



## Achieving climate objectives in transport policy by including women and challenging gender norms – the Swedish case

Annica Kronsell, Lena Smidfelt Rosqvist & Lena Winslott Hiselius

To cite this article: Annica Kronsell, Lena Smidfelt Rosqvist & Lena Winslott Hiselius (2015): Achieving climate objectives in transport policy by including women and challenging gender norms – the Swedish case, International Journal of Sustainable Transportation, DOI: [10.1080/15568318.2015.1129653](https://doi.org/10.1080/15568318.2015.1129653)

To link to this article: <http://dx.doi.org/10.1080/15568318.2015.1129653>



Accepted author version posted online: 17 Dec 2015.



Submit your article to this journal [↗](#)



Article views: 20



View related articles [↗](#)



View Crossmark data [↗](#)

Achieving climate objectives in transport policy by including women and challenging gender norms -- the Swedish case

Annica Kronsell<sup>1</sup>, Lena Smidfelt Rosqvist<sup>2</sup>, Lena Winslott Hiselius<sup>3,\*</sup>

<sup>1</sup>Department of Political Science, Lund University, Lund, Sweden,

<sup>2</sup>Trivector Traffic, Lund, Sweden

<sup>3</sup>Department of Technology and Society, Lund University, Lund, Sweden

\*CONTACT Lena Winslott Hiselius, Department of Technology and Society, Lund University, Box 118, SE-221 00 Lund, Sweden, lena.hiselius@tft.lth.se

## ABSTRACT

This article explores whether women can become the change agents for a sustainable transport sector and how such a change can be accomplished through transport policy. Based on the Swedish case, women still on average have transportation behaviour with lower environmental impact than men have; women also tend to have stronger preferences for improving sustainability in the sector. The results imply that there are interesting behaviour and attitude characteristics expressed by women that ought to be recognised and applied e.g. through contesting prevailing norms and methods, in order to achieve sustainability goals for the sector. Altogether this suggests that women, beyond democracy reasons, should become more active as change agents to challenge the dominant male norms. Policy implications of these findings include measures to improve gender equal participation would e.g. make it possible to take advantage of these differences. Putting more emphasis on the relationships between travel patterns, sustainability and gendering on all levels in transportation planning as a measure for

improved sustainability. Implementing new ways of framing the problems to be solved, challenging existing norms working against gender equity and raising consciousness of sustainability issues. Using gender mainstreaming to monitor policy impacts on different groups of men and women. However, today there is a lack of incentives to apply these tools. Since there is a tremendous complexity in the relationships on all levels, more research is needed together with improved dissemination of knowledge for the competence to increase within the transport sector.

## **Keywords**

Sustainability transitions, Travel behavior, Attitudes, Gendered institutions, CO<sub>2</sub> emissions

**Article history** Received 11 December 2014; Revised 06 December 2015; Accepted 06 December 2015

## 1. INTRODUCTION

A major challenge for the future is how to reach climate objectives with reduced carbon dioxide (CO<sub>2</sub>) emissions in sustainable transport strategies (May 2013: 172). Women's transport behavior and women's attitudes on climate implications of transport choices may offer a venue for how to increase the sustainability and reduce CO<sub>2</sub> emissions in future transport strategies. We are interested in whether women can become the change agents for a sustainable transport sector and how such a change can be accomplished by changing transport policy.

Climate problems are a result of human activities over a long time of industrialization and a dependency on fossil fuels. Transport has a major role in advanced economies in the movement of people and goods, in maintaining standards of living and in improving the quality of life. At the same time, the transport sector is a major consumer of non-renewable sources of energy and responsible for much of the growth in CO<sub>2</sub> emissions.

Both technological solutions, governance and behavioral changes are needed to reach the climate goals for the transport sector (Nilsson et al 2013). However, the transport systems worldwide seem to move away from sustainability and decarbonization rather than towards it. In Europe, the transport sector's growing CO<sub>2</sub> emissions threaten the EU meeting its target under the Kyoto protocol (European Environment Agency 2013). The article's focus is on how the transport sector can move toward sustainability, by a focus on climate change through reductions in CO<sub>2</sub> emissions.

Gender relations have effects on mobility patterns and as Susan Hanson (2010) shows, mobility is gendered. Previous studies (e.g. Carlsson-Kanyama et al 1999; Polk 2003; Gil Solá 2013) have

analyzed mobility patterns in Sweden and concluded that women's mobility is less car dependent and leads to lower CO<sub>2</sub> emissions than men's while e.g. Sandow (2011) points to differences in length and time for commuting and corresponding social aspects. Even if these conclusions on important gender differences that ought to be recognized and discussed related to travel and energy consumption have been known for years, little or no attention has been directed to gender issues when discussing future sustainable transport policies (e.g. Stead 2008; May 2013). This article continues in the path of earlier studies on gendered mobility patterns with updated data showing continued differences over time. Considering the pressing need of action, the aim is further to demonstrate how gender is connected to the achievement of climate objectives in transport policy. We apply feminist theory in our analysis and address this research question by combining fields of scholarships and general findings about gender and climate issues with recent and unique data from a case study on Sweden.

We have chosen to focus on Scandinavia and argue that Swedish transport policy is particularly interesting as a most likely case. One reason why Sweden is a most likely case is due to the comparatively high representation of women in transport decision making. Among the 27 member states, Finland and Sweden has the highest representation of women among transport policy makers and in transport administrations (EIGE 2012). The many policies in the area is another motivation for the case. In Sweden, the transport policy recognizes the importance of paying attention to gender aspects (Svedberg 2014). There is evidence of this in the overall target of Swedish transport policy, which is to 'ensure an economically efficient and long-term sustainable transport for citizens and businesses throughout the country' (Prop. 1997/98:56; Prop. 2008/09:93). The target is further divided in two parts where the first is a 'functional

target'. It seeks to create accessibility with the intention that design, function and use of the transport system should help to give everyone a basic accessibility to good quality transportation that is usable in everyday life. The functional target states that 'the transport system should respond equally to women's and men's transport needs'. The second part of the policy, called 'the considerations targets', says that the targets of increased accessibility should be achieved together with road safety and improved environmental performance as well as improved health. In turn, the environmental performance of transport policy relates to the national environmental objectives and 'the overall goal of environmental policy is to hand over to the next generation a society in which the major environmental problems are solved, without causing increased environmental and health problems outside of Sweden' (Prop. 1997/98:56; Prop. 2008/09:93). Regarding climate objectives, the Swedish Parliament has adopted a vision of zero net emissions of greenhouse gases to the atmosphere in Sweden by 2050 (Prop. 2008/09:162). These objectives and targets are to be reflected in and assured through transport policy.

The article begins by introducing the feminist theoretical framework that is used in the analysis. It suggests that to change gender relations it is necessary to include more women in the sector but equally important is to challenge the male norms dominant in the transport sector. The article then illustrates these two mechanisms empirically, first, by briefly mapping women's and men's representation in a selection of decision-making bodies and in relation to other climate related policy fields. Secondly, it shows how masculine norms seem relevant to how gender objectives are organized and trivialized in the transport sector. In the next section we substantiate our claim that women challenge the male norms of the transport sector due to their different travel behavior resulting in gender different climate impact, (in CO<sub>2</sub> emissions) and by their different attitudes

towards climate actions. We present data from the Swedish National Travel Survey (RVU Sweden) from 2011-2014 and also calculations of corresponding CO<sub>2</sub> emissions. Finally, we argue that a transport policy that is modelled on feminine norms will be better suited to accommodate climate and sustainability goals.

## **2.THEORETICAL FRAMEWORK. GENDER AND INSTITUTIONS**

To study gender we use feminist theory, this differs from how gender tends to be used in policy contexts when gender often is unproblematically assumed to mean women. Although Robin Law early argued for the need to go beyond ‘women and transport’ to study gender (Law 1999), there are myriad examples in policy and academia of gender being translated to mean women (Duchène 2011). In feminist theory gender is considered a power relationship not simply a sex difference. Gender refers to the social and cultural practices, the relations, organization and institutions around presumed biological differences between men and women (Connell 2002). Gender is not static but relational and always in the making, individuals *do gender* through everyday activities (West and Zimmerman 1987) e.g. when they make transport choices. Yet, there is stability through gender order(s) that assigns difference to behaviors, traits and societal functions (Acker 2006), and to that which is perceived as masculine or feminine traits. Thus, gender is a principle of social organization (Wahl and Holgersson 2004) reflected also in the transport sector. Gender is relevant for how to understand mobilities (as Law 1999; Polk 2009; Hanson 2010; Gil Solá 2013 argue) but also for how it structures transport policymaking and policy making institutions (Svedberg 2014). Thus, gender can be studied at the individual level but also at organizational or institutional levels.

Swedish historian Yvonne Hirdman (1990) argues that the gender power order is maintained and

reproduced through two central interrelated mechanisms. One mechanism is material and about how male and female bodies tend to be segregated or separated in different spheres of activities.

An example is the EU 27 transport workforce with only 18.5 percent women, these women tend to cluster in the service area while men in technical and operational functions (EIGE 2012).

Women's presence in EU transport policy making is also low. The mechanism of separation keeps most women out of transport both as an economic and a policy sector. Hirdman (2001)

argues that when there is this separation into different spheres and a sphere of activity is occupied by mainly men their subjective identities are tangled up with the activities they perform in those spheres, and they come to 'own' the sphere. Because the transport sector is dominated by men's bodies, the sector comes to rely on masculine norms and its activities coded as masculine. The mechanism of separation works so that when women do enter the transport sector they tend to cluster into activities like service functions (EIGE 2012) which tend to be more feminine coded.

This relates to Hirdman's second mechanism: that male and masculinity is the norm. Institutions that historically have or are dominated by male bodies reflect masculine norms which have normative power over its agenda (Kronsell 2005). If the norms of the transport sector are masculine, they are likely embedded its policy institutions and likely to constrain activities, such as decision making and planning, in accordance with these dominant masculine norms. What is slightly tricky in studying this mechanism of the gender order, is that while the separation of men and women's bodies and resources is often fairly explicit, when masculinity is the norm it is often just taken for granted and tacit (Hearn and Husu 2011). The gender order is reproduced as individuals, who through their daily routines act according to institutional norms or 'how things

are commonly done', thereby verify and reproduce the institution.

If masculinity is indeed the norm of the transport sector, we identify this as a problem to achieve climate and sustainability objectives. Although, Hirdman's two mechanisms tell us more about how gender power is maintained, it is possible to envision change. Change can happen as the two mechanisms are challenged. First, it is challenged when more women enter the sector through for example, more equal representation in decision making positions in the transport sector, and contribute to a better gender balance in the sector. This should lead to a challenge of the masculine norms of the sector, whether this means that the masculine norms are replaced by femininity norms needs to be further researched. In this article we suggest that femininity norms are more likely to promote and advance sustainability and lower the CO<sub>2</sub> emissions of the transport sector (Oldrup and Hvidt Brengaard 2009; Johnsson-Latham 2007; Polk 2003). As will be demonstrated later, the mobility patterns, behavior and attitudes of women suggest norms that are more conducive to decarbonized and more sustainable transport policies.

### **3.ANALYSIS ACCORDING TO HIRDMAN'S CATEGORIES**

In the following sections we will investigate whether Hirdman's ideas about the gender order has empirical relevance and whether the changes taking place in the case of Sweden, are in the direction of increased involvement of women in the sector and of a challenge to dominant norms. This serves as a backdrop to our final discussion on how gender equality in both its material and normative dimensions can support further sustainability and decarbonization in society.

#### **3.1 Women and Men in Transport decision making**

As argued above, an important mechanism to maintain the gender order is a separation of

masculine and feminine spheres of activities and one way to encourage change is by assuring that men and women are equally represented. To encourage and study how women take part in political life and policy making is a long standing concern of feminist scholars (Lovenduski 2005; Dahlerup 2006). It is a way to increase gender equality and the democratic quality of transport policy making (Christensen et al 2007) because women can potentially bring different norms, knowledge and experiences to transport strategies and policies. Gender equality is when women and men are represented on equal terms in the 40-60 percent range. In this section we probe the question of women's involvement in the transport sector by investigate the distribution of women and men in selected transport policy institutions that are relevant for climate and sustainability issues.

The Scandinavian countries stand out as gender equal at the political level and also in climate institutions. Magnusdottir and Kronsell (2014) studied environment, energy and transport departments in Denmark, Sweden and Norway and concluded that women were well represented in decision making positions in politics and in many of the national administrative institutions. However, it is noteworthy that the Scandinavian transport administrations were the only units, among those explored in the study, that were not gender-balanced: The Danish Transport Administration with 66 percent, the Norwegian Transnova with 70 percent and the Swedish Transport Agency with 74 percent male officials. There is a more pronounced lack of equal representation in the transport sector as compared to other climate relevant sectors. Another example is the EU level climate institutions: while DG Mobility and Transport has a female commissioner the experts at the lower management levels were 87.5 percent male (EIGE 2012). As in other countries in the EU (EIGE 2012), despite nearing equal representation in many

sectors also in Sweden many areas of the transport sector remain male dominated in terms of the labor force, the educational system and management (SCB 2012). Men with a background in the engineering profession tend to control decisions on transport infrastructure investments (Hultén 2012). Political and administrative transport institutions as well as the rest of the transport sector, while there is variation, stand out as male dominated institutions across the EU. However, this is more pronounced in the rest of the EU because Sweden remains an exception with a higher representation of women in political as well as administrative national institutions that deal with transport issues, than other EU member states (EIGE 2012). Since the sector is overall male dominated we may thus expect that in the transport sector masculine norms dominate and are embedded in the institutions (Polk 2009; Kronsell 2005).

We were interested in how the mechanism of separation plays out at the micro level and turned to a specific case of decision making on Sweden's long-term infrastructure plans. Infrastructure decisions have decisive implications for climate and sustainability as they lock the system into certain transport structures for a long period of time. Every fourth year the long-term infrastructure plans for the Swedish infrastructure investments are updated. The process takes around two years and involves a multifold of actors and levels of decision-making as well as actors preparing the decision-support documents. During 2008-2010, long-term infrastructure plans covering national and regional investments in new roads, railway and navigation infrastructure for the period 2010-2021 were developed by the responsible national transport agencies and regional authorities in Sweden. The study was initiated by The Network for Women in Transport Policy [Nätverket för kvinnor i transportpolitiken] and investigated whether gender balance was achieved in the development of the above long-term infrastructure plans for

2010-2021 by studying the composition of the various groups involved in the infrastructure planning process (Trivector 2010). The study included a mapping of the physical presence of men and women in working and steering groups through a questionnaire. This material was complemented by interviews with a sample of participants in these groups. The purpose of the interviews was to also get a picture of how men's and women's values and preferences have been heard in the planning process leading up to the plans.

The study concluded that the presence of men and women in the process differ regarding different kinds of tasks. In little less than half of the type of groups studied, those participating in the national as well as regional working and steering groups were dominated by men (8 out of 17). In 8 other types out of the 17 studied types of groups, there were a gender balanced distribution of men and women. However, gender balance is achieved mainly in the groups that can be assumed to have less influence over the outcome. In the steering groups, where also the most important decisions are taken, there is no gender balance. Only in one type of groups were women in majority: the working and advisory groups on environmental assessment (Trivector 2010).

There is a strong preponderance of male participants in the groups that were responsible for the dialogue between municipalities, businesses, and planners in the transport department or county/regional governments. In these groups, interest organizations and other stakeholders are given opportunities to provide feedback on the suggested plans and investments. The opportunity to influence the content of the plans was mostly given to men. Through interviews, it became evident that in connection with the invitations to these meetings the organizations were encouraged to consider gender aspects when appointing their delegates. However, the municipal

officials were critical to the appeal to gender aspects since they were inclined to see this as a questioning of their competence in selecting delegates (Trivector 2010).

The interviews and questionnaires revealed a tendency that the ones that 'are allowed to be involved and think' in these groups should have many years' experience of infrastructure issues, and that this is a reason why it is often men who are appointed and included in such working groups. The officials explained that men, and often older men, have more experience of previous planning processes and are thus preferred to women delegates (Trivector 2010). Here we note that the call for competence and experience becomes a conserving element, which leads to the reproduction of gendered patterns as women are considered 'less competent'.

This study of gender distribution on the micro levels of decision making, suggest that gender equality at the macro level in Sweden is not reproduced at the micro level, other aspects that relate to the division of tasks according to masculine and feminine spheres come to the fore in this context. Women are involved in groups that have less power in deciding on infrastructure and assigned areas that could possibly be coded as less masculine, i.e. environment. It also seems that there are masculine norms embedded in these processes, as masculinity is connected with the good negotiator, and with competence but also in the way that gender considerations are ignored.

### **3.2 Masculine Norms in Transport**

To study Hirdman's second mechanism of the gender order we ask whether masculinity norms influence transport policy decisions and how they are or can be challenged. When masculinity is the norm it becomes perceived as natural, given and often remains unquestioned (Prügl 2011) and thus, it is not necessarily obvious to the women who become part of the sector. That male is

norm and masculinity is normative means that the gender order does not require any explicit politics to be maintained, the gender order is simply reproduced through normalization (Connell 1995). If masculinity is the norm, the only way to ‘see’ these norms is when they are challenged (Kronsell 2005).

An example of how gender is treated and masculinity the norm is found in the Swedish transport policy target and the view that: ‘the transport system should respond equally to women’s and men’s transport needs’. This has previously been criticized because it implies that women have different transport needs than men (Trivector 2010) and that these needs are natural and given, hence, framing gender difference as natural (Larsson and Jalakas 2008) rather than as a result of power relations which would be Hirdman’s view (2001) and also the view of the Swedish gender policy. This same formulation is found in the latest follow-up report of the transport policy targets (Swedish Transport Analysis 2013) which states:

“In the functional target it is stated that the transport system should equally respond to women’s and men’s transportation needs. There is nothing to contradict that by large it is so. However, the existing transportation needs are a consequence of differences in gender roles. But, as research indicates that men and women value traveling about the same all else equal, one can assume that in a more equal society, men’s and women’s transport needs will be more equal.” [our translation]

While this statement recognizes that gender differences have to do with gender relations in society and thus, are changeable, and so are the transportation needs, it makes an assumption that in a more equal society we would not see the behavioral differences in transport patterns as we witness today. However, it does not address what equality in the transport system implies but

gives voice to an assumptions that is evidence of masculinity being the norm: in an equal society, the transport needs of women are equal to those of men, men's transportation needs become the standard and the aspired goal. This is a catastrophic scenario in the context of climate and sustainability transitions.

Other examples of the normalization of masculinity norms in Swedish transport policies are in how calls for gender mainstreaming, gender equality initiatives, and more knowledge about women and men's transport behavior have been treated. These objectives are organized out of the transport policy by being made trivial. This is clearly demonstrated in a comprehensive and systematic study of gender mainstreaming and gender objectives in a series of Swedish transport policies, and Swedish transport institutions, conducted by Wanna Svedberg (2014). She shows how the policy documents on the macro level, i.e. programmatic documents on gender informed by power analysis and feminist understandings, get watered down, trivialized and finally completely organized out of the policy texts. Transport related policies that are either to be designed to implement or requested to implement gender perspectives, gradually lose their original gender content, to where it, for example in the law on public transportation, does no longer contain any reference to gender or to women for that matter. Also Wittbom's (2009) analysis of gender mainstreaming in the Transport Authorities show how the ambitions of macro level policies fail to trickle down in the organization because it conflicts with other more prioritized norms and objectives.

Evidence of trivialization was found in the study infrastructure investments when the overall impact assessment documents were analyzed (Trivector 2010). Swedish infrastructure plans are obliged to follow the regulation on gender mainstreaming. More particularly, this was done by

assessing the different investment objectives of the national transport policy in impact assessments. The study (Trivector 2010) examined the overall impact assessment documents for 284 investment objects with respect to how they were gender mainstreamed. Throughout, the assessments of how the gender equality goal had been fulfilled were very brief indeed, the question was trivialized as many answers were simply copied from the instructions. The majority of formulations of the impact assessments were identical to general instructions from the guidance on effects assessment handed out by the Transport Administration (Swedish Transport Administration 2008). The standard wording ‘The measure is, however, not expected to have any significant impact on gender equality’ was used in approximately 80 percent of the impact assessment documents examined, while there was no report on what has been the process and considerations to arrive at such a conclusion. Indeed, very few assessments were based on a report or analysis of specific investment object’s impact on gender equality. The repeated and routine use of formulations copied from the official guide, reveals a lack of knowledge and understanding among those who produce these plans, of what the possible gender impacts of infrastructure investments are. It is also a sign that it is not an important issue, or an issue that is to be considered within the infrastructure investment institutions normative context.

Trivialization is a sign of reluctance to work with gender policies because it possibly challenges and does not fit the masculine norms of the institutions. The failure to address gender in infrastructure investments reproduces current gender power, rather than what would be possible, for example, to let the experience and conditions of women influence infrastructure choices.

#### **4.DIFFERENCES IN TRAVEL BEHAVIOR AND ATTITUDES**

In this section we present data showing that women's transportation behavior, in general, includes less vehicle mileage and that women as a result of that have lower environmental impact (measured as CO<sub>2</sub> emissions from passenger transport) than men. We further present research on gender differences in attitudes to what would be more sustainable transport patterns showing women's stronger preferences for measures improving 'soft' issues such as e.g. sustainability in the transport sector as well as their higher willingness to take action on climate concerns. The results provided indicate that when transport behavior is analyzed from the perspective of gender, women's transport behavior in general terms is assumed to be more in line with what is required for a transition that favor climate and sustainability objectives.

#### **4.1 Differences in travel behavior and corresponding CO<sub>2</sub> emissions**

Research has shown that there are clear and persistent gender differences in travel patterns in Europe (Transgen 2007). Based on data from the Swedish National Travel Survey (RVU Sweden 2011-14) we show in more detail in what respects women's travel patterns in Sweden are different from men's. More importantly, we investigate if these differences in travel patterns also result in any differences regarding transport related CO<sub>2</sub> emissions.

Data on travel behavior disaggregated on sex is rarely used in general or overall discussions about transport policy. As an example we have not found any such references or analyses in any of the latest by the Swedish Government appointed Committees on transport issues (Swedish Transport Administration 2012; SOU 2013:84). However, Swedish official as well as scientific reports present statistics on e.g. travel behavior differences between men and women (e.g. SIKA 2002; Frändberg and Vilhelmson 2011; Gil Solá 2013). In Table 1 (based on RVU Sweden 2011-14), it is clear that men's and women's travel patterns on average differ. Men and women make

approximately the same amount of trips but men travel further than women do. Hence, the total average mileage travelled differs significantly between men and women. Men in Sweden travel further, when it comes to work, business and leisure trips. This is a continued difference in line with the result of Carlsson-Kanyama et al (1999) and Polk (2003) analyzing Swedish travel survey data from the mid 1990s. Similar patterns occur also in studies from e.g. Norway (Hjorthol 2008) and Germany (Scheiner et al 2011). The most marked differences stem from differences in work-related travel. Men on average make considerably more business trips -- almost three times as many kilometers per person per day -- and commute considerably longer distances (RVU Sweden 2011-14). Men on average travel as much as 39 percent longer distances per person and day than women (Table 1). Only when it comes to purchase and service trips do women travel somewhat further (see Table 1).

Table 2 presents further insight into the differences in total mileage corresponding to the daily mileage by car for men compared to that for women. On average, men travel 45 percent further by car per day compared to women. The average mileage travelled by car differs even more than the total mileage and the difference again mainly stems from work-related travel.

The latest assessment of the Swedish national transport policy (Swedish Transport Analysis 2013) compared the results from two national travel surveys: RES 2005-2006 and RVU Sweden 2010-2011. The conclusion of the assessment is that the differences between men's and women's travel behavior has remained constant over the years. Men still travel further than women and they drive twice the distance compared to how much women drive (the figures in Table 1 and 2 include car trips *both* as driver and passenger and the differences is thus somewhat smaller). One reason that has often been used to explain this gender difference in car use is the differential

access to the household car. This was refuted by Transport Analysis in the report. The gender-differentiated use of the car persists also in households with more than one car. This suggests that there are gender differences in the choice of car related mobility, which is supported by previous research (e.g. Polk 1998; Law 1999; Gil Sola 2013).

Another explanation often used when accounting for the differences, is that men's and women's living conditions i.e. household responsibilities and employment factors influence trip lengths.

While there is some truth to it, gender difference in mobility choices is not explained by level of income. Interestingly, studies showing that women with good conditions for making free choices (high income, access to a car, etc.) prefer to use public transport more often than men with similar income and access to car (Transek 2006; Stockholm Growth and Regional Planning Administration (RTK) 2009). These results correspond also with Rätty and Carlsson-Kanyama (2010) who show that men use more energy for transport than women. Their conclusions are based on results for single households, showing that the average single man spends more on vehicles and fuel than the average single woman, all else being equal. The difference is equivalent to approximately twice as high transport related CO<sub>2</sub> emissions for single men compared to single women, with similar patterns in several countries (Rätty and Carlsson-Kanyama 2010). This indicates a gender difference that goes beyond socio-economic factors. It is a difference in the choice of transport mode rather than a result of material gender conditions. To understand how these differences in transport mode and lengths travelled have relevance for climate and sustainability transitions, we calculated the CO<sub>2</sub> emissions from all travel for women and men separately. The calculations are based on the mileage per mode and type of errand found in the national travel surveys (RVU Sweden 2011-14) and the standard Swedish emission

factors for car and public transport, assuming that walking and cycling do not produce any CO<sub>2</sub> emissions. The average emission factor for cars is 144 g/km per person assuming an occupancy rate of 1.2 for each journey following the calculations of Swedish Transport Administration (2009). Since the public transport mode choice in our dataset is not subdivided into different modes of public transport, the emissions factor for ‘public transport’ is taken as a weighted average of the emission factors for different public transport modes, based on the mode share of different public transport modes in 2011 from the Swedish National Travel Survey. This gives an emission factor of 33 g/km per person for a public transport journey. The standard Swedish emission factors for bus, train and tram/metro being 0.002 g/km, 62.1 g/km and 0.002 g/km per person respectively.

As presented in Table 3, when the differences in transport behavior are translated into daily CO<sub>2</sub> emissions from transport, the pattern of differences remains. On average, the travel emissions of women is less than 70 percent of the emissions made by men.

#### **4.2 Differences in attitudes**

The results presented above on differences in travel behavior for men and women and differences in resulting CO<sub>2</sub> emissions confirm that gender analysis is highly relevant. It also suggests that feminine rather than masculine norms related to travel can be important for climate and sustainability transitions in the transport sector and that women in that respect may be important change agents. In this section we further support this by presenting results showing systematic differences in attitudes towards various aspects of sustainability issues.

Women put more emphasis on environmental issues and on traffic safety issues than men do (e.g. Transek 2006; Polk 2003). Furthermore, results from attitude surveys (Lindén 1994) show

that women are more environmentally concerned and express more criticism of automobility than men. Swedish Environmental Protection Agency's reports on climate change (Swedish Environmental Protection Agency 2009; WSP 2015) showed differences in knowledge and attitudes towards climate change. Other survey studies indicate that women are consistently more engaged in the climate issue and consider it to a greater extent being important than men (e.g. European Commission 2009; World Bank 2009). Women are also more in favor of implementing measures that could improve the situation and are more inclined to changing their own behavior (Polk 2003; Swedish Environmental Protection Agency 2007). Especially questions related to mobility and transport behavior show differences between men's and women's responses (Swedish Environmental Protection Agency 2007). For example, the study showed that 80 percent of the women were willing to consider driving less to reduce CO<sub>2</sub> emissions compared to 66 percent of the men. 75 percent of the women, while only 53 percent of the men, stated that they were willing to increase their use of public transport to reduce CO<sub>2</sub> emissions (Swedish Environmental Protection Agency 2007). The same pattern shows for ridesharing as well as driving at slower speeds to decrease climate change impact. Interestingly the differences in the survey showed larger gaps between men's and women's answers for questions regarding transport issues than for other areas such as e.g. temperature adjustments connected to the washing of clothes or the indoor climate.

## **5.CHANGE OF GENDER NORMS FOR MOBILITY**

There are different values embedded in Swedish transport policy in terms of objectives. Climate, equality, sustainability objectives as well as economic, regional growth and increased mobility. These objectives may even be contradictory and in conflict. The mobility norm must be

challenged in the light of the transport sector's climate and sustainability transitions. The Swedish transport administration have estimated that the needed reduction for vehicle mileage by car compared to 2010 year's level is 12 percent for 2030 and 18 percent for 2050, if national targets for CO<sub>2</sub> reductions are to be achieved (Swedish Transport Administration 2014). A similar estimation was used in the latest governmental study commissioned to identify possible options for action and measures to reduce the transport sector emissions and dependence on fossil fuels in line with targets for 2050 and 2030 (SOU 2013).

Our analysis of data from Sweden and other relevant research results show that there are important differences between men's and women's transport behavior and transport CO<sub>2</sub> emissions as well as in general attitudes on climate and sustainability, not the least when it comes to transport. This supports the idea that women could be important change agents in the efforts to transform the transport sector more in line with sustainability and climate goals. In this section we argue that transport decisions and policy making based on feminine norms and transport choices would in fact be in accordance with the levels needed for a climate and sustainability transition as estimated by the Swedish authority reports cited above.

As we already demonstrated in this article with the data on travel behavior, feminine and masculine transport mobilities are different. The statistics on transportation patterns based on gender difference are rarely used for planning and when used, are simply projected into the future through the norm of predict and provide (Lundin 2008; Tennøy 2010). This means that rather than questioning transport behavior as revealed through the statistics, a certain transport behavior (including different patterns between men and women) are taken as given, they become

the norm, and may also be normative for future transport planning (Larsson and Jalakas 2008) and create obstacles and impediments to attempts toward climate and sustainability transitions.

In a previous section, we concluded that the difference between men and women regarding their transport choices were such that women's transport choices were more climate friendly and sustainable. In fact the difference in CO<sub>2</sub> emissions presented in Table 3 is as great as the estimated lowering of the overall level of vehicle mileage by car needed to achieve climate targets set by the Swedish government. If the total average mileage per person was equivalent to the total average mileage per woman there would be a reduction of 18 percent in total mileage (Table 3).

Moreover we previously argued that the transport differences between men and women are partly chosen rather than caused by for example economic status, access to car or some features of the transport system. It is necessary to qualify this statement, while the transport behavior of women and men are chosen, the choices occur within a normative framework, where different transport uses relate to masculine and feminine identities and norms of mobility.

Paterson (2007) explains differences in transport behavior and CO<sub>2</sub> emissions in terms of the embedded norms of masculinity, of freedom and autonomy in the ecological and cultural economy of the automobile. In other words, automobility and car use has become part of masculine identity and what it means to be a modern man. Thus, trying to get people to move from cars to buses, trains, bicycles and walking, is not a simple technical change, nor only a re-shaping of daily habits, it is also about identity, a re-shaping of the identity of people moving from a transport mode to another (Paterson 2007).

While the male as norm is beginning to be questioned, the ‘mobility’ norm seem even more decisive in the structuring for the transport sector and seems counterproductive to sustainability and climate objectives which makes the change even harder. Mobility is intertwined with modernity and has, not the least through globalization, become normative and an aspiration in modern life (Urry 2007; Cresswell 2010). Mobility holds moving at the center stage and perceives it as something inherently good. Since mobility (as well as male) is the norm, it is difficult to question ‘mobility’. For example, this is explicit in the EU White Paper Transport 2050 where EU sets the stage for transport in the future. It states that ‘curbing mobility is not an option’ (European Union 2011). Mobility is tied to modernity and globalization but also to growth and prosperity. Essebo (Essebo 2013) investigates the myth of prosperity through a focus on mobility. She concludes that the prosperity myth permeates regional and local contexts in legitimization of both past and future infrastructural developments, institutional praxis and solutions. Other researchers also seriously question what the regional expansion in transport, though means of stimulating economic growth increasing mobility, imply for the possibility to reach climate and sustainability objectives (Adolfsson Jörby 2006; Gil Solá and Vilhelmson 2012).

In the light of the presented facts on the magnitude of gender transport behavior differences, norms as well as gender unbalanced power in transport policies, to question the norms that are guiding the transport sector should be given even more emphasis and importance.

## 6.CONCLUSIONS

This article showed how gender is connected to the achievement of climate objectives in

transport policy and how these goals can be achieved together with gender equality in decisions of the transport sector. The analysis is based on a feminist theoretical framework suggesting that in order to change gender relations and power order it is necessary to include more women in the transport sector but equally important to challenge the male norms dominant in the transport sector. Thus, even though one may argue that gender-balanced policymaking could improve transition, this is not sufficient and does not guarantee the introduction of feminine norms or perspectives. There is a need to pay attention to the articulation of gender norms. Research discussed in this study indicates that masculinity is the accepted norm, deeply embedded in the transport sector. Without a gender perspective, it is likely that the existing normative order is reproduced. There is a prevailing norm within the transport sector of constantly increasing mobility and the use of cars which, if left undisputed, will contribute to the preservation of an unsustainable transport system.

Our data as earlier studies on travel behavior suggests that women's travel patterns on an average are in less need of adjustment for much needed climate and sustainability transitions. The review of the scholarship also gives that women have a higher acceptance for actions needed on the path towards a more sustainable transport sector. Moreover, they have shown to be more prone to change their behavior than men. Altogether, there are interesting behavior and attitude characteristics expressed by women that ought to be recognized and applied e.g. through contesting prevailing norms, standards and methods, in order to achieve the climate and sustainability goals for the transport sector. In a situation in need of a transition toward low-carbon and sustainable societies, actions to more actively involve women goes beyond increasing the democratic quality of policymaking. In this paper this is illustrated by the calculating of CO<sub>2</sub>

emissions from travel showing that if the travel behavior of women was the norm i.e. on average men had the same travel behavior as women the needed reduction in vehicle mileage by car would in fact be in place. The example presented shows that the reductions in CO<sub>2</sub> emissions are significant and the result altogether suggests that women should become more active as change agents.

Three policy implications can be identified from the findings of this study. Firstly, measures should be taken to improve gender-balanced participation in all transport sector activities, in order to take advantage of behavioral and attitudinal gender differences. Efforts should thus be made to at least increase the share of women in decision-making positions at all levels. Today the recruitment process is much focused on the ‘people that know the business’ (mainly men) and this process has to change in order to ensure diversity, and for example, that disciplines such as gender studies also are represented.

Secondly, and in parallel to above, there is a need to implement new ways of thinking and framing the problems to be solved, challenging the existing norms that work against gender equity and raise the consciousness of these issues. A planning approach that incorporates not only masculine but also feminine norms is likely to generate strong and concrete climate change response (e.g. Dymén et al 2013). Planning norms should therefore be altered in such a way that the norms support the climate and sustainable goals of the transport sector and the society as a whole. Thus, there is a need to challenge prevailing norms through implementation of new planning policies and structures, which over time can change planning norms to become sensitive to gender, climate and sustainability concerns.

Thirdly, there should be more emphasis on the relationships between travel patterns, climate and sustainability objectives and gendering on all levels in transportation policy. Gender mainstreaming should be put to use as a serious tool to monitor the gendered impacts that policies and programs have (Reeves 2005). A model for this could be the decision made by the City of Malmö in Sweden, to gender mainstream the process of developing the city's system of public transport, integrating gender equality into the broader work of achieving sustainable transportation. Existing tools such as, gender budgeting, gender planning, various indicators, should be consistently and more systematically applied. To avoid trivialization of the tools, a radical policy change is required in order to secure that the tools and the results are taken seriously.

At the same time, one has to acknowledge the tremendous complexity in the relationship between travel patterns, sustainability and gendering on all levels. More research is definitively needed but there is also an urgent need to distribute knowledge (new and existing) as to increase the level of competence among policy makers in the transport sector, contest prevailing norms and raise consciousness on gender impacts.

## **ACKNOWLEDGEMENTS**

An earlier version of this paper was presented at the International conference of Women Issues in Transportation in Paris 2014. Insightful comments made by two anonymous reviewers of the conference, the audience of the conference together with anonymous reviewers of this journal are gratefully acknowledged

## REFERENCES

- Acker, J. 2006. Inequality regimes: gender, class and race in organizations, *Gender and Society*, 20(4) 441--464
- Adelson Jörby, S. 2006. Is regional expansion sustainable? Swedish Board of Housing, Building and Planning. Paper presented at the ENHR Conference "Housing in an Expanded Europe: Theory, Policy, Implementation and Participation" July 2-5, Ljubljana, Slovenia.
- Carlsson-Kanyama, A., Linden, A-L. and Thelander, Å. 1999. Insights and Applications Gender Differences in Environmental Impacts from Patterns of Transportation - A Case Study from Sweden. *Society & Natural Resources*, 12(4) 355-369
- Christensen, H.R., Poulsen, H., Oldrup, H., Maltesen, T., Breengaard, M.H. and Holmen, M. 2007. Gender mainstreaming European transport research and policies; building the knowledge basis and mapping good practices. TRANSGEN project report University of Copenhagen
- Connell, R.W. 1995. *Masculinities*. Polity Press, Cambridge.
- Connell, R.W. 2002. *Gender*. Polity Press, Cambridge.
- Cresswell, T. 2010. Mobilities I: Catching up. *Progress in Human Geography*, 35(4) 550-558.
- Dahlerup, D. 2006. The story of the theory of critical mass. *Politics & Gender*, 2(4) 511-522.
- Duchène, C. 2011. Gender and Transport. International Transport Forum. OECD Discussion paper 11, <http://www.oecd-ilibrary.org/content/workingpaper/5kg9mq47w59w-en>, Accessed August 17, 2015.
- Dymén, C., Langlais, R. and Cars, G. 2013. Engendering climate change: The Swedish experience of a global citizens consultation. *Journal of Environmental Policy & Planning*, 16(2) 161-181.

EIGE, European Institute of Gender equality 2012. Review of the implementation in the EU of area K of the Beijing platform for action: women and environment - gender equality and climate change. <http://eige.europa.eu/sites/default/files/Gender-Equality-and-Climate-Change-Report.pdf>

Accessed February 2014

Essebo, M. 2013. Lock-in as make-believe -- Exploring the role of myth in the lock-in of high mobility systems. Doctoral thesis, University of Gothenburg.

European Commission 2009. European's attitude towards climate change. Brussels, Belgium: EU Commission.

European Union 2011. White Paper, Roadmap to a Single European Transport Area -- toward a competitive and resource efficient transport system. Brussels: COM (2011)144 final

European Environment Agency 2013. Climate and energy country profiles -- Key facts and figures for EEA member countries. Technical report No. 17

Frändberg, L. and Vilhelmson, B. 2011. More or less travel: personal mobility trends in the Swedish population focusing gender and cohort. *Journal of Transport Geography* 19, 1235--1244

Gil Solá, A. 2013. På väg mot jämställda arbetsresor? Doctoral Thesis, Gothenburg University.

Gil Sola, A. and Vilhelmson, B. 2012. Convergence or divergence? Changing gender differences in commuting in two Swedish urban regions. *Cybergeo : European Journal of Geography*. Article 591.

Hanson, S. 2010. Gender and mobility: new approaches for informing sustainability. *Gender, Place and Culture*. 17(1) 5--23.

Hearn, J. and Husu, L. 2011. Understanding gender: some implications for science and technology. *Interdisciplinary Science Reviews*, 36(2). 103--113.

- Hirdman, Y. 1990. 'Genussystemet', in SOU 1990:44, Demokrati och Makt i Sverige. Stockholm: Fritzes.
- Hirdman, Y. 2001. Genus -- om det Stablas Föränderliga Former. Malmö: Liber.
- Hjorthol, R. 2008. Daily mobility of men and women -- A barometer of gender equality, in Uteng, TP and Cresswell, T (eds) Gendered Mobilities Ashgate, Hamshire
- Hultén, J. 2012. Ny väg till nya vägar och järnvägar. Doctoral Thesis, Lund University
- Johnsson-Latham, G. 2007. A study on gender equality as a prerequisite for sustainable development. Report to the Environment Advisory Council, Sweden 2007:2.
- Kronsell, A. 2013. Gender and Transition in Climate Governance. Environmental Innovations and Societal Transitions, 7 1-15.
- Kronsell, A. 2005. Gendered practices in institutions of hegemonic masculinity: Reflections from feminist standpoint theory. International Feminist Journal of Politics, 7(2) 280-298
- Larsson, A. and Jalakas, A. 2008. Jämställdhet nästa. Samhällsplanering ur ett genusperspektiv. Stockholm: SNS Förlag.
- Law, R. 1999. Beyond 'women and transport': towards new geographies of gender and daily mobility. Progress in Human Geography, 23(4) 567-588
- Lindén, A-L. 1994. Människa och miljö. Carlssons, Stockholm.
- Lovenduski, J. 2005. State Feminism and Political Representation. Cambridge, University Press.
- Lundin, P. 2008. Bilsamhället. Ideologi expertis och regelskapande i efterkrigstidens Sverige. Stockholmia Förlag, Stockholm.
- Magnusdottir, G.L. and Kronsell, A. 2014. The (In)visibility of Gender in Scandinavian Climate Policy-making. International Feminist Journal of Politics. Published online: 10 Jun 2014

May, A.D. 2013. Urban Transport and Sustainability: The Key Challenges. *International Journal of Sustainable Transportation*, 7(3) 170-185

Nilsson, L.J., Khan, J., Andersson, F.N.G., Klintman, M., Hildingsson, R., Kronsell, A., Pettersson, F., Pålsson, H., Smedby, N. (2013), *I ljuset av framtiden -- styrning mot nollutsläpp 2050. LETS 2050-report*, Lund University, available online

[http://www.lth.se/fileadmin/lets2050/Rapporter\\_o\\_Abstracts/130831\\_Slutrapport\\_SE.pdf](http://www.lth.se/fileadmin/lets2050/Rapporter_o_Abstracts/130831_Slutrapport_SE.pdf),

Accessed September 2, 2015.

Oldrup, H. and Hvidt Breengard, M. 2009. Desk study on køn, ligestilling og klimaændringer. Copenhagen: Nordic Council of Ministers

Paterson, M. 2007. *Automobile Politics. Ecology and Cultural Political Economy*. Cambridge University Press, Cambridge.

Polk, M. 1998. *Gendered mobility: a study of women's and men's relations to automobility in Sweden*. Doctoral thesis, University of Gothenburg

Polk, M. 2003. Are women potentially more accommodating than men to a sustainable transport system in Sweden? *Transportation Research Part D*, (8), 75-95

Polk, M. 2009. Gendering climate change through the transport sector. *Kvinder, køn och forskning*, 3-4, 73-78

Prop. 1997/98:56. *Transportpolitik för en hållbar utveckling (Swedish Government Bill on Transport and sustainable development)*, [www.regeringen.se](http://www.regeringen.se)

Prop. 2008/09:93. *Mål för framtidens resor och transporter (Swedish Government Bill on Targets for future travelling and transport)*, [www.regeringen.se](http://www.regeringen.se)

Prop. 2008/09:162. En sammanhållen klimat- och energipolitik -- Klimat (Swedish Government Bill on An integrated climate and energy policy -- Climate) [www.regeringen.se](http://www.regeringen.se)

Prügl, E. 2011. Transforming Masculine Rule. Agriculture and Rural Development in the European Union. The University of Michigan Press, Ann Arbor.

Reeves, D. 2005. Planning for Diversity: Policy and Planning in a World of Difference. Routledge, New York

Räty, R. and Carlsson-Kanyama, A. 2010. Energy consumption by gender in some European countries. *Energy Policy*, 38 646-649

Sandow, E. 2011. On the road: Social aspects of commuting long distances to work. Ph.D. dissertation, Umeå University.

SCB 2012 Statistics Sweden. Nr 2012:785, [www.scb.se](http://www.scb.se)

Scheiner, J., Sicks, K. and Holz-Rau, C. 2011. Gendered activity spaces: Trends over three decades in Germany. *Erkunde*, 65(4) 371-387

SIKA 2002. Jämställda transporter?: Så reser kvinnor och män. SIKA report

Smith, A. and Kern, F. 2009. The transitions storyline in Dutch environmental policy. *Environmental Politics* 18 (1) 78--98.

Stead, D. 2008. Effectiveness and Acceptability of Urban Transport Policies in Europe. *International Journal of Sustainable Transport*, 2(1) 3-18

Stockholm Growth and Regional Planning Administration (RTK). 2009. Trender i Stockholms resande -- en jämförelse mellan RVU 86/87 och 2004. Report No. 3.

SOU 2013. Fossilfrihet på väg. SOU 2013:84

Svedberg, W. 2014. Ett (o) jämställt transportsystem i gränslandet mellan politik och rätt--En genusrättsvetenskaplig studie av rättslig styrning för jämställdhet inom vissa samhällsområden.

Ph.D. dissertation, Gothenburg University.

Swedish Environmental Protection Agency 2007. Genusperspektiv på allmänhetens kunskaper och attityder till klimatförändringen (tidigare växthuseffekten). ARS P0924.

Swedish Environmental Protection Agency 2009. Allmänheten och klimatförändringen. Report No. 6311

Swedish Transport Administration 2014. Trafikverkets Kunskapsunderlag och Klimatscenario för Energieffektivisering och Begränsad klimatpåverkan. Publication 2014:137.

Swedish Transport Administration 2012. Investigation of capacity in the Swedish railway system - suggested solutions for the years 2012-2021 Document 2012:005

Swedish Transport Administration 2009. Handbook for road transport emissions. Appendix 6, Updated 2012.

Swedish Transport Administration 2008. Gemensamma förutsättningar. Effektsamband för vägtransportsystemet. Report No. 9.

Swedish Transport Analysis 2013. Uppföljning av de transportpolitiska målen, Report No. 4.

Tennøy, A. 2010. Why we fail to reduce urban road traffic volume: does it matter how planners frame the problem? *Transport Policy*, 17(4) 216--223.

Transek 2006. Mäns och kvinnors resande. Vilka mönster kan ses i mäns och kvinnors resande och vad beror dessa på? Report No. 51.

TRANSGEN 2007. Gender Mainstreaming European Transport Research and Policies - Building the Knowledge Base and Mapping Good Practices, Co-ordination for Gender Studies, University of Copenhagen.

Trivector 2010. Jämställdhet i infrastrukturplaneringen -- en utvärdering, Report No. 38.

Urry, J. 2007. Mobilities. Cambridge and Malden: Polity Press

Wahl, A. and Holgersson, C. 2004. Det ordnar sig alltid. Studentlitteratur, Lund

West, C. and Zimmerman, D. 1987. Doing gender. *Gender & Society*, 1(2) 125--151

Wittbom, E. 2009. Att spränga normer -- om målstyrningsprocesser för jämställdhetsintegrering. Doctoral Thesis, Stockholm University.

World Bank 2009. Public attitudes toward climate change: findings from a multi-country poll in World development report 2010: development and climate change. Washington DC: World Bank.

WSP 2015. Allmänheten och klimatförändringen 2015. Rapport 2015-05-22

Table 1 Total daily mileage in kilometre presented for different errands and separately for men and women. Source: RVU Sweden 2011-2014 - The Swedish National Travel Survey

	Work/school	Business travel	Purchases/service	Leisure	Other	Total
Men	12,1	7,4	6,1	21,1	4,4	51,1
Women	7,4	2,8	5,5	18,7	2,5	36,8
All	9,7	5,1	5,8	19,9	3,4	44,0

Table 2 Total daily mileage by car in kilometre presented for different errands and separately for men and women. Source: RVU Sweden 2011-2014 - The Swedish National Travel Survey

	Work/school	Business travel	Purchases/service	Leisure	Other	Total
Men	8,5	4,1	5,3	12,7	2,6	33,2
Women	4,2	0,9	4,7	11,2	1,8	22,9
All	6,4	2,5	5,0	12,0	2,2	28,1

Table 3 Daily CO<sub>2</sub> emissions from transport presented for different errands and separately for men and women.

	Work/school	Business travel	Purchase/service	Leisure	Other	Total
Men	1 307	596	781	1 871	380	4 936
Women	679	143	692	1 665	267	3 445
Difference	-628	-454	-90	-206	-114	-1 491