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Mainstreaming sustainable consumption through regulation: Public acceptance of new meat reduction policies☆

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ABSTRACT

Reducing meat consumption is crucial for addressing environmental and health challenges; however, implementing effective policies requires public support. This study investigates psychological and political determinants of public acceptance of four proposed meat reduction policies in Finland—two price-based and two availability-based measures—developed from expert recommendations. Using a representative sample of Finnish adults ($N = 1999$), we applied structural equation modeling to examine how perceived policy fairness, effectiveness, and intrusiveness mediate the influence of environmental risk perception and political trust on policy acceptance. Acceptance rates ranged from 25 % for the prohibition of discount sales to 35 % for taxing the most environmentally harmful meat products. Of the proximal predictors, perceived fairness had the strongest association with acceptance across all policies. Perceived effectiveness and intrusiveness had smaller associations. Environmental risk perception showed a large indirect effect on acceptance. Political trust had a moderate indirect effect on acceptance, primarily through perceived fairness. These findings suggest that future communication strategies might benefit most from emphasizing policy fairness. Interventions targeting distal predictors may aim to raise environmental risk awareness, although this strategy must be pursued carefully to avoid fear-based disengagement. This cross-sectional work opens exciting avenues for future research using experimental or longitudinal designs.

1. Introduction

Reducing animal-based food consumption is critical for both environmental and health reasons (Blomhoff et al., 2023; Willett et al., 2019). Indeed, it is environmentally crucial to preserve biodiversity by decreasing the land required for growing livestock feed (Machovina et al., 2015). Reducing meat consumption is also essential in solving the climate crisis (Feigin et al., 2025) and preserving freshwater resources (Mekonnen and Hoekstra, 2012). Health-wise, excessive red meat consumption has direct adverse health consequences, increasing the risks of developing colorectal cancer, type-2 diabetes, and coronary heart disease (Blomhoff et al., 2023).

The per capita consumption of unprocessed red meat increased globally by 88.1 % from 1990 to 2018 (Miller et al., 2022), highlighting the urgent need to address meat consumption globally. Most previous studies have focused on strategies aimed at changing individual behavior, such as raising awareness and influencing emotions (Kwasny et al., 2022). Measures like nudging have been observed to lead to short-term changes in certain contexts, but their long-term effectiveness remains uncertain (Siipi and Koi, 2022). Recent research suggests that strategies based on voluntary actions alone are insufficient to meet the dietary shifts required by the 2030 Agenda for Sustainable Development (Delley et al., 2024). Given the substantial environmental impact of

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Nomenclature

Abbreviations

AIC	Akaike Information Criterion
CFI	Comparative Fit Index
CR	Composite Reliability
RMSEA	Root Mean Square Error of Approximation
R^2	Coefficient of determination
SD	Standard deviation
SE	Standard error
SEM	Structural Equation Modeling
SRMR	Standardized Root Mean Square Residual
TLI	Tucker–Lewis Index
z	z-score

Variables

Acceptance_i	Respondent's self-reported acceptance of each meat reduction policy i (i = 1 to 4), measured on a 7-point scale
β (beta)	Standardized regression coefficient from SEM analysis
bd_risk_i	Items measuring biodiversity risk perception, measured on a 7-point scale
cc_risk_i	Items measuring climate change risk perception, measured on a 7-point scale
Effectiveness_i	Perceived effectiveness of each meat reduction policy i (i = 1 to 4), measured on a 7-point scale
Environmental risk perception	Latent construct measured with 6 items (3 biodiversity loss, 3 climate change)
Fairness_i	Perceived fairness of each meat reduction policy i (i = 1 to 4), measured on a 7-point scale
Intrusiveness_i	Perceived intrusiveness of each meat reduction policy i (i = 1 to 4), measured on a 7-point scale
Meat consumption	Binary variable: 1 = omnivore, 0 = pescatarian, vegetarian, or vegan
Political trust	Latent construct measuring trust in political decision makers
trust_i	Items measuring political trust, measured on a 5-point scale

meat production, particularly on biodiversity (Benton et al., 2021), more stringent meat reduction policies are necessary.

However, a change in nutrition policy requires political determination and, usually, support from the public (Cullerton et al., 2016). Understanding the acceptance of meat reduction policies is crucial for policymakers, as proposing unpopular policies may lead to unintended consequences. For example, an initiative to introduce a meat tax in the Netherlands has reportedly caused a backlash in online forums (Michielsen and Van Der Horst, 2022). Price increases from measures like a meat tax could affect low-income groups unfairly unless the policy is designed carefully (Klenert et al., 2023). Meat also occupies a fundamental role in Western cuisine and culture (Chiles and Fitzgerald, 2018). Therefore, the acceptance of stringent meat reduction policies needs to be investigated to avoid potential backlash.

We examined the public acceptance of four proposed meat reduction policies: two focused on pricing and two on limiting availability. These policies have not yet been implemented in Finland, although Denmark recently announced plans to introduce a CO_2 tax on livestock emissions starting in 2030—becoming the first country in the world to do so (Denmark's Radio, 2024). The selected policies were informed by recent academic literature and expert recommendations (e.g., Richter et al., 2023; Röös et al., 2021).

Our aim was to explore how environmental risk perception and political trust affect policy acceptance among Finnish adults aged 18–75. We examined both direct effects and indirect pathways through perceived effectiveness, fairness, and intrusiveness. In doing so, the study contributes to understanding how sustainable consumption, particularly meat reduction, can be promoted through socially acceptable and politically feasible policies.

This contribution is threefold:

1. We test the relative importance of two distal determinants—environmental risk perception and political trust—in shaping policy acceptance.
2. We investigate the role of perceived effectiveness, fairness, and the relatively underexplored dimension of intrusiveness as proximal determinants of policy acceptance.
3. We compare four concrete, impact-oriented meat reduction policies using data from a large, representative sample of the Finnish population.

Although the present study was conducted in Finland, we believe the findings have broader relevance for other high-income countries seeking to advance sustainable consumption through policies aligned with public values.

2. Literature review

2.1. Policy measures for sustainable consumption

Reductions in environmental impacts in recent years have primarily resulted from changes in production rather than consumption in the European economy (European Environment Agency, 2013). Nevertheless, household consumption plays a crucial role in altering consumption patterns and reducing environmental and health impacts, although relatively few policies target private consumption (Ahvenharju, 2021). Policy measures range from soft to hard. Soft sustainability measures—such as information provision, eco-labeling, and nudging—aim to improve the efficiency of various consumption modes. The majority of previous studies investigating sustainable food consumption have focused on these soft measures (Ammann et al., 2023). In contrast, hard measures seek to change consumption patterns and reduce consumption through taxes, product restrictions, and legislation (Ejelöv et al., 2022; Pham et al., 2024). These measures require broad public acceptance to ensure successful implementation.

The present study, accordingly, focuses on hard sustainable consumption policy measures. Unlike interventions that rely on individual agency, the policies examined here represent systemic levers for shifting consumption patterns on a large scale.

2.2. Finnish consumers and meat reduction

Finland provides a unique and relevant context for studying public acceptance of meat reduction policies. Societal and cultural factors strongly shape Finnish attitudes toward meat consumption and sustainability. Environmental concern is widespread: according to the Nature Barometer 2025, 91 % of Finns report being worried about the state of nature globally, and 80 % view halting biodiversity loss as an urgent priority (Finnish Ministry of Environment, 2025). These figures reflect broader Nordic trends of strong environmental awareness, particularly regarding climate change and biodiversity degradation. Another defining feature of Finland is its relatively high level of political trust compared to other European countries. Bäck et al. (2024), for example, describe Finland as a high-trust society, especially in terms of institutional trust in political decision makers. Such trust is crucial for shaping public acceptance of governmental interventions, including

environmental and food policies.

At the same time, meat is deeply embedded in Finnish food culture, with many traditional dishes centering on it as a staple ingredient (Mäkelä and Rautavirta, 2018). Recent dietary analyses indicate that 93 % of Finnish men and 60 % of women exceed the recommended intake of red and processed meat (Erkkola et al., 2024). The persistence of high meat consumption underscores the cultural significance of meat and highlights the challenges for advancing reduction policies.

2.3. Determinants of policy acceptance for meat reduction

Research has identified several evaluative attributes that strongly shape policy acceptance. In this paper, we refer to three of them—fairness, effectiveness, and intrusiveness—as proximal predictors of policy acceptance. In related strands of literature, particularly on climate and environmental policy, similar constructs are described as policy-specific beliefs, reflecting the public's evaluative judgments about specific policy measures and their perceived implications (see Ejelöv et al., 2025a; Harring and Jagers, 2025).

Studies consistently show that perceived *effectiveness* of a policy significantly determines its acceptance across food (e.g., Bos et al., 2015), health (e.g., Petrescu et al., 2016), and environmental policies (e.g., Thaller et al., 2023). Bali et al. (2019) argue that the primary goal of any policy is its success in achieving intended outcomes. Therefore, it is reasonable to expect that perceptions of a policy's effectiveness will influence its acceptance.

Perceived *fairness* is another key predictor of policy acceptance (e.g., Bergquist et al., 2022; Thaller et al., 2023; Jagers et al., 2024). As Montada (2003) notes, fairness and justice are widely regarded as fundamental social norms. Hence, we expect that the perception of fairness positively influences the acceptance of meat reduction policies.

Perceived *intrusiveness*, although studied less frequently, is generally associated with lower acceptance (e.g., Diepeveen et al., 2013; Huber et al., 2020; Eriksson et al., 2006). Related to intrusiveness, lower acceptance has also been associated with infringement of autonomy (Ejelöv et al., 2025a) and limits to personal freedom or choice (Larsson et al., 2020). Regarding meat reduction policies specifically, Ammann et al. (2025) found that Swiss respondents expressed the least support for the most intrusive policies. A similar pattern was observed in the UK by Pechey et al. (2022), showing higher acceptance of labels (48 %) and media campaigns (45 %) compared to more intrusive measures such as reducing availability (40 %) or raising prices (27 %). Intrusiveness seems to reduce policy acceptance because it directly constrains everyday choices (Fesenfeld, 2022).

Recent work by Ejelöv et al. (2025a) demonstrates that public arguments for and against a meat tax—particularly regarding fairness, effectiveness, and autonomy—closely mirror the PSBs commonly used in policy acceptance research. These findings suggest that such beliefs are not abstract constructs but grounded in concrete, widely shared arguments in public discourse. This underscores the relevance of examining perceived fairness, effectiveness, and intrusiveness as key predictors of policy acceptance.

Based on this, we hypothesize:

H1. The acceptance of a meat reduction policy is positively associated with perception of its effectiveness (H1a) and fairness (H1b), and negatively associated with perception of its intrusiveness (H1c).

The question then arises: what factors influence whether policies are perceived as fair, effective, and less intrusive, and therefore more acceptable? We focus on two factors shown to independently foster support for regulations in general (e.g., Lalot et al., 2022, 2023) and for specific policies in particular: risk perception and political trust. We propose that risk perception and political trust may act as distal predictors of policy acceptance, while fairness, effectiveness, and intrusiveness function as proximal predictors, allowing us to test whether the effects of trust and risk operate through these mediating pathways. By clarifying how such perceptions shape public acceptance, the study contributes to the broader goal of mainstreaming sustainable consumption through socially responsive policy design.

Although we expect the effects of environmental risk perception and political trust to be primarily mediated by perceived effectiveness, fairness, and intrusiveness, we also examine their potential direct effects. This enables us to assess whether mediation is partial or full, and to explore the possibility of additional mechanisms.

2.4. Environmental risk perception and opinions about meat reduction policies

It is uncontroversial to expect that people are more willing to accept change in their own behavior as well as social norms and rules when they perceive the current situation as posing a serious risk. In this study, risk perception refers to how people view the dangers associated with pollution, environmental changes, and technological developments that may negatively affect nature and humanity (Böhm and Tanner, 2018). Previous research consistently shows that environmental risk perception positively influences support for environmental policies. For example, DeBono et al. (2012) found that perceived health and well-being risks from climate change were strongly linked to climate policy support. Similarly, De Groeve and Bleys (2017) reported that higher environmental concern predicted student support for meat reduction initiatives in university restaurants.

Previous studies in related fields also indicate that fairness and effectiveness may mediate the effect of risk perception on policy acceptance. Fujii et al. (2004) found that environmental concern increased perceptions of policy fairness, possibly by prompting participants to emphasize the collective benefits of road pricing, which in turn boosted acceptance. Similarly, Bamberg and Rölle (2003) identified policy effectiveness as a mediator between problem awareness and acceptance of road pricing. In the Nordic-Baltic context, Stancu et al. (2023) found that individuals with high environmental concern were more likely to associate climate change prevention and biodiversity protection with food sustainability than those with low environmental concern. Therefore, we expect those with heightened environmental risk perception to be more aware of the environmental harms associated with meat production and, hence, view the meat reduction policies as more effective in protecting nature.

The present study thus examines environmental risk perception as an antecedent of meat reduction policy acceptance. Meat consumption entails multiple consequences and can relate to different types of risk. To capture a generalizable predictor, we adopt a broad measure of perceived environmental risk, covering *biodiversity loss and climate change,* rather than a specific risk *tied to meat consumption.* This approach aligns with studies, such as those by Pechey et al. (2022), which found that the perceived importance of environmental protection predicts the acceptance of meat reduction policies in the UK.

We thus anticipate individuals with stronger perceptions of environmental risks to be more supportive of meat reduction policies. Furthermore, those with high environmental concern may be more likely to emphasize the positive impacts of an environmental policy (Fujii et al., 2004). Given the existential threat posed by the climate and biodiversity crises (Ripple et al., 2024), we expect that heightened risk perception will be associated with perceiving meat reduction policies as more effective in protecting nature, fairer, and less intrusive than those with lower concern.

Based on these findings, we propose the following hypotheses:

H2. Environmental risk perception is positively associated with perceptions of meat reduction policy effectiveness (H2a) and fairness (H2b) and negatively associated with the perception of policy intrusiveness (H2c).

H3. Environmental risk perception is positively associated with the acceptance of meat reduction policies, and this effect is mediated

through effectiveness, fairness, and intrusiveness.

2.5. Political trust and opinions about meat reduction policies

Political trust refers to the belief that government acts in the best interest of its citizens (Levi and Stoker, 2000). It is a strong predictor of support for different forms of governmental measures and interventions (Tyler, 2001), especially in the absence of self-motivated interest (Rudolph and Evans, 2005). Higher levels of political trust have been linked to greater acceptance of various governmental policies, including health (Gunarathne et al., 2020), climate (Hammar and Jagers, 2006), and environmental taxation (Harring and Jagers, 2013). Similar associations have been reported in the context of sustainable transport (Kim et al., 2013), public recycling (Bruno et al., 2022), and broader environmental interventions (Konisky et al., 2008). Importantly, political trust has also been tied to higher acceptance of meat reduction policies (Pechey et al., 2022; Ejelöv et al., 2025b). Conversely, a mixed-method systematic review and meta-analysis by Eykelenboom et al. (2019) shows that public mistrust in government reduces the acceptance of food policies, such as taxes on sugar-sweetened beverages.

Research further suggests that this association may be indirect, mediated by perceived fairness, infringement on freedom, and perceived effectiveness (See, e.g., Kim et al., 2013; Schmöcker et al., 2012). A plausible explanation is that those who trust the government assume its proposals are both fair and effective, and may also perceive restrictive measures as less intrusive. Building on this reasoning, we propose the following hypotheses:

H4. Political trust is positively associated with perceptions of meat reduction policy effectiveness (H4a) and fairness (H4b) and negatively associated with perception of policy intrusiveness (H4c).

H5. Political trust is positively associated with the acceptance of meat reduction policies, and this effect is mediated through effectiveness, fairness, and intrusiveness.

In line with our pre-registration, we examined residual direct effects of environmental risk perception and political trust to assess whether mediation was partial or full. These tests were pre-registered but are reported as secondary analyses in this manuscript to reflect their limited theoretical role. Fig. 1 illustrates the study's conceptual model. In the model, the arrows with plus (+) signs represent hypothesized positive associations, and the arrows with minus (−) signs represent negative associations.

3. Methodology

3.1. Survey data

The survey data comprised a representative sample of the Finnish population aged 18 to 75 ($N = 1999$). Quotas were used for gender (50 % men and 50 % women), age (18–20, 21–30, 31–40, 41–50, 51–60, 61–70, and 71–75-years), and region (NUTS 2 (European Union's Nomenclature of territorial units for statistics) level (Statistics Finland, 2024). In the official statistics, the options include only men and women, whereas in our study, non-binary alternatives were allowed (*other 0.9 %*

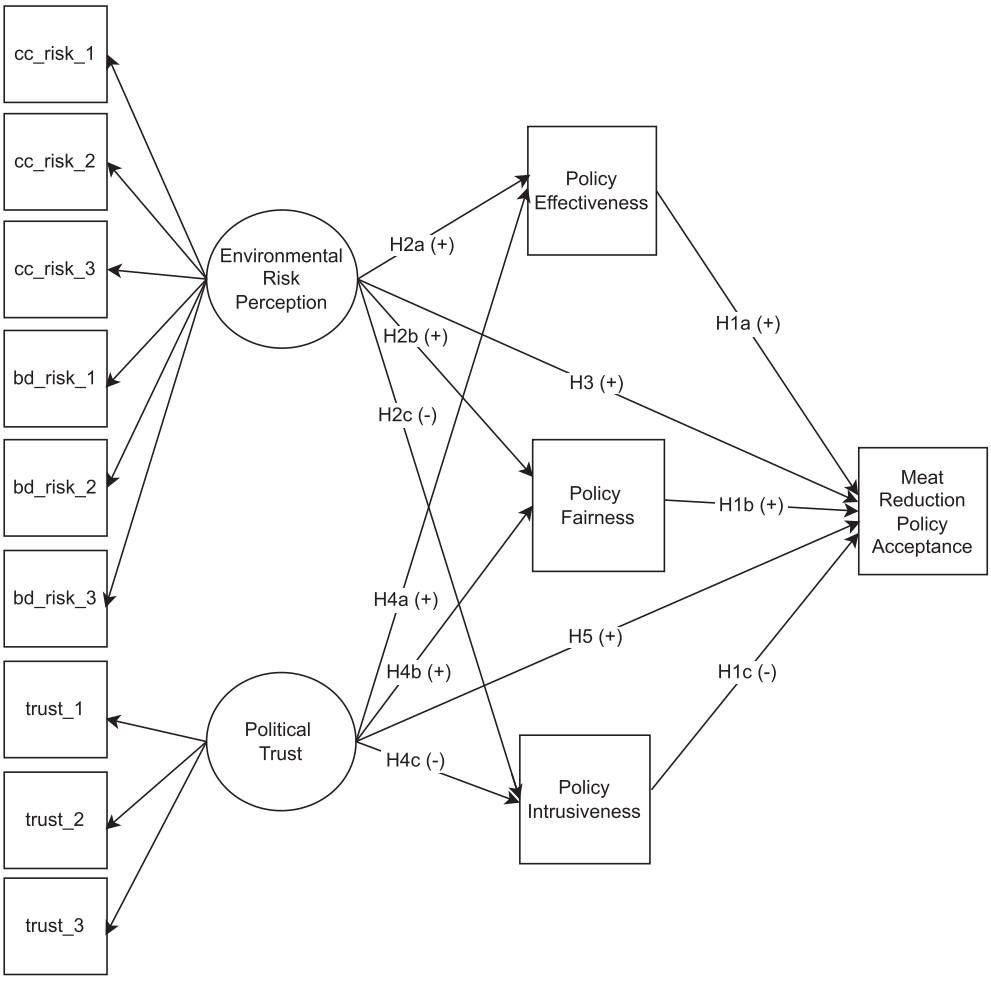

Fig. 1. A hypothesized structural model describing how environmental risk perception and political trust affect the acceptance of meat reduction policy directly and indirectly via perceived policy effectiveness, fairness, and intrusiveness.

/ I do not want to specify 0.3 %). The age group of 61–70 years was slightly overrepresented (19.7 % of the respondents), with 2.4 % more respondents than in the general population (Statistics Finland, 2025).

Feasibility constraints and available funding determined the sample size. A power analysis (2 latent variables, 13 observed variables) indicated that this sample size would give us 0.90 power to detect effects as small as $\beta = 0.08$ at a probability level of 0.05 (Soper, 2024).

The survey was conducted using online questionnaires by an independent polling firm, Innolink. The study design, measurement, hypotheses, and analysis plan were pre-registered: https://aspredicted.org/4YR_K4G. While the number of hypotheses tested may appear extensive, they were pre-registered before data collection to ensure transparency and avoid selective reporting. Some hypotheses replicate well-established effects, while others explore less studied pathways, such as perceived intrusiveness and its mediating role. As noted in the pre-registration, the questionnaire also included other measures (circa 100 items) that pertain to different research questions and are, thus, irrelevant to the present paper. The average time to fill the survey was 10.5 min. According to Innolink, the panel platform used includes several panels that reward respondents in different ways. Some participants received a small monetary compensation, while others collected points for their responses, which could then be redeemed for gift cards to specific stores. The questionnaire had a quality control question that eliminated respondents who did not select the right month ($n = 29$, who are not included in the 1999 responses).

The research was conducted in compliance with the Declaration of Helsinki and ethical considerations for research with human participants. Each participant provided consent before taking part in the study. Data management complied with the General Data Protection Regulation (GDPR) standards (Innolink, 2024).

3.2. Measures

We assessed environmental risk perception using a bi-factor structure comprising three items related to climate change and three items related to biodiversity loss, as pre-registered. A bi-factor model defines one primary dimension of interest on which all items load and secondary dimensions (or subdomains) on which subsets of items load (Gibbons, 2014). The bi-factor model is useful when testing a model where one assumes the existence of a single underlying construct but where the classical method may identify two factors because of higher intercorrelations between subsets of items. It thus provides a comprehensive and generalizable measure of environmental risk perception, aligning with our aim to identify broad psychological predictors of policy acceptance. In this we follow the procedure recommended by Lalot et al. (2025), who formally validated this 6-item measure of general environmental risk.

The items were originally adapted from van der Linden's (2014) perceived risk of climate change scale. The six items measured: (1) perceived likelihood of personal harm, (2) perceived seriousness of the threat to the country, and (3) level of concern—each assessed separately for climate change and biodiversity loss. Responses were recorded on a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree).

Three items were adapted from Devine et al. (2020) to assess *political trust*. We selected the three items with highest loadings on the factor of trust in Devine's research and adapted them so they refer to 'political decision makers' rather than 'government' to reflect trust in Finland's entire governing body rather than the current government, accounting for recent changes in the country's government and political aims: "*The political decision makers have good intentions*," "*The political decision makers understand the needs of my community*," and "*In general, the political decision makers usually do the right thing*" (5-point Likert scale, 1 = *strongly disagree* to 5 = *strongly agree*).

Participants were asked to evaluate four hard meat reduction policies designed to directly influence consumption. These policies were developed for this study and are not currently implemented in Finland or elsewhere. The policies were presented as follows:

1) Meat products that are most harmful to the environment will be heavily taxed (Richter et al., 2023; Röös et al., 2021),
2) Discount sales of meat products will be prohibited (does not apply to red-labeled waste discount products) (Richter et al., 2023),
3) Shelf space for meat products in stores will be limited (Richter et al., 2023),
4) The consumption of meat products will be limited to no more than half of the current consumption (current consumption is approximately 80 kg/person/year (Röös et al., 2021).

The limited shelf-space policy is conceptualized as a public policy intervention. Although implemented through regulations on private retailers, it is not intended as a voluntary or company-driven initiative. Instead, it represents a systemic approach to reshaping food environments through government action, in line with other availability-based public health policies.

The participants rated the following policy aspects on a 7-point Likert scale (1 = *very low*, 7 = *very high*):

- Acceptance: How well do these actions align with your views and values?
- Effectiveness: How effective do you consider these actions in terms of protecting nature?
- Fairness: How fair do you consider these actions from both your perspective and that of others?
- Intrusiveness: How disruptive do you find these actions in your everyday life?

For descriptive purposes, responses of 5–7 on the 7-point Likert scale were classified as indicating acceptance of a policy. Although this threshold is somewhat arbitrary, it was chosen to reflect moderate to high agreement. A stricter cut-off (e.g., 6–7) could also be defended, but we opted for 5–7 to capture a broader range of supportive responses.

Demographic variables were also measured, including age, gender, education, income, and personal diet. Diet was assessed with the following options: (1) omnivore, (2) pescatarian, (3) vegetarian, and (4) vegan.

3.3. Statistical analysis

Descriptive analyses were conducted using IBM Statistics software version 29. Structural equation modeling (SEM) was performed using Mplus version 8.10. The following model fit criteria were used: Root Mean Square Error of Approximation (RMSEA) below 0.07, Standardized Root Mean Square Residual (SRMR) below 0.08, Comparative Fit Index (CFI) above 0.95, Tucker–Lewis Index (TLI) above 0.95 and for Akaike Information Criterion (AIC) the lowest value in comparative measurement models (MacCallum et al., 1996; Steiger, 2007). In line with our pre-registered analysis plan, observations with missing data on key variables were excluded ($n = 4$), and no imputations were made. This approach ensured consistency with our commitment to analyzing only complete questionnaires. Maximum Likelihood was used as the estimation method for SEM. Following recommendations (Yzerbyt et al., 2018), we first ran a joint-significance test to examine the component paths, then relied on a bootstrap resampling method to examine the magnitude of the indirect effect (percentile bootstrap confidence intervals). The differences in participant characteristics between omnivores and non-meat eaters were assessed using the Kruskal-Wallis test and the Fisher-Freeman-Halton test, depending on the distribution of the data.

3.4. Model development

The model was developed to test the hypotheses stated above,

namely, effectiveness, fairness, and intrusiveness as proximal predictors of policy acceptance and environmental risk perception, and political trust as distal predictors. Each policy was assessed in a separate statistical model. Since meat consumption has been found to correlate with lower acceptance of meat reduction policies (Graça et al., 2020; Kmeťková et al., 2025), we included meat consumption in the model as a binary control variable (1 = omnivore, 0 = pescatarian, vegetarian, or vegan). Furthermore, we allowed the three dimensions to covary since previous work on proximal predictors of policy acceptance has found perceived effectiveness, fairness, and non-intrusiveness to be intercorrelated (Huber et al., 2020; Thaller et al., 2023).

In line with our pre-registration, we tested the conceptual model using SEM to examine both total and mediated effects of environmental risk perception and political trust on policy acceptance. To determine whether mediation was partial or full, residual direct effects were included in the models. We report these tests as secondary analyses to maintain transparency while reflecting their limited theoretical importance.

Our decision to conduct separate analyses on each policy necessarily increased the number of repeated tests, which may increase type I error. In addition, the large sample size opened the possibility of a Lindley's paradox (according to which, in studies with very high statistical power, *p*-values lower than the alpha threshold can be more likely when the null hypothesis is true; Maier and Lakens, 2022). We did not preregister any adjustment of the alpha threshold. However, to ensure the robustness of our findings, we also consider an alternative, more conservative alpha of 0.0125 (i.e., 0.05 / 4 since each hypothesis is tested four times, once for each policy; see Rubin, 2021).

4. Results

4.1. Respondent profile

Table 1 presents the respondent profile. The participants' median age was 47 years; 46 % were male, 53 % were female, and 1 % responded "other". Over half of the respondents had secondary education, and 38 % had higher-level education. Most respondents were omnivores (88 %), while 12 % were non-meat eaters. Omnivores were significantly more likely to be men, older, and to have lower levels of education and political trust. Omnivores were also less likely to accept meat reduction policies and viewed them as less effective and fair but more intrusive than non-meat eaters ($p < 0.001$).

4.2. Acceptance rates

The acceptance rates of the four meat reduction policies ranged between 25 % and 35 % (Fig. 2). The most acceptable meat reduction policy was taxing the most environmentally harmful meat products heavily, while the least acceptable policy was prohibiting discount sales of meat products. The share of those who did not accept the policies ranged between 44 % and 53 %, depending on the policy. The number of neutral respondents varied notably between 20 % and 24 %, depending on the policy.

4.3. Structural equation modeling results

We first tested the measurement model for the latent constructs of political trust and environmental risk perception. Both constructs had high composite reliability (CR) values of 0.89 and 0.93 (Ab Hamid et al., 2017) (Table A1 of the Electronic Supplementary Material). The Average Variance Extracted (AVE) scores of 0.73 and 0.69 indicate that the constructs account for approximately 70 % of the variance in the questionnaire items, indicating convergent validity (Hair Jr et al., 2014).

The model fit statistics (CFI = 0.97; TLI = 0.95; RMSEA = 0.10; 90 % CI [0.09, 0.11]; SRMR = 0.03) indicated a good fit to the data (Hu and Bentler, 1998). The RMSEA was slightly above the commonly accepted threshold of 0.07, likely due to model complexity. Indeed, previous research suggests that while RMSEA values below 0.07 generally indicate good fit, values up to 0.10 can still be considered acceptable if the other fit indices are satisfactory (Browne and Cudeck, 1993; Steiger, 2007).

Discriminant validity was assessed by examining the standardized correlations between the latent variables. The correlation between the latent variables was $r = 0.14$, which falls below the commonly accepted threshold ($r < 0.85$). This indicates that the latent variables are

Table 1
Descriptive characteristics of the study participants ($N = 1999$) and perceptions of meat reduction policies between omnivores and non-meat eaters. N varies due to item non-response. Q = Quartile; SD = Standard Deviation; OECD = Organisation for Economic Co-operation and Development.

Variables		All ($N = 1999$)	Omnivores ($n = 1769$)	Non-meat eaters ($n = 230$)	p-value
Mean meat reduction policy acceptance (SD) (scale 1–7)		3.5 (1.7)	3.3 (1.6)	5.1 (1.4)	**<0.001**[a]
Mean meat reduction policy effectiveness (SD) (scale 1–7)		3.8 (1.5)	3.7 (1.5)	4.9 (1.4)	**<0.001**[a]
Mean meat reduction policy fairness (SD) (scale 1–7)		3.4 (1.6)	3.2 (1.5)	5.0 (1.4)	**<0.001**[a]
Mean meat reduction policy intrusiveness (SD) (scale 1–7)		3.9 (1.6)	4.0 (1.6)	3.1 (1.7)	**<0.001**[a]
Median age in years (Q1, Q3)		47 (34,61)	48 (34,62)	42 (29,57)	**<0.001**[a]
Gender (n, %)	Men	925 (46)	858 (49)	67 (29)	**<0.001**[b]
	Women	1049 (53)	892 (51)	154 (68)	
	Other	16 (1)	9 (1)	7 (3)	
Education (n, %)*	Basic	178 (9)	154 (9)	24 (10)	**<0.001**[b]
	Secondary	1066 (53)	981 (55)	85 (37)	
	Higher	753 (38)	633 (36)	120 (52)	
Income (n, %)**	<1000€	171 (9)	154 (9)	17 (8)	0.425[b]
	1000–1999€	441 (22)	390 (22)	52 (23)	
	2000–2999€	598 (30)	518 (30)	80 (35)	
	3000–3999€	346 (17)	313 (18)	33 (14)	
	>4000€	426 (21)	380 (22)	46 (20)	
Political trust (mean (SD)) (scale: 1–5)		2.5 (0.9)	2.4 (0.9)	2.6 (1.0)	**0.025**[a]
Risk perception of biodiversity loss (mean (SD)) (scale: 1–7)		4.3 (1.4)	4.2 (1.4)	5.1 (1.4)	**<0.001**[a]
Risk perception of climate change (mean (SD)) (scale: 1–7)		4.4 (1.6)	4.3 (1.6)	5.2 (1.6)	**<0.001**[a]

[a] = Kruskal-Wallis Test.
[b] = Fisher-Freeman-Halton Test.
* Basic = still in comprehensive school or had completed either primary school or comprehensive school. Secondary = completed either vocational school or courses, high school, matriculation examination, or vocational education at an institute level. Higher = completed a lower or higher polytechnic degree or a lower or higher university degree.
** Household income was adjusted using the square root scale developed by the Organisation for Economic Co-operation and Development (OECD) (OECD, 2013).

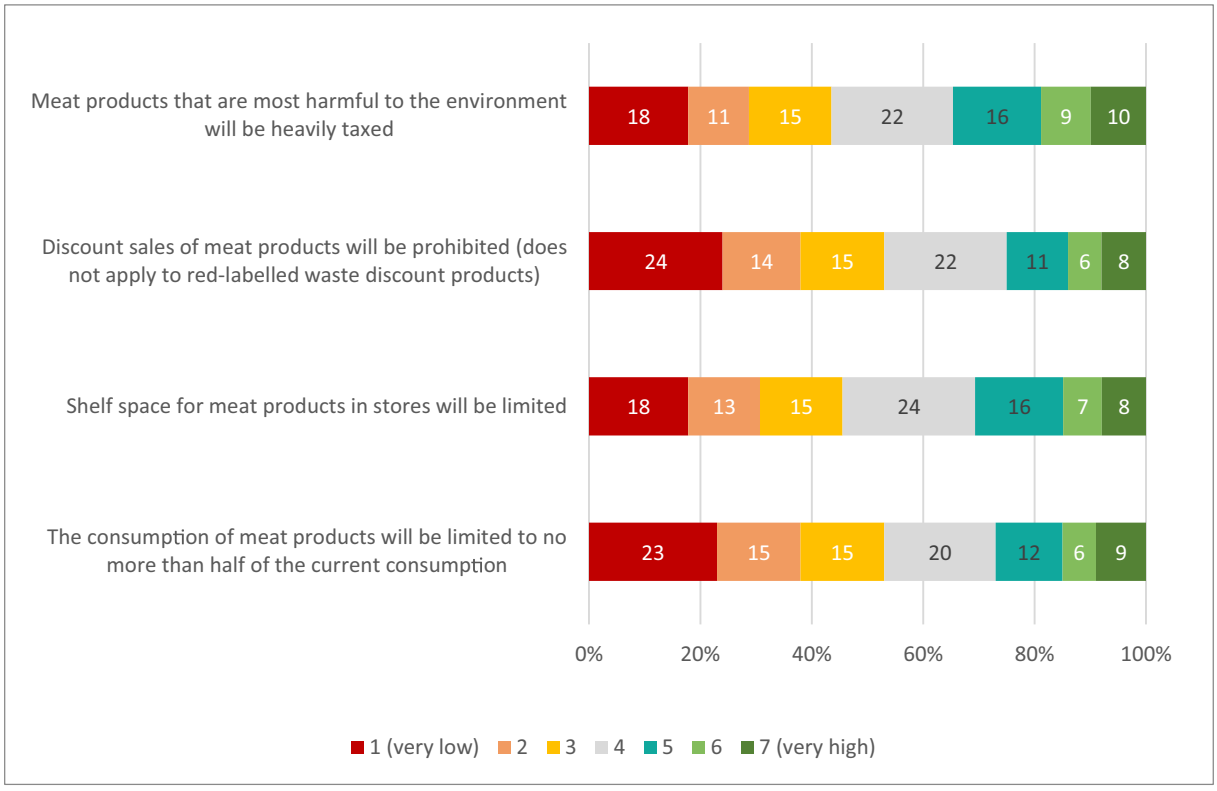

Fig. 2. The acceptance of meat reduction policies among the Finnish adult population aged 18–75 ($N = 1999$).

sufficiently distinct and that discriminant validity is at an acceptable level (Fornell and Larcker, 1981). Additionally, all factor loadings exceeded 0.70, confirming that all questionnaire items effectively contribute to measuring the underlying constructs.

All pre-registered hypotheses were tested using SEM (including both the measurement and regression models) after determining the measurement model's validity. The final models explained a substantial share of the variation in acceptance across the four policies ($0.788 < R^2_s < 0.828$), indicating that we have identified important predictors influencing policy acceptance. The final models also explained large-parts of variance in perceived effectiveness ($0.114 < R^2_s < 0.229$), fairness ($0.229 < R^2_s < 0.275$), and intrusiveness ($0.017 < R^2_s < 0.029$).

All associations were statistically significant at alpha levels of 0.001, 0.01, or 0.05, except for the direct residual association between political trust and the acceptance of prohibiting meat discounts ($\beta = 0.022$, $p = 0.062$) and limiting meat consumption by half ($\beta = 0.006$, $p = 0.646$) (Table 2). Highly similar patterns in the determinants of acceptance were observed across the four policies (Table 2). Table A2 of the Electronic Supplementary Material shows the unstandardized coefficients.

First, perceived fairness was by far the strongest predictor of acceptance for all four meat reduction policies ($0.729 < \beta s < 0.784$, $p_s < 0.001$) (see Table 2 and Fig. 3 for a graphical example based on meat tax acceptance). The perceived effectiveness of the policy had a moderate effect on each policy's acceptance ($0.131 < \beta_s < 0.163$, $p_s < 0.001$). Finally, intrusiveness was negatively associated with policy acceptance, though the effect was small ($-0.043 < \beta s < -0.073$, $p_s < 0.001$).

Environmental risk perception showed strong associations with all three evaluative attributes: it had a large positive effect on perceived policy effectiveness ($0.286 < \beta s < 0.453$, $ps < 0.001$) and perceived policy fairness ($0.415 < \beta s < 0.470$, $ps < 0.001$), and it was linked to lower perceived intrusiveness ($-0.143 < \beta s < -0.109$, $ps < 0.001$).

Environmental risk perception also had a large total effect on policy acceptance ($0.412 < \beta_s < 0.484$, $p_s < 0.001$). The indirect effect of environmental risk perception on policy acceptance via fairness was large. In contrast, the effects via perceived effectiveness and intrusiveness were smaller but still significant, as the 95 % bootstrapped confidence interval did not include zero. After controlling for the proximal predictors, the residual direct effect of risk perception on acceptance remained significant but substantially reduced in size ($0.037 < \beta_s < 0.072$, $p_s \leq 0.002$).

Political trust was positively associated with both perceived policy effectiveness ($0.103 < \beta_s < 0.143$, $p_s < 0.001$) and fairness ($0.175 < \beta_s < 0.187$, $p_s < 0.001$). Contrary to our hypothesis, higher political trust was associated with an *increase* in perceived intrusiveness ($0.088 < \beta s < 0.132$, $ps < 0.001$).

Political trust had a moderate total effect on acceptance ($0.162 < \beta_s < 0.182$, $p_s < 0.001$). The indirect effect of political trust on policy acceptance via fairness was large, with smaller but significant effects via perceived effectiveness and intrusiveness. The residual direct effect remained significant for the meat tax ($\beta = 0.031$, $p = 0.005$) and limited shelf space ($\beta = 0.028$, $p = 0.018$), but dropped to non-significance for prohibiting discounts ($\beta = 0.022$, $p = 0.062$) and limiting consumption by half ($\beta = 0.006$, $p = 0.646$). Using the more conservative significance level of 0.0125, the residual effect would be considered non-significant, also for the limited shelf-space policy.

5. Discussion

5.1. Acceptance of meat reduction policies

This research aimed to map and better understand the proximal and distal predictors of the acceptance of different policies aiming at reducing meat consumption in Finland. The acceptance rate for meat reduction policies ranged from 25 % for prohibiting the discount sales of meat products to 35 % for taxing the most environmentally harmful meat products. These relatively low acceptance rates could be explained by the intrusive nature of the policies chosen (Diepeveen et al., 2013; Pechey et al., 2022; Ammann et al., 2025). Cultural and culinary

Table 2
Estimated standardized coefficients, standard errors (SE), z-scores, *p*-values, and results of hypothesis testing for the four meat reduction policies. For the paths, the plus (+) signs in brackets represent a hypothesized positive association, minus (−) negative association. x2 = Chi-squared; df = degrees of freedom; CFI = Comparative Fit Index; TLI = Tucker–Lewis Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Square Residual.

		Meat tax					Discount prohibition				
Hypothesis	Path (name)	Estimated standardized coefficients [95 % CI]	SE	z	P	Hypothesis supported	Estimated standardized coefficients [95 % CI]	SE	z	P	Hypothesis supported
H1a	Effectiveness → Acceptance (+)	0.163 [0.129, 0.200]	0.018	9.156	< 0.001	YES	0.131 [0.091, 0.172]	0.021	6.328	< 0.001	YES
H1b	Fairness → Acceptance (+)	0.758 [0.720, 0.793]	0.019	40.578	< 0.001	YES	0.784 [0.742, 0.822]	0.020	38.432	< 0.001	YES
H1c	Intrusiveness → Acceptance (−)	−0.064 [−0.085, −0.042]	0.011	−5.812	< 0.001	YES	−0.043 [−0.067, −0.020]	0.012	−3.572	< 0.001	YES
H2a	Risk → Effectiveness (+)	0.453 [0.409, 0.496]	0.022	20.689	< 0.001	YES	0.286 [0.237, 0.334]	0.024	11.805	< 0.001	YES
H2b	Risk → Fairness (+)	0.464 [0.424, 0.505]	0.021	22.535	< 0.001	YES	0.415 [0.373, 0.457]	0.021	19.400	< 0.001	YES
H2c	Risk → Intrusiveness (−)	−0.118 [−0.171, −0.063]	0.028	−4.284	< 0.001	YES	−0.113 [−0.164, −0.062]	0.026	−4.276	< 0.001	YES
H3	Risk → Acceptance (+) (total effect)	0.479 [0.439, 0.519]	0.021	23.297	< 0.001	YES	0.412 [0.368, 0.455]	0.022	18.941	< 0.001	YES
	Risk → Eff. → Acceptance*	0.074 [0.057, 0.093]	0.009	–	–	YES	0.037 [0.025, 0.051]	0.007	–	–	YES
	Risk → Fair. → Acceptance*	0.352 [0.317, 0.386]	0.018	–	–	YES	0.326 [0.288, 0.362]	0.019	–	–	YES
	Risk → Intr. → Acceptance*	0.008 [0.004, 0.012]	0.002	–	–	YES	0.005 [0.002, 0.009]	0.002	–	–	YES–
	Risk → Acceptance (+)**	0.046 [0.024, 0.068]	0.011	4.109	< 0.001	YES	0.044 [0.020, 0.069]	0.013	3.530	< 0.001	YES
H4a	Trust → Effectiveness (+)	0.103 [0.057, 0.148]	0.023	4.462	< 0.001	YES	0.143 [0.092, 0.192]	0.025	5.635	< 0.001	YES
H4b	Trust → Fairness (+)	0.180 [0.135, 0.223]	0.022	8.044	< 0.001	YES	0.187 [0.139, 0.234]	0.024	7.812	< 0.001	YES
H4c	Trust → Intrusiveness (−)	0.132 [0.079, 0.184]	0.026	5.022	< 0.001	**NO**	0.107 [0.055, 0.159]	0.027	4.020	< 0.001	**NO**
H5	Trust → Acceptance (+) (total effect)	0.176 [0.131, 0.218]	0.022	7.898	< 0.001	YES	0.182 [0.136, 0.229]	0.024	7.711	< 0.001	YES
	Trust → Eff. → Acceptance*	0.017 [0.009, 0.025]	0.004	–	–	YES	0.019 [0.011, 0.028]	0.004	–	–	YES
	Trust → Fairness → Acceptance*	0.137 [0.102, 0.170]	0.017	–	–	YES	0.146 [0.109, 0.183]	0.019	–	–	YES
	Trust → Intrusiveness → Acceptance*	−0.008 [−0.013, −0.004]	0.002	–	–	YES	−0.005 [−0.009, −0.002]	0.002	–	–	YES
	Trust → Acceptance (+)**	0.031 [0.009, 0.052]	0.011	2.802	0.005	YES	0.022 [−0.001, 0.046]	0.012	1.866	0.062	**NO**
	Meat consumption → Acceptance (−)	−0.023 [−0.045, −0.002]	0.011	−2.164	0.031	YES	−0.026 [−0.049, −0.004]	0.011	−2.250	0.024	YES
		Model fit results: $x^2 = 799.80$; df = 61; CFI = 0.96; TLI = 0.95; RMSEA = 0.08 [90 % CI: 0.07, 0.08]; SRMR = 0.07.					Model fit results: $x^2 = 764.83$; df = 61; CFI = 0.97; TLI = 0.95; RMSEA = 0.08 [90 % CI: 0.07, 0.08]; SRMR = 0.06.				

		Limited shelf-space					Limiting consumption by half				
Hypothesis	Path (name)	Estimated standardized coefficients [95 % CI]	SE	z	P	Hypothesis supported	Estimated standardized coefficients [95 % CI]	SE	z	P	Hypothesis supported
H1a	Effectiveness → Acceptance (+)	0.140 [0.099, 0.182]	0.021	6.69	< 0.001	YES	0.135 [0.100, 0.171]	0.018	7.509	< 0.001	YES
H1b	Fairness → Acceptance (+)	0.729 [0.687, 0.768]	0.021	35.514	< 0.001	YES	0.774 [0.736, 0.811]	0.019	40.464	< 0.001	YES
H1c	Intrusiveness → Acceptance (−)	−0.073 [−0.096, −0.052]	0.011	−6.473	< 0.001	YES	−0.069 [−0.092, −0.045]	0.012	−5.732	< 0.001	YES
H2a	Risk → Effectiveness (+)	0.413 [0.367, 0.457]	0.023	18.049	< 0.001	YES	0.421 [0.376, 0.4363]	0.022	18.807	< 0.001	YES
H2b	Risk → Fairness (+)	0.470 [0.429, 0.509]	0.020	22.984	< 0.001	YES	0.422 [0.378, 0.463]	0.022	19.432	< 0.001	YES
H2c	Risk → Intrusiveness (−)	−0.143 [−0.194, −0.090]	0.027	−5.297	< 0.001	YES	−0.109 [−0.164, −0.057]	0.027	−3.983	< 0.001	YES
H3	Risk → Acceptance (+) (total effect)	0.484 [0.442, 0.522]	0.020	23.644	< 0.001	YES	0.428 [0.384, 0.470]	0.022	19.586	< 0.001	YES
	Risk → Eff. → Acceptance*	0.058 [0.040, 0.077]	0.009	–	–	YES	0.057 [0.041, 0.074]	0.008	–	–	YES
	Risk → Fair. → Acceptance*	0.343 [0.308, 0.376]	0.017	–	–	YES	0.327 [0.290, 0.381]	0.019	–	–	YES
	Risk → Intr. → Acceptance*	0.010 [0.006, 0.016]	0.003	–	–	YES	0.008 [0.003, 0.013]	0.002	–	–	YES
	Risk → Acceptance (+)**	0.072 [0.046, 0.099]	0.013	5.391	< 0.001	YES	0.037 [0.014, 0.061]	0.012	3.027	0.002	YES
H4a	Trust → Effectiveness (+)	0.129 [0.82, 0.175]	0.024	5.473	< 0.001	YES	0.136 [0.091, 0.181]	0.023	5.835	< 0.001	YES
H4b	Trust → Fairness (+)	0.175 [0.132, 0.218]	0.022	7.834	< 0.001	YES	0.186 [0.140, 0.231]	0.024	7.884	< 0.001	YES
H4c	Trust → Intrusiveness (−)	0.113 [0.061, 0.165]	0.027	4.240	< 0.001	**NO**	0.088 [0.037, 0.140]	0.026	3.380	0.001	**NO**
H5	Trust → Acceptance (+) (total effect)	0.166 [0.122, 0.210]	0.022	7.395	< 0.001	YES	0.162 [0.117, 0.207]	0.023	6.972	< 0.001	YES
	Trust → Eff. → Acceptance*	0.018 [0.011, 0.027]	0.004	–	–	YES	0.018 [0.011, 0.027]	0.004	–	–	YES
	Trust → Fairness → Acceptance*	0.128 [0.096, 0.160]	0.016	–	–	YES	0.144 [0.107, 0.181]	0.019	–	–	YES
	Trust → Intrusiveness → Acceptance*	−0.008 [−0.013, −0.004]	0.002	–	–	YES	−0.006 [−0.011, −0.002]	0.002	–	–	YES
	Trust → Acceptance (+)**	0.028 [0.005, 0.052]	0.012	2.356	0.018	YES	0.006 [−0.018, 0.029]	0.012	0.459	0.646	**NO**
	Meat consumption → Acceptance (−)	−0.054 [−0.080, −0.027]	0.014	−3.968	< 0.001	YES	−0.031 [−0.056, −0.007]	0.012	−2.523	0.012	YES
		Model fit results: x2 = 788.68; df = 61; CFI = 0.96; TLI = 0.95; RMSEA = 0.08 [90 % CI: 0.07, 0.08]; SRMR = 0.07.					Model fit results: $x^2 = 766.86$; df = 61; CFI = 0.97; TLI = 0.95; RMSEA = 0.08 [90 % CI: 0.07, 0.08]; SRMR = 0.07.				

* Indirect effect.
** Direct residual effect.

traditions, where meat has long played a central role, are also likely to shape attitudes related to meat reduction (Chiles and Fitzgerald, 2018). Recent dietary analyses show that a substantial majority of Finnish adults, particularly men, exceed the recommended intake of red and processed meat (Erkkola et al., 2024), which may further explain the reluctance to support restrictive measures.

These findings are broadly consistent with international studies. In Norway, Grimsrud et al. (2020) found that 27 % of respondents supported the implementation of a red meat tax, while Khan et al. (2023) reported 30 % support in Sweden. Kmeťková et al. (2025) similarly observed support for a meat tax ranging from 26 % to 33 % in the UK, Portugal, and Spain, with notably lower acceptance in Latvia and the Czech Republic, where opposition to the tax was highest. Furthermore, Pechey et al. (2022) found that 27 % of those living in the UK supported increasing the price of meat, and 40 % supported restricting the availability of meat. However, it is worth noting that their study focused on limiting the share of meat-based meals in public food services (e.g., hospitals). By contrast, the policies restricting the availability of meat in our study, i.e., halving overall meat consumption or restricting shelf space, affect all meat-eaters more directly and on a daily basis. This broader scope likely made them appear more coercive and thus less acceptable (Clayton, 2018).

5.2. The effect of perceived fairness, effectiveness, and intrusiveness on policy acceptance

Perceived fairness emerged as the strongest proximal determinant of meat reduction policy acceptance. This finding is consistent with previous studies in related fields (e.g., Bergquist et al., 2022; Bos et al., 2015; Thaller et al., 2023), which also emphasize the primacy of fairness over policy effectiveness in determining acceptance (noting that others in contrast suggest that effectiveness can outweigh fairness in environmental policy acceptance; see, e.g., Huber et al., 2020).

Perceived policy effectiveness also contributed to policy acceptance, as hypothesized, though to a lesser extent than fairness. In line with our focus on climate and biodiversity, participants evaluated effectiveness in terms of *protecting nature*. Thus, it remains possible that effectiveness would have been a stronger determinant of policy acceptance if participants had been asked to rate other facets of policy effectiveness—for example, its impact on reducing meat intake.

Finally, intrusiveness was negatively associated with acceptance, as we hypothesized. However, the effect was small, suggesting that policy intrusiveness plays only a minor role in policy acceptance once fairness and effectiveness have been taken into account. Similar patterns have been observed in studies on the acceptance of low-carbon mobility policies (Thaller et al., 2023) and aviation policies (Larsson et al., 2020). At this stage, the limited number of studies addressing intrusiveness highlights the need for further research on its role alongside fairness and effectiveness.

5.3. Environmental risk perception and policy acceptance

Environmental risk perception had a significant total effect on policy acceptance, shaping how Finnish adults evaluated meat reduction policies. This aligns with findings from Stancu et al. (2023), who reported that Finns with high environmental concern viewed meat as less sustainable than plant-based alternatives. It may also reflect growing recognition that biodiversity loss poses a serious threat, with 80 % of Finns considering halting biodiversity loss as an urgent priority (Finnish Ministry of Environment, 2025). These results suggest that heightened concern for nature is likely to translate into greater support for pro-environmental policies.

This effect of environmental risk perception on policy acceptance was primarily driven by three indirect pathways, all of which were statistically significant. This result is consistent with previous research. Fujii et al. (2004) found that fairness mediated the relationship between environmental concern and the acceptance of street tolls, while Bamberg and Rölle (2003) found that perceived effectiveness mediated the link between problem awareness and the acceptance of sustainable transport strategies. The direct residual effect of risk perception on policy acceptance was small but remained significant after controlling for effectiveness, fairness, and intrusiveness. Together, these findings suggest that individuals who perceive climate change and biodiversity loss as a serious risk are more likely to emphasize the positive impacts of meat reduction policies, and therefore evaluate them as more effective, fair, and less intrusive than those with lower concern.

5.4. Political trust and policy acceptance

Political trust had a significant total effect on policy acceptance. However, this association did not hold for discount prohibition or limiting meat consumption by half after adjusting for effectiveness, fairness, and intrusiveness. Furthermore, following the more conservative alpha threshold of 0.0125, the association would become non-significant for the policy of halving meat consumption. This suggests that the effect of political trust on the acceptance of these policies is mainly explained by the three proximal predictors: effectiveness, fairness, and intrusiveness. The indirect effect of political trust on policy acceptance was primarily mediated through an increased perception of policy fairness across all policies. This phenomenon has been previously documented by Kim et al. (2013) and Schmöcker et al. (2012) when evaluating these three indirect pathways concurrently. This may reflect the assumption that high-trust individuals expect policymakers to design policies that are fair and do not exacerbate inequality.

A robustness check excluding non-meat-eaters—who are not directly affected by the proposed policies—showed that the residual direct effect of trust on meat tax acceptance dropped to non-significance ($p = 0.065$) (see Table 2 and Table A4 in Electronic Supplementary Materials). Moreover, using the alpha threshold of 0.0125, the residual direct effect of trust on acceptance of limiting shelf-space would also be considered non-significant ($p = 0.038$). This indicates that the earlier effect may have been partly driven by respondents ideologically aligned with meat reduction. Among omnivores, acceptance was fully mediated by fairness, effectiveness, and intrusiveness, reinforcing the view that trust shapes acceptance primarily by influencing policy evaluations. This highlights the value of examining subgroups, such as omnivores, to identify barriers to wider public acceptance.

In a similar vein, Pechey et al. (2022) identified a weak but significant correlation between political trust and higher acceptance of meat reduction policies in the UK. Ejelöv et al. (2025b) likewise found that political trust was positively associated with support for a meat tax in Sweden, with the strongest effects observed for the version of the tax where revenue was earmarked for climate and public health initiatives. The observation that political trust influences policy acceptance is consistent with findings from related research fields (e.g., Harring and Jagers, 2013; Kallbekken and Sælen, 2011; Eykelenboom et al., 2019).

Contrary to our hypothesis, greater political trust was associated with an increased perception of intrusiveness. We can offer a few speculative, post-hoc explanations for this finding. A first possibility is that trust covaries with political ideology, and that what emerges as a negative effect of trust actually reflects a difference between less trusting right-wing respondents and their more trusting left-wing counterparts. Against this contention, however, we only observed a very small correlation between political trust and ideology ($r = 0.11$, $p < 0.001$). In exploratory post-hoc tests, we re-ran the models including political trust as a control variable directly predicting policy acceptance; this left the effect of political trust unaffected. Thus, it seems that the effect of political trust is independent of that of ideology, which is consistent with other research (e.g., Ejelöv et al., 2025b). As a second alternative explanation, we suggest that those with greater political trust also hold higher expectations toward policymakers: they expect them to demonstrate both integrity and competence in the decisions they enact (see

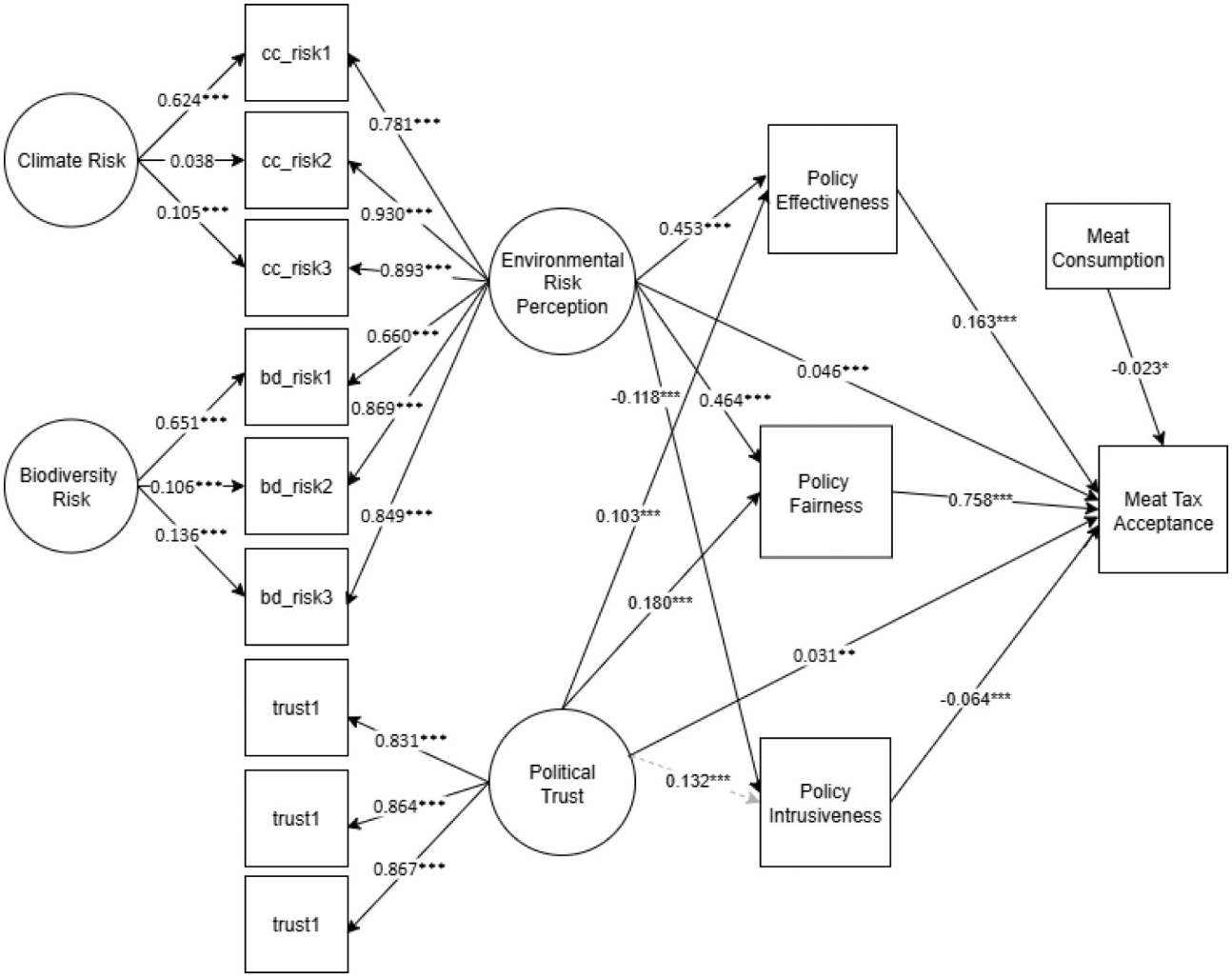

Fig. 3. A graphic example of the final model illustrating how environmental risk perception and political trust influence the acceptance of a meat tax directly and indirectly via perceived policy effectiveness, fairness, and intrusiveness. Solid black arrows represent supported hypotheses, while the single dashed grey arrow represents a rejected hypothesis. The regression lines display estimated standardized coefficients. Circles represent latent constructs, while squares represent measured items. Of note, a separate model was used for each policy. Significance levels: $^{***}p < 0.001$, $^{**}p < 0.0125$, $^{*}p < 0.05$.

Betzler et al., 2025). As such, they might have anticipated less invasive solutions from trusted decision makers and, therefore, judge the proposed (hard) policies as more intrusive, in a contrast-to-expectations effect. Future work will be needed to investigate these possibilities further.

5.5. Distinctiveness of policy-specific beliefs

A recurring concern in public acceptance research is whether policy-specific beliefs—such as perceived fairness, effectiveness, and intrusiveness—reflect distinct evaluations or merely echo general attitudes toward policy interventions. Ejelöv et al. (2025a), for example, argue that these beliefs may offer limited explanatory value, largely mirroring overall policy attitudes.

Our findings challenge this view. In all four policy models, fairness and effectiveness consistently emerged as strong, distinct predictors of policy acceptance. Intrusiveness, by contrast, showed a consistently negative but weaker association with acceptance. This pattern suggests that respondents engaged with the specific dimensions of each policy rather than expressing blanket approval or disapproval. The relatively low correlation between intrusiveness and acceptance, compared to fairness and effectiveness, further supports the idea that these constructs were treated as conceptually distinct.

One potential concern is that participants may have relied on earlier responses when answering subsequent items. However, our item order—effectiveness, acceptance, fairness, intrusiveness—makes forward justification more likely than reverse influence. While face validity was supported by the clarity and relevance of the items, the relatively low correlation between intrusiveness and acceptance provides additional support for the discriminant validity of the measures. Still, future studies using experimental or longitudinal designs could better isolate causal mechanisms and reduce response bias.

Structural equation models further revealed robust mediation pathways from environmental risk perception and political trust through fairness and effectiveness to acceptance. These indirect effects underscore the role of policy-specific beliefs as meaningful intermediaries.

These findings contribute to the ongoing debate about the conceptual distinctiveness of policy-specific beliefs (see Ejelöv et al., 2025a), providing empirical support for their role as differentiated cognitive appraisals rather than mere reflections of general policy attitudes. In sum, policy-specific beliefs meaningfully shape policy acceptance and should be measured and modeled separately when evaluating public support for sustainability policies.

5.6. Strengths and limitations

A key strength of this study is the use of a large nationally representative sample of the Finnish adult population, which enhances the reliability and generalizability of the findings. By examining multiple determinants of policy acceptance, the study offers a broad understanding of the factors influencing support for meat reduction policies. The final models explained a high proportion of the variance ($0.788 < R_s^2 < 0.828$), suggesting that important determinants were successfully identified. The application of SEM enabled the analysis of both direct and indirect effects, while the measurement model showed high internal consistency and composite reliability for the constructs of political trust and environmental risk perception.

Although non-meat-eaters are less directly affected by the proposed policies, their inclusion reflects the full spectrum of societal attitudes. A robustness check excluding non-meat-eaters confirmed that their presence did not substantially bias the results (see Tables A3–A5), while subgroup analyses highlighted mechanisms specific to targeted populations.

Further robustness checks using beef consumption frequency as a control variable yielded largely consistent results, with only minor changes to path estimates (see Tables A6–A7). The only notable difference was that the direct effect of political trust on acceptance of the discount prohibition policy became statistically significant when beef consumption frequency was included in the model. However, this was the sole change observed in hypothesis testing when beef consumption was treated as a confounder. Beef consumption was significantly associated with acceptance only for the shelf-space limitation and discount prohibition policies. In contrast, general meat consumption (i.e., omnivore vs. non-meat-eater) was consistently linked to lower acceptance across all policy types. That said, under the more conservative significance threshold of 0.0125, the effect of general meat consumption would be considered non-significant for the meat taxation and discount prohibition policies. Given the small effect sizes in both cases, the practical significance of these findings is likely limited.

Nonetheless, some limitations must be acknowledged. The first limitation is related to the use of single-item indicators to measure perceived policy acceptance, effectiveness, fairness, and intrusiveness. Perceived fairness, in particular, might have been interpreted in multiple ways, given the multifaceted impacts of meat consumption on the environment, animal welfare, and personal diets and health. While this approach was necessary due to survey length and funding constraints, multi-item scales would have allowed for more nuanced measurement. Still, prior studies (e.g., Jagers et al., 2024) have also relied on single-item measures for conceptually straightforward constructs, and Nagy (2002) notes their suitability for well-defined facets of attitudes.

Second, the brevity of policy descriptions may also have left room for interpretation. For example, the statement on halving meat consumption may have been understood either as a long-term national target or as individual rationing, creating variation in how it was evaluated. Similarly, the statement on taxing environmentally harmful meat did not specify products or tax levels, leaving space for divergent interpretations. These ambiguities complicate direct comparisons of endorsement levels but should not undermine the mechanisms—proximal and distal predictors—examined as the core focus of the study.

Third, our study modeled environmental risk perception using a bifactor structure that includes both climate change and biodiversity loss, reflecting their interconnectedness and links to meat consumption. However, public narratives sometimes diverge from these scientific associations. For example, in Sweden, meat reduction policies have been portrayed as potentially harmful to biodiversity due to the grazing benefits they provide for maintaining open landscapes (Ejelöv et al., 2025a). Moreover, public perceptions of fairness, effectiveness, and intrusiveness are often shaped by concrete arguments circulating in media and political discourse (Ejelöv et al., 2025a). Future research could benefit from incorporating argument-based measures to capture the nuances of public reasoning more effectively and improve the contextual validity of policy acceptance models.

Fourth, while our study focused on environmental risk perception and political trust as distal predictors, other individual-level factors are also likely to influence the acceptance of meat reduction policies. Pechey et al. (2022), for example, identified personal intentions to reduce meat consumption, the perceived importance of environmental care, and beliefs about the health benefits of eating less meat as significant predictors of policy acceptance in the UK. Although such variables were not included in our model, incorporating them in future research could provide a more comprehensive understanding of the psychological drivers of support for meat reduction policies.

Finally, as with all cross-sectional survey designs, the data are correlational and do not allow causal inference. While our figures use arrows to illustrate hypothesized associations, these should not be interpreted as definitive causal pathways. SEM enabled the testing of complex relationships, but it cannot establish causal or temporal precedence.

5.7. Policy implications

The findings offer guidance for policymakers seeking to strengthen public support for meat reduction policies. Perceived fairness emerged as the most important lever of acceptance, reinforcing the broader finding that policy characteristics—especially fairness—strongly shape public support. This highlights the importance of both the design and communication of policies. For example, Klenert et al. (2023) argue that a meat tax can be designed to reduce burdens on low-income groups, thereby being perceived as fairer. Similarly, observations from Sweden suggest that hesitation to regulate diets may be overstated and that better design, framing, and communication could increase public acceptance (Bendz et al., 2023). Therefore, communicating fairness and equality alongside clearly articulating the benefits of policy should be central to formulating meat reduction policies.

Our results further suggest that greater environmental risk perception and political trust would increase policy acceptance. However, raising risk perception is a double-edged sword: if risks are perceived as overwhelming and unmanageable, individuals may disengage or deny the problem instead of supporting solutions (Peters et al., 2013; Witte and Allen, 2000). Enhancing political trust may therefore be a safer route to policy support, though it is challenging given the stagnating or declining trust levels in many countries (e.g., Citrin and Stoker, 2018; Devine and Valgarðsson, 2024). Nonetheless, clear and consistent communication, coupled with conveying competence, motivation, and legitimacy, can help build confidence in government and decision-makers (Rufai and Bunce, 2020), ultimately reinforcing support for public policies.

While the results are likely relevant to other high-income Western countries with high levels of meat consumption, variation in political systems and cultural norms, particularly regarding political trust and personal freedom, may influence how policies are perceived. Caution is therefore needed when generalizing findings beyond Finland. Nonetheless, understanding how fairness and trust shape policy acceptance offers valuable insights for designing policies that are both environmentally effective and socially legitimate—an essential step toward mainstreaming sustainable consumption.

6. Conclusions

This study examined the psychological and political determinants of public acceptance of four proposed meat reduction policies in Finland. Using SEM and a representative sample of Finnish adults, we identified key proximal predictors—perceived fairness, effectiveness, and intrusiveness—as well as distal predictors—environmental risk perception and political trust.

Among these, perceived fairness emerged as the strongest and most

consistent predictor of policy acceptance across all four policies. Perceived effectiveness had a moderate positive association, while intrusiveness was negatively associated with acceptance, albeit with a smaller effect. Environmental risk perception and political trust influenced acceptance primarily through their indirect effects on perceptions of policy fairness and effectiveness.

These findings suggest that aligning policy design with public values—particularly fairness—may enhance support for meat reduction policies. Raising environmental risk awareness may also contribute to greater acceptance, but this approach must be pursued with caution to avoid unintended consequences such as fear-based disengagement. While communicating environmental benefits and fairness may be promising strategies, our study did not test the causal impact of such communication. Future research should investigate whether emphasizing fairness in policy design and raising environmental risk awareness in communication can effectively increase public support.

Although rooted in the Finnish context, the results offer broader insights for other high-income countries with high meat consumption, while acknowledging that political systems and cultural norms may shape how such policies are received elsewhere.

CRediT authorship contribution statement

Esa-Pekka Nykänen: Writing – review & editing, Writing – original draft, Visualization, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Juulia Räikkönen:** Writing – review & editing, Supervision, Resources, Project administration, Methodology, Funding acquisition, Conceptualization. **Antti Honkanen:** Writing – review & editing, Validation, Methodology, Investigation, Formal analysis. **Sanna Ahvenharju:** Writing – review & editing, Resources, Project administration, Methodology, Investigation, Conceptualization. **Fanny Lalot:** Writing – review & editing, Methodology, Investigation, Conceptualization. **Saska Tuomasjukka:** Writing – review & editing, Conceptualization. **Hanna Lagström:** Writing – review & editing, Supervision.

Declaration of Generative AI and AI-assisted technologies in the writing process

During the preparation of this work, the authors used Microsoft Copilot and ChatGPT in order to improve the language and readability. After using these tools, the authors carefully reviewed and edited the content as needed and take full responsibility for the content of the publication.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary data

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