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PAPER

Understanding opposition: arguments for and against a meat tax in Sweden and their effect on policy attitudes

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Abstract
Meat taxes could reduce emissions and improve health but risks facing opposition due to concerns about fairness, effectiveness, and autonomy. While policy-specific beliefs influence attitudes, less is known about how specific arguments in the public discourse shape these beliefs and policy acceptability. This study identifies arguments from media archives and analyzes argument endorsement of Swedish voters ($N = 3233$) and politicians ($N = 1253$). Counter-arguments, particularly financial concerns for farmers and low-income households, are more strongly endorsed than pro-arguments. While voters and politicians show similar agreement, right-wing respondents generally support counter-arguments more than left-wing respondents. To gain broader support, a meat tax should minimize financial burdens, for example, through cost-neutral reforms or subsidies for sustainable farming. The results also indicate that most arguments relate to multiple policy-specific beliefs, suggesting that policy-specific beliefs offer limited guidance on how to improve policy design.

1. Introduction

Red and processed meat adversely impact climate change and health outcomes. Livestock production accounts for 12%–16% of global anthropogenic greenhouse gas emissions (FAO 2023), and processed meat strongly increases colorectal cancer risk (Meinilä and Virtanen 2024). Consumption-side policies, like taxes on red and processed meat, can address both environmental and health outcomes (Springmann *et al* 2017, Broeks *et al* 2020), and targets both domestic and imported meat.

However, climate politics—especially demand-side policies—are sometimes met with protests, often motivated by concerns over fairness (Driscoll 2023) or a lack of perceived effectiveness (Svensson and Wahlström 2023). Reflecting this, Frans Timmermans, former Vice-President of the European Commission, remarked, 'There will be a just transition or there just will be no transition' (Timmermans 2023). But what do people actually mean when they say they want fair and effective environmental policies?

Perceptions of fairness and effectiveness have been identified as the most important determinants of attitudes toward various climate taxes (Bergquist *et al* 2022). These perceptions, alongside the degree to which a policy is expected to infringe upon individual autonomy, are often termed 'policy-specific beliefs' as they describe anticipated outcomes of specific policy designs. However, policy-specific beliefs are often measured in a general way, using items such as 'How fair do you perceive this policy to be?' Consequently, we lack detailed insights into whether these relatively abstract variables mainly capture overall attitudes toward the policy or evaluations of specific outcomes associated with policy implementation (Bendz *et al* 2023, Jagers *et al* 2024).

While research on policy support often measures the influence of these general policy-specific beliefs, other research fields investigate how contextualized arguments for and against different policy measures are portrayed in media, without explicitly connecting these arguments to policy support. It is, however, often

unclear to what extent the overall population agrees with the arguments present in media outlets as well as their relative importance in explaining policy attitudes. In this study, using Sweden as the case, we integrate these perspectives by investigating to what extent the dominating arguments in media are endorsed by both voters and politicians. Additionally, we link these arguments to the acceptability of a tax on red and processed meat to draw conclusions about the concrete reasons why individuals might oppose or favor such a policy.

Lastly, we investigate how these contextualized arguments are related to the three commonly measured policy-specific beliefs, to elucidate the theoretical foundations of policy-specific beliefs. Depending on the governmental configuration of a particular country, policies may be more likely to be enacted if they are not met by strong opposition from either left- or right-wing parties. Investigating the perceptions of left- and right-wing voters and politicians can therefore facilitate more feasible policy design.

2. Background

Research on meat tax acceptability (or, policy support) has investigated the effect of demographic- and individual-level variables (Pechey *et al* 2022, Khan *et al* 2023, Ejelöv *et al* 2025), the influence of revenue use (Grimsrud *et al* 2020, Siegerink *et al* 2024, Ejelöv *et al* 2025) as well as framing (Fesenfeld *et al* 2021, Pechey *et al* 2022, Perino and Schwickert 2023). Findings suggests minor demographic differences, although women, younger individuals, urban residents, and those with higher education tend to be slightly more supportive. Support is also higher among those prioritizing climate change and left-wing individuals. Using tax-revenues to reduce the VAT on fruits and vegetables increases acceptability, while framing effects tend to be limited, though an animal-welfare framing may improve attitudes.

In many Western countries, ideology strongly influences environmental policy support (Drews and Van der Bergh 2016, Rhodes *et al* 2017). As a right-wing orientation often is associated with a preference for limiting state intervention, while a liberal or left-wing ideology often reflects a preference for a redistributive state (Milbrath 1986, Feygina *et al* 2010), people to the left tend to favor state intervention through policy while individuals with a right-wing ideology tend to oppose such measures (Jæger 2008, Franko *et al* 2013, Stiers *et al* 2022). However, ideology may also impact support for environmental policies through level of environmental concern, with left-wing individuals generally having a higher level of environmental concern (Cruz 2017).

2.1. Arguments for and against a meat tax

Research on attitudes toward a meat tax has identified common themes across countries. For example, research on Swedish online forums has shown that some people express concerns about impacts on farmers and low-income households, while others emphasize health and climate benefits (Bendz *et al* 2023). In Norway and the UK, media analyses note concerns that meat taxes overlook the sustainability of domestic production (Farstad *et al* 2021, Simmonds and Vallgårda 2021, van Oort *et al* 2024). In Norway, the debate links meat production to food security, biodiversity, and the preservation of cultural landscapes (Larsson and Vik 2023). In the UK, the debate has also been concerned with environmental aspects, but also aspects related to health, animal welfare, and fairness (Simmonds and Vallgårda 2021). Similar themes appear in US, Australian, and New Zealand media, adding concerns over affordability, individual choice, and cultural traditions alongside health and environmental impacts (Sievert *et al* 2022). Many of the counter-arguments for reduced meat consumption or a meat tax have also been communicated specifically by agents from the meat industry (Clare *et al* 2022, Wood *et al* 2025).

While the influence of contextualized arguments for and against the implementation of a meat tax has not been investigated in previous research, researchers have analyzed how the more abstract constructs policy-specific beliefs are related to acceptability (Jagers *et al* 2024). Clearly, many of the arguments uncovered by the previously described media analyses could theoretically be related to either fairness, effectiveness or infringement on autonomy (such as negative effects on the poor, effects on the environment and public health, and restriction of choice, respectively). The following sections outline the theoretical foundations of perceived fairness, effectiveness and infringement on autonomy, as well as their effects on policy attitudes.

2.2. Fairness

Perceived fairness, more extensively studied than other policy-specific beliefs (e.g. Hammar and Jagers 2007, Maestre-Andrés *et al* 2019, Povitkina *et al* 2021), is often the strongest predictor of climate tax acceptability (Bergquist *et al* 2022). People assess fairness based on personal costs (intrapersonal comparison), differential impacts on groups (interpersonal comparison), or effects on future generations and nature (intergenerational comparison). Interpersonal fairness, also called distributional fairness, as it pertains to how effects are distributed among different societal actors, is judged through principles like equality,

horizontal equity (greater impact on those contributing to the problem), and vertical equity (greater impact on those with fewer resources) (Schuitema *et al* 2011). Perceived fairness also includes procedural aspects, focusing on the transparency and fairness of decision processes (Maestre-Andrés *et al* 2019).

Fairness perceptions in climate policy often focus on personal costs or effects on disadvantaged groups (Maestre-Andrés *et al* 2019). CO_2 pricing is seen as unfair when it disproportionately burdens low-income or rural populations, reflecting a preference for vertical equity (Povitkina *et al* 2021). While fairness has multiple dimensions, distributional effects tend to outweigh procedural concerns (Bergquist 2024).

2.3. Effectiveness

Perceived effectiveness often refers to a policy's ability to achieve its goal (Huber *et al* 2020), such as a meat tax reducing consumption. Communicating effectiveness can increase support by about 4% (Reynolds *et al* 2020).

Perceived effectiveness may be especially important for acceptability when people consider the action necessary (Bechtel and Scheve 2013), indicating that problem awareness creates a demand for effectiveness. Theoretically, the perceived effectiveness of a meat tax in reducing consumption might only relate to policy acceptability for those that perceive meat consumption as contributing to a societal problem. For this reason, some researchers also consider the extent to which people think that meat consumption contributes to societal issues like climate emissions or ill health as facets of perceived effectiveness (Bendz *et al* 2023). Perceived effectiveness is further linked to the perceived fairness of a policy (Huttarsch and Matthies 2024, Isaacsson *et al* 2024), such that people perceive it as unfair to employ coercive measures that are not effective (Bendz *et al* 2023) while implementing unfair policies decreases the perceived effectiveness of a policy (Bergquist 2024).

2.4. Infringement on autonomy

Infringement on autonomy has been shown to negatively affect acceptability (e.g. Poortinga *et al* 2003, Attari *et al* 2009, Schmöcker *et al* 2012, Kim *et al* 2013, Leijten *et al* 2014), although the effect is typically weaker compared to perceived fairness and effectiveness (Jakobsson *et al* 2000, Fujii *et al* 2004, Djupegot and Hansen 2020, Larsson *et al* 2020b, Jagers *et al* 2024). Infringement on autonomy can either relate to perceptions that behavioral or financial costs are unavoidable or reflect a more principled stance against state intervention (Huber *et al* 2020). While most research measures perceived infringement on autonomy as a distinct concept, some categorize financial costs and limits to freedom as dimensions of intrapersonal fairness evaluation (Maestre-Andres *et al* 2019).

Some research suggests that people may prefer policies that incur a higher financial cost but do not affect everyday behavior compared to policies requiring significant behavioral changes (Poortinga *et al* 2003, Steg *et al* 2005), while other research indicates that policies incurring higher financial costs are perceived as more intrusive and less acceptable than regulations that impose behavioral restrictions (Huber *et al* 2020).

2.5. Hypotheses

This study aims to elucidate what the dominating arguments for and against a tax on meat in Swedish media are, how commonly endorsed they are by the Swedish public and politicians, how they relate to the acceptability of such a tax, and how they relate policy-specific beliefs.

Since distributional effects tend to be one of the more prominent and more researched aspects of perceived fairness (Maestre-Andrés *et al* 2019, Bergquist 2024), we hypothesize that:

1. Arguments pertaining to the distributional effects on low-income households and farmers (arguments nr. 1 and 2) are the two arguments most strongly correlated with perceived fairness.

Given hypothesis 1, and since perceived fairness tends to be one of the most important predictors of climate tax support (Bergquist *et al* 2022), we hypothesize that:

2. Arguments pertaining to the distributional effects on low-income households and farmers (arguments nr. 1 and 2) are the two arguments most strongly correlated with acceptability.

Since most research suggests that perceived effectiveness relates to the policy's ability to achieve its goal (Huber *et al* 2020), we hypothesize that:

3. The argument pertaining to the tax being effective in reducing meat consumption (argument nr. 10) will be most strongly correlated with perceived effectiveness.

Since perceptions of infringement on autonomy can stem from a principled opposition to state intervention (Huber *et al* 2020), we hypothesize that:

4. The argument pertaining to how the state should not affect consumer choice other than via information (argument nr. 6) will be most strongly correlated with perceived autonomy.

Given hypothesis 4, and that a right-wing orientation is often associated with a preference for limiting state intervention, (Milbrath 1986, Feygina *et al* 2010), we hypothesize that:

5. Arguments that are strongly associated with perceived infringement on autonomy will be more strongly correlated with acceptability for right-leaning groups compared to left-leaning groups.

3. Method

3.1. Research design and measures

Participants were recruited using the Citizen Panel and Politician Panel managed by the SOM Institute, University of Gothenburg. For the Citizen panel, the survey period was between 31 May and 27 June 2023, during which two reminders were sent out. The survey was distributed to 5500 people from the Citizen Panel, stratified by gender, education, and age to be representative of the Swedish population. A total of 3233 (59%) participants responded. For the Politician Panel, the survey was conducted between 12 June and 30 August 2023. The survey was sent to the full Politician Panel ($N = 3000$), with 1253 (42%) politicians responding. The politician panel consists of politicians at the EU, national, regional, and local level. Out of the 1253 politicians included in the sample, 76% are active at the local level, 19% at the regional level, 4% at the national level, and 0.05% at the EU level. Although both panels broadly reflected the characteristics of their respective populations, the Citizen panel slightly over-represents older people with a higher education, and the politician panel over-represents older people and men (see table 1 for comparison of sample and population characteristics).

In the first step of the survey, participants were presented with the following introductory text on a tax on red and processed meat where the aim of the tax was described as either limiting negative effects on public health, the climate, or both public health and the climate (the results of the framing effect are reported in Ejelöv *et al* 2025): '*The negative consequences of red meat consumption (red meat pertains to meat and charcuterie made from beef, pork and lamb) have been discussed over the last couple of years. To limit the negative consequences on [Public health condition: public health] [Climate condition: the climate] [Public health and climate condition: public health and the climate], one suggestion has been to introduce a tax on red meat. The purpose of raising the price of red meat would be to reduce the consumption of red meat. At the same time, the tax would raise revenues for the state. Imagine a tax that will increase the price of red meat by 20%.*' To assess acceptability, participants were then asked *What is your position toward this proposal*, rated on a 7-point scale ranging from 1—very negative to 7—very positive.

Second, they were asked to rate the three policy-specific beliefs, presented in randomized order.

- Perceived effectiveness was measured as: '*How effective do you believe a tax that results in a 20% price increase on red meat would be?*', rated on 7-point scale with end-points '1—very ineffective' and '7—very effective'.
- Perceived fairness was measured as: '*How fair do you believe a tax that results in a 20% price increase on red meat would be?*', rated on 7-point scale with end-points '1—very unfair' and '7—very fair'.
- Perceived infringement on autonomy was measured as: '*To what extent do you believe a tax that results in a 20% price increase on red meat would affect individual people's freedom?*', rated on 7-point scale with end-points '1—affects freedom to a very small extent' and '7—affects freedom to a very large extent'.

Third, they were asked to provide free-text responses to two questions '*Please describe what you believe are the advantages with introducing a tax that will increase the price on red meat by 20%.*', and '*Please describe what you believe are the disadvantages with introducing a tax that will increase the price on red meat by 20%.*', presented in randomized order.

Finally, they were asked to respond to the 14 contextualized arguments for and against the introduction of a tax on red meat that were the outcome of a media search (see results section), presented in randomized order. Respondents were asked to note that not all of the statements were necessarily factually accurate. Responses to these items were measured as '*To what extent do you agree with the following statements*', on a 7-point scale ranging from 1—completely disagree, 7—completely agree.

The 14 arguments were compiled through a media search in Mediearkivet which covers all major printed and digital media outlets in Sweden. Searching for the term 'meat tax' and limiting the timeframe to

Table 1. Descriptives for the citizen and politician samples, and comparison with Swedish populations.

	Citizen sample (N = 3233)	Swedish citizen population (statistics Sweden, 2023)	Politician sample (N = 1253)		Swedish politician population (statistics Sweden, 2023)
Gender					
Female	48.4%	49.65%	33.4%		43%
Male	51.6%	50.35%	65.8%		57%
Age groups					
Under 30	8.4%	15.17%	2.2%	*18–29 years*	6%
30–39	13.8%	18.39%	6.7%	*30–49 years*	28%
40–49	16.8%	15.98%	14.4%	*50–64 years*	33%
50–59	19.3%	16.51%	20.0%	*+65 years*	33%
60–69	20.9%	13.90%	25.0%		
+70 years	20.8%	20.04%	31.7%		
Education					
Primary education	3.6%	15.91%	3.1%	*Primary education*	3%
Secondary education—less than 3 years	12%	17.6%	6.9%	*Secondary education*	32%
Secondary education—3 years	17.3%	24.63%	9.5%	*Post-secondary education*	64%
Post-secondary education—less than 3 years	33.5%	15.83%	20.3%		
Post-secondary education—more than 3 years	33.7%	26.04%	60.1%		
Rural/urban residence		**Statistics Sweden rural/urban categorization (2019)**			
Large city: central	15.9%	*Major urban municipalities*			33.5%
Large city: outer area/suburb	21.4%	*Dense mixed municipalities*			43.4%
City: central	14.5%	*Sparse mixed municipalities*			6.7%
City: outer area	12.3%	*Urban-adjacent rural municipalities*			9.9%
Larger town	5.8%	*Sparse rural municipalities*			5.7%
Smaller town	16.7%	*Very sparse rural municipalities*			0.8%
Rural area	13.3%				

2019–2022 (the latter being the year of the search) yielded 255 articles. One of the authors conducted an initial coding of all arguments for and against a meat tax present in the articles, resulting in 32 arguments. Four researchers collaboratively reduced these to a final list of 14 unique arguments. Five arguments were omitted due to requiring a more technical understanding of meat production to be able to answer (such as '*A meat tax could reduce the risk of future pandemics caused by the transmission of diseases from animals to humans due to poor animal husbandry, as the number of animals in the system would decrease.*'), five arguments were omitted due to semantic overlap with other arguments (such as '*The calculations of the climate impact from meat production are very rough and misleading.*' Being covered by the argument '*Reduced meat consumption is beneficial for the climate.*'), and 14 arguments were similar enough that they could be combined into 5 arguments (such as the arguments '*The government should not influence what people eat.*' and '*The government should influence people's food consumption through information rather than through taxes and regulations.*' being combined into the argument '*The state should only influence what people eat through information, not through regulations and taxes.*'). The exact wording of the 14 final arguments was then refined in a workshop with researchers and representatives from the food industry and relevant governmental agencies to ensure that the items were clear and easy to understand.

The SOM Institute at the University of Gothenburg provided background information on citizens regarding age, gender, political ideology, party voted for in the latest election, rural/urban residence, education, income, political and general trust, and background information on politicians regarding age, gender, education and party affiliation.

3.2. Statistical analysis

To examine the association between arguments and meat tax acceptability, we conducted hierarchical multiple regressions. In the first step, 14 arguments were entered as independent variables, followed by the policy-specific beliefs in the second step. Similar models tested the effects of arguments on each policy-specific belief, controlling for the other two beliefs in the second step. The hypotheses, and the analyses testing hypotheses were pre-registered and can be found at: https://osf.io/87f5h/?view_only=fcf670ec20624af8b17afb91c361fdc5. Data is openly available at https://doi.org/10.17605/OSF.IO/3F4T2.

Analyses were conducted on the full sample and separately by voter/politician and left-wing/right-wing groups. Left-wing groups included the Green Party, Left Party, and Social Democrats, while right-wing groups included the Moderate Party, Christian Democrats, and Sweden Democrats. The Centre Party and Liberals were excluded. Full regression results are available in the supplementary file, with summaries in tables 3 and 4.

Due to skewness in some argument variables among the right-wing group, regressions with square root and squared transformed variables were also performed. This did not affect the significance or the relative importance of any variables, except for rendering the effect of financial burdens for farmers on perceived fairness non-significant.

3.3. Free-text analysis

Voters were offered the opportunity to provide answers in free-text about the pros and cons of the tax proposal. Free-text responses were collected before introducing specific arguments, in order not to prime ideas. 5361 text-strings were inductively coded by one of the authors, creating 25 categories, and an additional researcher coded 10% of responses using the inductively coded categories to assess reliability. The percentage agreement between coders was 91.4%. The categories where percentage agreement between coders was less than 85% ($n = 5$) were manually investigated again by the main coder to check for potential errors.

4. Results

The results are divided into four subsections, where we present (1) the results of the media analysis and the degree to which the full sample and left- and right-wing groups agree with the arguments, (2) the free-text analysis, (3) the effect of arguments on acceptability, and finally (4) the effect of arguments on each policy-specific belief.

The media search resulted in 14 unique arguments, presented in table 2, and figure 1 below shows to what extent left- and right-wing groups as well as the full sample agree or disagree with the pro- and counter-arguments.

Participants generally tended to agree (i.e. the average was above the mid-point 4 on the 7-point scale) with the counter-arguments that a meat tax would burden farmers and the poor, increase imported meats, decrease self-sufficiency and biodiversity, that the state should not influence consumer choice via taxes, and that a tax would be unnecessary since consumption is already decreasing on a voluntary basis. The only

Table 2. List of all 14 arguments resulting from the media analysis.

Short form	Full argument
Counter-arguments	
1. Burdens farmers	If the price of meat increases, meat farmers will be economically affected.
2. Burdens the poor	If the price of meat increases, low-income earners will be economically affected.
3. Increases imports	With a meat tax, Sweden risks an increase in the consumption of imported meat, which is worse from an environmental perspective.
4. Decreases self-sufficiency	A meat tax could reduce Sweden's meat production, which risks leading to lower self-sufficiency.
5. Decreases biodiversity	A meat tax could reduce Swedish meat production, which risks leading to fewer open landscapes and decreased biodiversity.
6. Excessive state influence	The state should only influence what people eat through information, not through regulations and taxes.
7. Unnecessary measure	Introducing a meat tax is unnecessary because meat consumption is already decreasing without government intervention.
Pro-arguments	
8. Climate benefits	Reduced meat consumption is beneficial for the climate.
9. Health benefits	Reduced meat consumption is good for public health.
10. Reduces consumption	A meat tax would be an effective way to reduce meat consumption.
11. Animal welfare benefits	A high meat consumption causes animal suffering.
12. Sweden as a forerunner	Sweden accounts for a small share of global emissions, but if Sweden introduces a meat tax and it influences other countries to take similar actions, it could have a significant impact.
13. Facilitates sustainable choices	A meat tax would make it easier for consumers to choose healthy and climate-friendly food.
14. Fair pricing	A meat tax is fair because the increased price of meat will better reflect the environmental and public health costs of meat.

Figure 1. Mean agreement (with error bars) with specific arguments for or against a tax on red and processed meat presented for the full sample and for the left-wing and right-wing groups (Scale: 1—*completely disagree*, 7—*completely agree*).
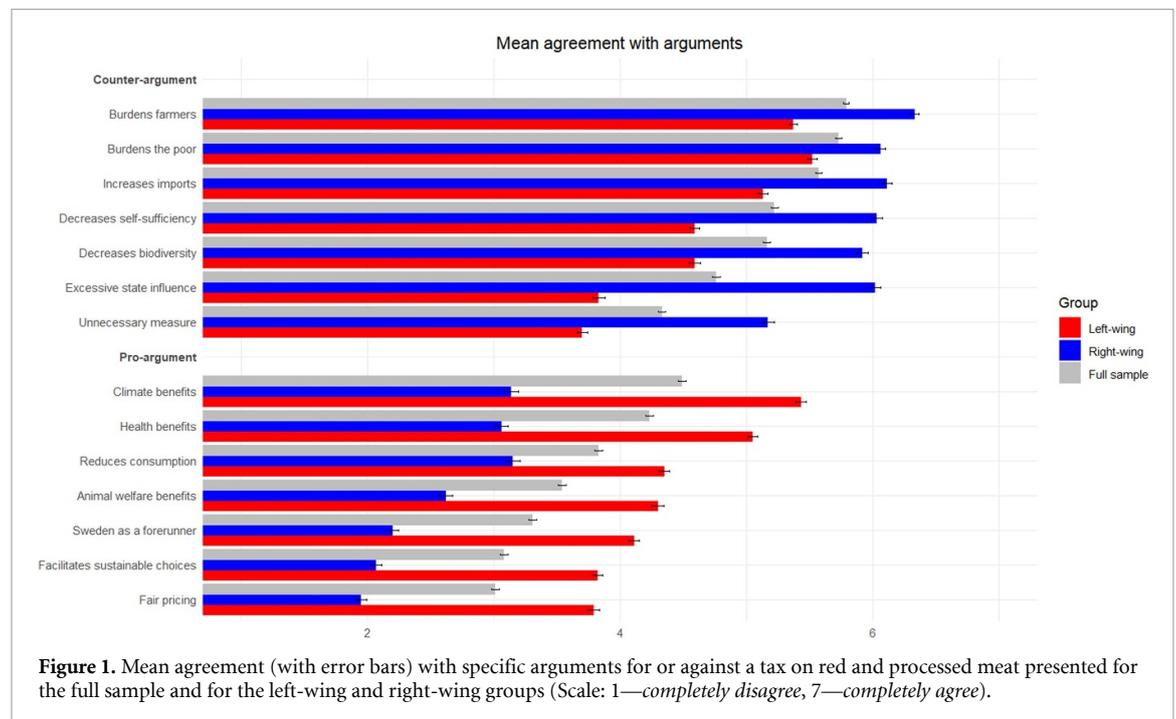
pro-arguments that participants tended to agree with were that reduced meat consumption would have a positive effect on climate and public health.

Participants tended to disagree (below 4 on the 7-point scale) with the statements that the increased price of meat would fairly reflect negative externalities, that the tax would facilitate more sustainable consumption, that it would reduce consumption and influence other countries, and that meat consumption contributes to animal suffering.

While voters and politicians tended to rate the statements similarly, left- and right-wing groups tended to have more diverging opinions (see figure 1 and table S1 in supplementary for descriptives and test of mean differences). Left-wing politicians and voters appeared to have a more neutral view toward the tax, agreeing with most pro- and counter-arguments, while right-wing politicians and voters appeared to have a more negative view, agreeing with all counter-arguments and disagreeing with all pro-arguments for the tax. For example, while the left-wing group agreed that a tax would reduce consumption and have beneficial effects for both the climate, health, and animal welfare, the right-wing group tended to disagree with these arguments.

4.1. Free-text analysis

The analysis of the free-text responses revealed 25 different categories of answers, summarized in table 3. Figure 2 shows how frequently the 25 categories of arguments were mentioned in the total sample.

While the free-text analysis shows that all 14 arguments resulting from the media analysis were present in some form in the free-text responses, it also identified several additional arguments. For example, voters mentioned counter-arguments that the current food/meat prices and current tax rates are already too high ($n = 438$), that a meat tax is the wrong focus and/or that there are other more pressing issues ($n = 110$), that the tax would be met by public resistance which could have negative consequences for climate politics in general and/or lead to polarization ($n = 110$), and that transitioning to a vegetarian diet could be difficult due to a lack of suitable vegetarian alternatives and experience in cooking vegetarian food ($n = 59$). The two most common additional pro-arguments were that the tax would generate revenue that could be used for different beneficial purposes ($n = 184$) and that the tax could have a normative effect ($n = 57$).

Right-wing voters were more likely to mention that the current food/meat prices or current tax pressure are already too high, and that there are more important issues than meat consumption to focus on, while left-wing voters were more likely to mention that the tax could create public resistance and that the tax could have positive normative effects (see table S2 in supplementary material).

4.2. The acceptability of a meat tax and hypothesis testing of H2

To test the effects of the arguments on acceptability, we ran multiple regressions for the full sample and split by the voter/politician groups and the left-wing/right-wing groups. Semi-partial (unique) correlations are reported (bivariate correlations in parenthesis), with full multivariate regression analyses in the supplementary material (tables S3–S7).

Table 4 below shows the correlations between specific arguments and policy attitudes. For ease of comparison, figures 3 and 4 show the effect of arguments on the acceptability of voters vs politicians, and the left-wing and right-wing groups, respectively. For the full sample, the counter-argument most important for explaining negative attitudes to a meat tax was that taxation constitutes excessive state influence (Arg. 6), while the most important pro-argument was that the tax would fairly reflect externalities (Arg. 14).

Five arguments were significantly related to acceptability for all groups. The counter-arguments predictive of acceptability for all groups were that taxes constitute excessive state influence (Arg. 6), that it would have negative financial effects on low-income households (Arg. 2) and risk increased imports (Arg. 3).

The two pro-arguments related to acceptability for all groups were that the price of meat would fairly reflect externalities (Arg. 14) and that a meat tax would facilitate more sustainable choices (Arg. 13).

Hypothesis 2 was not supported, as the arguments on financial effects for the poor and farmers (Arg. 1 & 2) were not the arguments most strongly correlated with acceptability for either group.

The arguments influenced attitudes of voters and politicians in a similar way (in terms of which arguments have a significant effect on acceptability and direction of effects), with the exception that voters' attitudes were not influenced by the argument on possible negative effects on biodiversity, while politicians' attitudes were not influenced by the argument on the possible climate impact of red meat consumption.

There were somewhat larger differences between left- and right-wing groups, in terms of which arguments have a significant effect on acceptability. Only 7 arguments were related to acceptability for the right-wing group while 13 of the arguments were related to acceptability for the left-wing group. Notably, while the argument on financial effects for farmers was predictive of right-wing acceptability, this argument was not an important determinant for any other group.

The arguments present in the current media debate explain the variance in acceptability reasonably well, with explained variance ranging from 55% to 75% (see tables S3–S7 in supplementary material). The arguments were less suited for explaining the variance in the attitudes of right-wing groups compared to the other groups.

Table 3. Descriptions of free-text categories.

| Short form	Full description
Too expensive	Food or meat prices are currently too high; it would become too expensive; tax burden is too heavy; will lead to increased administrative costs.
Provides revenue	A meat tax would generate revenues that can either benefit the general budget or be used for specific purposes.
Public resistance	People would not accept tax; would lead to protests and polarization; would have negative downstream consequences for climate politics.
Meat is wrong focus	There are more important issues to focus on; meat consumption is not the most detrimental behavior; other foods should be taxed instead; no/questionable scientific evidence of detrimental effects of meat consumption.
Eating vegetarian diet is difficult	Transitioning to a vegetarian diet would be difficult due to lack of suitable (tasty, inexpensive, nutritious) alternatives; lack of knowledge on cooking vegetarian meals; meat is part of food culture.
Normative effect of tax	Tax will increase awareness of harmful effects of meat consumption; will send a strong signal; Sweden would influence other countries.
Consumption should decrease	Meat consumption is too high; meat consumption should decrease; meat is not a necessity; meat is too cheap.
Benefits high-quality domestic meat	A meat tax will lead to increased consumption of domestic meat or higher quality meat; farmers will benefit financially; will lead to reduced food waste.
Low political trust	Politicians are corrupt; do not trust how tax revenues are used.
Negative effect on low-income but not high-income households	A meat tax would, financially or behaviorally, negatively affect low-income households but not high-income households.
Affects domestic industry	A meat tax would negatively affect farmers, the agricultural industry or restaurateurs; imports would increase; self-sufficiency would be negatively affected.
Will reduce consumption	A meat tax would reduce meat consumption; taxes in general influence behavior.
Ineffective	A meat tax would not affect consumption; would not have a positive effect on emissions or public health; would lead to smuggling and black market; is symbolic politics/populism; Swedish emissions are not important globally.
Positive for environment	Meat has a negative effect on climate or the environment; a tax would have a positive effect on climate or environmental aspects like biodiversity or land use.
Negative for environment	A meat tax would have negative environmental effects, such as increased emissions due to transportation of imported meats, reduced biodiversity and increased food waste.
Positive for health	Meat has a negative effect on health; a tax would have a positive effect on public health.
Negative for health	A meat tax would lead to negative health effects; humans need to eat meat; the health of certain groups (low-income households, children, women) would be negatively affected.
Individual choice	Food consumption is an individual choice; the state should not steer food choice; the state should only steer behavior by providing information or encouraging positive behavior.
Promotes sustainable consumption	A meat tax would stimulate production and consumption of sustainable alternatives.
Less sustainable consumption	A meat tax would lead to less sustainable consumption, for example an increase in consumption of junk food or decreased vegetable consumption.
Positive for animal welfare	A meat tax would have positive effects on animal welfare, for example, improved conditions and fewer slaughters.
Negative for animal welfare	Animal welfare would be negatively affected by tax, through for example increased imports of meat from countries with less strict regulation.
Open landscapes	A meat tax would have a negative effect on Swedish open landscapes.
Reflect true cost	A meat tax would internalize negative externalities, reflect true cost, polluters should pay.
Consumption already decreasing	Consumption of meat is already decreasing without state intervention.
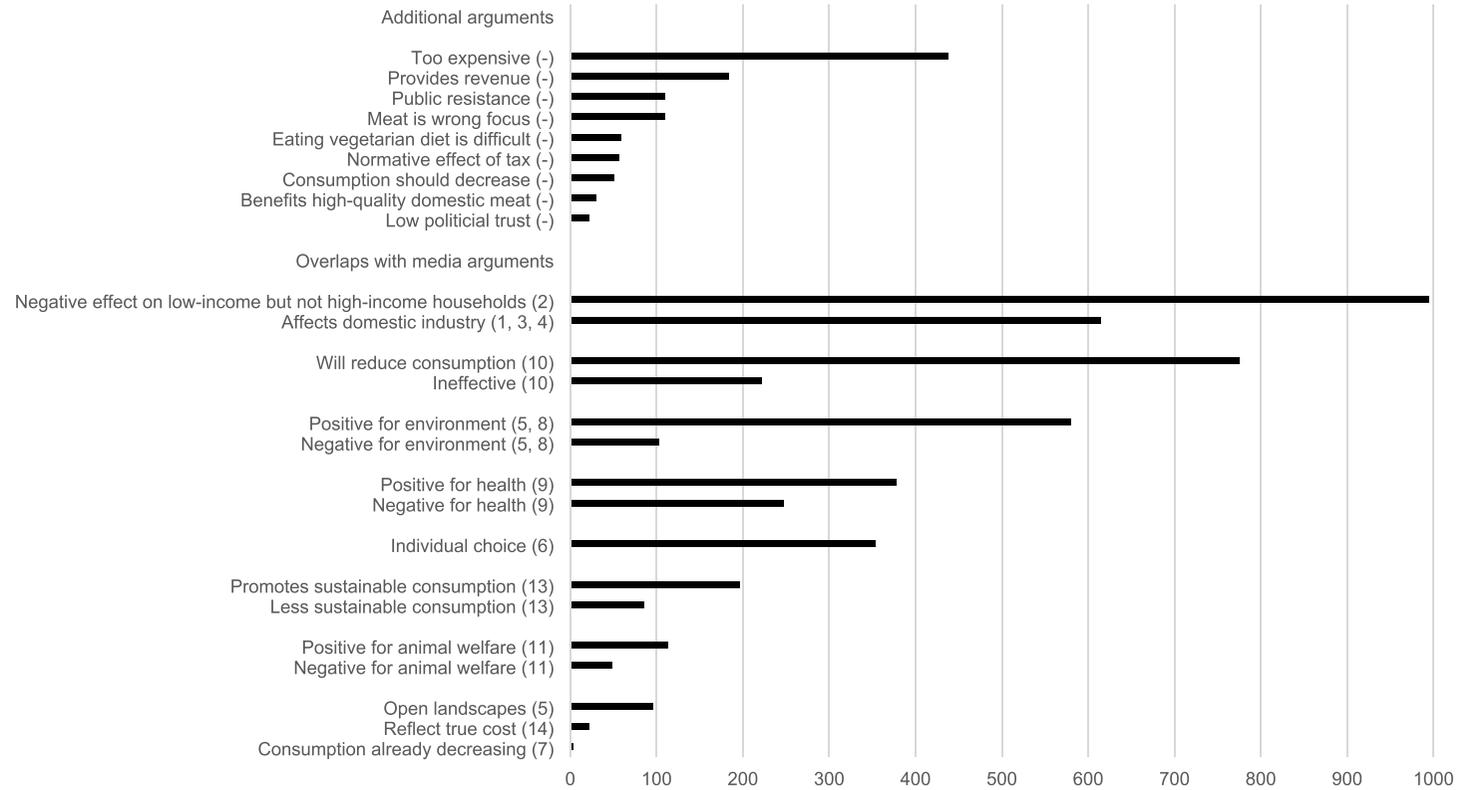
Figure 2. Frequency of free-text arguments for the full sample. The additional arguments lists arguments found in free-text that that were not found in the media-analysis. The remaining arguments overlap with the media analysis (the numbers in parentheses refer to the corresponding argument from the media analysis, see table 2).

Table 4. Semi-partial correlation of arguments related to the acceptability of a meat tax per group (before controlling for the effects of policy-specific beliefs). Bi-variate correlation in parenthesis.

	Full sample (N = 4105)	Voters (N = 2934)	Politicians (N = 1171)	Left-wing (N = 2017)	Right-wing (N = 1278)
Counter-arguments					
1. Burdens farmers	−.01 (−.41)	−.01 (−.38)	−.01 (−.49)	.00 (−.33)	−.08 (−.31)*
2. Burdens the poor	−.05 (−.46)*	−.05 (−.46)*	−.05 (−.49)*	−.06 (−.49)*	−.06 (−.36)*
3. Increases imports	−.04 (−.46)*	−.05 (−.45)*	−.03 (−.52)*	−.04 (−.48)*	−.07 (−.21)*
4. Decreases self-sufficiency	−.04 (−.54)*	−.04 (−.51)*	−.04 (−.60)*	−.03 (−.51)*	−.03 (−.29)
5. Decreases biodiversity	−.03 (−.53)*	−.02 (−.49)	−.06 (−.63)*	−.04 (−.51)*	−.01 (−.30)
6. Excessive state influence	−.11 (−.68)*	−.12 (−.68)*	−.09 (−.69)*	−.11 (−.64)*	−.15 (−.48)*
7. Unnecessary measure	−.05 (−.60)*	−.05 (−.58)*	−.05 (−.63)*	−.07 (−.61)*	.01 (−.31)
Pro-arguments					
8. Climate benefits	.03 (.65)*	.03 (.64)*	.01 (.67)	.03 (.60)*	.07 (.50)*
9. Health benefits	.03 (.64)*	.03 (.63)*	.03 (.66)*	.05 (.61)*	.03 (.49)
10. Reduces consumption	.02 (.49)*	0.02 (.46)	0.02 (.54)	.04 (.49)*	.00 (.29)
11. Animal welfare benefits	.06 (.58)*	.05 (.56)*	.06 (.62)*	.08 (.54)*	.03 (.41)
12. Sweden as forerunner	.04 (.65)*	.05 (.64)*	.05 (.68)*	.04 (.61)*	.03 (.45)
13. Facilitates sustainable choices	.10 (.73)*	.10 (.72)*	.07 (.74)*	.08 (.68)*	.16 (.61)*
14. Fair pricing	.14 (.77)*	.14 (.76)*	.14 (.79)*	.13 (.73)*	.21 (.66)*

Note: * indicates a significant ($p < .05$) effect of argument on acceptability in regression.

4.3. Are specific arguments related to policy-specific beliefs?

To explore whether abstract policy-specific beliefs are associated with concrete pro- and counter-arguments, we examined the relationships between the arguments and the perceptions of whether a meat tax would be fair, effective, and infringe on autonomy. Table 5 presents the results for the full sample, followed by subgroup analyses testing our hypotheses.

4.3.1. Summary of full sample analyses

Table 5 shows that only two arguments correlate with a single policy-specific belief (Arg. 1 & 9: burdens farmers and health benefits). Ten arguments are associated with two or three policy-specific beliefs, while two arguments (Arg. 4 & 11: decreases self-sufficiency and animal welfare benefits) show no relationship with any of the policy-specific beliefs. Most arguments appear to be roughly as predictive of two or three of the beliefs, with the exceptions being fair pricing which strongly predicts fairness, excessive state influence which mostly predicts autonomy, and reducing consumption which strongly predicts effectiveness.

4.3.2. Hypothesis testing of H1 & H3-5 by sub-group analyses

We now turn to our sub-group analyses to assess the heterogeneity of perceptions of policy-specific beliefs (see tables S3–S7 in supplementary material). The arguments explained 48%–63% of the variance in perceived fairness, 37%–58% in perceived effectiveness, and 25%–48% in perceived infringement on autonomy.

4.3.2.1. Perceived fairness

The only arguments that were homogenously related to fairness (i.e. had significant effects for all groups) were effects on low-income households (Arg. 2), that an increased price would reflect external costs (Arg. 14), and a meat tax facilitating sustainable consumption (Arg. 13). Hypothesis 1 was not fully supported, as the counter-arguments about negative financial effects for low-income households and farmers were not the two most predictive arguments of perceived fairness. In fact, the argument on effects for farmers was not related to perceived fairness for any of the groups.

4.3.2.2. Perceived effectiveness

The only arguments that were homogenously related to perceived effectiveness were that the tax would be an effective way of reducing consumption (Arg. 10), that a meat tax would facilitate sustainable choices (Arg. 13), and that meat consumption has a negative impact on the climate (Arg. 8). The effectiveness of the tax in reducing consumption was most strongly associated with perceived effectiveness for all groups, supporting hypothesis 3.

4.3.2.3. Perceived infringement on autonomy

The only arguments that were homogenously related to perceived infringement on autonomy were financial effects for low-income households (Arg. 2) and health benefits (Arg. 9). Hypothesis 4 was not fully
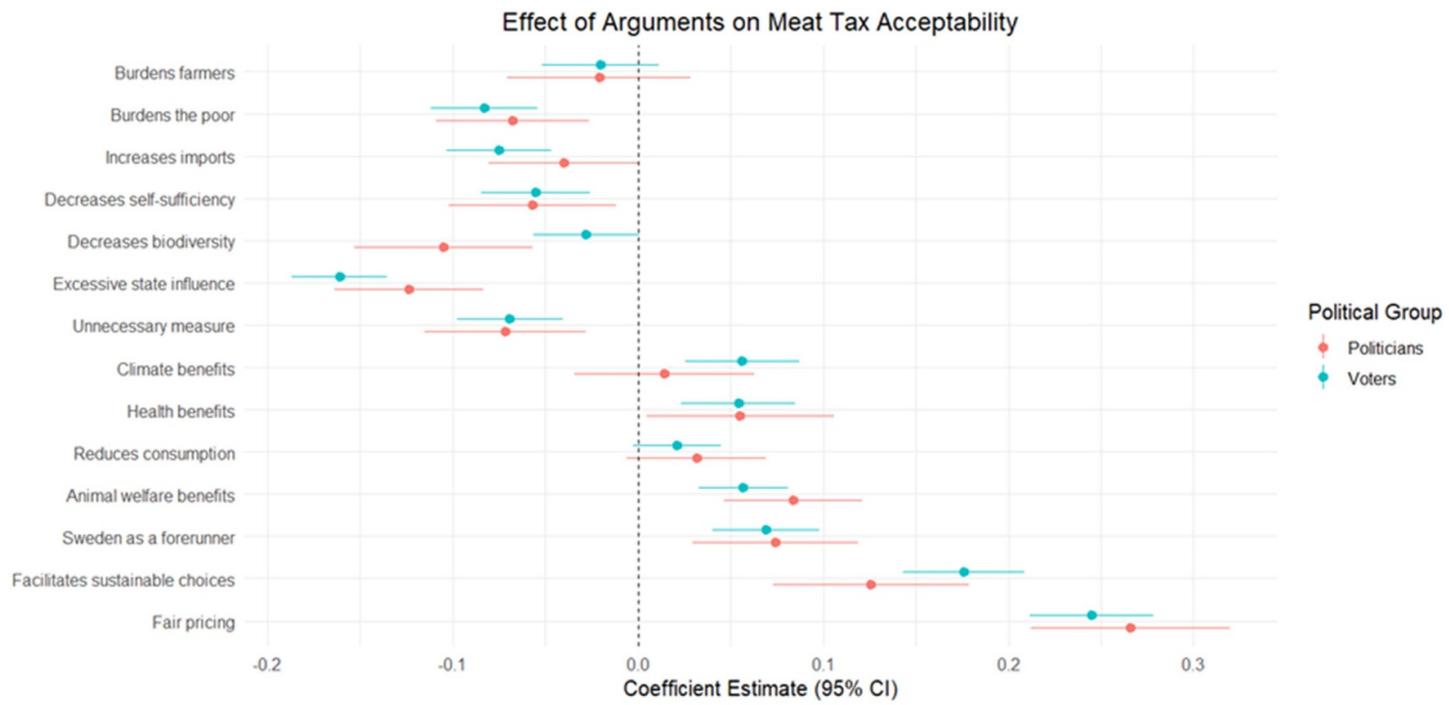
Figure 3. Effect of arguments on acceptability (coefficients with 95% confidence intervals) for politicians and voters.

Effect of Arguments on Meat Tax Acceptability

Burdens farmers
Burdens the poor
Increases imports
Decreases self-sufficiency
Decreases biodiversity
Excessive state influence
Unnecessary measure
Climate benefits
Health benefits
Reduces consumption
Animal welfare benefits
Sweden as a forerunner
Facilitates sustainable choices
Fair pricing

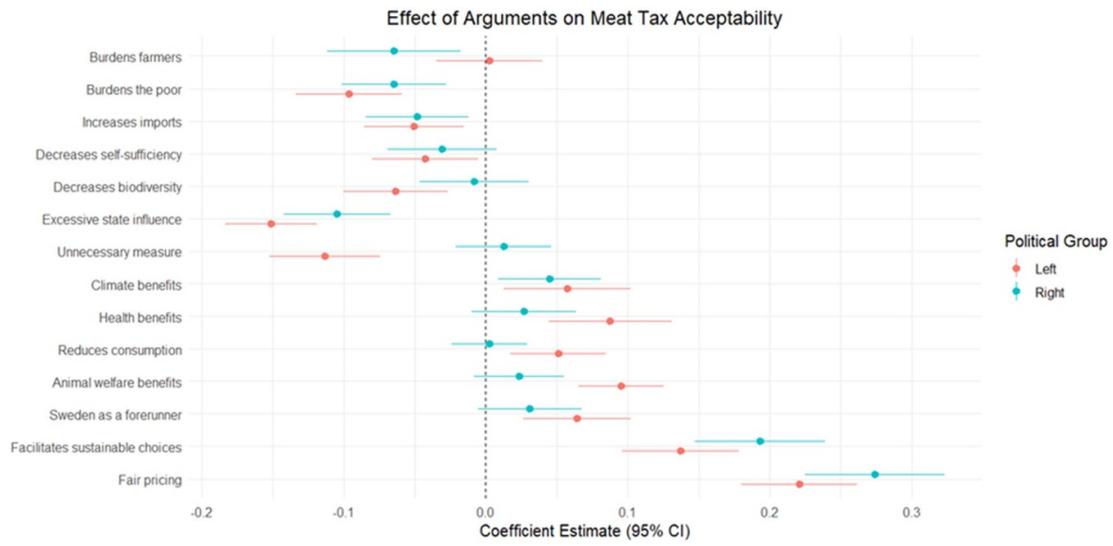Political Group
Left
Right

Coefficient Estimate (95% CI)

Figure 4. Effect of arguments on acceptability (coefficients with 95% confidence intervals) for the left-wing and right-wing group.

Table 5. Semi-partial correlation of arguments related to each policy-specific belief for the full sample (after controlling for the other two policy-specific beliefs). Bi-variate correlation in parenthesis.

	Fairness	*Effectiveness*	*Autonomy*
2. Burdens the poor	−.13 (−.52)*	.02 (.57)	.13 (.45)*
5. Decreases biodiversity	−.02 (−.47)*	.01 (−.35)	.03 (.41)*
14. Fair pricing	.17 (.72)*	.01 (.56)	−.03 (−.53)*
7. Unnecessary measure	−.02 (−.53)*	−.04 (−.46)*	.04 (.44)*
6. Excessive state influence	−.04 (−.59)*	−.04 (−.49)*	.09 (.51)*
13. Facilitates sustainable choices	.08 (.67)*	.07 (.59)*	−.01 (−.48)
3. Increases imports	−.03 (−.43)*	−.03 (−.34)*	.01 (.35)
10. Reduces consumption	.01 (.45)	.24 (.58)*	.03 (−.28)*
12. Sweden as forerunner	.01 (.57)	.04 (.52)*	−.02 (−.45)*
8. Climate benefits	.01 (.57)	.06 (.53)*	−.05 (−.47)*
9. Health benefits	.00 (.56)	.01 (.49)	−.04 (−.47)*
1. Burdens farmers	−.01 (−.38)	.01 (−.27)	.04 (.36)*
4. Decreases self-sufficiency	−.00 (−.47)	−.02 (−.37)	.02 (.41)
11. Animal welfare benefits	.00 (.48)	.02 (.43)	−.01 (−.39)

Note: * indicates a significant ($p < .05$) effect of argument on a policy-specific belief in regression.

supported, as excessive state intervention was the strongest predictor of perceived autonomy for the left-wing group only, while effects on low-income households was the strongest predictor for all other groups. Additionally, hypothesis 5 was not supported, as excessive state intervention (Arg. 6) had a stronger effect on acceptability than effects on low-income households (Arg. 2) for both the left- and right-wing groups.

5. Discussion

Previous studies have demonstrated predominantly negative attitudes towards a meat tax (Douenne and Fabre 2020, Grimsrud *et al* 2020, Pechey *et al* 2022), including research utilizing the same dataset as this article (Ejelöv *et al* 2025). This study delves deeper into the specific arguments both supporting and opposing a meat tax in Sweden, thus enhancing our understanding of the beliefs underlying acceptability. We conducted a media analysis to identify widespread arguments present in Swedish media and assessed the extent to which voters and politicians agreed with each argument. Validating the results of the media analysis, free-text responses of respondents' pro- and counter-arguments for the tax contained categories corresponding to all arguments present in the media debate as well as additional ones.

The counter-arguments identified in the media analysis, listed according to level of agreement among respondents, were that a tax burdens farmers, burdens the poor, increases imports, decreases self-sufficiency, decreases biodiversity, implies excessive state influence, and finally that it would be an unnecessary measure. The pro-arguments, listed according to level of agreement, were climate benefits, health benefits, reduces consumption, animal welfare benefits, Sweden as a forerunner, facilitation of sustainable choices, and finally, that it would fairly reflect externalities. These arguments also appear in media analyses from other Western high-income countries (e.g. Sievert *et al* 2022, Larsson and Vik 2023, van Oort *et al* 2024). We observe stronger agreement with counter-arguments than pro-arguments among respondents, echoing the generally negative sentiment towards a meat tax shown in previous studies.

This study also explored how different groups vary in their attitudes toward a red meat tax and the arguments that they agree with. All arguments were significantly related to acceptability for a meat tax for at least one of the groups studied (left-wing, right-wing, voters, politicians). While we found only minor differences between voters and politicians in terms of agreement with arguments, we identified more substantial differences between left- and right-wing groups. It is important to note that although left-wing respondents also tend to agree with most counter-arguments, we observe a stronger agreement from right-wing respondents.

As many of the counter-arguments appear to reflect widely held beliefs, examining the validity of these beliefs is important. Many of the pro-arguments align with results from modeling studies showing that meat taxes can reduce consumption and positively impact environmental and health indicators (e.g. Larsson *et al* 2024, Springmann *et al* 2025). However, a sophisticated policy design, informed by current knowledge, could mitigate or invalidate six of the seven counter-arguments. Below, we discuss each counter-argument and the reasons they may not necessarily be factual claims:

1. **Burdens farmers:** The most agreed-with counter-argument is based on the assumption that a meat tax would be paid by producers, raising their costs. This is unrealistic since taxes on specific products

(through higher VAT or levies per kilogram) would be paid by consumers due to a high so-called pass-through rate (Jaworski and Olipra 2025). This could, however, have indirect effects on meat farmers through lower demand. Nonetheless, this indirect effect would be positive for other types of farmers who produce the type of food to which consumers might partly switch. Additionally, if policymakers want to support meat farmers in some way, they could use part of the revenues from the meat tax for this purpose.

2. **Burdens the poor:** The second most widely agreed-with counter-argument is that a meat tax would disproportionately impact low-income earners. This argument is factually correct since higher food prices disproportionately affect low-income earners, as they spend a larger portion of their income on food (Funke *et al* 2022). Additionally, our free-text analysis revealed another common argument: food and meat prices are already high and would rise further with a meat tax. Such effects, however, could be mitigated by using the tax revenues to finance a removal of VAT on items like fruits and vegetables. Such designs could avoid regressive effects, yield substantial health benefits (Larsson *et al* 2024, Springmann *et al* 2025) and increase support across political groups (Ejelöv *et al* 2025).

3. **Increases imports:** This counter-argument posits that a meat tax could lead to an increase in the consumption of imported meat, with potentially worsening environmental outcomes. This belief is likely based on the false assumption that the tax would only be applied to Swedish meat farmers, which indeed would raise the price of domestically produced meat and increase imports. However, EU regulations mandate that all consumption taxes must be applied equally to domestic and imported products. Consequently, a meat tax would reduce overall demand, likely also decreasing meat imports.

4. **Decreases self-sufficiency:** This counter-argument suggests that a meat tax would reduce Sweden's meat production, leading to decreased self-sufficiency. This perspective is likely related to the argument on increased imports, and the same reasoning applies here. Moreover, modeling studies suggest that reduced meat consumption could free up cropland previously used for animal feed, which could then support increased domestic crop production (Larsson *et al* 2024).

5. **Decreases biodiversity:** This counter-argument suggests that a meat tax would reduce Swedish meat production, leading to a loss of pastures and a decline in biodiversity. It is true that the preservation of semi-natural pastures is crucial for conserving local biodiversity (Eriksson 2021), and a tax on beef, lamb, and dairy could potentially reduce the demand for these pastures (Moberg *et al* 2021). However, the most important factor for maintaining pastures and biodiversity is arguably to provide sufficient economic incentives directly to farmers (Larsson *et al* 2020a). If policymakers wish to support this, part of the revenues from a meat tax could be used to increase incentives for such ecosystem services (Gren *et al* 2021).

6. **Excessive state influence:** This counter-argument holds that the state should only inform public dietary choices, not regulate them through taxation. This stance is primarily value-based and highlights a significant divergence from other counter-arguments by being one of the strongest predictors of opposition to a meat tax. While this argument may reflect attitudes toward governmental intervention, it could also reflect a belief that information-based policies are as effective as taxes and subsidies, which usually is not the case (Walter 2020, Ammann *et al* 2023).

7. **Unnecessary measure:** This argument claims that introducing a meat tax is unnecessary as meat consumption is already decreasing without government intervention. While it is accurate that the consumption of beef, lamb, and pork in Sweden decreased by 17% between 2011 and 2019, there has not been any decrease since 2020 (The Swedish Board of Agriculture 2025), and the consumption of red meat in Sweden is still twice the global average (FAO 2023).

While there is evidence that media-debated arguments can both reflect and shape public policy opinions (Hoewe and Peacock 2020), this study cannot determine whether these beliefs shape attitudes or if they are rationalizations. However, two factors point toward arguments at least in part shaping policy support. First, participants provided many of the same arguments in free-text before being exposed to the media arguments, suggesting that people with negative attitudes do not only agree with any counter-argument provided but actually express these specific arguments on their own initiative. Secondly, in the supplementary material we present an analysis on the support for the tax versus revenue use proposals showing that the relative preference of a cost-neutral tax reform and agricultural support proposal over only a tax is most strongly predicted by the arguments on financial effects on the poor and effects on domestic meat production respectively (see table S11). This suggests that arguments relate to specific policy proposals in a relevant and predictable manner. Addressing these concerns comprehensively and supporting pro-arguments robustly may therefore be crucial for proponents of a food tax reform.

For example, design aspects such as introducing cost-neutral tax reforms and/or allocating a portion of the revenue from a meat tax towards increased financial support for farmers are strategies that could improve acceptability (Ejelöv *et al* 2025). Assuming that arguments at least partly drive attitudes, it could be

Table 6. Arguments (theoretical concept in parenthesis) significantly related to policy-specific beliefs for all sub-groups (voters, politicians, and right-wing and left-wing groups).

	Perceived fairness	Perceived infringement on autonomy	Perceived effectiveness
Fair pricing (horizontal equity)	x		
Burdens the poor (vertical equity)	x	x	
Effective in changing behavior			x
Facilitating sustainable choice	x		x
Health/climate benefits (problem awareness)		x	x

important for both right- and left-wing groups to clearly communicate that a consumption tax would apply equally to both domestically produced and imported goods.

However, research on cognition indicates that individuals with lower confidence in their beliefs are more open to new information, while those with higher confidence are more resistant and prone to confirmation bias, especially when their beliefs are misinformed (Rollwage *et al* 2020, Fischer and Fleming 2024). Future research might investigate whether strength of agreement with arguments, as measured in this study, also reflects confidence in those arguments. If that is the case, it may suggest that communication efforts to correct misinformed beliefs (especially about counter-arguments that people tend to agree more strongly with) may have limited impact. In such cases, policy design addressing the argument may instead prove more effective.

5.1. Policy-specific beliefs

This study additionally investigated if specific arguments could explain the policy-specific beliefs around a meat tax. Table 6 lists the arguments that for all groups are significantly related to each policy-specific belief. Confirming previous research showing that policy-specific beliefs are inter-connected (e.g. Bendz *et al* 2023, Isaacson *et al* 2024), there are overlapping themes among all three policy-specific beliefs, and perception of infringement on autonomy especially is not associated with any unique arguments. There was substantial heterogeneity in perceptions, as evidenced by comparing the number of arguments related to each policy-specific belief for the full sample (see table 5) and the number of arguments that are related to the policy-specific beliefs for each separate group (see tables S8–S10 in supplementary material for ease of comparison).

As indicated by table 6, perceived fairness was across all groups associated with concerns about distributional effects for low-income households, whether the internalization of negative externalities is fair, and the ability of the tax to promote sustainable choices. The first two arguments arguably correspond to fairness (vertical and horizontal equity, respectively), while the third argument is usually connected to beliefs about effectiveness. This questions the distinction between fairness and effectiveness beliefs, which is also in line with previous research showing that perceived policy effectiveness influences perceived fairness (Huttarsch and Matthies 2024).

For all groups, perceived effectiveness was most strongly correlated with how effective a policy is in affecting the targeted behavior, but also to an extent how much the policy incentivizes other more sustainable choices and the degree to which meat consumption has a negative effect on the climate, confirming previous research showing that problem awareness relates to perceived effectiveness (Bechtel and Scheve 2013, Bendz *et al* 2023).

Across groups, perceived infringement on autonomy was associated with concerns about the financial impact on low-income households and the potential health effects of meat consumption. This may indicate that the increased cost imposed on low-income households is seen as infringing on their ability to choose which foods to consume, but that the restriction of choice is perceived as less severe when targeting behaviors that are perceived as detrimental to health.

In summary, while there is some homogeneity in which arguments relate to policy-specific beliefs, there are also considerable differences between groups, and many arguments predict multiple policy-specific beliefs. Furthermore, some of the arguments found to be important for explaining a policy-specific belief do not have a large impact on acceptability. Together, these results point to the limited usefulness of utilizing policy-specific beliefs when trying to understand determinants of policy attitudes and suggest that policy-specific beliefs may to some extent reflect overall policy attitudes rather than specific evaluations of policy design.

6. Conclusions

Swedish voters and politicians tend to perceive more negative than positive consequences of implementing a tax on red and processed meat. However, many of the counter-arguments are not completely factually true, or can be addressed by proper policy design when they are. While this study investigates correlations and not causation, the results indicate that to achieve support from both left- and right-wing voters and politicians, the design of a meat tax should focus on minimizing negative financial effects in general, and for low-income households and farmers in particular. This could be achieved through for example cost-neutral reforms and subsidies for sustainable farming practices. Communication efforts may do well in highlighting the negative environmental and health impacts of red and processed meat consumption, and stress that a consumption tax would affect domestic and imported meats equally. The results of this study further suggest that policy-specific beliefs are related to a multitude of more specific perceptions, and that these perceptions differ by population segment. While efficient in explaining policy attitudes, policy-specific beliefs do not necessarily provide useful information about how policy design may address perceived shortcomings related to fairness, effectiveness and infringement on autonomy. Future studies might therefore opt for utilizing free-text responses or arguments present in media debates to understand opposition towards policies.

Data availability statement

The data that support the findings of this study are openly available at the following URL/DOI: https://osf.io/3f4t2/?view_only=0bdab01d032e4291bd513dd8dea8bc98.

Ethical statement

The Swedish Ethical Review Authority has approved this research (dnr: 2023-01147-01). The research was further conducted in accordance with the principles embodied in the Declaration of Helsinki and in accordance with local statutory requirements. All participants gave written informed consent to participate in this study.

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