provided through the Sustainable and Smart Mobility Strategy in infrastructure, research and innovation. They offer a unique opportunity to make the sector more attractive. Tailored interventions can be aimed at improving labour conditions and positively communicating both achievements and prospective sector developments to encourage new labour force entrants. Employers should understand the importance of offering quality jobs (including, e.g., work-life balance, career opportunities, professional training and good wages), positive work environments and professional human resources management to promote diversity in the workforce as a form of investment to face future challenges (Turnbull, 2013). The expected radical shifts due to technological change (digitalisation and robotics) that will influence modes of transport in the future need to be accompanied and supported by an adequately skilled workforce (Pomoni et al. 2020). Awareness is needed among sector employers and all stakeholders on the need to make the transport sector more attractive to work in.

3.4. Minimising the barriers to women's entrance to and permanence in the transport sector

Today, there is more attention to the issue of women's presence in the transport sector than 10 or 15 years ago (Kronsell et al., 2015). However, data shows that there is still a long way to go to improve both the attractiveness of the sector to female employees and their retention. The European Commission has undertaken several well-documented initiatives according to the mandate it has received (see Sections 1.1 and 1.2). They can be found on the dedicated website, Women and Transport – Platform for Change⁵⁰ launched in 2017. The platform provides information on women and transport in the EU⁵¹ and promotes the exchange of good/promising practices. Efforts have also been made to raise attention to gender issues across other European Union transport policies initiatives, for instance, CIVITAS (the EU initiative for sustainable and smart urban mobility).

⁵⁰ The website is available at: https://transport.ec.europa.eu/transport-themes/social-issues/women-transport/women-transport-eu-platform-change_en.

⁵¹ There are some very interesting reports tackling the issue, published by the European Commission and its agencies like the Joint Research Centre and the European Institute for Gender Equality. They are mentioned in the list of references included in this study.

In addition, research projects focused on gender and transport have been funded by the H2020. Two examples are TInnGO⁵² and DIAMOND⁵³. TInnGO is a project on gender and smart mobility and includes a learning centre, an open mobility data platform, a data repository and case studies. DIAMOND analyses big data to promote gender inclusion in current and future transport systems, considering women as both users and professional workers. An in-depth analysis by the Joint Research Centre (JRC) on women's issues in projects funded by the 7th Framework Programme and by H2020 (Ortega et al., 2019) reveals that only 2 % of the projects deal with gender issues⁵⁴ and that transport projects involving women researchers account for only 22 %. JRC calls for more research to understand the causes of the phenomenon and for providing incentives for the participation of more gender-balanced teams in EU-funded research.

The knowledge achieved through the initiatives and studies conducted and the scholarly literature that has flourished in the past decade provide a solid basis for further developing policy design and promotion of the entrance of women to the transport sector at both the EU and national level. This is particularly needed now that the transport sector is undergoing profound transformation. This includes counteracting climate change, while robotisation and digitalisation can become particularly important allies (Ng and Acker, 2020). In this context, diversity in skills and professions are an asset for success. Policy initiatives are therefore extremely urgently needed to overcome barriers that prevent women from entering and remaining in a sector where innovation is expected to positively impact on wages for all women and men (Aksoy et al., 2021).⁵⁵

Working conditions should be improved as this would benefit all workers including women. Improving working conditions means intervening to reduce the typical work that is very common in some areas of the transport sector. There is a lack of working time flexibility in the sector (including part-time work), even though meeting the work–life balance needs of workers with family responsibilities (including women) is an important aspect of attracting and retaining female employees. As Turnbull (2013: 5) described, 'It is impossible to determine from the statistical data whether part-time working is lower because there are fewer women in transport or whether the predominance of full-time work is a deterrent to women seeking work in the transport sector'. There is a reinforcing mechanism among these two aspects that has to be broken: low availability of part-time working or other forms of working time flexibility is a barrier that needs to be overcome in the transport sector.

Improving career opportunities for women, through internal networking among female employees, and designing career pathways for them, supported by adequate professional training, would be another important step to attract potential female employees to the transport sector. Finally, the adequacy of the work environment, safety and particularly the phenomenon of sexual harassment should be openly discussed and tackled as the prevalence of sexual harassment appears to deter women from entering the sector.

The European Union now has at its disposal an invaluable set of intervention tools. The transport sector is pivotal for the achievement of the European Green Deal objectives. The Sustainable and Smart Mobility Strategy foresees investment in transport infrastructure across the EU Member States and the provision of incentives for the transition to zero-emission mobility. These could be used as a key lever for EU policymakers to encourage the entrance of women into the sector and their retention by

⁵² See TInnGO at: <https://tinngo.sboing.net/>.

⁵³ See DIAMOND at: <https://diamond-project.eu/>.

⁵⁴ The study refers to the Strategic Transport Research and Innovation Agenda (STRIA) using the support tool of the Transport Research and Innovation Monitoring and Information System (TRIMIS).

⁵⁵ Authors showed that robotization increases both male and female earnings. However, they also showed that medium- and high-skill occupations (typically male) benefit the most. As a consequence, the gender pay gap increases as well.

requiring economic actors to remove practical barriers in terms of both formal labour formal conditions and the work environment. The adoption of gender equality plans, as were introduced for the entities applying for Horizon Europe funding, might be a good approach to follow. There are also stakeholders among employers and end-users of transport services, goods and infrastructure⁵⁶ that can provide concrete support to actions in this direction, tackling stereotypes at the root of gender inequality in the transport sector.

Gender stereotypes and norms are deeply rooted in culture. Culture informs social structures (e.g. family, schools and other educational agencies, workplaces) and social processes (e.g. learning, socialising). Misconceptions about driving and piloting and gender can be reproduced and institutionalised in daily social relations. Pupils learn about gendered skills and gender roles from adults' expectations and start to build up their preferences from early ages in pre-primary education (Lorber, 1995). Traditionally, female pupils are not encouraged to enter scientific disciplines. Over time and their education, these preferences consolidate and at later stages when higher educational and vocational choices are to be made, very few female students choose STEM disciplines. As a result, few women are sufficiently skilled to build promising careers in the transport sector, which in any case is not attractive for most women. When women do work in the sector, they can find themselves trapped in jobs with poor career opportunities (Turnbull, 2013) within organisations that do not offer any benefits and support ranging from adequate facilities to work–life balance measures. In the eyes of a young woman choosing a career track, the sector appears unattractive when compared to 'typically' female sectors where more friendly labour conditions prevail.

This discouraging picture can, however, be successfully challenged through education (Wang and Degol, 2016). As pointed out by NG and Acker, '[c]ountries where more women are achieving equity in higher education enrolment, attaining STEM degrees and entering the larger workforce also tend to have higher female participation in transport-related professions' (NG and Acker, 2020: 19).

Several initiatives have been undertaken to dismantle gender prejudices and stereotypes about STEM skills among young children and students during the various stages of education. Comprehensive approaches involving teachers and families have proven to be even more effective (Sullivan, 2019). Analysis of good practices to combat gender stereotyping⁵⁷ points to a very positive impact among secondary school girls for accessing educational pathways that prepare them for professional positions needed in the transport sector, through the organisation of workshops, conferences, communication campaigns, mentoring and scholarships (Pirra et al. 2020).

⁵⁶ The alliance of women in cycles between company representatives and users' representatives is a concrete example. See for more details: <https://cyclingindustries.com/wic>.

⁵⁷ The exercise was conducted as part of the TInnGO project.

4. WHAT POLICIES ENHANCE WOMEN'S PARTICIPATION IN THIS SECTOR

Key points

- There are many examples of promising practice from public and private sector organizations which encourage women to enter and develop careers in the transport sector.
- Promising practices aim at improving working conditions (including work–life balance and working time flexibility) and career opportunities, promoting gender diversity in the automotive and mobility trades by encouraging girls to undertake a career in transport, and raising awareness and facilitating empowerment. Both privately and publicly owned companies show commitment to such interventions. Some attention is also being paid to violence prevention.
- Formal commitments with robust targets are necessary to drive gender equality in the sector including through ensuring gender mainstreaming throughout human resources policies.

4.1. Promising practices to increase women's presence as workers in the transport sector

In the search for promising practices from countries already using gender equality policies in transport, initiatives for women as workers in the transport sector were identified. This report looked at practices promoted by public authorities, stakeholders and private companies, while also seeking to include representative examples from different countries in the European Union.

In the following pages, it is possible to find some of the practices collected regarding attempts in some European Union Member States to increase the presence of women in the transport sector, which is currently 22 %.⁵⁸ These promising practices have been implemented by stakeholders that want to improve working conditions and increase career opportunities for their associates, such as WAVE (WoMen and Vehicles in Europe), a French association to promote gender diversity in the automotive and mobility trades.

AVIADORA is another initiative that seeks to encourage girls to undertake a career as pilots in Spain where the number of female pilots is below the international average. Similarly, the public relations activities implemented by České dráhy aim at the empowerment of potential female employees to stimulate them to see the world of transport as a sector for a future career.

Also noteworthy are efforts of private companies, such as AP Moller-Maersk (Damco and Maersk Line) and public transport companies such as Ferrovie dello Stato (Italian State Railways), Dublin Bus, České dráhy and Sofia Electric Transport Joint Stock Company, to introduce gender-sensitive approaches to implement actions aimed at preventing sexual abuse and/or promoting work–life balance.

⁵⁸ For most of the selected initiatives more details can be found in European Commission (2018: 122-316). Information therein contained has been here updated and respective references are provided in notes.

a. France: WAVE

WAVE⁵⁹ is an association whose goal is to promote gender diversity in the automotive and mobility trades. Created in 2008 by women working in the automotive sector, the association is aimed at all employees (women and men) of companies in the automotive and mobility sector: manufacturers, importers, equipment manufacturers, distribution and repair networks, and service providers.

In recent years they have introduced the intercompany, WAVEmentoring, an innovative project aimed at enabling young workers and experienced professionals in the automotive sector to share experience, know-how and interpersonal skills.

Each year, the association brings together 15 pairs of mentors and mentees from all companies and functions: engineers, salespeople, plant managers and financiers from companies in the automotive sector: manufacturers, equipment manufacturers and service companies.

This is to allow pairs of volunteers from different companies in the automotive sector and therefore in separate line management hierarchies to work together in a process of mutual enrichment and sharing knowledge and experiences.

The use of mentoring facilitates contribution to the professional development of young staff members of the companies involved in the project. The success of the project has meant that this is replicated every year. They have also implemented campaigns urging younger men to change their driving behaviours and attitudes.

b. Italia: Ferrovie Dello Stato Italiane

Women in Motion (WIM)⁶⁰ is a project of Ferrovie dello Stato Italiane (FSI – Italian State Railways) to promote women's careers in technical areas and, more generally, in sectors with a predominantly male workforce. WIM is an orientation path for middle, high school and university girls: over 100 women from the FS Group, working in technical areas, have joined the project, becoming mentors for the students.

FSI have also implemented activities to fight sexual harassment in the organisation. In particular, they introduced counsellors in support of the victims of sexual harassment in the workplace in 2020. A recent meeting, taking place on a digital platform, offered an opportunity to study the counsellors' methods of working more closely. They have a sensitive role, dealing with very personal issues where there remains an overall lack of awareness. Starting from listening, understanding the context and appreciating specific situations, counsellors identify possible actions to be implemented together with those who identify themselves as victims of harassment. These trusted advisers have third and *super partes*, a status external to the company, are strictly bound by professional secrecy, and are therefore able to guarantee maximum confidentiality without any form of judgement.

c. Spain: AVIADORA

The Spanish Association of Pilots promotes the project AVIADORA that seeks to give more visibility to women in the world of aviation and to increase the number of female pilots, who currently constitute only 3 percent of the profession in Spain.

⁵⁹ See WAVE at: <http://waveautos.com/mentoring-generation-y/>.

⁶⁰ See WIM at: <https://www.fsitaliane.it/content/fsitaliane/it/sostenibilita/persone/women-in-motion.html>.

AVIADORA wants to create a community and promote equality in aviation with conciliation measures. The intention is to unite men and women so that, together, they can promote the integration of women into their profession and to encourage those young women who are as passionate about flying as men but who, due to ignorance, taboos or family disapproval do not enquire about this career. AVIADORA wants to make the profession of a pilot visible for new generations by, for example, giving talks in schools and institutes and appearing in the media.⁶¹

d. EU-wide: Women in Cycling

Women in Cycling (WIC) is an expertise portal that aims to give a voice to women working in the cycling sector, increasing their visibility, influence and opportunities to network with other women in the sector to improve the presence and position of women in boards, panels, conferences, interviews and jobs. WIC was launched in 2021 by CIE (Cycling Industries Europe), ECF (European Cyclists' Federation), Velokonzept, Mobycon and CONEBI (Confederation of the European Bicycle Industry).

Women who are interested in speaking opportunities, interviews or jobs can sign up with their LinkedIn profile and specify their area of expertise. Congress organisers, companies looking for employees and headhunters can use the platform to find women with the expertise that they are looking for. WIC is making a call to action to change all-male panels and the significant underrepresentation of women in the cycling sector. Another goal is to have better and more inclusive representation of women, particularly at decision-making levels, and to inspire a younger generation.⁶²

e. The Netherlands: Maersk

A.P. Moller – Maersk (hereinafter Maersk) is an integrated transport and logistics company with multiple brands and is a global leader in container shipping. They have implemented various measures for a more equal work environment.⁶³

In 2016, a maternity and paternity policy leave was implemented across Maersk Group aimed at increasing retention of women following childbirth or adoption from the current 70% to 90%.⁶⁴ The policy consists of a global minimum standard of least 18 weeks of fully paid maternity leave; a one-week paternity leave; and a 'return to work' policy: a scheme that gives onshore employees (both men and women) the opportunity to work 20% less hours at full contractual pay within the first year of childbirth or adoption, for up to six months after returning to work. They have set up an information portal to support the policy, where employees and line managers can find global policies, videos from existing promising/good practices in the organization to support employees, and guides, tools and a checklist focused on support for line managers in successfully managing parental leave.

Maersk has also implemented the Strategies for Success Programme that provides the skills, tools and techniques needed for women in Maersk to maximise their career potential. Strategies for Success is an external program with a consortium of companies with female executive leaders.

Maersk also delivers a Job Safety Analysis for all jobs with physical requirements so neither men nor women are allowed to lift materials that weigh more than a certain amount and instead use special

⁶¹ See AVIADORA at: <https://sepla.es/es/sala-de-prensa/revista-mach-82/hemeroteca/aviadoras/>.

⁶² See WIC at: <https://cyclingindustries.com/wic>.

⁶³ See Maersk at: <https://www.maersk.com/careers/work-with-us/diversity-and-inclusion>.

⁶⁴ See Maersk at: <https://www.maersk.com/news/articles/2021/03/01/diversity-and-inclusion-women-in-transport>.

heavy-lifting equipment. They are also very committed to eliminating any form of sexual harassment so they aim for full implementation of a zero-tolerance policy.

Maersk also implemented a whistle-blower system that gives employees, directors and external stakeholders an additional channel for reporting possible violations of laws and/or group policies. The system is available worldwide in over 75 languages, and persons can make reports by telephone or online, accessing the system through a website (European Commission, 2018).

f. Bulgaria: Sofia Electric Transport Joint Stock Company

The gender equality policy of Sofia Electric Transport Company is part of its Internal Rules and Collective Labour Agreement. The measures implemented by the Sofia Electric Transport Joint Stock Company include:

- A flexible work schedule
- A regular update of job requirements
- Equal access to open positions and awareness-raising campaigns
- Legal provisions protecting maternity
- Free medical health checks for women and regular free medical checks for all staff
- No pregnant women in driver positions.

There is an overall perception that the participation of women helps to improve efficiency and effectiveness in terms of the number of hours worked, and to reduce the number of mistakes and losses (European Commission, 2018).

g. Ireland: Dublin Bus

Dublin Bus operates the Public Service Operation network in the Greater Dublin Area under a service contract with the National Transport Authority. Their 2 500 drivers operate a fleet of 950 double-decker buses as part of a public transport service. In total, the company employs 3 400 people from 68 different countries.

The company has a strong commitment to supporting the diversity of their employees and implements the following measures:

- Promoting an inclusive workplace for the diversity of their employees.
- Providing a diversity-friendly service to their customers.
- Communicating their commitment to equality, diversity and non-discrimination to the companies that they work with.
- Female instructors are offered training in social skills to provide female role models.
- Open days.
- Publication of gender gap figures.⁶⁵

Dublin Bus has taken concrete actions regarding the work–life balance of drivers: ‘shared driving’ has been introduced as a way to work part-time so drivers can arrange to swap shifts among themselves. Dublin Bus provides drivers with training to obtain a D (bus driving) licence, pays for the instructors and the test, and applicants get a salary from Dublin Bus during the training period. This measure has resulted in an increase in the total number of female applicants from only 1 % of its total applicants to

⁶⁵ See Dublin Bus at: <https://www.dublinbus.ie/About-Us/Code-of-Conduct/>.

10 %. Following the Open Days, there was an increase of 23 % in the number of female applicants resulting in 6 women being hired as drivers (European Commission, 2018).

h. Czechia: České dráhy, a.s.

České dráhy, a.s is a Czech public company in the rail sector which has implemented the following measures:

- The mentoring equilibrium České dráhy, has since 2016 as its aim to encourage female employees to develop their careers. The participants have the chance to meet inspirational mentors, share experiences with other program participants and build their confidence.
- Equal pay policy (the period spent on childcare – on maternity and parental leave) is recognized as time spent employed in the company.
- Self-defence and assertiveness training.
- Public relations activities to overcome stereotypes in society.

Regarding work–life balance, they ensure that more flexible work arrangements have been supported by the company and working from home is now possible, which brings benefits both to the company and workers, as employees do not lose contact with the company, even if they are not able to work full-time or directly in the office (European Commission, 2018).

PART III – PROMOTING PROMISING PRACTICES

5. HOW TO PROMOTE PROMISING PRACTICES

Key points

- Successful transport policies will be fundamental to the European Commission achieving its key priorities for 2019–2024, especially those promoting sustainability and the greening of the economy through the European Green Deal. An ending of gender segregation in all areas of transport delivery is essential for transport policy objectives to be realised.
- The implementation of EU funding for the current programming period offers the unique opportunity to remove obstacles to female employment and to promote women's participation in transport planning to effectively meet women's specific transport needs. The adoption of participatory tools coupled with effective integration of gender mainstreaming through EU funding implementation is desirable.
- Instruments contributing to the European Green Deal through research and innovation (such as Horizon Europe and ERDF) can promote women's participation as transport experts and policymakers. This would improve gender sensitivity in implementation (to meet women's mobility needs) and empower women and encourage their entry to the sector.
- ESF+ can support the entry and duration of women in the transport sector as well as the improvement of living conditions for vulnerable groups. In the implementation of the fund, activities should be considered aimed at addressing gender segregation and transport poverty with an intersectional perspective. Similarly, in the implementation of the proposed Social Climate Fund, effective gender mainstreaming should be implemented to alleviate transport poverty among the most vulnerable groups in society.

5.1. The role of available EU strategies and funding

Transport plays a key role in the Commission's priorities for 2019–2024:

- 1) A European Green Deal
- 2) A Europe ready for the digital age
- 3) An economy at the service of people
- 4) A stronger Europe in the world
- 5) Promotion of the European lifestyle
- 6) A new impetus for European democracy.

Public transport is a sustainability tool and central to the 'European Green Deal'. The fact that it is used more by women than by men underlines the importance of gender-sensitive public transport planning. Good results might be achieved by adopting participatory tools such as living labs methodologies.

Defining an **economy that serves people** includes talking about equal opportunities and equal access to the transport that is essential for women and their careers. As data shows, they often give up higher-paying positions because they can't travel each day.

This study describes some local authorities and companies which adopt promising/good practices to ensure equal opportunities between men and women as both users of and workers in the transport sector.

There are many European regions at risk of transport poverty; this is why it is important that the European Regional Development Fund (ERDF), which includes among its objectives a Europe more connected by enhancing mobility, finances regions where women are underemployed and activities that put the transport system at the centre of it. This is to encourage not only the movement of women for work, recreational and family reasons, but also the entry of women into the transport sector (ERDF supports medium and small business), where the end of the COVID-19 health emergency could increase their employability through new investments in research and development (R&D) and research and innovation (R&I). ERDF priorities are strongly connected to transport either in terms of infrastructure development or in terms of support to R&D and R&I.

ERDF supports innovation for small and medium-sized businesses, as well as their digitisation and digital connectivity to be greener, low-carbon and resilient, and more connected by enhancing mobility, and supports locally led development and sustainable urban development across the EU. An interesting project funded by the INTERREG initiative of the ERDF is *GENDER ALP! Spatial development for women and men*. This was an innovative administrative network for assuring quality planning practice and promoting gender mainstreaming as a top-down strategy. This project implemented sustainable spatial development practices following a gender-sensitive approach in local and regional administrations. The project adopted a requirement-oriented and gender-sensitive approach through gender budgeting and was a successful example of project design incorporating the gender dimension.⁶⁶

The Cohesion Fund (CF) can also have a crucial impact on the transport system supporting investment in the environment and transport infrastructure in the area of trans-European networks (TEN-T). Such projects should incorporate a gender perspective into funding to guarantee equality. Similar use can be made of the Connecting Europe Facility (CEF) for Transport. This is the funding instrument to implement European transport infrastructure policy, which aims at supporting investment in building new transport infrastructure or rehabilitating and upgrading existing facilities and structures. Within this framework is the implementation of the Fourth Railway Package, the set of six legislative texts designed to complete the single market for more efficient and safer railways. It is advised that the implementation these programmes be monitored to promote the adoption of good practices for women as end-users and as workers, similar to those mentioned above by the Ferrovie dello Stato italiane (Italian State Railways).

The design, management and regulation of airspace are harmonized through the Single European Sky, a European Commission initiative which can bring further gains in terms of sustainability. It would be desirable to have a greater presence of female pilots and actions and investments at a European level that encourage girls from all over Europe to undertake this career. The AVIADORA practice in Spain mentioned in this report aims to do this.

⁶⁶ Interreg Europe is a programme funded by ERDF for regional and local governments who cooperate across Europe to develop and deliver better policy. Within this programme, investment, innovation and implementation efforts are expected to enhance European integration and to promote sustainable impact for people and place. See for further details: <https://www.interregeurope.eu/about-us/>.

ESF+, as it is now called the European Social Fund for the programming period 2021–2027, is another useful tool for encouraging the presence of women in the transport sector. This fund, which aims to improve the working conditions of European citizens, invests in programmes and projects aimed at improving the entry of women into the world of work, and supports the careers of those already integrated into the labour market. Investing in a strategic sector such as transport implies not only an improvement in the lives of the few women (compared to the number of men employed in the sector) who currently work in mobility or the world of transport but also an improvement in the lives of all workers that use public or private transport to get to work.

A particularly interesting initiative is the European Commission's proposal to establish the Social Climate Fund, supporting vulnerable households in the low carbon economy transition⁶⁷, which emphasises the mainstreaming of gender equality and equal opportunities for all. These objectives are to be considered and promoted throughout the entire implementation of the Fund, as well as questions of accessibility for persons with disabilities. A proper implementation of the intersectional approach should be assured in this Fund so to ensure that no one (among women and men) is left behind during the green transition.

Participation in the Women in Transport EU Platform is equally important. This makes it possible to sign the above declaration, obtain information about the platform, exchange good practices, and become inspired by examples of measures that can be taken at company level to improve gender balance in the transport sector.

The Questions and Answers of the European Commission about the Sustainable and Smart Mobility Strategy of the 9 December 2020 state: 'the transition to a greener, smarter and more resilient mobility system should leave nobody behind'.⁶⁸ This is highly desirable, but it is essential for future investments to be gender-sensitive. It is also stated in the above Q&A that 'mobility must be available and affordable for all, rural and remote regions must remain connected, and European transport must offer good social conditions to its workers and provide attractive jobs'. The lack of efficient public transport is often the reason why women with care duties away from the workplace sometimes reject job offers

Europe also needs to use digitalisation and automation to further increase safety levels (European Commission, 2014⁶⁹; Ortega et al., 2019). **Automation** and **safety** are keywords for women who are more attentive than men to the issue of safety when traveling; investments in the automation sector present greater chances for women to accept jobs previously considered too onerous due to physical requirements (European Commission, 2014⁷⁰). It is a tautology that some jobs may be at risk due to automation but the Commission declared that ongoing 'digital transformation brings new opportunities, such as an improved working environment, as well as completely new jobs that are more attractive for women and young people'. So, it is very desirable that this does not cause the 22 % of women who work in transport to lose more jobs but rather represents an extra chance to place themselves in positions that were not previously considered 'women friendly'.

⁶⁷ It will finance temporary direct income support for vulnerable households and will support measures and investments that reduce emissions in road transport and buildings sectors and, as a result, reduce costs for vulnerable households, micro-enterprises and transport users.

⁶⁸ European Commission (2020). 'Questions and Answers: Sustainable and Smart Mobility Strategy'. Brussels, 9 December 2020. https://ec.europa.eu/commission/presscorner/detail/en/qanda_20_2330.

⁶⁹ European Commission, published on 2014-05-14

⁷⁰ European Commission, published on 2014-05-14

In conclusion, the Sustainable Smart Transport Strategy is not only a commendable source of environmental sustainability but also provides a path aimed at improving the working and living conditions of women and men across the EU. However, gender mainstreaming should be ensured by adopting specific criteria and implementing surveillance through monitoring and evaluation.

Furthermore, if they have the opportunity, European women should be encouraged to take advantage of shared and collaborative services including shared cars, bikes, ride-hailing, and other forms of micro mobility that are facilitated by the emergence of intermediary platforms. It has been seen that women take shorter trips during the day than men and are less likely to own their own car. The revision of the Urban Mobility Package (UMP) should consider these issues for women. The CIVITAS initiative can contribute to the implementation of targeted actions for women's urban mobility.

In terms of regulation, the European Commission Sustainable and Smart Mobility Strategy – putting European transport on track for the future COM(2020) 789 final of 9 December 2020 can become an opportunity to further promote a gender equality vision in smart mobility.

Another tool to accelerate the adoption of promising practices by sector operators in Europe is the signing of the 'Declaration on equal opportunities for women and men in the transport sector', first made in 2017. Through its nine points, it underlines the importance of the inclusion of women in the transport sector at all levels, acknowledging that women in this sector only constitute 22 % of the workforce, which is well below that in other economic sectors.⁷¹ The declaration has been signed by more than 230 people working in the transport sector in Europe. This represents a good start but must be more than this; it must be a starting point for greater adherence to the declaration.

⁷¹ European Economic and Social Committee (n.d.). 'Declaration on equal opportunities for women and men in the transport sector'. <https://www.eesc.europa.eu/en/agenda/our-events/events/women-transport-eu-platform-change/declaration-equal-opportunities-women-and-men-transport-sector>.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

In recent years, attention of EU institutions to implementing gender mainstreaming in transport has been increasing. This has influenced policy both in transport system planning and mobility and in initiatives to desegregate employment. Despite progress, much improvement on the current situation is needed.

An important output of the study is the clear evidence of a lack of gender-disaggregated data on transport service use. This knowledge gap should be addressed to adequately monitor the implementation in Member States of interventions on mobility undertaken by the EU in the context of the European Green Deal.

Despite data limitations, the analysis conducted for this study on the Eurobarometer data for 2019 provides interesting results. It confirms existing accumulated knowledge and suggests new findings. Women have fewer alternatives than men in choosing which mode of transport to use. In the EU, they have a preference for walking, using urban public transport and non-urban trains, while EU men more often choose individual means of transport including cars, bikes, mopeds and scooters. If using cars, women are more likely than men to use privately owned vehicles. They seem to value frequency of the service and are concerned about environmental implications while men prioritise 'pleasure', 'price', 'privacy' and availability of infrastructure and facilities.⁷² Considering future challenges and solutions for daily mobility, men are slightly more concerned than women about costs and congestion. Women are more aware of the negative implications of urban traffic and pollution caused by home delivery of goods. Men are more enthusiastic about automation, connectivity and the new frontiers of mobility (including shared mobility services). Finally, a previous edition of the Eurobarometer survey from 2014 reveals significant gender differences in attitudes to road safety: men think that road maintenance is pivotal to improvement while women emphasise issues such as alcohol use and driving and low compliance with rules.

The recently elaborated concept of 'mobility of care' identifies gender differences in the use of different means of transport due to caring activities, for which women are still mainly responsible. Evidence from the literature review conducted for this study and concerning several EU Member States points to gender differences in the type of daily trips made. Men more often travel for personal purposes including leisure while women travel more often to undertake caring activities.

Transport is a factor that can reinforce poverty and social exclusion, which is why the concept of 'transport poverty' has been proposed. Elaborations conducted for this study show that countries that have been most affected by the 2008–2013 economic crisis and debt restructuring (e.g. Greece and Ireland) have seen household expenditure for transport services increased. Similar increases have been recorded in countries like Sweden where more efforts have been made to shift from private to public mobility to reduce CO2 emissions. People at a higher risk of poverty and social exclusion are also at a higher risk of experiencing transport poverty. The results of the data analysis show that women in poverty often suffer a double disadvantage through a combination of gender discrimination and other forms of social and economic exclusion contributing to their vulnerable situations. An intersectional approach to policy development is needed, including policies on affordability that address the specific situations of women suffering from multiple barriers driving inequality.

⁷² In brackets the wording from the Eurobarometer survey (Eurobarometer, 2020a).

The accurate review of existing literature conducted for the study points also to issues of women's safety using transport, including the high risk of their sexual harassment on public transport, as well as the scarce attention to female physiology when designing the ergonomics of vehicles and their safety systems. Despite raising these issues, there is still limited attention to women's needs in transport planning, including safety issues. This is due to the low presence of women as experts and decision-makers in the transport sector.

The second part of the study focuses on the possible causes for the low presence of women employed in the sector through a review of existing data and literature. Ad hoc elaborations on existing data show the persistence of gender segregation by economic sectors in the European Union and confirm the low presence of women in the transport sector across EU Member States. This contributes to a biased and suboptimal allocation of human resources, signalling an inefficient labour market. It is essential to address this issue in a sector such as transport that is encountering continuing labour shortages, which are expected to increase in the future. This is necessary to not only secure fundamental rights but is also essential to support business growth and future employment.

The existing literature reviewed for this study indicates several reasons why employment in transport occupations is not attractive for women. Firstly, working in this sector is perceived as a typically male sector and therefore women fear forms of possible discrimination. Low wages for women (due to poor career prospects) and a lack of workplace facilities also contribute to the unattractiveness of the sector for many women. There is also a lack of attention to work-life balance measures, working time flexibility and working patterns (e.g. part-time working is rarely adopted); female-friendly equipment and services; women's safety issues (including violence as sexual harassment is widespread in the sector); and training, lifelong learning and career opportunities. The quality of work (including of working contracts) needs to be improved to benefit all workers.

Irrespective of whether the low adoption of flexible working time arrangements is the cause or the consequence of the low presence of women in the sector, this is a vicious circle which reinforces these two phenomena and can only be broken through social dialogue and the adoption of tailored policy measures.

Gender stereotyping and its influence on girls' education choices can also contribute to preventing their entrance to, and limiting their career opportunities in, the sector. There is a lack of technical expertise as women are traditionally underrepresented in courses in the group of disciplines (STEM) that are key for the sector. Promoting girls' study of STEM subjects from the earliest stages of education and as part of initiatives to encourage their participation in the sector have proven to be effective in obtaining higher female participation in transport-related professions.

Recommendations

In the current policy context several recommendations can be suggested from the results of the data analysis and the literature review conducted for this study.

Gender imbalance continues to pervade the transport sector. This is evidenced across recruitment and employment, and by the gender discrimination inherent in many aspects of both public and private transport design. The evolution of European policy, particularly during the previous decade, has provided a supportive policy framework and potential income and funding streams to enable investment in programmes to further gender mainstream the sector. This is essential to ensure the elimination of the systemic barriers to female access to transport and the transport poverty disproportionately encountered by women. In this regard, there is significant potential from the

European Commission's proposal to establish the Social Climate Fund, stressing the mainstreaming of gender equality and equal opportunities.

Attaining better gender equality in transport can deliver a swathe of wider societal benefits, irrespective of the moral imperative of using public policy to end gender discrimination. Despite women constituting the majority of public transport users, and performing most of society's caring tasks, current transport arrangements frequently fail to reflect this. In some instances, they compromise women's attempts to secure an improved work–life balance and mitigate against them pursuing career opportunities commensurate with their aptitudes, aspirations and skills.

Member States should therefore develop transport strategies consistent with European policy advice and recommendations for gender equality across all aspects of the transport sector. The EU Strategy for Sustainable and Smart Mobility (EUSSTM), as announced by the European Commission as part of its Communication on the European Green Deal,⁷³ and the overall objectives and general funding instruments from the European Green Deal⁷⁴ present unique opportunities to further promote a gender equality vision in mobility and transport. Similarly, sector operators should be encouraged to prioritise the adoption of good practices in the inclusion of women under the auspices of the 'Declaration on equal opportunities for women and men in the transport sector'.

Member States should actively encourage the full array of actors and stakeholders, including transport and logistics companies, automotive manufacturers, public transport providers, the aviation and maritime sectors, and local government, to mainstream gender equality. The spatial dimensions of urban and rural planning, transport provision, and affordability considerations must be included within relevant dialogue as well as access, safety and mobility issues.

The Women in Transport – EU Platform for change should be widely promoted and developed to facilitate discussions and enable the exchange of good practices, identifying potentially transferable initiatives to address the variety of issues contained in this study.

Key policy tools can be reinforced to optimise gender equality. Consideration should be given to promoting practices for enhancing female mobility and safety (such as developed by Italian State Railways) within the Fourth Railway Package and investigating opportunities to promote female employment in aviation through the Single European Sky (as advocated through the AVIADORA programme from Spain). The Urban Mobility Package should be reviewed to optimise gender equality opportunities.

Acting upon the above recommendations drawn from the conclusions to this study can ensure that safe, secure and accessible transport is delivered irrespective of the gender of transport sector employees, providers and customers.

⁷³ European Commission (2020). Sustainable and Smart Mobility Strategy – putting European transport on track for the future. COM(2020) 789 final of 9 December 2020. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020DC0789>.

⁷⁴ European Commission (n.d.). 'A European Green Deal'. https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en.

REFERENCES

- Aksoy, C.G., Özcan, B. and Philipp, J. (2021). 'Robots and the gender pay gap in Europe', *European Economic Review*, 134, 103693.
- Alonso-Almedia, M. (2019). 'Carsharing: Another gender issue? Drivers of carsharing usage among women and relationship to perceived value', *Travel Behaviour and Society*, 17, pp. 36–45.
- Berliner, R.M., Hardman, S. and Tal, G. (2019). 'Uncovering early adopter's perceptions and purchase intentions of automated vehicles: Insights from early adopters of electric vehicles in California', *Traffic Psychology and Behaviour*, 60, pp. 712–722.
- Bettio, F. and Verashchagina, A. (2009). *Gender Segregation in the Labour Market*, Publication Office of the European Union, 2009.
- Borgato A., Maffi S., Malgieri, P. and Chiffi, C. (2021). 'Women and gender-related aspects'. In: T. Kuttler and M. Moraglio (eds.), *Re-thinking Mobility Poverty: Understanding Users' Geographies, Backgrounds and Aptitudes* (1st ed.), Routledge.
- Burchell, B., Hardy, V., Rubery, J. and Smith, M. (2014). *A New Method to Understand Gender Occupational Segregation in European Labour Markets*, Publication Office of the European Union.
- Chowdhury, S. and van Wee, B. (2020). 'Examining women's perception of safety during waiting times at public transport terminals', *Transport Policy*, 94, pp. 102–108.
- CIVITAS (2014). *Gender equality and mobility: mind the gap!*, Policy note. https://civitas.eu/sites/default/files/civ_pol-an2_m_web.pdf.
- CIVITAS (2021). *Planning for More Resilient and Robust Urban Mobility*, Topic guide. <https://civitas.eu/resources/topic-guide-planning-for-more-resilient-and-robust-urban-mobility>.
- Craig, L. and van Tienoven, T.P. (2019). 'Gender, mobility and parental shares of daily travel with and for children: a cross-national time use comparison', *Journal of Transport Geography*, 76, pp. 93–102.
- Deloitte and Automotive News Europe (2016). *Women at the wheel: Recruitment, retention, and advancement of women in the European automotive industry*. <https://www2.deloitte.com/content/dam/Deloitte/us/Documents/manufacturing/us-auto-women-at-the-wheel.pdf>.
- Dobbs, L. (2005). 'Wedded to the car: women, employment and the importance of private transport', *Transport Policy*, 12, pp. 266–278.
- Duchéne C. (2011). *Gender and transport*. International Transport Forum Discussion Papers, No. 2011/11, OECD Publishing.
- EIGE (2016). *Gender in Transport*. Publication Office of the European Union.
- EIGE (2020). *Beijing + 25: the fifth review of the implementation of the Beijing Platform for Action in the EU Member States*, Publications Office of the European Union.

- Eurobarometer (2013). 'Attitudes of Europeans towards Urban Mobility', *Special Eurobarometer Report*, No. 406.
- Eurobarometer (2014). 'Quality of Transport', *Special Eurobarometer Report*, No. 422a.
- Eurobarometer (2020a). 'Mobility and Transport', *Special Eurobarometer Report*, No. 495.
- Eurobarometer (2020b). 'Expectations and Concerns of Connected and Automated Driving', *Special Eurobarometer Report*, No. 496.
- European Commission (2014). *She Moves – Women's issues in transportation*, Publication Office of the European Union. <https://op.europa.eu/en/publication-detail/-/publication/c923ddff-636c-4ba8-87c2-07d2f06cd709/language-en>.
- European Commission (2017). *Study on a Pilot project: Making the EU transport sector attractive to future generations*, Publication Office of the European Union. https://ec.europa.eu/transport/themes/strategies/studies/study-pilot-project-making-eu-transport-sector-attractive-future_en.
- European Commission (2018). *Business case to increase female employment in Transport*, Publication Office of the European Union. <https://ec.europa.eu/transport/sites/default/files/2018-business-case-to-increase-female-employment-in-transport-final-report.pdf>.
- European Commission (2019). *Transport in the European Union – Current Trends and Issues*, Publication Office of the European Union. <https://www.amt-autoridade.pt/media/1934/2019-transport-in-the-eu-current-trends-and-issues.pdf>.
- Eurostat (n.d.). Harmonised European Time Use Surveys – Overview. <https://ec.europa.eu/eurostat/web/time-use-surveys/overview>.
- Gardner, N., Cui, J. and Coiacetto, E. (2017). 'Harassment on public transport and its impacts on women's travel behaviour', *Australian Planner*, 54, 1, pp. 8–15.
- Gil Solá, A. (2016). 'Constructing work travel inequalities: The role of household gender contracts', *Journal of Transport Geography*, 53, pp. 32–40.
- González-Sánchez, G., Maeso-González, E., Olmo-Sánchez, M.I., Gutiérrez-Bedmar, M., Mariscal, A. and García-Rodríguez, A. (2018). 'Road traffic injuries, mobility and gender. Patterns of risk in Southern Europe', *Journal of Transport and Health*, 8, pp. 35–43.
- Grimshaw, D. and Rubery, J. (2007). 'Undervaluing Women's Work', *Working Paper Series*, 53, Equal Opportunities Commission.
- Kronsell, A., Smidfelt Rosqvist, L. and Winslott Hiselius, L. (2015). 'Achieving climate objectives in transport policy by including women and challenging gender norms: The Swedish case', *International Journal of Sustainable Transportation*, 10, 8, pp. 703–711.
- Kronsell, A., Dymén, C., Smidfelt Rosqvist, L. and Winslott Hiselius, L. (2020). 'Masculinities and femininities in sustainable transport policy: a focus on Swedish municipalities', *NORMA*, 15, 2, pp. 128–144.
- Kuttler, T. and Moraglio, M. (2021a). 'Introduction'. In: T. Kuttler and M. Moraglio (eds.), *Rethinking Mobility Poverty: Understanding Users' Geographies, Backgrounds and Aptitudes* (1st ed.), Routledge, pp. 1–20.

- Kuttler, T. and Moraglio, M. (2021b). 'Findings and conclusions'. In: T. Kuttler and M. Moraglio (eds.), *Re-thinking Mobility Poverty: Understanding Users' Geographies, Backgrounds and Aptitudes* (1st ed.), Routledge, pp. 260-274.
- Litman, T. (2016). 'Transportation affordability', *Transportation*, 250, pp. 360–1560.
- Lorber, J. (1995). *Paradoxes of gender*. Yale University Press.
- Lucas, K. (2012). 'Transport and social exclusion: Where are we now?', *Transport Policy*, 20, pp. 105–113.
- Lucas, K., Mattioli, G., Verlinghieri, E. and Guzman, A. (2016). 'Transport poverty and its adverse social consequences. Proceedings of the Institution of Civil Engineers', *Transport*, 169, 6, pp. 353–365.
- Mestre, M.V., Samper, P., Frías, M.D. and Tur, A.M. (2009). 'Are Women More Empathetic than Men? A Longitudinal Study in Adolescence', *The Spanish Journal of Psychology*, 12, 1, pp. 76–83.
- Ng, W.S. and Acker, A. (2020). *The Gender Dimension of the Transport Workforce*, International Transport Forum Discussion Papers, No. 2020/11, OECD Publishing.
- OECD Transport database (2021).
- https://stats.oecd.org/Index.aspx?DataSetCode=ITF_PASSENGER_TRANSPORT.
- Observatoire National de la Délinquance et des Réponses Pénales (ONDRP) (2017). Les atteintes sexuelles dans les transports en commun, Repères no. 34, December. https://www.ihemi.fr/sites/default/files/publications/files/2019-12/reperes_34.pdf
- Ortega Hortelano, A., Grosso, M., Haq, A., Tsakalidis, A., Gkoumas, K., Van Balen, M. and Pekar, F. (2019). *Women in European Transport with a focus on Research and Innovation*, Publications Office of the European Union. <https://publications.jrc.ec.europa.eu/repository/handle/JRC117687>
- Pillinger, J. (2017). *Violence against women at work in transport*, European Transport Workers Federation. https://www.etf-europe.org/wp-content/uploads/2018/09/ETF-summary-report-VAW-at-work-in-transport_EN.pdf.
- Pirra, M., Carboni, A. and Diana, M. (2020). 'Assessing Gender Gaps in Educational Provision, Research and Employment Opportunities in the Transport Sector at the European Level', *Education Sciences*, 10, 5, pp. 123-134.
- Pollard, T.M. and Wagnild, J.M. (2017). 'Gender differences in walking (for leisure, transport and in total) across adult life: a systematic review', *BMC Public Health*, 17, pp. 1–11.
- Pomoni, M., Laiou, A., Plati, C., Yannis, G., Loukea, M. and Bekiaris, E. (2020). 'Future trends in transport workforce based on demographic, behavioural, cultural and socioeconomic factors', *Transportation Research Procedia*, 48, pp. 2811–2820.
- Ramboll Smart Mobility (2021). *Gender and (SMART) Mobility*, Green Paper 2021. https://ramboll.com/-/media/files/rgr/documents/markets/transport/g/gender-and-mobility_report.pdf.
- Rubery, J. and Fagan, C. (2019). 'How to combat segregation in the labour market for both low and high-qualified women'. In: N. Crowley and S. Sansonetti (eds.), *Visions for gender equality 2019*, Publication Office of the European Union.

- Rastrigina, O. and Veraschagina, A. (2015). *Secondary earners and fiscal policies in Europe*, Publication Office of the European Union.
- Sánchez de Madariaga, I. (2013). 'The mobility of care: Introducing new concepts in urban transportation'. In: I. Sánchez de Madariaga and M. Roberts (eds.), *Fair shared cities: The impact of gender planning in Europe*, Routledge.
- Sánchez de Madariaga, I. (2018). *The mobility of care*, Lecture for the UNHABITAT – For A Better Urban Future Series. <https://unhabitat.org/mobility-of-care-ines-sanchez-de-madariaga>.
- Sánchez de Madariaga, I. and Zucchini, E. (2019). 'Measuring Mobilities of Care, a Challenge for Transport Agendas'. In: C. Scholten and T. Joelsson (eds.), *Integrating Gender into Transport Planning*. Palgrave Macmillan.
- Sansonetti S. (2016). *Assessment of the European Globalisation Adjustment Fund from a gender equality perspective*, European Parliament. [https://www.europarl.europa.eu/RegData/etudes/STUD/2016/571358/IPOL_STU\(2016\)571358_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2016/571358/IPOL_STU(2016)571358_EN.pdf).
- Sarma, K.M., Carey, R.N., Kervick, A.A. and Bimpeh, Y. (2013). 'Psychological factors associated with indices of risky, reckless and cautious driving in a national sample of drivers in the Republic of Ireland', *Accident Analysis & Prevention*, 50, pp. 1226–1235.
- Sovacool, B.K., Kester, J., Noel, L. and de Rubens, G.Z. (2018). 'The demographics of decarbonizing transport: The influence of gender, education, occupation, age, and household size on electric mobility preferences in the Nordic region', *Global Environmental Change*, 52, pp. 86–100.
- Stark, J. and Meschik, M. (2018). 'Women's everyday mobility: Frightening situations and their impacts on travel behaviour', *Transportation Research Part F: Traffic Psychology and Behaviour*, 54, pp. 311–323.
- Sullivan, A. (2019). *Breaking the STEM Stereotype, Reaching Girls in Early Childhood*, Bowman & Littlefield.
- Sundling, C., Nilsson, M.E., Hellqvist, S., Pendrill, L.R., Emardson, R. and Berglund, B. (2016). 'Travel behaviour change in old age: the role of critical incidents in public transport', *European Journal of Ageing*, 13, pp. 75–83.
- Turnbull P. (2013). *Promoting the employment of women in the transport sector – Obstacles and policy options*, International Labour Office Working Paper, No. 298. http://ilo.org/wcmsp5/groups/public/---ed_dialogue/---sector/documents/publication/wcms_234880.pdf.
- Wang, M.-T. and Degol, J.L. (2016). 'Gender Gap in Science, Technology, Engineering, and Mathematics (STEM): Current Knowledge, Implications for Practice, Policy, and Future Directions', *Educational Psychology Review*, 29, 1, pp. 119–140.

STAKEHOLDERS

Several stakeholders were contacted and provided support during the report preparation. Within the available time, it was possible to collect contributions from the European Commission DG MOVE, JRC, EIGE, BPW and Women in Cycling.

This study, commissioned by the European Parliament's Policy Department for Citizens' Rights and Constitutional Affairs at the request of the FEMM Committee, summarises achievements in gender and transport in the EU in regard to knowledge and policies considering women as transport users and as workers in the transport sector. It introduces the most recent data and concepts, presents promising practices and provides EU policy indications in the context of the European Green Deal to effectively support the enhancement of gender equality in transport.

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