

The gender gap in pro-environmental political participation among older adults

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Abstract

Citizens are increasingly concerned with environmental issues and some of them take contentious political actions or adapt their lifestyles to reduce their environmental footprint. Research finds that there is an eco-gender gap in everyday environmental behaviours, with women more active than men. However, studies of the eco-gender gap have infrequently looked at other forms of pro-environmental political behaviours and focused mostly on young people. We contribute to the literature by examining to what extent older women and men differ in a range of pro-environmental political behaviours, using a unique dataset based on a survey of individuals 64 years and older. We find strong evidence of a gender gap in everyday behaviours and political consumerism, but not in relation to contentious forms of political participation. This gender gap in relation to everyday behaviours and political consumerism diminishes with age.

Zusammenfassung

Die Bürger-innen beschäftigen sich zunehmend mit Umweltfragen und einige von ihnen ergreifen politische Protestmassnahmen oder passen ihren Lebensstil an, um ihren ökologischen Fußabdruck zu verringern. Die Forschung zeigt, dass es beim alltäglichen Umweltverhalten ein *eco-gender gap* gibt, wobei Frauen aktiver sind als Männer. Studien über den *eco-gender gap* haben sich jedoch selten mit anderen Formen umweltfreundlichen politischen Verhaltens befasst und sich meist auf junge Menschen konzentriert. Wir tragen zur Literatur bei, indem wir untersuchen, inwieweit sich ältere Frauen und Männer in einer Reihe von umweltfreundlichen politischen Verhaltensweisen unterscheiden, und zwar anhand eines einzigartigen Datensatzes, der auf einer Umfrage bei Personen ab 64 Jahren basiert. Wir finden deutliche Belege für ein *eco-gender gap* bei alltäglichen Verhaltensweisen und

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politischem Konsumverhalten, nicht jedoch in Bezug auf politischen Protest. Diese geschlechtsspezifische Diskrepanz in Bezug auf das Alltagsverhalten und den politischen Konsum nimmt mit dem Alter ab.

Résumé

Les citoyen-es sont de plus en plus préoccupé-es par les questions environnementales et certain-es adaptent leur mode de vie pour réduire leur empreinte écologique ou s'engagent dans des actions politiques contestataires. La recherche montre qu'il existe un écart entre les genres en matière de comportements pro-environnementaux au quotidien, les femmes étant plus actives que les hommes. Cependant, les études concernant ces différences se sont rarement penchées sur les comportements politiques et se sont surtout concentrées sur les jeunes. Nous contribuons à la littérature en examinant dans quelle mesure les femmes et les hommes de 64 ans et plus diffèrent dans une série de comportements pro-environnementaux. Nous trouvons importante différence entre les genres pour ce qui est des comportements quotidiens et le consumérisme politique, mais pas en ce qui concerne la participation politique. L'écart entre les genres a tendance à diminuer avec l'âge.

KEYWORDS

Environment, Gender gap, Older adults, Political participation

INTRODUCTION

Over the past decades, environment awareness, especially of climate change, has increased among the public and governments. Individuals play a crucial role in sustainability efforts and can contribute to lowering their own environmental footprint by adopting eco-friendly behaviours. But women and men do not adopt these behaviours equally. The term 'eco-gender gap' refers to the disparity between the sustainable choices made by women and men, highlighting that on average, women exhibit more eco-friendly behaviours compared to men. Although numerous studies have investigated the eco-gender gap, the vast majority has focussed on young people (Brough et al., 2016; Schösler et al., 2015) or the general population (Zelezny et al., 2000). To the best of our knowledge, no research examines the eco-gender gap among older adults, which represent an interesting group to study for at least three reasons. First, older adults have time to invest in sustainable choices, such as shopping in participatory supermarkets, engaging in community supported agricultural projects or using public transportation and slow mobility. Many of these activities require an important investment in time, which is more difficult during certain periods of life (Lorenzini et al., forthcoming). Second, the everyday behaviour of all people, not just young people, ultimately matters for reducing the global environmental footprint. Social change happens when large segments of the population embrace new values or practices promoted by critical thinkers (Rochon, 2000). In this understanding of social change, it is important that all social groups, including older adults, participate in taking environmental action. Indeed, older adults represent a large share of the population in Western countries, a share that is expected to increase in the coming years.¹ The sheer number of older adults, combined with their large economic and political influence (Goerres, 2009; Kissau et al., 2012), makes this group very

¹For example, individuals aged 64 and above represented slightly more than 19% of the total Swiss population in 2021. This percentage is expected to increase to somewhere between a quarter and a third of the population over the next decades.

relevant for the study of pro-environmental political behaviours. Third, there are reasons to believe that the gender gap identified in previous research might play out differently among older adults. One proposed mechanism for explaining gender differences is linked to prescriptive stereotypes: women and men try to conform to stereotypes associated with their gender identity, and pro-environmental behaviours are perceived a feminine trait. However, these stereotypes tend to be weaker for older adults than for younger adults (Kite et al., 1991; Koenig, 2018), leaving open the question of whether there is an eco-gender gap among older adults.

Additionally, the eco-gender gap literature has focussed almost exclusively on everyday eco-friendly behaviours and consumption patterns. This literature has rarely considered contentious political action in favour of the environment.² The existing gender gap literature addresses different forms of political participation (Coffé & Bolzendahl, 2010; Engeli et al., 2006; Gundelach & Kalte, 2021; Lorenzini & Bassoli, 2015; Verba et al., 1997), demonstrating important variations in the engagement of women and men in different forms of political participation. However, previous research on the political engagement of older adults tends to focus on institutional political participation (Serrat et al., 2020), with only a few studies comparing different forms of participation (Kam et al., 1999; Quintelier, 2007).

Regarding pro-environmental forms of political participation specifically, the emphasis has been on everyday behaviour and consumerism, and it remains unclear whether an eco-gender gap exists in relation to contentious forms of pro-environmental political participation. Analysing other political behaviour is important because the literature is clear that people have an action repertoire at their disposal that goes beyond everyday behaviour and consumption. This repertoire includes many other forms of political behaviour, such as participating in institutional and contentious political actions. Based on this reasoning, we consider different forms of political participation linked to the environment, including political consumerism, everyday environmental actions, petition signatures, and demonstrations for the environment. Our research makes two contributions to the eco-gender gap literature: we consider different forms of political participation, specifically in relation to the environment, and we concentrate on older adults, a group that has not been analysed yet.

To study the gender gap of older adults in relation to environmental behaviour, we focus on Switzerland as a case and more specifically, the French-speaking region. We use a dataset that surveyed a large, random sample of older adults (64+) on their pro-environmental behaviours in the fall of 2020 (Félix et al., 2020). The Swiss case is interesting in terms of political opportunity structure. Switzerland is a direct democracy with a moderately contentious action repertoire (Giugni, 2019). A relatively large proportion of the population considers environmental issues important and many people, including older adults, have taken to the streets to express their concerns (Lorenzini et al., 2021). In addition, many small-scale initiatives seek to prefigure socio-economic and environmental changes (Huber & Lorenzini, on-line first; Sahakian, 2017). The French-speaking part of Switzerland tends to express lower concern for environmental issues than the German-speaking part of the country (Bornstein & Lanz, 2008). However, in recent years, the climate strike movement has brought environmental issues to the forefront of the political agenda in many French-speaking cities and cantons. Overall, we study the environmental engagement of older adults across different forms of participation in a context of high interest and many related private initiatives, but with limited contention after the start of the COVID-19 pandemic in 2020.

Our analyses of survey data collected from older adults measure political, pro-environmental behaviours, with the results showing a clear gender gap in everyday pro-environmental behaviours. Of the seven items measuring environmental behaviours in the private sphere, women are more likely to engage in those behaviours than men, including boycotting for environmental reasons. However, our analyses reveal no gender gap in pro-environmental behaviours in the public sphere, such as participating in demonstrations or signing petitions for environmental reasons. They also show that the gender gap is moderated by age within our sample of older adults. Whereas there is a significant

²See, however, Blocker and Eckerg (1997) for an exception.

gap for individuals in their late sixties and early seventies, this gap almost entirely disappears for respondents in their late seventies and older.

In the next section, we review the literature on the eco-gender gap and formulate hypotheses on the gender gap and its variations across different forms of political participation. We then present the data and the empirical strategy before discussing the results. The last section of the paper discusses our main findings and avenues for future research.

THEORETICAL FRAMEWORK

The Gender gap

Discussion about equality in democratic participation means considering differential participation in politics, multiple forms of political participation (Verba et al., 1995), and political activities in the social and political spheres (Stefani et al., 2021). Equality is a core principle of democracy (Dahl, 2006) and reaching gender equality is a crucial step in achieving real and effective democratic participation. The term gender gap refers to the difference between women's and men's participation levels, rights, remuneration, access or benefits in any area (Directorate-General for Employment, 1998). The literature to date has documented several reasons for gender differences in participation, highlighting unfair access to resources and opportunities (Verba et al., 1997), as well as gendered socialisation processes (Lawless & Fox, 2005), as primary explanations. We will return to these two explanations later, but first, we will discuss the gender gap across various forms of political participation.

Existing research provides evidence for differences in participation between women and men. Since men seem to have a greater propensity towards activities that influence decision-making (Schlozman et al., 1994), they tend to be more involved in group activities that carry out violent and nonviolent direct action and demonstrations (Norris et al., 2004). However, it is worth noting that gender differences in electoral participation have always been low or even non-existent (Inglehart & Norris, 2000), to the extent that some scholars have argued that at equal levels of political interest, women would be more engaged in voting than men (Coffé & Bolzendahl, 2010). One explanation for this is that research finds women's sense of civic duty acts as a powerful motivator for their electoral participation (Carreras, 2018).

Regarding informal, private and less conflict-oriented types of political participation, women are often more engaged than men (Schneider et al., 2016), usually choosing forms of political action that link their daily lives with politics, such as boycotting, signing a petition, or donating money (Coffé & Bolzendahl, 2010; Espinal & Zhao, 2015). These actions are related to the specificities of women's political interest and knowledge – women are more informed about social policies and public services, which contributes to their political participation (Stolle & Gidengil, 2010). In addition, in the case of political consumerism, the research finds that the *gender gap is reversed* (Stolle & Micheletti, 2005). Women are more active than men in the forms of participation related to consumption. This can be explained by the fact that women tend to be in charge of consumption for the household and that traditional gender roles associate women with consumption practices.

Turning to explanations in the literature that account for the gender gap, research has shown that access to resources is a key element for engaging in participatory activities, such as access to education, employment, or financial opportunities (Verba et al., 1997). Lower levels of female political participation have been associated with a lower likelihood of having access to resources that support political participation, as well as with larger burdens from household and family caregiving responsibilities (Stefani et al., 2021).

Other works have tried to explain processes as the basis for differences between women's and men's political participation, relying on socialisation and, in particular, social role theory (Eagly et al., 2000). Social role theory argues that there are always expectations associated with gender: each gender tries to promote consistent behaviours, thereby reaching the typical characteristics of the sex to

which one person belongs. Attitudes and behaviours associated with independence, decision-making power, and control of resources are culturally associated with men, while avoidance of competition, cooperation, and helping others are typical of women (Stefani et al., 2021). Social roles result in differences in the political values of women and men, leading to differences in political participation and even in partisanship. For example, women are more likely to hold liberal positions, while men are more likely to support traditional values as a form of conservatism (Shapiro & Mahajan, 1986). Women are less likely to support the use of force internationally and domestically as opposed to their male counterparts (Eichenberg, 2016), preferring to encourage government expenditures for social welfare programs (Fox & Oxley, 2015).

The eco-gender gap

Starting in the 1970s, research on the environmental attitudes of men and women increased (Bord & O'Connor, 1997), including understanding whether men and women share the same concerns about the environment (Frey & Stutzer, 2006). Gender stereotypes and norms shape the way women and men think about this topic, respond to it, and choose to act (Bloodhart & Swim, 2020). The eco-gender gap can be defined as the disparity between the ethical and sustainable choices made by women and men (Hunt, 2020). This concept reveals that on average, women are more likely to pursue pro-environmental behaviours than men, are more likely to have ecologically-minded attitudes, and are more likely to make ecologically-minded choices. Women are also willing to take positive actions for the environment. Men, on the other hand, feel less guilty about living a non-green lifestyle (Tiller, 2014) and have a larger overall carbon footprint (Räty & Carlsson-Kanyama, 2010).

To explain this gender gap in environmental sustainability behaviours, prior research has looked at differences in personality traits between women and men (Gundelach & Kalte, 2021). For instance, women are, on average, more prosocial, altruistic, and empathetic, and these attitudes have been linked to women's tendency towards environmentalism (Dietz et al., 2002). In addition, pro-environmental attitudes reflect caring for and nurturing the environment, which are prototypical feminine traits (Gilligan, 1993; Watson, 1994). Women are even more inclined to adopt a future time perspective (Eisler & Eisler, 1994), demonstrating a stronger environmental commitment. Since they typically express greater levels of concern than men (Finucane et al., 2000), women seem to have more predisposition to act.

Social role theory suggests another explanation for the gender gap: since eco-friendly behaviours are not considered masculine, men try to avoid those behaviours (Brough et al., 2016). In order to safeguard their gender identity and comply with societal expectations, men tend to be motivated to avoid, or even oppose, green behaviours. Consequently, the problem is not that men do not care about the environment but that they seek to comply with masculine assignments. Men are afraid that by adopting eco-friendly lifestyles, they are challenging their masculinity.

Previous research suggests that even when men and women are interested in maintaining their gender identity, men are more attentive to it than women because they face greater penalties for gender-inconsistent behaviour (Bosson & Michniewicz, 2013; McCreary, 1994). There is additional support for the association between the concept of greenness and femininity, as well as the idea that green consumers are more feminine because women bear more of the green burden (Brough et al., 2016). For example, many pro-environmental messages use font styles and colours that are more feminine than masculine (Brough et al., 2016). Moreover, most green marketing efforts are targeted towards areas that are predominantly considered the domains of women, such as cleaning, food preparation, family health, and household maintenance.

Indeed, there is substantially more social pressure for women to focus on the private sphere and the needs of the family (Ferrin et al., 2018). As a result, since social welfare and community-oriented themes, such as environmental issues, are more closely related to the perceived daily activities of women, they are more likely to be of interest to women.

Since the gender gap has already been analysed across different forms of participation, it is interesting to note that some research suggests that there are gender differences not only in concrete engagement on environmental issues, but also in where this engagement takes place (Blocker & Eckberg, 1997). Women are more likely to engage in household-oriented pro-environmental behaviours, i.e., in the private sphere with everyday sustainable actions. Men, on the other hand, are more actively engaged in society-oriented, pro-environmental behaviours, i.e., in the public sphere (Blocker & Eckberg, 1997).

To conclude, we would like to highlight that in some conceptions of gender equality, the goal is for women to achieve parity with men's levels of economic, educational and employment opportunities. However, from the point of view of sustainability, society should instead emphasise female environmental standards, values and behaviours (Bloodhart & Swim, 2020) which would result in more people who care about the environment and take steps to reduce their environmental footprint. In this vein, ecofeminism seeks to realise far-reaching transformations about how productive and reproductive work is conceptualised (Lorenzini, 2022; Mies & Shiva, 1993).

The eco-gender gap among older adults

While the above discussion does not distinguish between age groups, the literature does point to an association between age and political participation. In social movement literature, the concept of biographical availability accounts for periods in the life cycle when people have more or less time and energy to engage in contentious politics (Wiltfang & McAdam, 1991). For instance, research finds that activists move on from political engagement when they have young children or other important duties that limit their availability (Corrigall-Brown, 2011). Regarding electoral participation, there is a stronger subjective norm for older people to vote and they are, as a result, more likely to do so, at least until health issues prevent them (Goerres, 2008; Galais & Blais, 2014). Such effects of age have barely been explored in relation to forms of environmentally oriented political participation.

Most research on the eco-gender gap focusses on specific population groups, in particular younger generations in the general belief that they are more environmentally active compared to older generations. For example, seeking to understand whether eco-friendly behaviours are unmanly or not, Brough et al. (2016) conducted six different studies that analysed samples where the mean age was between 20 and 35 years. Schösler et al. (2015) investigated the link between eating meat and masculinity, focussing on young second-generation Chinese–Dutch, Turkish–Dutch, and Dutch adults, aged 18 to 35 years old, to analyse whether meat-related gender differences varied across ethnic groups.

However, recent studies have shown that generational conflict over climate could be a myth (Hamilton et al., 2019), as the older adults are just as committed to the environment as younger adults. In the Swiss context, Lorenzini et al. (2021) found that the gap in pro-environmental attitudes between younger and older generations is relatively limited and that over time, each generation becomes more pro-environment. Nevertheless, younger people have lived their entire lives with a consciousness about climate change and other environmental issues, while older people directed lower levels of attention to climate issues in their youth (Milfont et al., 2021). Currently, older adults are more vulnerable to extreme weather events, such as heat waves, that are associated with climate change. Older adults also have lower levels of resilience, and the majority of disaster response programs lack any explicit focus on older people, delegating their care to their families (Harper, 2019). Accordingly, it is relevant to consider how older people act politically with regards to climate change and environmental issues.

While we noted extensive literature on the pro-environmental behaviours of young people, our study aims to fill a gap in this research by examining gendered, pro-environmental behaviours among older adults. To do this, we build on previous research to advance hypotheses that allow an examination of a broad range of environmental political actions by older adults.

First, by focussing on differences in personality traits, as well as gender stereotypes and the pressure to conform to them, we expect to find similar patterns among older adults than for other

groups in terms of the eco-gender gap. Research has shown that both descriptive and prescriptive gender stereotypes exist for all age groups, although the strength of these stereotypes – i.e. the differences between traits attributed to men versus women – tends to be less intense for older adults (Koenig, 2018; Löckenhoff et al., 2014). From this perspective, we expect a gender gap that goes in the same direction as documented in the literature for younger adults, but possibly slightly attenuated; however, our data, which includes only older respondents, does not allow us to compare the size of the gender gap among different age categories. Therefore, our hypothesis (H1) proposes that older women participate more in pro-environmental political activities than older men.

Second, women in our sample were socialised (primary and secondary socialisation) during a time when they did not have the right to vote at the national level. Furthermore, women who are now in their sixties or older were, on average, less integrated in the labour market compared to women of the same generations in other Western democracies.

The generation studied here is characterised by a clear gender distinction in terms of public and private sphere activities, and we expect to observe a gender gap across all forms of political action regarding the environment. Specifically, we expect older women to exhibit more pro-environmental daily behaviours and consumption-related political activities than older men, since women are more closely associated with the private sphere. Other pro-environmental political behaviours, such as signing petitions and demonstrating for the environment, correspond with the type of political behaviour that takes place in the public sphere. When these political activities are not specifically related to the environment, men tend to participate more than women. In the case of petitions and demonstrations that are specifically related to the environment, a gender gap might still be observed – albeit small – in favour of older women compared to older men. Hence, our second hypothesis (H2) proposes that the eco-gender gap is stronger for forms of political participation that take place in the private sphere than for those that take place in the public sphere.

DATA AND RESEARCH DESIGN

Our analyses rely on data from the ‘Senior Citizens, Climate Crisis and Well-Being’ dataset, a representative survey of older adults in the French-speaking part of Switzerland (for more details, see Félix et al., 2020; Lorenzini et al., 2022). The survey was conducted by FORS, the Swiss Centre of Expertise in the Social Sciences, in September and October of 2020.³ A representative sample of residents aged 64 years and older were contacted by letter to participate in a survey that they could answer online or by mail.⁴ The survey response rate was 54%.

The survey included questions about older adults' attitudes towards climate change, their environmental and political attitudes and behaviours, their well-being, and their socio-demographic characteristics. The survey represents a unique dataset for studying the declared environmental behaviours of older adults.

Our measures included daily pro-environmental behaviours, political consumerism, and contentious politics. Regarding pro-environmental behaviours, we used seven questions about whether respondents took any specific actions to help the environment during the previous twelve months (see Table 1 below for the full list).⁵ Political consumerism and contentious politics were measured

³The survey was conducted approximately six months after the outbreak of the COVID-19 pandemic in Europe. It is worth noting that during the survey, the number of COVID-19 infections and the level of concern about the virus were rather low in Switzerland, although infections increased sharply in the weeks following the survey fieldwork. Very few restrictions were in place at the time the survey took place, the most significant being a ban on events of more than 1,000 individuals.

⁴The paper questionnaire was included only in the second reminder mailed to potential survey participants, which resulted in a majority of respondents (72%) completing the online survey.

⁵Note that these questions were partly reproduced from the International Social Survey Programme 2020.

TABLE 1 Daily eco-behaviour (from most frequent to least frequent).

	Female (%)	Male (%)	Difference (% pts)
Reuse products (bottles, etc...)	94.14+	86.98-	7.16
Limit energy consumption	84.16+	76.87-	7.29
Consume fewer products	77.41+	57.89-	19.52
Forgo air travel	65.48+	59.91-	5.57
Limit meat consumption	70.08+	49.19-	20.89
Change diet	47.34+	34.58-	12.76
Purchase second-hand goods	43.28+	31.05-	12.23

Note: We use adjusted residuals – raw differences between expected and observed counts – divided by the root of the expected count to identify cells that have significantly higher (+) or lower (–) frequencies than would be expected if there were no association between gender and environmental behaviour variables. We only identify cells with adjusted residuals >1.96 (+) or <–1.96 (–), corresponding to p-values lower than .05.

by asking whether respondents boycotted products, signed petitions, or participated in demonstrations for environmental reasons.⁶

The dependent variables in our analyses measured the different forms of political participation mentioned above. Daily pro-environmental behaviours were analysed first item by item to verify whether there are gender differences across items. The questions asked whether respondents behaved in a specific way or not; when they did, we coded the variable as 1, and 0 otherwise. Second step, we used an additive scale of all seven items. The scale ranges from 0 for respondents who declared no pro-environmental behaviours, to 7 for respondents who claimed all of the behaviours.⁷ For the items measuring participation in boycotts, signing petitions, and engaging in demonstrations, we refrained from using an additive index because they represent rather diverse ways of getting involved and are weakly correlated with each other.⁸ Each takes the value 1 if the individuals demonstrated these behaviours for environmental reasons, and 0 otherwise.

One potential limitation of using survey data to measure pro-environmental behaviours is the overestimation of action. Politically active persons are more likely to complete a social survey about the environment and related political actions. Moreover, due to social desirability bias (i.e., the behaviours are socially valued), it is likely that respondents over-reported their engagement in these actions. However, because we are primarily interested in the difference in behaviours between women and men rather than in absolute levels of political participation, this issue does not prevent us from drawing valid conclusions. In other words, we assumed that gender does not affect selection and social desirability biases.⁹

Our main independent variable of interest was gender, which was coded 1 if the respondent identified as a man, and 0 if the respondent identified as a woman.¹⁰

After describing the gender gap by means of bivariate analyses for each of the items detailed above, we performed multivariate analyses to verify whether gender differences remain once we controlled for a series of factors identified as predictors of pro-environmental behaviours, or political behav-

⁶For each of these forms of participation, respondents were first asked whether they performed an activity and if their response was affirmative, they were then asked whether they engage in those activities in relation to the environment. We focus here specifically on political acts for environmental reasons.

⁷The Cronbach's Alpha for the additive scale is .69.

⁸Correlations range between .12 for the correlation between the variable measuring boycotting and that measuring participation in demonstrations and .27 for the correlation between boycott participation and signing petitions.

⁹The only study we are aware of that compares survey and registered data to analyse whether selection and social desirability biases diversely affect estimated political participation by gender focusses on Chile, and shows that men over-report more political participation than women (Cox & Morales Quiroga, 2021). If the same mechanisms were at play in the Swiss case, the actual reversed gender gap found in the population should be even greater than the one we report. Note that self-administered surveys, such as the one we use, are less prone to social desirability bias (Krumpal, 2013).

¹⁰Note that the question included the response category 'other/non-binary'. Only one respondent checked that box, but they were not kept in the analysis due to a large number of non-responses to other variables of interest.

hours more generally. The control variables were selected based on the current literature. We included variables associated with preferences for the environment or generally featured as control variables in studies of political participation, such as age, education, income, and whether the respondent lives alone¹¹ (see, e.g. Gundelach & Kalte, 2021).

We also controlled for attitudinal variables that have been found to impact – or are expected to impact – an individual's propensity to exhibit pro-environmental behaviours, including political ideology (Neumayer, 2004), climate worry, the belief that individual involvement can mitigate climate change, and a sense of duty to fight climate change. Including attitudinal variables in our multivariate models means that we performed a difficult test to find a gender gap in behaviours. Previous research shows that women tend to have more left-leaning political views (Dassonneville, 2021), which could be an explanation for any behavioural gender gap. We further controlled for membership in environmental groups, which are likely to encourage pro-environmental behaviours. Additional control variables specific to an older population were also taken into account, including having at least one child, having at least one grandchild, and self-evaluating one's health status. Having children and grandchildren may impact pro-environmental behaviours for older adults, as it means that they have close family relations who are likely to suffer from the most dramatic effects of climate change over the medium- and long-run. Good health enables political action and given our focus on older adults, health is more likely to be an issue; therefore, it is essential to control for this factor.

Age was measured as a scale variable using respondent age in years. Education levels were recoded in three categories – primary, secondary, and tertiary – with the first category as the reference. The income variable corresponded to terciles of household disposable income adjusted to household size, with the first category as the reference.¹² Political ideology was measured on a standard 0–10, left to right scale and household size by the number of household members; both were used as scale variables. Having children and grandchildren were each measured using a dummy variable; children or grandchildren were coded as 1, and 0 otherwise. Self-evaluated health was measured by asking respondents how, in general, they would rate their health on a scale of 0 to 10, where 0 means extremely bad and 10 extremely good. The full list of independent variables and their central values is included in Table A1 in the appendix.

RESULTS

Table 1 shows the percentage of female and male respondents who state that they engaged in a pro-environmental behaviour during the twelve months preceding the survey. The results are quite clear-cut, with a higher percentage of female respondents reporting daily eco-behaviours for all seven items. The differences are statistically significant at the p -value < 0.05 for each item, but the magnitude of these differences varies. The largest differences appear in behaviours that are most closely related to gender stereotypes and identities. According to the results, more women report limiting meat consumption compared to men by 21 percentage points (42 percent). The gap is also very high – 20 percentage points or 32 percent – regarding whether or not respondents consume fewer goods. Eating meat is often presented as a masculine thing to do (Rothgerber, 2013), and there are gender stereotypes associated with both ethical consumption and limiting consumption (Pinna, 2020). Accordingly, it is not surprising to find the largest gender differences associated with these two items.

When considering all daily eco-behaviours, we observed differences on all issues, with the smallest gap found in relation to forgoing air travel. However, even in that case, female respondents are 5.5 percentage points (or 9 percent) more likely to report that behaviour.

¹¹Note that previous research tends to use marital status, rather than household size, as control variable. We employ household size, given its availability in the dataset.

¹²The original variable was measured in eleven categories that correspond to different brackets of household disposable income. Following a common practice, we recoded the income categories by assigning the middle value of the income bracket to the respondents, then divided that income by the square root of the number of household members.

TABLE 2 Political behaviour in relation to the environment (percentages).

	Female	Male
Boycotting	55.78+	45.63-
Signing a petition	28.05	25.09
Demonstrating	4.60	3.52

Turning to the other political behaviours in relation to the environment (see Table 2), we also observed a gender gap in boycotting. This activity is again more prevalent among older women than older men, with a 10 percentage point difference. There are, however, almost no differences in participation between men and women when it comes to signing petitions or demonstrating. Two tentative explanations can be made for the gender differences in the forms of political participation comparison. First, given that boycotts are part of the feminine sphere of consumption, this political action is perceived as gendered. Thus, some women and men might seek to conform to gender stereotypes, re-affirming their identity by engaging – or not – in this action. The result is the observed gender gap. Second, two opposing trends could be at play regarding signing petitions and participating in demonstrations. The gender gap in institutional politics or, more generally, in relation to interactions with the state, tends to skew towards higher participation by men than women. In the case of older Swiss adults, the gender gap in institutional politics could be particularly high, given the late introduction of universal suffrage in the country. However, we are measuring older adults' involvement in contentious political actions specifically related to environmental matters, a topic that women are found to be almost universally more concerned and involved with than men (Zelezny et al., 2000). We observed no gender gap for signing petitions or demonstrating on environmental issues.

In the next step, we turned to the multivariate analyses to account for potential confounding factors that could explain the gender gap. Table 3 presents models for four different dependent variables: a cumulative score of daily pro-environmental behaviours, boycotting for environmental reasons, demonstrating for environmental issues, and signing petitions for environmental issues. Since the first variable was a scale variable, we used an OLS regression model (Model 1); logistic regressions were used for the other three variables, which are binary (Models 2–4).

The results in Table 3 confirm that gender is significantly associated with daily eco-behaviours, as well as boycotting, even after controlling for a wide range of variables. Models built stepwise and reported in the appendix (see Tables A2–A5) suggest that the gender gap is attenuated when we control for attitudes, which shows that part of the gender gap in behaviour is due to the fact that women, on average, lean more to the left and are more concerned for the environment than men in our sample. However, even with the attitudinal controls included in our models, as well as controls for resources and networks, there is still a non-trivial gender difference in two of our dependent variables, namely everyday behaviours and boycotting. This contrasts with the other two types of environmental involvement that pertain to activities in the public sphere, namely demonstrating and signing petitions. In both cases, we did not observe a gender gap. Older women and men are equally likely to sign pro-environmental petitions or to engage in demonstrations related to this issue.

In order to get a sense of the magnitude of these gender effects, we also present predictions based on the models presented in Table 3. Using the margins command in Stata, we provided the mean prediction (or predicted probability in the cases of binary variables) in the fictional cases, in which all individuals in the dataset were women respectively men, while keeping all other variables at their observed values. The predicted number of daily behaviours is 4.63 for women, whereas the same prediction for men is 4.16. The gap is substantial. If all individuals in the sample are women, they would perform, on average, almost half an eco-behaviour more than if they were all men. Given that the scale only runs from 0 to 7, and the mean is about 4.3, this is a large difference. This difference emerges when ideology and environmental attitudes are held constant.

Turning to the binary variables, the predicted probabilities for boycotting would be 58.3% if all the respondents were women, and 48.9% if all the respondents were men, showing again a substantial gender

TABLE 3 Explaining pro-environmental daily and political behaviour.

	Model 1	Model 2	Model 3	Model 4
	Daily eco-behaviours	Boycotting	Signing petitions	Participating in demonstrations
Male	-0.462***	-0.474**	-0.154	0.083
Age	-0.006	-0.035**	0.007	0.007
Middle income tercile	-0.277*	0.243	0.050	-0.195
Top income tercile	-0.356**	0.090	0.086	-0.331
Secondary education	-0.173	-0.065	0.366	1.051
Tertiary education	-0.092	0.027	0.405	1.223
Left-right scale	-0.039	-0.023	-0.125***	-0.264**
Climate concern	0.653***	0.545***	0.561***	1.026**
Sense of duty to fight climate change	0.329***	0.177**	0.132	-0.055
Political engagement helps mitigation	0.047**	0.054*	0.054 ⁺	0.034
Member of environmental group	0.337**	0.618**	1.199***	1.948***
Lives alone	0.351**	-0.079	-0.011	0.590
Has children	0.327*	-0.052	-0.203	0.653
Has grandchildren	-0.130	-0.057	0.062	-0.947*
Swiss citizen	0.269	0.546*	0.036	-1.253*
Self-evaluation of own health	0.029	0.010	0.049	-0.072
Constant	1.969**	0.315	-3.710**	-5.592
Observations	1128	1128	1128	1128
R^2	0.320			
Pseudo R^2		0.117	0.157	0.297

* $p < 0.05$.** $p < 0.01$.*** $p < 0.001$.

gap. On the other hand, the predicted probabilities for signing petitions and for demonstrating are almost identical across the two groups. If all respondents were female, 28.9% would have signed petitions for the environment, while 27.2% would have signed petitions if they were all male. Regarding demonstrations, the predicted probability is about 4% for both women and men; the difference is non-significant.

Finally, it seems important to check whether within the group of older adults there is a systematic variation in the gender gap by age. We know from existing research that the political participation of older adults is relatively high, but starts to decline after a certain age (Goerres, 2009; Sciarini et al., 2001). In relation to electoral participation, it was shown that the decline is particularly sharp for female citizens (Sciarini et al., 2001). It is therefore plausible that the effect of gender varies by age. To test for this possibility, we also run models adding an interaction term between age and gender. All the models are reported in Table A6 in the Appendix. There is no systematic variation in the effect of gender for signing petitions or participating in demonstrations for the environment (see Figures A1 and A2 in Appendix). However, there are indications that the gender gap in daily eco-behaviours as well as in boycotting for environmental reasons declines with age. The interaction term is statistically significant for eco-daily behaviour and not for boycotting. To interpret the results we present them graphically.

Figure 1 shows the average marginal effect of being a male (as compared to a female) respondent on the number of daily eco-behaviours by age. A negative effect means that men perform fewer eco-behaviours than women. The effect is sizable for the younger respondents in our samples, but its

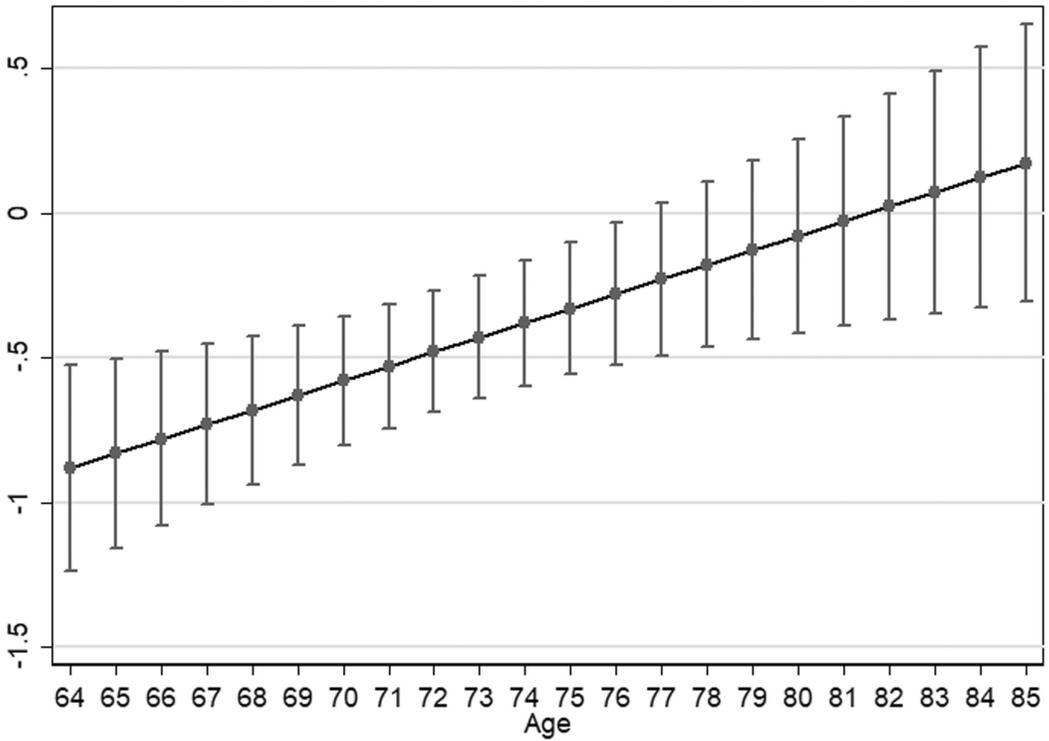


FIGURE 1 Average marginal effect of male gender on the number of daily eco-behaviours by age. *Note:* The solid line shows the average marginal effect of being male as compared to a female respondent at different ages. The vertical lines display 95% confidence intervals of this effect.

magnitude diminishes with age. The size of the negative effect of being a male diminishes with age and the gender gap becomes insignificant after 76 years old. In other words, there is no evidence for a gender gap for respondents above that age. Figure 2 displays the average marginal effect of being a male on the probability of reporting boycotting a product for environmental reasons. Although the decline in the gender gap is slightly less sharp, in that case also the gender gap disappears in the late seventies as the effect of being a male respondent is very close to 0.

One possible interpretation for these results is that individuals in their sixties and early seventies are generally more active and as participation including the average number of daily eco-behaviours declines with age there is also less potential for a gender gap to develop.

All in all, our analyses confirm the postulated link between gender and pro-environmental behaviours specifically among the older adult population. It is striking to note that for each variable measuring a pro-environmental behaviour in the private sphere (the seven items that make up our daily eco-behaviour scale and boycotting), women are more active than men. Yet, we do not observe a gender gap when it comes to more public behaviours. The case of boycotting is interesting because it is an act of refusing to make a purchase for political reasons, an action that remains largely in the private sphere. Boycotting resembles other behaviours in the private sphere, and we found a large gender gap with more women participating than men. Finally, for daily eco-behaviours it has to be highlighted that the gender gap decreases significantly with age and disappears completely in the late seventies.

CONCLUSION

People become politically involved out of concern for the environment through different means, including changing their own daily behaviours and pressuring public officials to change things on

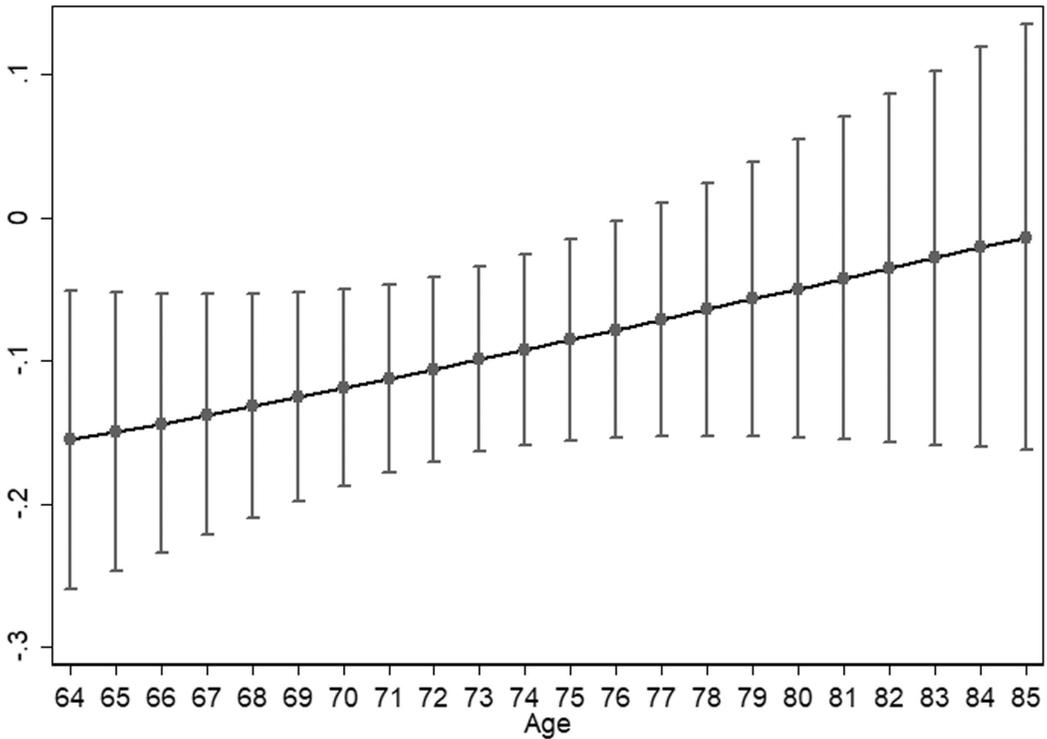


FIGURE 2 Average marginal effect of male gender on the probability of boycotting for environmental reasons by age. *Note:* The solid line shows the average marginal effect of being male as compared to a female respondent at different ages. The vertical lines display 95% confidence intervals of this effect.

a larger scale by adapting policy. Research has documented that women, more than men, engage in pro-environmental behaviours that involve reducing an individual's own environmental externalities. Most existing research has focussed specifically on younger people, and it is unclear whether these findings apply to older individuals as well. Also, there has been much less interest in the gender gap surrounding pro-environmental behaviours to affect public decisions. We contribute to the current literature by considering a population which has not yet been studied for the gender gap – older adults – and by examining different forms of political participation.

Our study made use of a survey of randomly sampled individuals residing in the French-speaking region of Switzerland, aged 64 years and above. Our analyses showed that the eco-gender gap extends to older adults, providing a nuanced understanding of the gender gap across various types of pro-environmental behaviours. While there is a clear gender gap for all seven everyday pro-environmental behaviours that were included in the survey, as well as for boycotts concerning environmental matters, no differences between older female and male respondents were found for signing petitions or protesting for the environment. Also while there is a very strong gender gap in relation to daily pro-environmental behaviours and in relation to boycotting for environmental reasons for younger respondents in our sample, this gender gap disappears for people in their late seventies and above, most likely as a result of a general drop in political participation after a certain age.

These findings have broader implications for our understanding of individual environmental engagement. First, they show that there is a non-trivial potential for reducing individual environmental impact if males behaved, on average, more like females. Significantly, this behavioural gender gap exists even when controlling for a wide range of attitudes regarding the environment. While previous studies have already documented this phenomenon for younger individuals, our research shows that this potential extends to the older adult population.

Second, the fact that the observed gap in relation to everyday behaviours and boycotts does not extend to contentious forms of political participation – such as petitions and demonstrations – shows that gender roles differ across private and public spheres. While women perform more pro-environmental behaviours in the private sphere than men, this is not the case in the public sphere. One of the implications of this finding is that if women were as active in the public sphere as they are in the private sphere regarding the environment, more far-reaching social changes that go beyond everyday individual actions could be expected. This finding echoes previous research showing that although women on average are less likely to engage in institutional politics, when they do, they advocate for more pro-environmental policies than males (Kroeber, 2022; Lloren & Rosset, 2017).

These findings also open avenues for future research. First, since the gender gap in pro-environmental behaviours seems to characterise various age groups at different points in time, it would be interesting to find out whether any contextual factors could affect the magnitude of the gap. More specifically, future research could examine whether the gender gap systematically differs by generation, depending on the period of socialisation. Second, the large gender gap variations across types of political activities show there is room for more theorising about the exact expectations for the direction and magnitude of gender gaps across activity types. Further research in this area would reconcile those expectations with empirical data, enabling us to refine our understanding of the mechanisms that presumably play a role in the gender gap. Expanding the research in these two directions would also overcome some of the limitations of the current study, which focussed on one specific geographical context, at one point in time. For now, our research documents that gender identity matters for pro-environmental behaviours in the private sphere among older adults in the French-speaking part of Switzerland.

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OPEN RESEARCH BADGES



This article has earned an Open Data badge for making publicly available the digitally-shareable data necessary to reproduce the reported results. The data is available at <https://doi.org/10.48573/zf4z-m175>.

DATA AVAILABILITY STATEMENT

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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