CASE REPORT

Ecological ceiling and social floor: public support for eco-social policies in Sweden

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Abstract

In this article, we investigate public support for eco-social policies combining goals of social justice and ecological sustainability. Eco-social policies contribute both to providing a social floor or redistributing resources to where they are needed and to respecting an ecological ceiling by keeping human activities within ecological limits. We discuss five such policies and highlight arguments for and against defining them as eco-social policies: a maximum income, a wealth tax, a basic income, a working time reduction and a meat tax. Asking what the social and individual determinants of supporting these policies are, we use 2020 data from a representative survey in Sweden containing information about how respondents evaluate the policies. We run regression analyses to estimate the effects on these evaluations and test for socio-economic, knowledge-based and value-based factors. Results show that (1) in Sweden a working time reduction is the most supported eco-social policy; (2) political left orientation increases support for all five eco-social policies; (3) socio-economic factors have effects on wealth tax, maximum income and working time reduction; and (4) knowledge-based factors are more associated with the meat tax. Thus, socio-economic and knowledge-based models have the most significance for policies that could be understood as being either social or environmental, while value-based models have significance across potentially perceived policy divides and hence to a greater extent explain support for policies targeting an ecological ceiling *and* a social floor.

Keywords Eco-social policy · Attitudes · Sustainable welfare · Maximum income · Basic income · Working time reduction

Introduction

Ecological sustainability and social welfare are two major and integrated challenges for a social-ecological transformation to occur. Raworth (2017) has explained this eloquently in her doughnut model, according to which the economy and society need to develop within a doughnut shaped space, staying below the critical planetary boundaries (the ecological ceiling) while keeping above the sufficiency level needed to meet people's basic needs (the social foundation or 'floor'). Brand et al. (2021) have tabled a suggestion as to how 'objective' planetary limits may be translated into voluntary or 'subjective' limitations of lifestyles. The economy is here viewed as a subsystem of the biophysical and social systems, which also includes welfare systems to meet people's social needs (Koch 2022a; Fanning et al. 2020). Meeting the ecological ceiling requires, on the one hand, socio-economic regulation and technological innovation, but also, on the other hand, a downscaling of resource use, production and consumption especially in industrialized countries and among wealthy populations. In addition, a range of recent comparative studies indicate that welfare systems and social policies can no longer rely on economic growth and growing tax revenues for funding, but need to consider policies aimed at curbing total material throughput and reducing inequalities (e.g., Haberl et al. 2020). Discussions about 'double' and 'triple' injustices (Gough 2017) also highlight the need to address a social floor in social-ecological transformations.

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This points to the need for environmental and welfare reforms that take both an ecological ceiling and a social floor into account. While we have extensive knowledge on how modes of production and consumption affect the environment, scholars have however only recently explored the connection between the environment and welfare systems (Koch and Mont 2016; Johansson et al. 2016; Gough 2017). The notion of 'sustainable welfare' has been put forward to capture this interplay and to address the states' engagement in both social and environmental policy (Büchs and Koch 2017; Koch 2020). Scholars point to the fact that the ecological crisis cannot be handled only by implementing traditional environmental policies (e.g., environmental taxes or regulations) with the aim to reduce emissions and resource use. Instead states face the challenge of having to develop and adapt eco-social policies that both improve the ecological situation and redistribute resources from upper to lower and middle-income groups, since those with extensive financial resources tend to have the highest ecological impact (e.g., Otto and Gugushvili 2020).

States' and governments' interest and abilities to implement reforms however depend on people's support (Koch 2022b). This certainly is relevant for all types of policies, yet particularly for eco-social policies since these are in the making, rather than established and well-known to the general public. The aim of this paper is to investigate how and why people express support for eco-social policies. By conducting ordinary least square regression analyses and comparing different types of eco-social policies, we will be able to draw conclusions about not only what factors explain support for single eco-social policies, but whether there is public support for an eco-social policy agenda targeting an ecological ceiling and a social floor that could serve as a ground for social-ecological transformations toward sustainable welfare.

We investigate five eco-social policies that are often discussed in the literature on degrowth and sustainable welfare (Cosme et al. 2017; Gough 2017; Koch and Mont 2016): (a) maximum income, (b) wealth tax, (c) basic income, (d) working time reduction and (e) meat tax. These policies address key dimensions of a social-ecological transformation and the intertwined challenges of keeping production and consumption patterns below the ecological ceiling while maintaining a social floor, and shifting consumption away from goods and practices with high environmental impact. Since all selected policy suggestions aim at some form of redistribution, either concerning wealth and income, work–time balance or carbon intensive consumption, these allow us to generate knowledge on people's willingness to support an eco-social agenda (see further "Sustainable welfare and eco-social policies" and Table 1). That being said, some of these eco-social policies could be seen as addressing an ecological ceiling (maximum income, wealth tax, meat tax), while others a social floor (basic income, working time reduction).

In the article, we explore these questions in the context of Sweden. Sweden is a particularly well-suited country to investigate public support for eco-social policies, with its historically large support for both welfare and environmental policies. Recent studies have also shown that there is a comparatively large share of the population mutually supporting welfare and environmental policies (Fritz and Koch 2019; Otto and Gugushvili 2020), which may make the Swedish population conducive to support the selected eco-social policies. Our study expands on existing research on welfare and environmental attitudes (Emilsson 2022; Koch 2020; Fritz and Koch 2019; Otto and Gugushvili 2020) not only by addressing public support for the environment and welfare in general but also by investigating support for concrete eco-social policies. We furthermore contribute toward a theoretical understanding of the link between attitudes and societal transformations. For this purpose, we test established theories, including socio-economic, knowledge-based and value-based approaches, and their significance for

Table 1 Characteristics of eco-social policies

Policy instrument	Type of redistribution	Intended social effects	Intended environmental effects
Maximum income	Wealth/income	More equal society, social cohesion, less anomie and crime	Less damaging luxury consumption; providing the 'ceiling in a doughnut economy'
Wealth tax	Wealth/income	More equal society, social cohesion, less anomie and crime	Less damaging luxury consumption; providing the 'ceiling in a doughnut economy'
Basic income	Work/time Wealth/income	Securing a minimum level of subsistence, providing a 'social floor' More time for non-paid activities, care and leisure	Reduced material production and consumption
Working time reduction	Work/time	More time for non-paid activities, care and leisure Work sharing	Reduced material production and consumption
Meat tax	Pollution/consumption	Health benefits from reduced meat consumption	Climate benefits from reduced meat consumption

a series of emerging eco-social policies with their dual but still varying focus on protecting a social floor and respecting an ecological ceiling.

The article proceeds as follows. In the next section, we discuss the characteristics of the five eco-social policies in the context of their transformative role and review previous studies on attitudes to the policies. We also present the assumptions guiding our analysis of factors affecting the attitudes to the policies. The subsequent section describes the methodology of the study. Then the results are presented. In the last two sections, we discuss the implications of our study and provide conclusions and recommendations for further research.

Sustainable welfare and eco-social policies

Welfare and environmental attitudes

Research on welfare and environmental attitudes often pertains to public opinion on welfare or environmental policies. When it comes to factors associated with the two sets of attitudes, they tend to share some similarities, yet differ on some central grounds (e.g., Calzada et al. 2014; Franzen and Meyer 2010; Gugushvili and Otto 2021). 'Self-interest' models play a central role, above all with regard to studies of welfare attitudes, where sociodemographic/economic characteristics, such as age, gender, income and education, are assumed to have an impact on the attitudes. The 'self-interest' perspective expects individuals to support welfare policies depending on the economic gain they can make, or are expected to make, from these policies. Lower income groups (unemployed, students and households with children) tend to be more positive to public responsibility for welfare provision compared to high income groups (Dallinger 2010), while individuals with higher income tend to be associated with support for environmental policies (Franzen and Meyer 2010; Sivonen and Koivula 2020) despite the fact that these may mean financial burdens on them (Dietz et al. 2007). Studies on welfare and environmental attitudes in combination however indicate that individuals with lower income levels tend to express mutual welfare and environmental policy support, whereas individuals with higher income levels tend to express less or no support for both sets of policies (Emilsson 2022; Fritz and Koch 2019; Otto and Gugushvili 2020).

Other studies stress 'knowledge-based' factors. Individuals with lower levels of education have been shown to support welfare policies (Dallinger 2010). At the same time, higher educational attainment can also lead to support for welfare policies since education increases socialization in democratic values (cf. Gelissen 2000). The significance of education is even stronger concerning environmental attitudes as individuals with higher educational attainment tend to express higher support for environmental policies compared to those with lower levels of education (Fairbrother et al. 2019). This has been interpreted as a result of education and literacy making people aware of the severity and causes of climate change (Dietz et al. 2007). Studies have furthermore shown a relationship between environmental awareness, through the New Ecological Paradigm scale measuring general beliefs about the human–nature relationship, and increased support for environmental and climate policies (Dietz et al. 2007). Previous combined welfare and environmental attitude research indicated that individuals with high levels of education express mutual welfare and environmental policy support more often than average, whereas individuals with lower levels of education are less supportive of both welfare and environmental policies (Emilsson 2022; Fritz and Koch 2019; Otto and Gugushvili 2020).

'Value-based' factors (e.g., political ideology, egalitarian values, environmental values) have significance for both welfare and environmental attitudes, even more so in terms of explanatory power compared to sociodemographic/economic characteristics (e.g., Breznau 2010; Sivonen and Koivula 2020). Studies show that individuals to the left on the left–right political ideology spectrum and/or those with more egalitarian worldviews express higher support for both welfare and environmental policies (Blekesaune and Quadagno 2003; Drews and van den Bergh 2015). Combined studies of welfare and environmental policies moreover show that individuals who vote for left and green parties and who have egalitarian values tend to mutually support welfare and environmental policies, whereas this support is much less prevalent among individuals with weak egalitarian values (Fritz and Koch 2019).

Eco-social policies and attitudes

Self-interest, knowledge- and value-based models all have significance for studies into eco-social policies. Below we discuss the characteristics of the five eco-social policies (summarized in Table 1) along with previous attitude studies conducted.

Maximum income and *wealth tax* address the challenge of staying below the ecological ceiling by putting a cap on incomes and wealth, potentially also contributing to a more equal distribution of wealth. A recent study by Oxfam showed that the richest 10% were responsible for over 50% of the global cumulative carbon emissions (Gore 2020). Maximum income proposals go furthest as these place an absolute limit on how much income a person can have. With the exception of Cuba (Hayes 2021), there are no practical examples of maximum income policies, although some concrete policies have been suggested in the US

under Roosevelt, in Switzerland (Buch-Hansen and Koch 2019) and more recently in the UK (Kikuchi et al. 2020). Approaches of this policy instrument vary: some proposals include absolute caps while others argue for the implementation of ratios (ibid.). Attitude studies toward maximum income are scarce. In one study, however, it was found that high income earners, highly educated and men are less likely to support a cap on income (Burak 2013).

A w*ealth tax* has a similar function as a maximum income cap although it is not as far-reaching. Historically, wealth taxes have been motivated from a social and egalitarian point of view to redistribute wealth and reduce inequality. While being rare today, wealth taxes were previously more common. In 1990, 12 OECD countries had some form of wealth tax, and by 2017 this had dropped to only four countries: Switzerland, Spain, France and Norway (OECD 2018). Recently the wealth tax has been discussed as a way to address both redistribution and climate change mitigation, and a report by the Foundation for European Progressive Studies from 2021 analyzed the potential of a European wealth tax to generate revenues for combating climate change as well as reducing inequalities (Kapeller et al. 2021). Two further studies into public attitudes to a wealth tax indicated that high income earners were less supportive of the wealth tax compared to those with lower incomes (Hammar et al. 2008; Rowlingson et al. 2020). In one of the two studies, it was shown that home owners and supporters of the Conservative (UK) party were generally less supportive of a wealth tax (Rowlingson et al. 2020).

Basic income addresses the aim of creating a social floor by guaranteeing a minimum income for all citizens (Van Parijs and Vanderborght 2017; Mulvale 2019). An additional ecological argument for a basic income is that it provides a means for people to be less dependent on paid labor and thus can lead to decommodification and less affluent and material lifestyles (Mulvale 2019; Boulanger 2009). However, a counterargument is that there is a possibility of increased consumption when low-income earners receive additional resources. Thus, a basic income would need to be combined with other policies that reduce material consumption and related emissions. Basic income has not been used in full scale in any country. However, there have been trials in countries such as Finland (Halmetoja et al. 2019). In a European context, support for basic income is relatively high, with more than 50% of the respondents in 23 European countries expressing support for it, based on data from the 2016 European Social Survey (Lee 2018; Roosma and van Oorschot 2019). Eastern European countries show higher support while the lowest support was found in the Nordic countries, with 38% support in Sweden. A possible explanation for this is that respondents in countries with less generous institutional welfare arrangements are positive to introducing a new measure while respondents in more generous

welfare states are wary of replacing the existing system with something new (Roosma and van Oorschot 2019). Another reason could be a historically strong focus on work ethic and the importance of employment in Nordic social–democratic societies making it morally challenging to receive a regular income without work (Esping-Andersen 1990; Hvinden and Johansson 2007; Koch 2021). Basic income policy tends to attract support from younger individuals, unemployed, low-income earners, left-wingers, and those expressing general support for welfare and income redistribution. Factors associated with no or little support are higher education, being older, living in a household with children and perceptions that welfare abuse is common and that welfare support makes people lazier (Roosma and van Oorschot 2019). Similar results were found in a study by Yang et al. (2020) from Japan, with the exception that men tended to be more positive to basic income as well as individuals that live in households with children.

Working time reduction also seeks to redistribute the use of time from paid labor to non-paid activities. This has social emancipatory aims in line with providing a social floor, but also ecological aims by reducing material production and thus protecting an ecological ceiling. Environmental benefits arise when increases in labor productivity are converted into reduced working time instead of increased income (Pullinger 2014; Kallis et al. 2013). Long-term calculations have shown that a reduction in working hours would decrease greenhouse gas emissions mainly because of lower incomes and material consumption, and that the effect of more leisure time only marginally increases emissions (Knight et al. 2013). Furthermore, macro-economic simulations show that working time reduction is a crucial policy component for stabilizing an economy without growth and achieving both lower emissions and better social outcomes, such as decreasing debt, unemployment, and inequality (Jackson and Victor 2011). While studies of attitudes on work–time preferences are quite common, investigations into attitudes to a specific policy on working time reduction seem to be scarce. In a cross-country study regarding work–time preferences, large national differences were found depending on socio-economic situations and labor-market characteristics. Individuals in countries with high socio-economic standards, such as Sweden, prefer to work less. On an individual level, it was found that those with higher incomes and those who work full time prefer to work fewer hours (Stier and Lewin-Epstein 2003). In a more recent study, working hours per week and work time preferences were investigated from an environmental value and a gender perspective in a European context (Arntsen et al. 2018). An association was found between relatively high environmental values and preferences to work longer hours. In addition, the association between environmental values and work time preferences was stronger for women compared to men. Since working

time reduction is often presented as an important environmental policy, the authors discuss possible explanations to the apparent paradox that high environmental awareness does not translate into a wish to work shorter hours. One explanation could be that working time reduction may not be perceived as an environmental policy in the first place and thus that these effects are not considered by respondents (ibid.).

A *meat tax* is an example of a policy that addresses the objective of staying below the ecological ceiling, while aiming at shifting consumption from goods and practices with high climate and environmental impacts to a more needs-based, sufficiency-oriented and low-impact consumption. Consumption of meat and dairy products has a substantial climate impact and a global shift from meat and dairy-based diets to more vegetarian diets will be necessary to reduce greenhouse gas emissions from the food sector (IPCC 2019). High meat consumption also has considerable negative health effects and a reduction would thus have additional social benefits (Godfray et al. 2018). As all taxes, a meat tax can have regressive distributive effects between households at different income levels, which would need to be addressed by compensating policies (Säll 2018). Studies on attitudes to meat tax policies are quite rare. One investigated attitudes toward a tax on red meat and found that more than half of the respondents did not support it while only around one fourth expressed support for it (Grimsrud et al. 2019). Similar support and non-support levels were found in another study from Sweden, which investigated attitudes to a climate tax on meat: 24% were positive to a tax while 46% were negative (Nässén and Larsson 2015). In both studies, those who expressed support to a meat tax policy tended to be younger, have higher education and live in urban areas. It was also found that support was expressed by those considering climate change to be a serious problem that should be given political priority and by individuals with a clear left-leaning political orientation (Grimsrud et al. 2019; Nässén and Larsson 2015).

Assumptions on eco-social policies

By combining established theories on welfare and environmental attitudes and previous empirical studies on eco-social policies, we propose three assumptions to be tested in connection to the five identified eco-social policies: a socio-economic assumption, a knowledge-based assumption and a value-based assumption. The methodological setup of the study is summarized in Fig. 1.
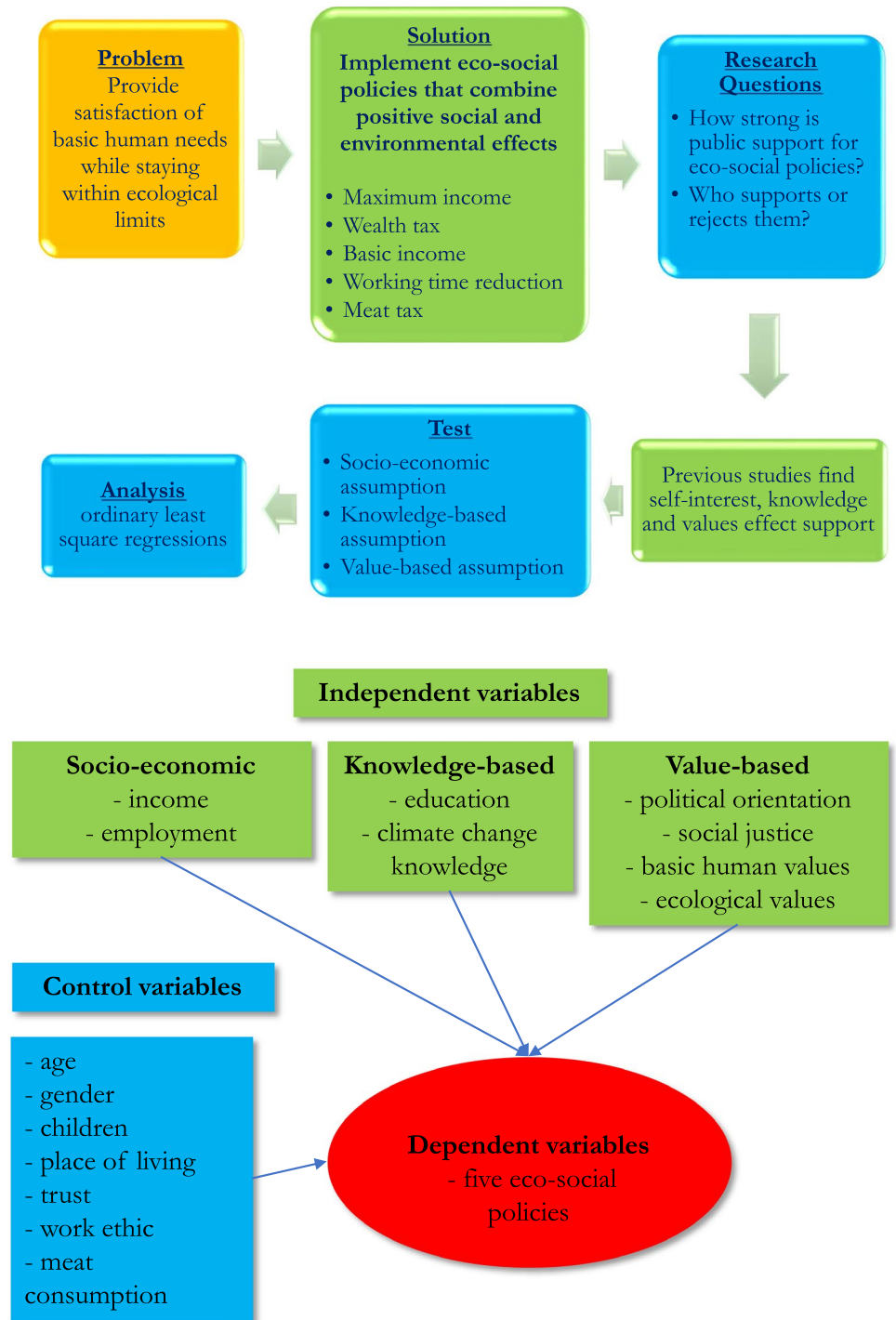
The *socio-economic assumption* draws on theories of self-interest, presupposing that people's support for particular policies relate to the theoretical premise that "people prefer and support policies that provide them with personal benefits now or in future" (Lipsmeyer and Nordstrom 2003: 341). According to such a theoretical assumption, policies focused on economic redistribution, e.g., maximum income, wealth tax and basic income, will be related to income. Lower-income groups will be more positive to these three types of policies, while higher-income groups will be more negative. The same goes for employed individuals compared to 'transfer groups', such as unemployed, pensioners, etc. Regarding work–time reduction, we expect individuals with lower incomes to be less supportive because they may fear a loss of income when working less hours. When it comes to employment versus non-employment for the working time reduction policy, the assumption is less clear. On the one hand, there might be variation within the employment group depending on if individuals work fulltime or not. On the other hand, the working time reduction policy is not really a policy in the interest of different 'transfer groups'. In terms of the meat tax policy, individuals with lower incomes, but also non-employed, are also assumed to express less support for it since the policy would place fiscal responsibility on individuals.

According to the *knowledge-based assumption*, attitudes to environmental policies are influenced by the respondent's knowledge of environmental problems and the intentions of the policies. This can in turn be related to the level of education as a proxy for knowledge. From this, it can be expected that attitudes to a meat tax will be more positive among people with higher education and people with climate change knowledge. We also expect education to have an effect on the support for the other policies, but the direction is unclear. On the one hand, education could increase support for welfare policies via socialization of democratic and universalistic values. On the other hand, it has been shown that lower levels of education are associated with less support for welfare policies, in line with the self-interest assumption above.

The *value-based assumption* suggests that people's values linked to distributive justice, altruistic and biospheric or environmental values and political ideology is a key to explain attitudes and policy preferences. We assume that respondents who support distributive justice and who are oriented toward altruistic values are more positive to maximum income, wealth tax and basic income policies since these are about redistribution and provision of resources for the poor. Also, individuals with stronger environmental values will express support for the meat tax policy. All policies studied in this paper include an element of redistribution in favor of environmental and social protection and we hence assume that respondents that place themselves to the left on the left–right political ideology scale will be more supportive of all five policies.

Fig. 1 Overview of methodology

Data and methods

We used data from a representative survey among the Swedish population in which attitudes toward eco-social policies, general attitudes and values as well as individual background information were included. The survey was conducted within the research project 'The New Urban Challenge? Models of Sustainable Welfare in Swedish Metropolitan Cities' (funded by the Swedish Research Council FORMAS). It was fielded from January to April 2020. The sample consisted of four subsamples each containing 1,250 persons from one of the three biggest Swedish cities (Stockholm, Gothenburg and Malmo) as well as a fourth subsample drawn from all other municipalities in Sweden. Participants were invited via postal letters and could choose between filling-in the questionnaire as paper-and-pencil survey and sending it back

or by scanning a QR code and filling-in an identical online questionnaire. 54% opted for the former and 46% for the latter alternative. The overall response rate was 31%, that is, 1,529 out of 5,000.

To test our assumptions about attitudes toward eco-social policies, we applied ordinary least square regression analyses (OLS regressions). Regression model diagnostics were performed by checking for multicollinearity, influential cases, linearity, homoscedasticity, and normal distribution of residuals. No severe violations were found (details can be received upon request). A majority of variables included in the models had missing cases—ranging from 31 missing cases in the New Ecological Paradigm (NEP) variable to 299 missing cases in the political ideology variable (incl. 'do not know' and 'do not want to answer'). To deal with these missing values we used multiple imputation (Rubin 1996). Per each missing case, 20 imputations were performed. To adjust for the disproportionate stratified sampling design and allow for statistical generalizations from the sample to the Swedish population at large, a post-stratification design weight was used in the statistical analyses. We ran five models, one for each of the five eco-social policies as dependent variables. The wording of the five Likert-scaled items measuring the attitudes is as follows:

(1) What do you think of the following welfare policy proposals? (Very good, Quite good, Neither good or bad, Quite bad, Very bad):

- Introduce a cap on income from employment, where gross wages of over, for example, 1,500,000 SEK (equals about 150,000 EUR) would be taxed at 100%.
- Reintroduce a wealth tax, which means that assets (e.g., bank accounts, property, shares, etc.) would be taxed above a certain threshold.
- Introduce a so-called basic income for all citizens, regardless if one is working or not, and without requirement to work in return.
- Introduce a working time reduction with two hours per day, which means that the total working day would be six hours instead of eight.

(2) What do you think of the following environmental policy proposals to combat climate change? (Very good, Quite good, Neither good or bad, Quite bad, Very bad):

- A tax on meat.

The items refer to rather complex policy proposals. Formulations of such policy proposals are always problematic and difficult to evaluate for respondents in quantitative surveys as there are in practice different variants for each

policy and attitudes toward them are sensitive in relation to how they are framed (see e.g., Sides 2016; Fatemi and Hasseldine 2019). There is no immediate solution to this; in dedicated studies vignettes covering the most important framings could be used, but could not be included here due to lack of space in the questionnaire. We tried to find a pragmatic compromise between, on the one hand, having a more general statement which avoids any too obvious framings and, on the other hand, an adaptation to the Swedish context to make statements more concrete. The items were also subject to pretesting in a pilot study, where some participants asked for more specific details while others wanted them to be even more simplified, for instance for residents with limited language skills in Swedish. We improved some of the formulations after the pilot study with the intention of making them clearer.

Independent variables are (1) personal income and employment status to test the socio-economic assumption. Personal income was measured as a continuous variable, where the respondents measured their monthly income. Employment status was measured as a categorical variable, and transformed into a dummy variable where non-employed (e.g., pensioners, students) were assigned a 0 and employed were assigned a 1.

(2) To test the knowledge-based assumption educational attainment and climate change knowledge were used. Educational attainment was measured as a categorical variable ranging from no education at all to university and doctoral studies. A dummy variable was created where respondents with lower or no education were coded as 0 and respondents with university studies were coded as 1. Climate change knowledge was measured through the following three items: burning oil produces CO_2; the global CO_2 concentration in the atmosphere has increased during the past 250 years; climate change is mainly caused by human activities (see Shi et al. 2016 for even more items measuring different types of climate change knowledge). An additive index was created (Cronbach's alpha = 0.653).

(3) The value-based assumption was tested through political ideology, attitudes toward social justice and redistribution, altruistic basic human values from the Schwartz value inventory, as measured by Bouman et al. (2018, also see Schwartz et al. 2017), as well as ecological values from the NEP Scale (Dunlap et al. 2000). Political ideology was measured by self-placement on a 5-point political left–right scale, ranging from very much to the left to very much to the right, plus two alternatives for 'do not know' and 'do not want to answer'. Four items measured attitudes toward social justice and redistribution on a 5-point Likert scale—for a society to be fair, differences in people's standard of living should be small; large differences in people's incomes are acceptable to properly reward differences in talents and efforts; the government should take measures to reduce

differences in income levels; and the government should redistribute income from the better off to those who are less well off—which were combined into an additive index (Cronbach's alpha = 0.869). The altruistic basic human values consisted of five items and were measured on a 7-point scale (1 = not like me, 7 = very much like me). The items—all of them beginning with "It is important to her/him…": that every person has equal opportunities; to take care of those who are worse off; that every person is treated justly; that there is no war or conflict; to be helpful to others—were combined into an additive index (Cronbach's alpha = 0.841). Lastly, the NEP scale consisted of five items and were measured on a 5-point Likert scale. An additive index was constructed from the following items: the so-called "ecological crisis" facing humankind has been greatly exaggerated; if things continue on their present course, we will soon experience a major ecological catastrophe; the balance of nature is very delicate and easily upset; the earth is like a spaceship with limited room and resources; humans are severely abusing the environment (Cronbach's alpha = 0.818).
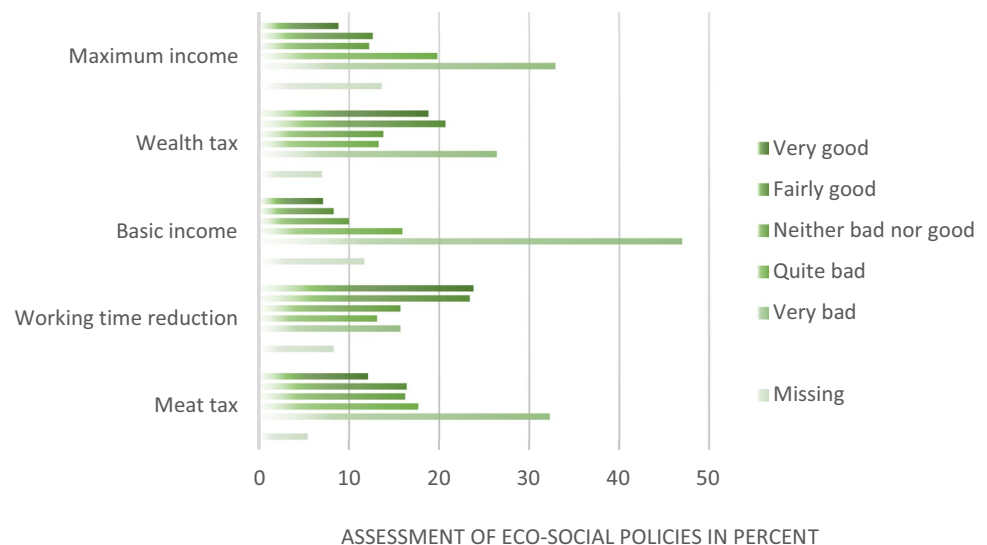
We also included a range of control variables to control for other effects: age, gender, households with children, place of living (urban/rural) and institutional trust (for government, parliament, municipality, political parties, labor unions, EU, UN). Since the attitudes toward work time reduction and basic income may be strongly affected by a general disposition of work and achievement, we included another item from the Schwartz values inventory measuring the importance of working hard and being ambitious for respondents. Finally, as support for a meat tax will strongly depend on a person's own meat consumption we also included this as a control variable.

Results

We first present the descriptive results for support and rejection of the five eco-social policies. Subsequently we discuss in detail the outcomes of the five OLS regression models. Figure 2 illustrates how many people support or reject the five eco-social policies. Shown are the weighted relative frequencies so that conclusions can be drawn from the representative sample to the population in Sweden.

The most popular eco-social policy is working time reduction, with nearly 50% of the respondents assessing it as 'very good' or 'good' compared to about 30% not supporting it. The proposal of (re-)introducing a wealth tax receives about equal proportions of support and non-support: around 40% of the respondents support this idea and an equal share of respondents expresses less or no support. The respondents are thus rather divided in their opinions regarding these two policies. The three other policies—a cap on maximum income, a meat tax and a basic income—are, in general, met with more skepticism rather than support. For the maximum income policy about 25% of the respondents evaluate it as 'good' or 'very good'. However, more than 50% of the respondents reject this policy. The proposal for a basic income policy, independent from work, gains the least support with only 15% of the respondents evaluating it as a good or very good policy suggestion, compared to more than 60% who think it is a quite bad or a very bad policy suggestion. Regarding both the basic income and the maximum income policies the share of missing valid answers (e.g., don't know, refused or just skipped) lies between 10 and 15% which is relatively high compared to the other policies. A plausible interpretation is that respondents find it more difficult to

Fig. 2 Attitudes to five eco-social policies, weighted data, Sweden 2020 (*n* = 1529)

ASSESSMENT OF ECO-SOCIAL POLICIES IN PERCENT

evaluate these two policy proposals. If the policy proposals would have been designed and formulated in another way such as making more concrete statements about the amount of the basic income, respondents might have found it easier to position themselves. However, it is unclear whether this would lead to higher or lower support. Finally, a possible meat tax is also not very popular in Sweden. Only about 30% of the respondents support it while rejection of the policy is very high with one out of three respondents judging it as a very bad policy and another 18% seeing a meat tax as a 'quite bad' policy.

The regression analyses yielded varying amounts of explained variance, i.e., how much of the differences in responses toward the five eco-social policy proposals can be attributed to the factors we included in the model (see Table 2). It ranges from 26% for the maximum income to 52% for the meat tax.

Regarding the effects of the socio-economic factors on eco-social policies, both personal income and employment are significantly associated with support for the maximum income, the wealth tax and the working time reduction policies. The negative associations between personal income and the three policies indicate that individuals with lower income levels tend to be more in favor of these policies. This result was in line with the assumption regarding maximum income and the wealth tax, which also showed the strongest effect of personal income. It was not in line with the assumption regarding working time reduction, however. When it comes to employment, the positive association indicates that individuals being employed, compared to individuals not being employed (e.g., pensioners, students) are more supportive of the maximum income, the wealth tax and the working time reduction policies. Among the three policies, the employment variable has the strongest effect on the working time reduction policy. Neither personal income nor employment play a role for the basic income or the meat tax policies, which was a bit surprising.

The effects of the knowledge-based factors present a very clear picture regarding the meat tax policy, in line with the assumption: university education and climate change knowledge both significantly increase support for a meat tax policy. When it comes to the four other policies, the

Table 2 Multiple linear regression on the five eco-social policies

	Maximum income cap	Wealth tax	Basic income	Working time reduction	Meat tax
Socio-economic assumption					
Personal income	−0.12 (0.03)**	−0.16 (0.03)***	−0.00 (0.03)	−0.07 (0.03)*	0.01 (0.03)
Employed (ref. not employed)	0.11 (0.03)**	0.11 (0.03)***	−0.03 (0.03)	0.18 (0.03)***	0.04 (0.03)
Knowledge-based assumption					
University degree (ref. no university degree)	−0.05 (0.03)	−0.02 (0.03)	0.05 (0.03)	−0.04 (0.03)	0.11 (0.03)***
Climate change knowledge	−0.02 (0.04)	−0.05 (0.03)	−0.06 (0.03)‡	−0.07 (0.03)‡	0.13 (0.03)***
Value-based assumption					
Left–right self-placement	−0.12 (0.04)**	−0.33 (0.04)***	−0.25 (0.04)***	−0.23 (0.04)***	−0.15 (0.03)***
Social justice/redistribution	0.38 (0.04)***	0.30 (0.03)***	0.27 (0.03)***	0.19 (0.04)***	0.04 (0.03)
Human basic values (altruistic)	−0.04 (0.03)	0.02 (0.03)	−0.03 (0.03)	0.04 (0.03)	−0.07 (0.03)**
Ecological values (NEP index)	−0.09 (0.03)**	0.05 (0.03)‡	−0.03 (0.03)	0.05 (0.03)	0.15 (0.03)***
Control variables					
Age	0.02 (0.03)	0.01 (0.03)	−0.15 (0.03)***	−0.15 (0.03)***	−0.05 (0.03)*
Women (ref. men)	0.08 (0.03)*	0.02 (0.03)	−0.04 (0.02)	0.14 (0.03)***	0.10 (0.02)***
Households with children under 18 years (ref. no children)	−0.06 (0.03)‡	−0.00 (0.03)	−0.00 (0.03)	0.03 (0.03)	−0.03 (0.02)
Living in a city (ref. rural, towns and suburbs)	−0.07 (0.03)**	−0.08 (0.02)**	0.07 (0.02)**	−0.04 (0.03)	0.04 (0.02)‡
Institutional trust	0.04 (0.03)	0.02 (0.03)	−0.03 (0.03)	−0.01 (0.03)	0.08 (0.02)**
Important to work hard and be ambitious	−0.02 (0.03)	0.02 (0.03)	−0.16 (0.03)***	−0.15 (0.03)***	−0.08 (0.03)**
Meat consumption (ref. would not give up eating meat)					
Have stopped/would stop eating meat	–	–	–	–	0.36 (0.02)***
Constant	0.03 (0.03)	−0.01 (0.02)	−0.02 (0.02)	−0.02 (0.02)	−0.03 (0.02)
Adjusted R^2	0.26	0.40	0.30	0.33	0.52

Note: n in all models = 1524. Standardized coefficients are presented. Standard errors in parantheses. ***$p < 0.001$, ** $p < 0.01$, *$p < 0.05$, ‡$p < 0.10$

knowledge-based factors tend not to be associated with these (only at the 10% significance level for the climate change knowledge factor versus the basic income policy and the working time reduction policy, which should be interpreted with caution).

Among the value-based factors, the left–right self-placement factor followed by the redistributive justice factor have the strongest effects on the five policies. The negative association between left–right self-placement and the five policies indicates that individuals placing themselves to the left on the left–right scale are more supportive of all five policies. The effect of left–right self-placement is strongest for the wealth tax policy. The social justice factor is positively associated with all policies except the meat tax. The positive associations indicate that individuals who support social and redistributive justice tend to be more in favor of these policies. These findings are in line with the value-based assumption.

Basic human values and ecological values (NEP) mostly do not have strong effects on the policies. The altruistic human basic value factor is negatively associated with the meat tax policy indicating the seemingly contradictory fact that altruistic persons reject a meat tax while less altruistic persons are more likely to support it. The ecological value (NEP) factor is clearly and positively associated with the meat tax. In line with the outlined assumption, it indicates that individuals with strong ecological values also are in favor of the meat tax. In contrast, individuals with stronger ecological values tend to reject the maximum income policy.

Regarding the control variables, younger individuals and women report stronger support for the working time reduction policy. Younger age is associated with support of the basic income policy, and women tend to be in favor of the meat tax policy. Urban residency is significantly and negatively associated with the maximum income and the wealth tax policies but positively associated with the basic income policy. Institutional trust was only significantly and positively associated with the meat tax policy. The 'important to work hard and be ambitious' value is negatively associated with the basic income, the working time reduction and the meat tax policies, which indicates that individuals who think it is important to work hard and be ambitious are in general more reluctant toward supporting these policies. Meat consumption naturally has a strong effect on the meat tax. Having children or not has no effect on any of the five policy proposals.

Discussion

Our study has investigated popular support for five eco-social policies in Sweden which together address the intertwined challenges of maintaining an ecological ceiling while providing a social floor. Three of the policies are aimed at maintaining the ecological ceiling either by limiting the wealth of the rich (wealth tax, maximum income) or by limiting high carbon consumption (meat tax). Of these the wealth tax gains rather high support, from around 40%, although just as many reject the policy. The wealth tax is well known in a Swedish context and was in place until as late as 2007, and it is currently discussed in terms of being reintroduced by political parties on the left (the Social democrats, the Left party). Maximum income on the other hand is supported by only 20% of respondents. This is however maybe not such a low number considering that the policy goes further than the wealth tax in taxing the rich, is not at all on the policy agenda, and has not been tried in actual settings. The meat tax receives support of close to 30%, which is slightly higher than in previous attitude studies (e.g., Grimsrud et al. 2019). Coercive policies (taxes, regulations) that target personal habits are generally seen as intrusive and are difficult to find acceptance for (Drews and van den Bergh 2015), which means that the necessity of the policy has to be perceived as strong. With increased awareness of the role of lifestyle choices in climate change (in this case meat consumption), policies that regulate carbon intensive habits might however receive stronger support.

The two other policies, working time reduction and basic income, address the social floor in different ways. Of these, working time reduction receives the highest support of close to 50% of the respondents, while 30% are skeptic. Working time reduction has been tried locally in Sweden and is high on the agenda for some political parties (the Green party, the Left party) so it is a fairly well-known policy. The universal basic income receives low support (18%), which is in line with previous studies where support in Scandinavian countries is low while support is much higher in Europe as a whole and particularly in countries in Eastern Europe (Roosma and van Oorschot 2019). Possible explanations for this are that there is a strong work ethic in Scandinavian countries and that there are already comprehensive welfare systems in place which people are reluctant to replace with something new (ibid.).

When it comes to the article's assumptions, three main results can be distinguished. First, left–right political orientation comes out as a significant determinant for all five policies where people to the left are more positive to the policies that target an ecological ceiling and a social floor. Thus, it seems that support for the eco-social paradigm is closely attached to a more left-wing political ideology. This could have important implications since broad support may be more difficult to achieve if the eco-social paradigm is mainly identified along the traditional political scale. For some of the policies, such as a wealth tax and maximum income, this result is not surprising since they have a clear distributive profile. Regarding basic income, the left–right

dichotomy is not as self-evident since the aspects of freedom and individual choice have been highlighted also from a liberal perspective (see Van Parjis and Vanderborght 2017). The leftist orientation in terms of the meat tax is in line with previous research on environmental policies primarily targeting the ecological ceiling (Drews and van den Bergh 2015).

Second, socio-economic factors, such as income and employment, are of medium importance, significant only for three out of the five policies, i.e., wealth tax, maximum income and reducing working time (cf. Breznau 2010; Sivonen and Koivula 2020). We can conclude that the self-interest theory holds in terms of income for the three eco-social policies. The positive associations between employment and the wealth tax and the maximum income policies contradict the self-interest theory, however. Interestingly, working time reduction was the policy most strongly associated with employment, which could be seen as an aspiration to greater work–family/life balance. Future research would benefit from a more fine-grained employment variable to capture potential variation between full-, part-time and even self-employed individuals. In general, our results indicate that the self-interest theory merits greater attendance in future studies regarding eco-social policies.

Third, knowledge-based factors such as level of education and knowledge of climate change come out as having importance only for the meat tax while being insignificant for the other policies. A plausible explanation is that the meat tax was the policy with clearest environmental characteristics. It is a scientific fact that reducing meat consumption and production will lower greenhouse gas emissions, thus people can educate themselves about it and know these facts (cf. Fairbrother et al. 2019; Sivonen and Koivula 2020). The other policies are more about redistributing resources and thus less a matter of knowledge and rather subject to conflicts of interest.

To conclude, the results indicate that self-placement to the left on the left–right scale is associated with all five policies, and thus with providing a social floor and protecting the ecological ceiling. Socio-economic and knowledge-based factors seem to follow the more classical welfare and environmental policy divide rather than responding to the conjoint focus on providing a social floor and respecting the ecological ceiling.

It is possible that the perception of the policies has had an effect on the results. The respondents may have interpreted the policies as *either* welfare policies *or* environmental policies and have not acknowledged their eco-social potential. The significance of factors for the different policies seem to support this interpretation. Socio-economic factors were more often associated with the policies with clearer redistributive profiles, e.g., the wealth tax and maximum income policies. The general orientation toward social justice and

redistribution has a highly significant effect on the attitudes toward the four eco-social policies framed as welfare policies, while they are unrelated to the meat tax. This indicates that there is a clear and consistent link between general social positions and more concrete attitudes toward specific policies (Fritz et al. 2021). The same pattern appears for ecological values, but also the knowledge-based factors, which affect the attitude toward a meat tax but are mostly unrelated to the other four policies. Further research could therefore explore whether the support differs if policies are framed more explicitly as eco-social policies, targeting both social welfare and environmental goals. Our findings might however reflect the framing of the survey questions. While it is not possible to determine in what way this has biased the results, future research can explore this further by including more details about eco-social policy proposals, for instance through vignette studies.

Conclusion

This article investigates public support for five types of eco-social policies, which currently exist as policy ideas with very little real-life implementation. Our analysis shows that classic and widely used analytical models—socio-economic, knowledge- and value-based models—still have significance, yet that socio-economic and knowledge-based models tend to have most significance for policies that could be understood as being either social or environmental, while value-based models have significance across potentially perceived policy divides and hence to a greater extent explain support for policies targeting an ecological ceiling *and* a social floor. This might however be due to the phrasing of some of the questions, or that these belong to different sectors and hence fall short of the silo-logic that has shaped modern societies, rather than being seen as solutions to a common problem. Or they can be understood as rather radical policy proposals, which create divides along the political ideology spectrum. The significance of values across policy divides anyhow reflects that support for policies targeting an ecological ceiling and a social floor depends on people's beliefs.

While there is a basis of support for the policies, particularly working time reduction and wealth tax, the public however does not appear to be ready yet for the type of solutions that social-ecological transformations most likely require. If, as Buch-Hansen (2018) argues, broad popular consent is a necessary criterion for a social–ecological transformation, this constitutes an important challenge for policy-makers. This is of key significance, especially as the study has been conducted in a context known as being relatively pro-welfare and pro-environment. Here the notion of 'feedback effects' could be worth taking into account, which indicates that once policies have been implemented they tend to influence

the public and generate further support compared to policies not being implemented (Svallfors 2010).

Finally to stimulate further debate, we propose a set of strategies for policy-makers to consider for attracting wider support among the general public. The first strategy is 'wait and see' as the limited support for most policies is actually not so small considering that these are provoking policies and largely ideas, rather than actual policy suggestions. The logic of a tipping point in public opinion tipping point logic could support such a strategy, as a small cohort of committed believers can cause a shift in opinion. A second strategy is to take this as a 'step-by-step process' and build on what Hirvilammi (2020) calls a 'new virtuous policy cycle of sustainable welfare'. Instead of launching many reforms at the same time, people need to adjust to eco-social policies. By introducing policies one by one, people could build acceptance of a new type of policies most likely needed in the near future. A third strategy is 'transforming the issue' from being about welfare or the environment, to include elements of both. This could include activities that seek to build support not only through people's values and what is seen as just, yet also through what they know (knowledge-based models) and what they think they gain (self-interest models). This might raise awareness and knowledge on the linkages between welfare and environmental efforts, or convince the general public that reforms that at first sight may not provide them with personal benefits, actually will do so in future or for future generations. A final strategy is to 'find common denominators' among diverse social groups. While people leaning to the left are generally supportive of eco-social policies as investigated in this article, people leaning to the right tend to be in favor of more technical solutions that allow them to keep their wealth. To broaden the electoral basis for eco-social policies, policy packages are needed that include elements of both to form compromises acceptable to a majority of citizens.

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