

A top-down photograph of a black, textured plate. In the center is a piece of salmon with its skin on. To the right of the salmon are five cherry tomatoes on their stems. Above the tomatoes is a small pile of pinkish-orange salt crystals. To the right of the tomatoes is a small pile of red peppercorns. In the top left corner, a small portion of a bowl containing more red peppercorns is visible. The background is a dark, textured surface.

Stine Laurberg Myssen, Laura Anker Nielsen, Asbjørn Sonne Nørgaard

Climate Policies: Attitudes and behaviours

Comparative study of relationships between climate concern, personal responsibilities and climate policies in Denmark, Germany and Sweden

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EXECUTIVE SUMMARY

This report investigates the complex relationships between climate concern, personal responsibility, policy preferences, and perceptions of social justice in the climate transition in Denmark, Sweden, and Germany. While climate concern is broadly shared, translating this concern into support for costly climate policies and personal behaviour change is challenging, particularly when these policies impose financial burdens on individual consumption, particularly for low-income earners. The analysis shows that sociodemographic factors such as education, income, and urban/rural residence significantly influence attitudes and support for the climate transition.

Higher education consistently correlates with greater climate concern, a stronger sense of personal responsibility, and greater support for green policies, indicating that individuals with more education have higher environmental awareness. Conversely, those with lower education levels are more likely to view green policies as socially unjust and to support compensation for low-income individuals if prices increase due to climate policy measures. Higher-income individuals are less supportive of financial aid for low-income groups in climate policy than individuals with low income. Urban residents in Denmark and Germany support green policies more than rural residents. This urban-rural difference in green policy support is not observed in Sweden.

The report concludes that for the climate transition to gain broad-based support, it must be both environmentally effective and socially just. Policymakers are encouraged to consider compensatory measures for people with low-income and low levels of education. The key to a successful climate transition is to balance the need for ambitious climate policies that the university educated middle-class populations in cities demand, with redistributive measures that compensate those with less resources who are more hesitant in their support for the climate transition. The climate transition has to be a just transition in order to reach broader support and acceptance and succeed.

1

INTRODUCTION

Climate change presents an existential challenge that demands urgent action to align our lifestyles and policies with a sustainable social-ecological just transition. In Europe, where awareness of climate issues is high, many citizens have personally felt the impacts of climate change, from heat waves to floods. This experience has heightened concern about the climate crisis and fostered positive attitudes toward climate action.

However, translating concern into action is a complex endeavour, particularly when climate policies impose personal costs. Studies have highlighted an »attitude-behaviour gap« in environmental actions: positive environmental attitudes do not necessarily lead to a more climate-friendly personal behaviour, especially not in high-cost situations.¹ The underlying causes of this gap remain somewhat underexplored, especially whether the inclination to adopt a climate-friendly behaviour is contingent upon individual resources and opportunities to act.

Research indicates that higher education levels often correlate with stronger climate concerns and favourable views on climate policy, while higher income also predicts increased environmental support.² In a similar vein, people living in rural areas are often less likely to support climate policies, possibly due to the disproportionate economic impact these policies could have on rural, carbon-intensive occupations and the lack of choices for low carbon-intensive alternatives.³

As the urgency to address climate change intensifies, so does the necessity for a climate transition that is not only environmentally effective but also socially just. Climate action cannot succeed if it overlooks the diverse economic realities and social inequalities across society. In other words: No one should be left behind. If climate policies disproportionately burden those with fewer resources, or deprive some groups of decent work opportunities, these groups become alienated. Ultimately, this is likely to erode public support for climate action and give rise to a climate cleavage in electoral politics.

This report seeks to shed light on these mechanisms. We examine whether climate concern aligns with the inclination to take personal responsibility for the climate, as well as support for climate policies, and we investigate whether these associations vary across different socio-demographic groups. In this way, we can get a better understanding of the extent and contingencies of the attitude-behaviour gap. The report also focuses on attitudes toward the need for redistributive measures in the climate transition. By analysing survey raw data from Denmark, Sweden, and Germany from another international FES project, we examine how factors like education, income, and urban/rural residence influence attitudes and behaviours toward the green transition.

This report and its raw data are based on the international survey project conducted in 2023 when the FES Competence Centre for Climate and Social Justice commissioned the SINUS-Institute conducted a population survey in 19 European and North American countries: Canada, Croatia, Czech Republic, Denmark, France, Germany, Greece, Hungary, Italy, Poland, Portugal, Romania, Serbia, Slovakia, Spain, Sweden, Turkey, the United Kingdom, and the USA. The respondents were asked what perceptions, interests and fears they associate with socio-ecological transformation⁴. Only data from German, Sweden and Denmark was analysed.

¹ Farjam, Mike, Olexandr Nikolaychuk & Giangiacomo Braco (2019). Experimental evidence of an environmental attitude-behaviour gap in high-cost situations, *Ecological Economics*, 166

² E.g. Arikan, Gizem and Defne Günay (2020). Public attitudes towards climate change: A cross-country analysis, *The British Journal of Politics and International Relations*, 23(1), McCright, A.M., Dunlap, R.E., & Marquart-Pyatt, S.T. (2015). Political ideology and views about climate change in the European Union. *Environmental Politics*, 25(2), 338–358, Poortinga, W., Whitmarsh, L., Steg, L., Böhm, G., & Fisher, S. (2019). Climate change perceptions and their individual-level determinants: A cross-European analysis. *Global Environmental Change* (55), 25–35, Gelissen, J. (2007). Explaining Popular Support for Environmental Protection: A Multilevel Analysis of 50 Nations. *Environment and Behaviour*, 39(3), 392–415.

³ Tallent, Theodore (forthcoming). Green discontent along the urban-rural divide: Understanding the geography of climate policy attitudes in Europe; Arndt, Christoph, Daphne Halikiopoulou and Christoph Vrakopoulos (2023). The centre-periphery divide and attitudes towards climate change measures among Western Europeans, *Environmental Politics*, 23(3)

⁴ On this website is more information and the links to the other publications related to this international survey and project: <https://justclimate.fes.de/survey-attitudes-towards-the-social-ecological-transformation.html>

2

METHOD AND DATA

This report and analysis is as mentioned above based on survey data among representative samples from Denmark, Sweden, and Germany. In each country, approximately 1,200 individuals aged 18 to 69 were surveyed on their perceptions, interests, and concerns regarding the green transition. The standardised online surveys were conducted in Danish, Swedish and German. The data has been weighted to reflect the national distributions of gender, age, education, and region. The survey was conducted by the SINUS-Institute between April 20 and July 28, 2023.

2.1 CLIMATE CONCERN

We measure the level of concern about the climate crisis using an index composed of the respondents' level of agreement towards three statements that assess both general concerns about climate change and its consequences:

- 1a) There are more important problems in our country than climate change
- 1b) I am afraid of the consequences of climate change
- 1c) When it comes to the consequences of climate change, many things are greatly exaggerated

Responses are measured on a 4-point scale, ranging from »Completely agree« to »Do not agree at all.«

For consistency, statement 1b) was reverse-coded, as agreement with this statement indicates a high degree of concern, whereas agreement with statements 1a) and 1c) reflects a lower level of concern. Using multiple questions to measure concern reduces measurement error, giving a more reliable assessment that captures different dimensions of climate concern.

The item-to-item correlations range from 0.43 to 0.62, and Cronbach's Alpha for the index is 0.76, both of which indicate a reliable measure. The index is scaled from 0 to 1, with higher scores indicating a greater level of concern. The mean value of the index is 0.56 (standard deviation = 0.26). Figure 1 shows that respondents are redistributed as expected on the index, with most observations in the middle values.

2.2 PERSONAL RESPONSIBILITY FOR CLIMATE-FRIENDLY BEHAVIOUR

We assess the level of perceived personal responsibility for climate-conscious and environmentally sustainable behaviour using an index composed of nine statements. These statements capture attitudes toward personal and individual responsibility in adopting climate-conscious behaviours to mitigate climate change. The index thus does not measure actual behaviour but comes as close as possible given the data by measuring individual perception of responsibility to adopt climate-conscious behaviour. As discussed in Section 2.1, using an index provides a more robust measure, allowing us to capture a broader range of perspectives on personal responsibility.

The respondents were asked to what extent they agree with the following statements on personal responsibility:

- 2a) I am only prepared to do something to protect the environment if my standard of living is not affected by it.
- 2b) I do not believe that my behaviour can make a significant contribution to environmental protection.
- 2c) I do not see any reason to change my behaviour today for something that might happen in the future.
- 2d) If there are even more regulations for climate and environmental protection, soon nothing will be possible at all.
- 2e) I feel better when I buy products that have less impact on the environment and climate.
- 2f) I feel personally responsible for preserving nature and the environment.
- 2g) Each individual is responsible for ensuring that we leave future generations with an environment worth living in.
- 2h) In order to preserve a liveable environment for us and future generations, we must all take action ourselves and start changing our way of life.
- 2i) We should all be prepared to change our lifestyle for the benefit of the environment.

Responses are measured on a 4-point scale, ranging from »Completely agree« to »Do not agree at all.«

Figure 1.
Distribution of respondents on the climate concern index

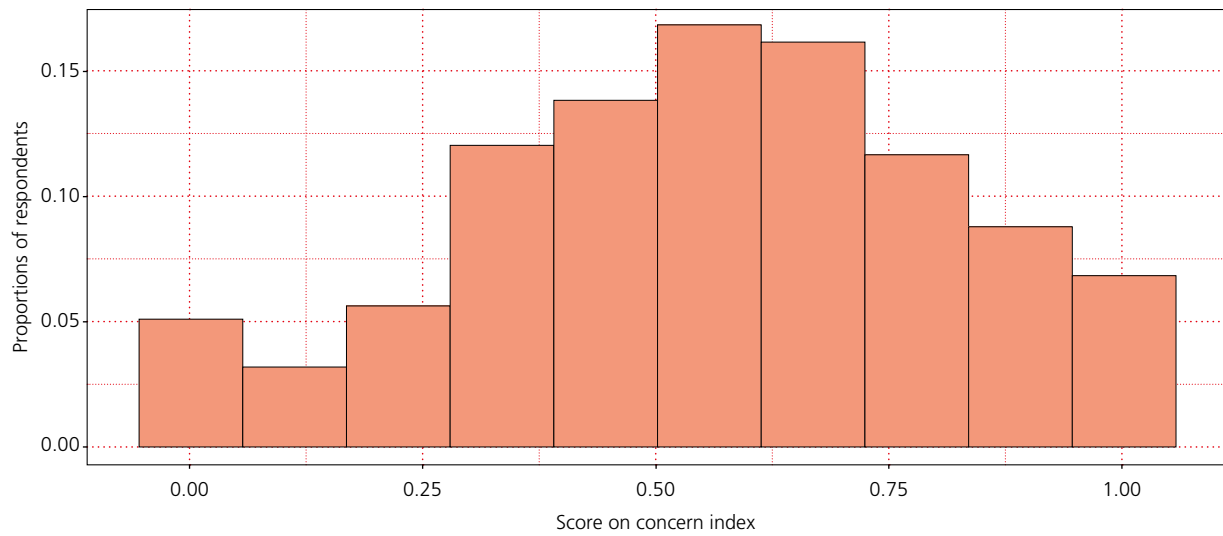
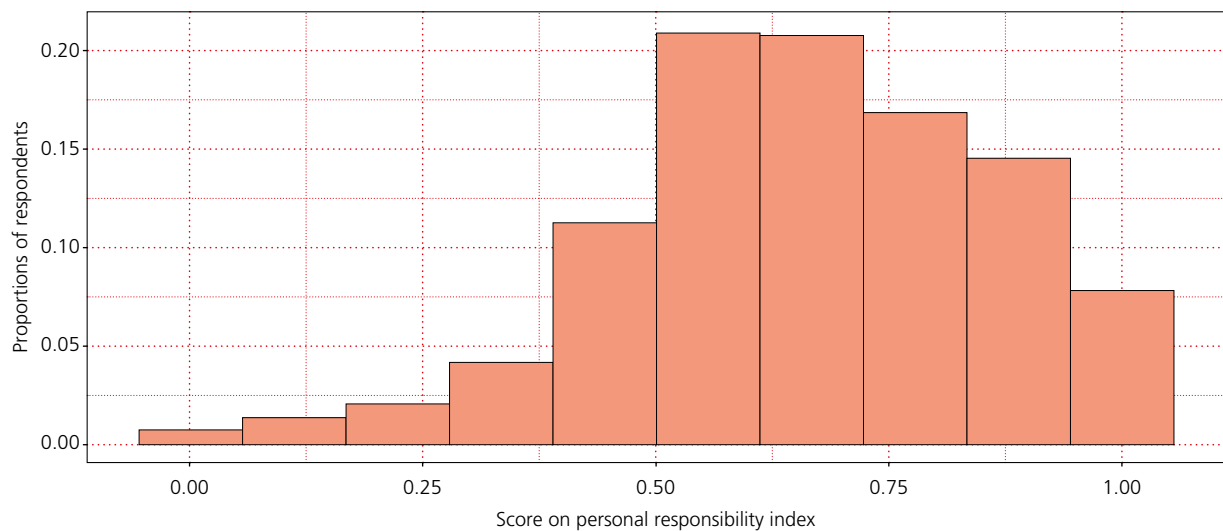


Figure 2.
Distribution of respondents on the personal responsibility index



For consistency, statements 2e), 2f), 2g), 2h) and 2i) were reverse-coded, as agreement with this statement indicates a high degree of personal responsibility, whereas agreement with the remaining statements reflects a low level of personal responsibility.

The item-to-item correlations range from 0.25 to 0.64, and Cronbach's Alpha for the index is 0.87. The item-to-item correlations for statement 2a) and the other statements are a bit lower than preferred by conventions. This means that the inclusion of this item may cause some statistical noise in the estimation. We have decided to include the item anyway because we perceive the willingness to reduce one's standard of living as a valuable aspect of personal responsibility.

The index is scaled from 0 to 1, with higher scores indicating a greater level of perceived personal responsibility. The mean

value of the index is 0.66 (standard deviation = 0.21). Figure 2 shows that respondents in general have higher scores on the index for personal responsibility.

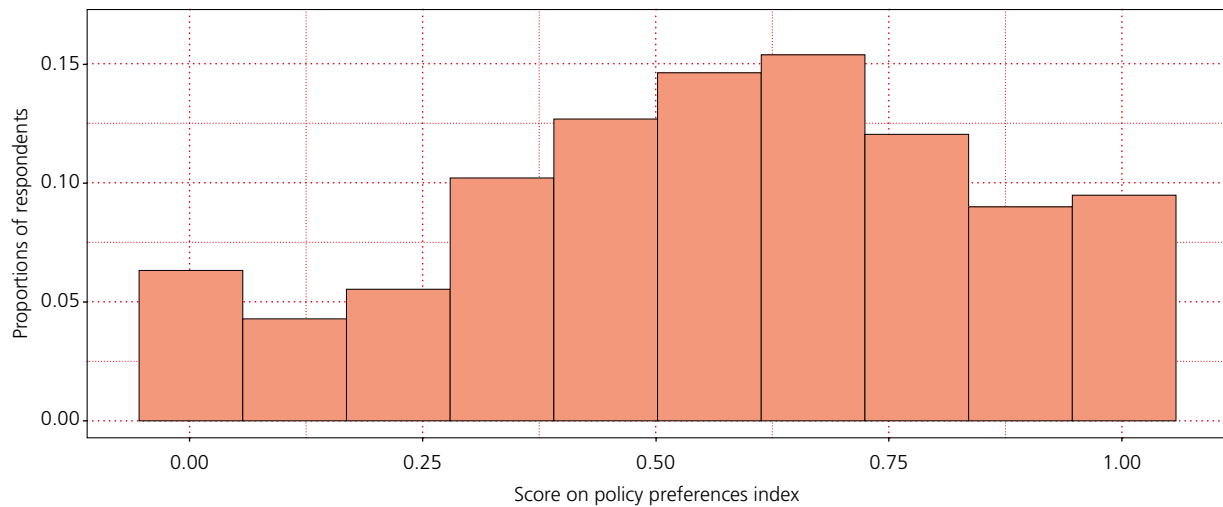
2.3 CLIMATE POLICY PREFERENCES

In measuring climate policy preferences, we only include items that involve costs to the citizens in the index. Potentially, all three policy instruments are costly to consumers.

The respondents have been asked, to what extent they support different measures to strengthen the climate transition. The items included in the index are as follows:

To what extent do you support the following measures?

Figure 3.
Distribution of respondents on the climate policy preferences index



- 3a) Climate tax on airline tickets
- 3b) Introduce a car toll so that someone who drives a lot also has to pay more
- 3c) Reduce climate-damaging subsidies (e.g. commuter allowance, abolish the tax exemption for aviation fuel).

Responses are measured on a 4-point scale, ranging from »I wholly support them« to »I wholly disapprove.«

The index is coded with values ranging from 0 to 1. A high score on the index indicates a high level of support for the climate policies.

Once again, we have conducted an item-to-item correlation and Cronbach’s Alpha analysis to make sure that our measure is reliable. The item-to-item correlations are between 0.45 and 0.47, and Cronbach’s Alpha is 0.72. Both tests support that the index is reliable. The mean value of the index is 0.56 (standard deviation = 0.28). The respondents are evenly distributed on this index, where a relatively large proportion of respondents hold both high and low scores on the index for policy preferences, see Figure 3.

2.4 SOCIALLY JUST TRANSITION

According to the International Labour Organization (ILO), a just climate transition means »greening the economy in a way that is as fair and inclusive as possible to everyone concerned, creating decent work opportunities and leaving no one behind.«⁵ In this context, the data allows us to measure attitudes and support relating to a just social-ecological transition by examining the following two key aspects: 1) the perception that the consequences of climate protection measures are socially just, and 2) the preference for a policy that promote social justice in climate measures.

These aspects are assessed with the following statements:

To what extent do you agree with the following statements?

- a) *Measures for climate and environmental protection are socially unjust since they have an impact on low earners in particular.*
- b) *People with a low income ought to be provided with greater financial support if costs for electricity, heating and mobility rise due to climate protection measures.*

Responses are measured on a 4-point scale, ranging from »Completely agree« to »Do not agree at all.«

Both measures are coded on a scale from 1 to 4. A high score on question a) indicates a perception of climate protection measures as unjust. A high score on question b) indicates support for socially just policy measures. When it comes to the question of perception 66% of the respondents either agree or partly agree that climate protection measures are socially unjust. The share of people who either partly or completely agree with support for socially just measures for low-income individuals is 82%.

2.5 SOCIODEMOGRAPHIC VARIABLES

2.5.1 Education

Educational levels across Denmark, Sweden, and Germany are standardised by grouping the available data according to a categorical scale based on the 2-digit ISCED codes from the European Social Survey. To ensure each category contains a sufficient number of observations, we consolidated some groups. In doing so, we prioritised combining meaningful groups with similar attitudes toward climate concern, personal responsibility, and policy preferences over strict adherence to ISCED coding. Consequently, some educational categories may include groups that do not share the same 1-digit ISCED code if they exhibit similar attitudes on the green transition variables.

⁵ ILO (2024, July 9th). Climate change and financing a just transition

The final educational scale is a five-point measure with the following categories. The Questions asked the respondents for the highest educational level:

- 1) Basic or less
- 2) Vocational upper secondary (e.g., *Erhvervsuddannelse* in Denmark, *Fachschule/Handelsschule* in Germany and *Yrkesinriktade gymnasieprogram, 3 år* in Sweden)
- 3) University preparatory upper secondary (e.g., *Gymnasielle uddannelser* in Denmark, *Abitur* in Germany and *Studieförberedande gymnasieprogram, 3 år* in Sweden)
- 4) Post-secondary and short-cycle tertiary education (e.g., *Kort videregående uddannelse* in Denmark and *1 år Högskola med examen* in Sweden).
- 5) Bachelor's or higher level

2.5.2 Income

Income is measured as monthly equivalised disposable household income in intervals of €1,000, with €5,000 or more as the highest income category. The original response categories were presented in national currencies. Income was calculated based on respondents' answers to the following question⁶:

When you add everything up: How much is total monthly net income of your household? This relates to the total from wages, salaries, income from self-employment, pension or retirement, after deduction of taxes and social security contributions, for all the people residing in your household.

Respondents who chose not to answer (n=342) were excluded from the analyses that include the income variable. The equivalised disposable income measure adjusts household income by accounting for the number of adults and children in the household, resulting in a theoretical income measure that allows for comparison across different household types. This adjusted measure is generally lower than self-reported income, as it accounts for household composition. The variable is included both as a linear variable and a squared variable because the effect of income may vary for different income levels.

We use this equivalised measure to differentiate between, for example, a double-income household with two medium-high incomes and a single-person household with a very high income. Due to the highest self-reported category being capped at €5,000 or more, the income measure does not fully differentiate between medium-high and very high income levels in Denmark, Sweden, and Germany.

Because our income variable is somewhat truncated and does not measure income differences at the high end of the scale, we may not be able to detect potential income differences in our dependent variables. That is, there may be income-related differences in climate concern, sense of personal responsibility, and policy preferences that the present analysis cannot reveal.

⁶ The German and Swedish surveys include two more categories for low-income groups with incomes under 1000 euros. These were combined in the category 'up to 1000 euros' to match the Danish response categories.

2.5.3 Urban/rural scale

Urban/rural residency is measured as size of town/city of residence. The coding is based on the following question:

How many people inhabit the town/city in which you live? The principal town is meant here. If you live in a district of a city, please enter the total number of inhabitants living in the city, not the district.

- 1) Up to 1000 inhabitants
- 2) 1000 to 10,000 inhabitants
- 3) 10,000 to 100,000 inhabitants
- 4) 100,000 to 1,000,000 inhabitants
- 5) 1,000,000 inhabitants and above
- 6) Don't know

The measure is included as an ordinal scale including five categories. Respondents who answered that they do not know the size of their town/city of residence (n=172) have been excluded from the analysis.

2.6 CONTROL VARIABLES

We include all three sociodemographic variables in our analyses. In addition, we include country, age (squared) and gender as controls. Thus, when assessing e.g. the effect of income on policy preferences, the result is controlled for education, urban/rural residence, country, age, and gender.

Gender includes both female, male and non-binary. Age is a continuous variable running from 18 to 69 years. Age is included as a squared function of age, as preliminary analysis showed that the effect of age has a curvilinear fit.

2.7 METHOD AND STATISTICAL MODELS

We estimate differences in overall climate concern, personal responsibility, and policy preferences across sociodemographic groups using linear regression models. These models allow us to control for various factors when examining group differences, and we comment on effects that are significant at the 0.05-level unless stated otherwise.

To explore potential variations in the relationships between climate concern, personal responsibility, and policy preferences across different sociodemographic groups, we also employ linear regression models. Specifically, we model the effects of climate concern on personal responsibility and policy preferences, incorporating interaction effects with education, income, and urban/rural residence.

Although we use linear regression to estimate these associations, we recognise that the relationships between concern and personal responsibility as well as between concern and policy preferences may not be interpreted in a strict causal sense.

3

RESULTS

Section 3.1 examines differences in overall climate concern, personal responsibility and policy preferences depending on country, education, income, and residence in urban/rural areas. Next, section 3.2 looks at the relationships between concern and personal responsibility and the extent to which this association is different across relevant sociodemographic variables. Section 3.3 focuses on the relationship between concern and policy preferences, and again we examine whether this association varies across countries and different socioeconomic groups. In section 3.4 the focus is the level of support for a just social-ecological transition across different social groups.

3.1 WHAT INFLUENCES CONCERN, PERSONAL RESPONSIBILITY AND POLICY PREFERENCES?

The level of climate concern varies significantly across countries. As Figure 4 shows, Swedes are the least concerned about climate change, while Danes are the most concerned. Danes and Germans show similar levels of concern when controlling for background variables, see Appendix 1. The lower concern in Sweden is mainly due to the assessment of the question of whether climate change is the most important problem in the country. When asked about the most important problems for national politicians to address, Swedes tend to find other problems (health, crime, immigration, and education) more important than climate change.⁷

As expected, we also find that higher levels of education are associated with higher concern for the climate, see Figure 4. Those with at least a bachelor's degree are most concerned while those with basic and vocational education are the least concerned, see Figure 4. This is also the case when controls are included, see Appendix 1. Although the degree of this educational difference varies slightly between the three countries, the pattern remains: in all three countries, people with a bachelor's degree or higher are most concerned with the climate, see Appendix 1A. But overall climate concern does not vary much across levels of education.

Overall, concern does not vary significantly by level of income, see Appendix 1. However, higher-income Swedes tend to be less concerned about climate change than those with lower incomes, see Appendix 1A. This difference is not observed in Germany or Denmark.

Finally, levels of climate concern do not vary between urban and rural areas, see Appendix 1. However, Danes living in larger cities show a slightly higher level of concern than those in smaller cities, see Appendix 1A.

Gender is included as a control variable. Additional analyses show that climate concern varies with gender, such that women are more concerned than men. The gender effect in climate concern remains the same when controlling for education, income, and both, indicating that it is not a reflection of men and women having different levels of education or income. The same result is true when testing the effect of gender on personal responsibility: the gender effect is not related to differences in education and income. There are no gender effects on climate policy preferences.

In terms of personal responsibility, Germans feel less personal responsibility for climate action than Swedes and Danes, see Figure 5. While our analysis shows that Swedes are the least concerned about climate change overall, Germans feel the lowest level of personal responsibility.

Education also plays a significant role: individuals with higher levels of education feel more personal responsibility than those with lower levels. As shown in Figure 5, the higher the education, the higher the reported sense of responsibility. Although educational differences vary somewhat across the three countries, the general pattern is the same: individuals with a bachelor's degree or higher consistently feel more personally responsible regarding climate change than those with lower educational backgrounds in all three countries, see Appendix 1B.

Note: The estimates are descriptive uncontrolled means. See Appendix 1, model 2 for the controlled statistical testing of the differences in estimates.

Overall, the level of personal responsibility for the climate does not vary significantly by income or urban/rural residence, see

⁷ SINUS (2023). SINUS study for the Friedrich Ebert Foundation. Socio-ecological transformation. Country comparative report, p. 10.

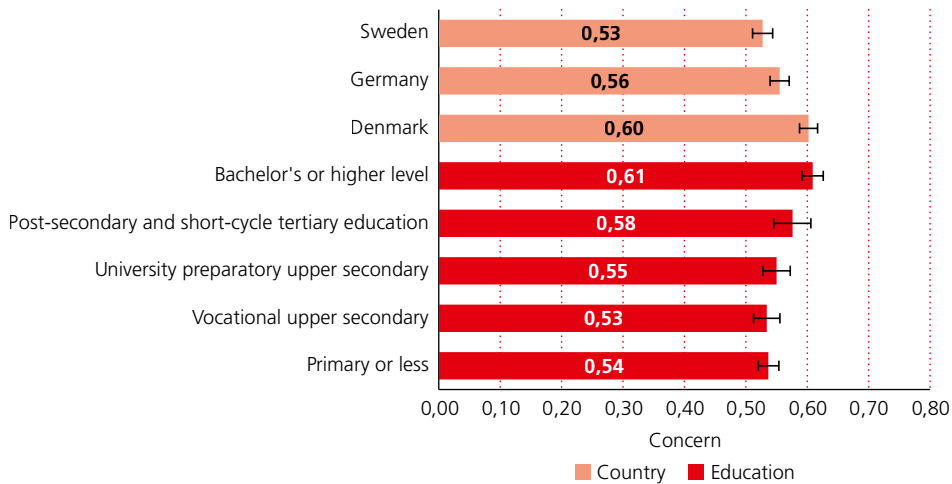
Appendix 1. However, there are some national differences based on the urban/rural scale. In Sweden, respondents living in the largest cities report lower levels of personal responsibility compared to those in rural areas, see Appendix 1B. The opposite trend is observed among Danes. Danes living in Copenhagen, the only Danish city with over 1 million inhabitants, tend to report higher levels of personal responsibility than those in rural areas, although this difference is only statistically significant at the $p=0.1$ level. These contrasting trends between Sweden and Denmark highlight differing national dynamics in how urban and rural residents perceive personal responsibility for climate action.

Climate policy preferences also vary across the three countries. As shown in Figure 6, support for climate policies is generally higher in Denmark compared to both Sweden and Germany, while Sweden shows the lowest level of support. This may relate

to Sweden's lower level of climate concern and the higher priority given to other policy areas, as previously stated.

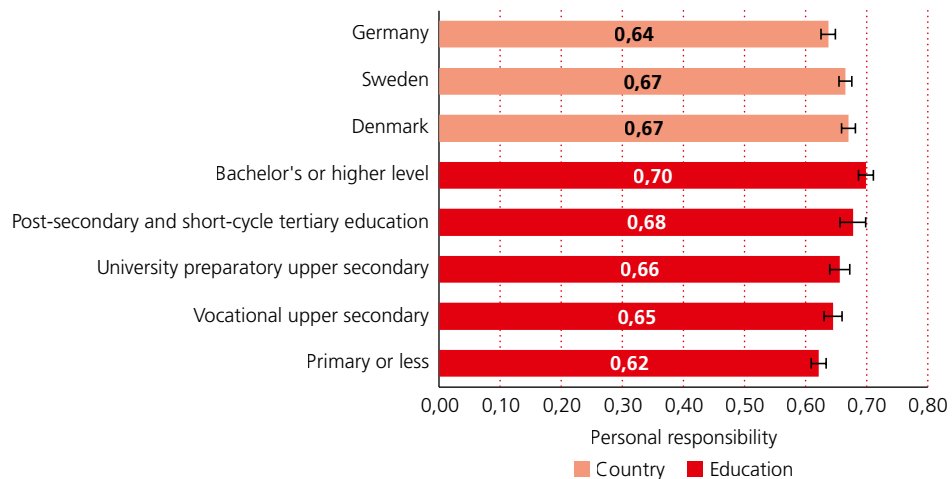
Education level is a strong predictor of policy preferences. Individuals with a bachelor's degree or higher show greater support for climate policies than those with lower levels of education, see Figure 6. This trend remains consistent within each country, see Appendix 1C. Recall, that this group also tends to express the highest levels of climate concern and personal responsibility. The educational differences may also reflect vulnerability to job loss due to climate policies, since individuals with low education may have a harder time transiting to other parts of the labour market if their job or sector is adversely affected by climate regulation. Besides, individuals with lower levels of education may also feel less represented when it comes to their climate policy concerns.

Figure 4.
Differences in climate concern by education and countries



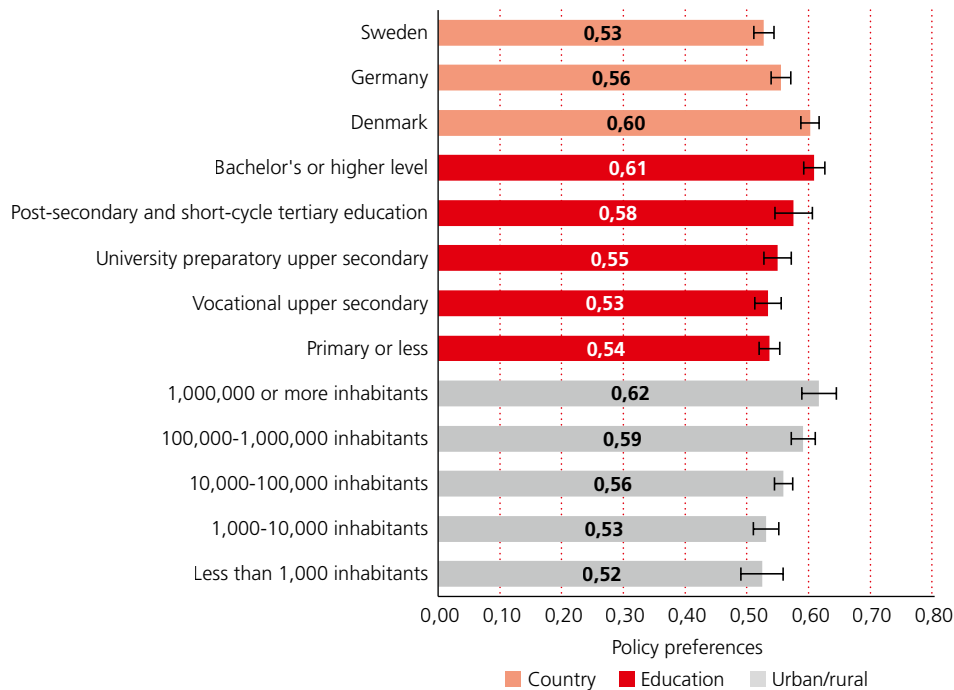
Note: The estimates are uncontrolled means for each group. See Appendix 1, model 1 for the controlled statistical testing of the differences in estimates.

Figure 5.
Differences in personal responsibility by education and country



Note: The estimates are descriptive uncontrolled means. See Appendix 1, model 2 for the controlled statistical testing of the differences in estimates.

Figure 6.
Differences in policy preferences by countries, education and urban/rural



Note: The estimates are descriptive uncontrolled means. See Appendix 1, model 3 for the controlled statistical testing of the differences in estimates.

Overall, urban residents have stronger preferences for green policies (see Figure 6). This difference is particularly evident in Germany and Denmark, where support for climate policies increases with the size of the urban area, see Appendix 1C. In Sweden, there are no significant differences in policy preferences across the urban/rural divide. A closer examination of specific policy items reveals that the urban/rural effect is primarily driven by support for car tolls and the reduction of climate-damaging subsidies. Urban residents, particularly those in larger cities, are more supportive of these measures than rural residents. This may reflect differing impacts of these policies, as rural residents have significantly greater levels of car dependence and benefit more from subsidies such as commuter allowances.

Preferences for climate policies do not vary by income level, see Appendix 1, model 3. This finding is especially interesting, given that our policy preference measure only includes policies that potentially increase consumer costs. The lack of variation by income suggests that both high – and low-income individuals are similarly willing to bear personal, consumption-related costs imposed by climate policies.

The results so far have shown the influence of education, income and urban/rural residence on climate concern, personal responsibility and policy preferences, overall as well as in the different countries. Summing up, the main predictor of higher climate concern, personal responsibility and support for green policies seems to be higher education, while living in more urban areas is associated with higher levels of support for green policies in Denmark and Germany, but not in Sweden.

3.2 ARE THE CONCERED ALSO THOSE WHO FEEL MOST RESPONSIBLE?

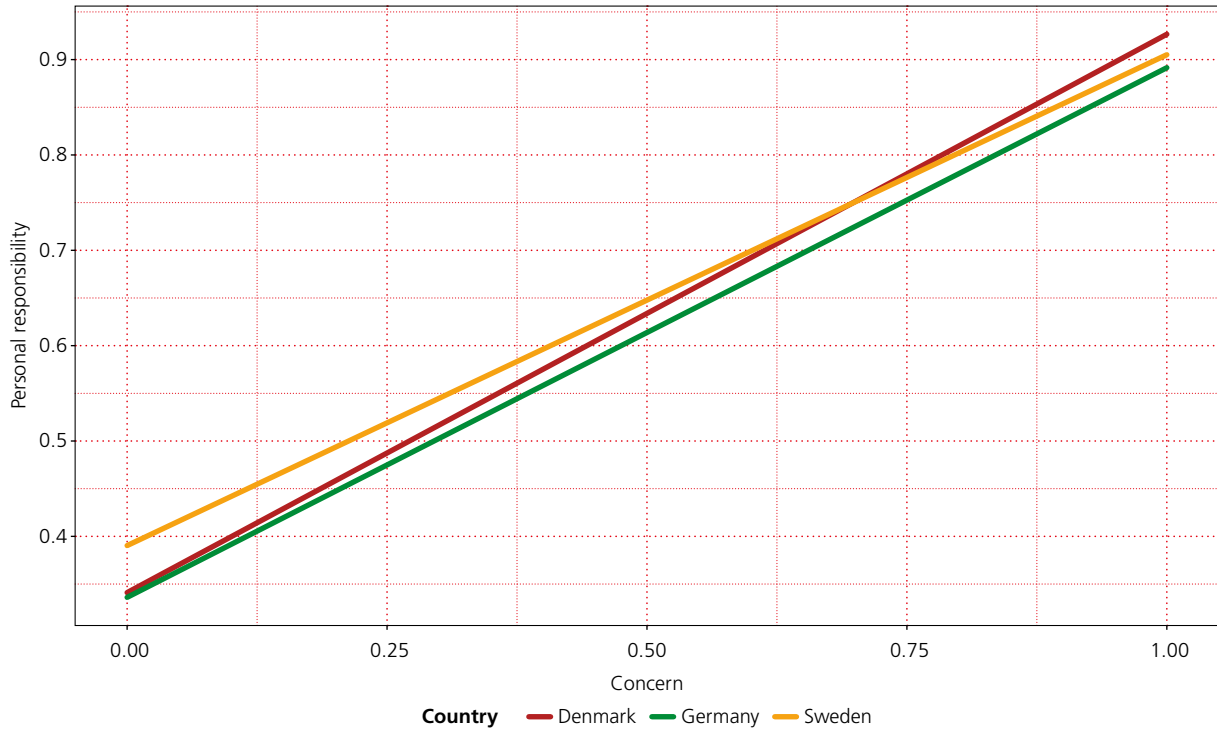
We expect a positive relationship between climate concern and personal responsibility, meaning that higher concern about climate change would generally lead to a stronger sense of personal responsibility. However, a less steep relationship for certain groups would suggest that high concern does not translate into feelings of responsibility to the same degree for these individuals.

Looking at correlations, we find that the individuals who are most concerned about climate change also feel the greatest sense of personal responsibility. The two measures correlate strongly (Pearson's $R = 0.72$), with climate concern explaining 52% of the variation in personal responsibility, see Appendix 2, model 1. Not surprisingly, those who are most concerned about climate change are also, to a large extent, those who feel a high degree of personal responsibility for supporting the climate transition.

Figure 7 illustrates this positive relationship in all three countries. The association between concern and personal responsibility is significantly stronger in Denmark than in Sweden, with Germany showing a relationship that does not differ significantly from either Denmark or Sweden. Although the strength of this relationship varies slightly, a strong link between concern and personal responsibility is evident across all three countries.

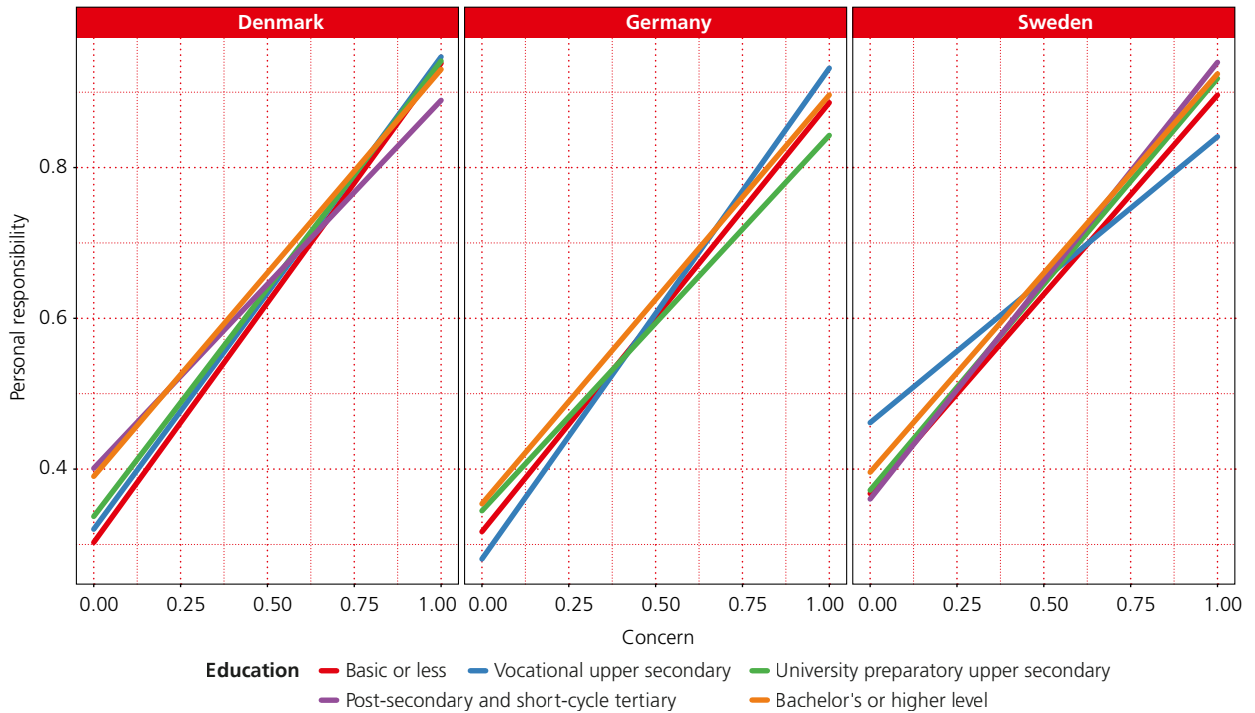
Overall, the relationship between climate concern and personal responsibility does not vary significantly across educational groups, see Appendix 2A, model 2.

Figure 7.
Relationship between concern and personal responsibility by country



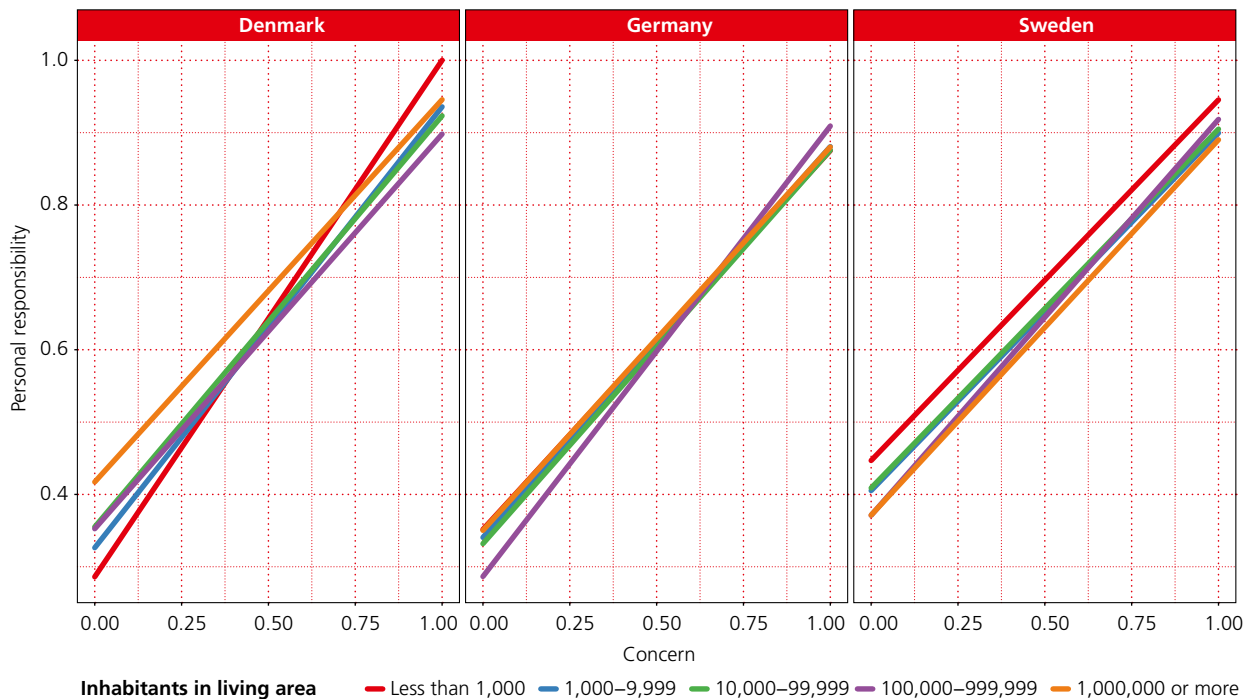
Note: The relationship between concern and personal responsibility is estimated from the statistical testing in Appendix 2, model 4.

Figure 8.
Differences in the relationship between concern and personal responsibility according to educational group and country



Note: The relationship between concern and personal responsibility depending on country and education is estimated from the statistical testing in Appendix 2A, models 3, 4 and 5.

Figure 9.
Differences in the relationship between concern and personal responsibility by urban/rural and countries



Note: The relationship between concern and personal responsibility according to country and urban/rural residency is estimated from the statistical testing in Appendix 2B, models 3, 4 and 5.

Examining each country separately, however, reveals some variations, cf. Figure 8. The relationship between concern and personal responsibility is weaker among Danes with higher levels of education than it is for other educational groups. Interestingly, these highly educated groups report greater personal responsibility even at lower levels of concern than those with lower education. This suggests that in Denmark, personal responsibility is less dependent on concern among those with higher education.

In Sweden, educational differences also shape the relationship between concern and personal responsibility. Figure 8 indicates that Swedes with vocational secondary education show a less steep relationship between concern and personal responsibility compared to other educational groups. Similar to the trend seen among those with higher levels of education in Denmark, those with vocational secondary education in Sweden report relatively high levels of personal responsibility overall, even though the relationship with concern is less pronounced. This implies that, among vocationally educated Swedes, personal responsibility is a bit less directly tied to climate concern.

In Germany, the relationship between concern and personal responsibility is largely the same across educational groups, with no significant differences observed, see Figure 8 and appendix 2A, model 5.

The relationship between climate concern and personal responsibility does not differ significantly between urban and rural residents overall, see Appendix 2B. However, examining each country separately reveals that there is some variation across place of residence in Denmark. Figure 9 shows that in Denmark, the

relationship between concern and personal responsibility weakens as the size of the town or city increases. Specifically, individuals in rural areas report lower levels of personal responsibility at lower levels of concern, but their sense of responsibility increases more sharply with rising concern. In contrast, the relationship is less steep in urban areas.

This trend is unique to Denmark and remains consistent even when control variables are included. Further analyses are needed to explain these differences.

Overall, the relationship between concern and personal responsibility is the same across different income groups, see Appendix 2C.

3.3 ARE THOSE MOST CONCERNED ABOUT CLIMATE ALSO THE MOST SUPPORTIVE OF CLIMATE POLICIES?

The overall correlation between climate concern and policy preferences is strong (Pearson's $R = 0.52$), with concern explaining 27% of the variation in policy preference, see Appendix 3, model 1. This suggests that climate concern is more closely related to personal responsibility than to policy preferences. One possible explanation for this is that supporting climate mitigation policies – especially those involving personal costs – represents a more challenging step than simply recognising one's own responsibility for climate-conscious behaviour. If individuals perceive the personal costs of climate mitigation policies to be higher than those of acting in line with their personal responsi-

bility, the gap between concern and policy preferences will be wider than the gap between concern and personal responsibility.

Since we measure climate policy preferences with measures that involve direct consumer costs, we may expect that the strength of the relationship between climate concern and support for costly climate policy initiatives to vary between low- and high-income individuals. Specifically, we examine whether low-income individuals and other social groups show lower support for these policies despite high concern about climate change. If this is the case, it may indicate that these groups perceive themselves as more vulnerable if costly climate policies are passed.

There is a strong positive relationship between climate concern and policy preferences across all three countries, with no significant differences in this relationship between them, see Appendix 3. Contrary to what could be expected, the association between climate concern and support for stern climate policies is by large equally strong in Germany, despite the country's current economic challenges.⁸

Looking at educational groups, there are no significant overall differences in the relationship between climate concern and policy preferences based on education level, see Appendix 3A. As noted in Section 3.1, individuals with higher education levels tend to exhibit both greater climate concern and stronger

support for climate mitigation policies. Therefore, the stronger support for costly climate policy initiatives is simply due to the higher level of climate concern among highly educated individuals. The relationship between concern and policy preferences remains consistent across all education levels.

Examining each country separately reveals some differences. As shown in Figure 10, the relationship between climate concern and policy preferences is stronger for Germans with a bachelor's degree or higher compared to those with only basic education. This suggests that higher concern translates more directly into support for costly climate policies among those with higher education, whereas this trend is weaker among individuals with lower education levels.

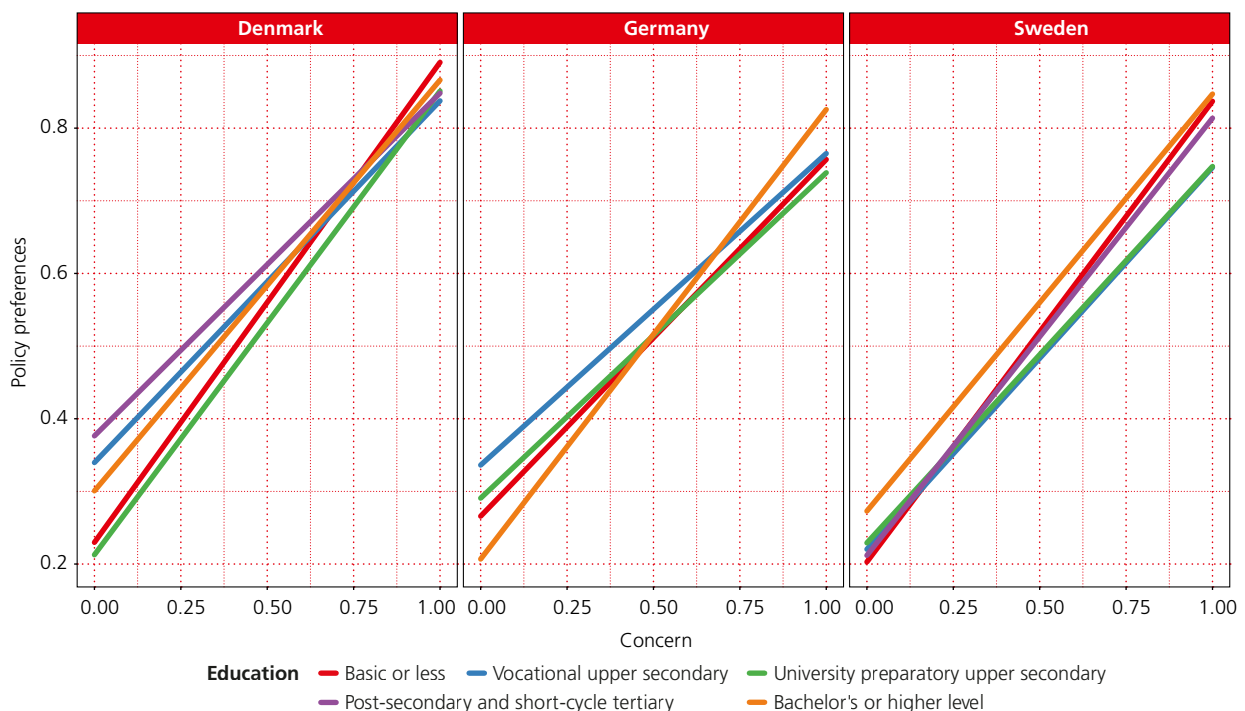
In Denmark, the opposite pattern emerges: the relationship between concern and policy preferences is less pronounced among those with higher education (vocational upper secondary or short-cycle tertiary education) compared to those with basic education, though both groups generally show strong policy support at lower levels of concern. In Sweden, no significant differences in this relationship are observed across education levels. These contrasting trends in Germany and Denmark may reflect different national contexts.

When considering income, the relationship between climate concern and policy preferences is steeper among higher-income individuals compared to lower-income individuals, see Appendix 3B. Analysing the countries separately, we find this difference in Denmark and Germany, while in Sweden the pattern

⁸ Riley, C. (2024, October 30th). Europe's biggest economy is in crisis. Just look as Volkswagen, CNN Business

Figure 10.

Relationship between concern and policy preferences by educational groups and countries



Note: The relationship between concern and policy preferences depending on country is estimated from the statistical testing in Appendix 3A, model 3, 4 and 5.

is less pronounced. This suggests that, for low-income groups, climate concern translates less directly into support for costly climate policies compared to high-income groups. This finding supports our conjecture that among low-income people concern for the climate do not lead to support for costly climate policies to the same extent as we see among higher-income individuals.

The strength of the relationship between climate concern and policy preferences does not vary by urban or rural residence overall, or in any of the three countries, see Appendix 3C.

3.4 BROAD SUPPORT FOR THE JUST SOCIAL-ECOLOGICAL TRANSITION

One of the challenges for the climate transition is that environmental protection and climate mitigation measures often impose costs on individuals. These costs can have a relatively greater financial impact on people with lower incomes compared to those with higher incomes. Therefore, it is essential to ensure that climate policy measures do not increase social and economic inequality.

In this section, we examine the effects of sociodemographic factors on (1) perceptions of climate and environmental protection as socially unjust, and (2) preferences for including financial support for low-income groups in costly climate policies.

3.4.1 Social justice in the climate transition: Perceptions and preferences

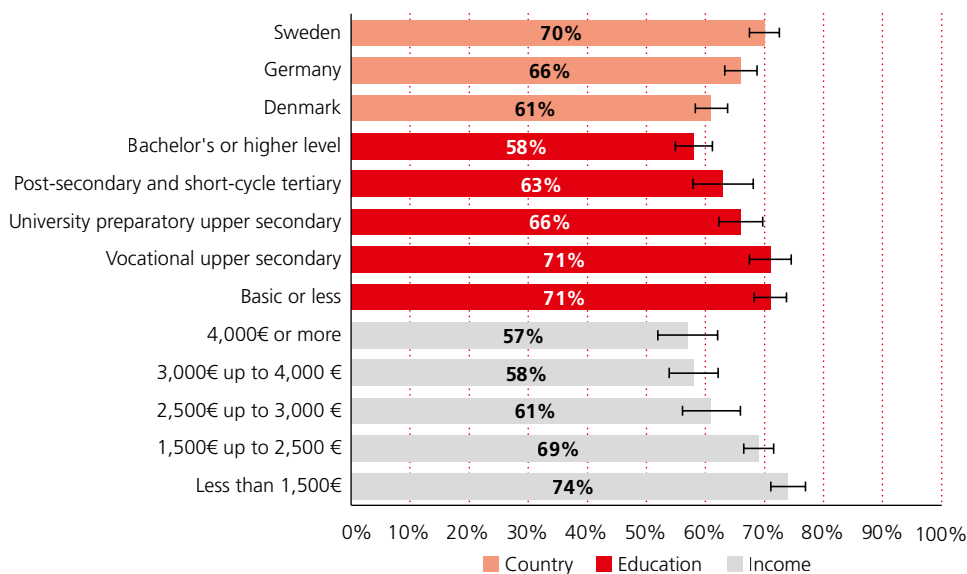
Perceptions of climate and environmental protection as socially unjust vary across countries. As shown in Figure 11, Swedes view these measures as more socially unjust than either Germans or Danes. Although the difference between Germany and Sweden

appears small in Figure 11, it is statistically significant when controls are included, see Appendix 4. The difference between Denmark and Germany is not significant, when controls are included, see Appendix 4. This variation may reflect differences in the climate policies in Sweden, Denmark and Germany.

Perceptions of climate measures as socially unjust also vary by education level. Figure 11 shows that individuals with lower levels of education in general see climate protection measures as socially unjust. This trend is consistent across all three countries, with individuals holding a bachelor's degree being less likely to view green measures as socially unjust. In Denmark, this tendency is also observed among those with post-secondary and short-cycle tertiary education, see Appendix 4, model 2. One explanation may be individuals with higher education are so concerned with the climate that they fail to see the distributional consequences of climate policy. Another explanation could be that individuals with lower education are more often employed in sectors that are adversely affected by climate regulation, and that these individuals have less employment options than those with higher education. Some lower educated individuals may therefore be more vulnerable to job loss due to the climate transition, possibly making them view the transition as less socially just.

Income levels also influence the extent to which individuals perceive climate protection as socially unjust. As shown in Figure 11, low-income individuals are more likely to view climate protection measures as socially unjust compared to high-income individuals. This trend is consistent across all three countries but is not statistically significant due to a smaller sample size in the country-specific models, see Appendix 4. This finding suggests that those with lower incomes – who are most vulnerable to the potential adverse economic consequences of climate

Figure 11. Perceptions of climate and environmental protection as socially unjust, countries, education and income



Note: Proportions who perceive climate and environmental protection as socially unjust. Shares include partly and completely agree answers. For illustrative purposes, the income variable has been grouped into five categories. See Appendix 4, model 1 for the statistical testing of the differences in estimates.

measures – are more likely to perceive social injustice in the climate transition. This may be because they have already experienced financial strain, such as rising energy prices, or because they feel, or fear, that their needs are not prioritized in climate transition policies.

The urban/rural residence does not influence social justice perceptions overall, see Appendix 4, model 1. The country-specific models reveal no effect of urban/rural residence on social justice perceptions in either Germany or Sweden. However, in Denmark, there is a trend where residents in larger cities perceive climate measures as less socially unjust compared to those in rural areas, see Appendix 4, model 2. This difference may be due to urban residents having greater access to eco-friendly options, such as public transportation and biking infrastructure, and therefore do not experience the social consequences of climate regulations to the same extent as individuals living in more rural areas.

Turning to preferences for incorporating financial support for low-income groups in social-ecological transition policies to enhance social justice, we observe some differences between countries. Figure 12 shows that support for socially just measures is lower in Denmark compared to Sweden and Germany. When controls are included, support for these measures is significantly higher in Germany than in Sweden ($p = 0.06$). Previously, we found that Danes were less likely to perceive the green transition as socially unjust, and this is now reflected in their lower support for measures aimed at ensuring a socially just transition. Overall, Danes appear to be least supportive of prioritising social justice in the social-ecological transition – perhaps because they do not initially perceive the already existing climate policies to be socially unjust.

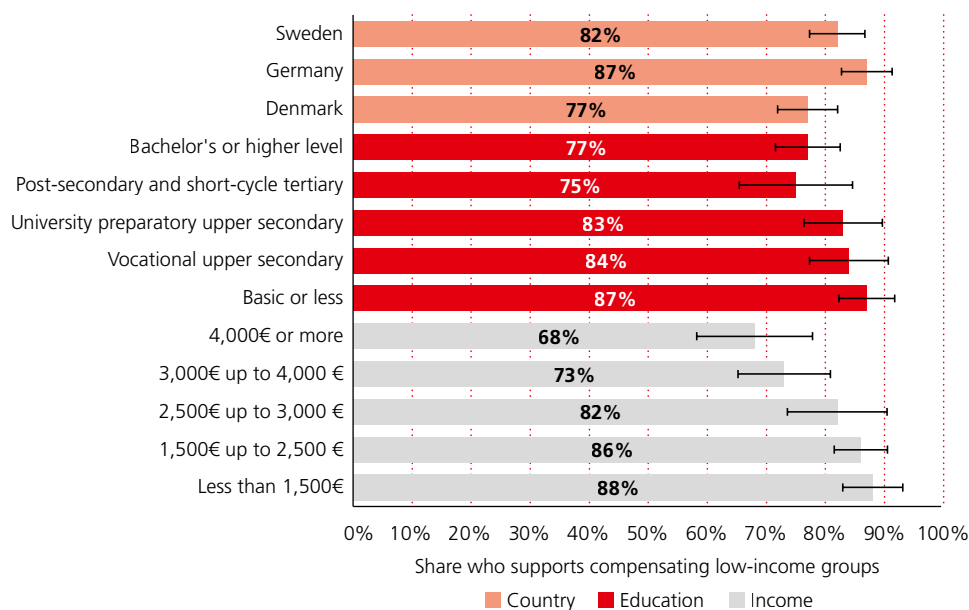
Examining the effect of education, we observe some differences in preferences for socially just climate policies. Figure 12 shows a tendency for individuals with higher levels of education to be less supportive of socially just measures. Statistical testing reveals that only those with a bachelor's degree or higher differ significantly from those with basic education or less, see Appendix 5. This difference is only statistically significant in Germany, although the trend is present across all three countries.

In terms of income, support for socially just measures is highest among individuals with the lowest income and lowest among those with the highest income, as shown in Figure 12. The effect of income is approximately twice as strong in Denmark compared to Sweden and Germany, see Appendix 5. These findings suggest that support for socially just measures is strongest among those whose more vulnerable circumstances would be addressed with financial assistance and weakest among those who are more easily able to afford environmentally sustainable options. Even though we find some variation in the policy preferences, recall that more than 80% of the respondents either completely or partly support financial compensation for low-income individuals. Among high-income individuals, the figure is 72%. The support for compensating low-income individuals who are adversely affected by climate policies is therefore high among all income groups.

There are no substantial differences in preferences for socially just measures based on urban or rural residence, see Appendix 5. This pattern holds true when examining each country individually.

Figure 12.

Preferences for compensating low-income groups for costly climate measures



Note: Proportion of those who support compensating low-income groups. Shares include partly and completely agree answers. For illustrative purposes, the income variable has been grouped into five categories. See Appendix 5, model 1 for the statistical testing of the differences in estimates.

3.4.2 Do perceptions and policy preferences go hand in hand when it comes to socially just transition?

We expect perceptions of the social fairness of climate measures to be closely related to support for policies that enhance social justice in the social-ecological transition. A Pearson’s correlation of 0.34 indicates a moderate relationship between these two measures: those who see climate regulation as socially unjust will show more support for policies that compensate low-income individuals for costly climate regulation. Perceptions of climate and environmental protection as socially unjust explain 11% of the variation in support for socially just policies in the social-ecological transition, see Appendix 6.

The relationship between perceptions of social injustice and support for socially just policy measures varies by country. In Germany, this relationship is less pronounced than in Sweden and Denmark, see Appendix 6. Additionally, overall support for socially just climate measures is higher in Germany when perceptions of social injustice are low. This suggests that in general support for compensation of low-income households is higher in Germany than in Denmark and Sweden, and that variations in perceptions of the social consequences of present climate regulation means less for this preference than in the other two countries.

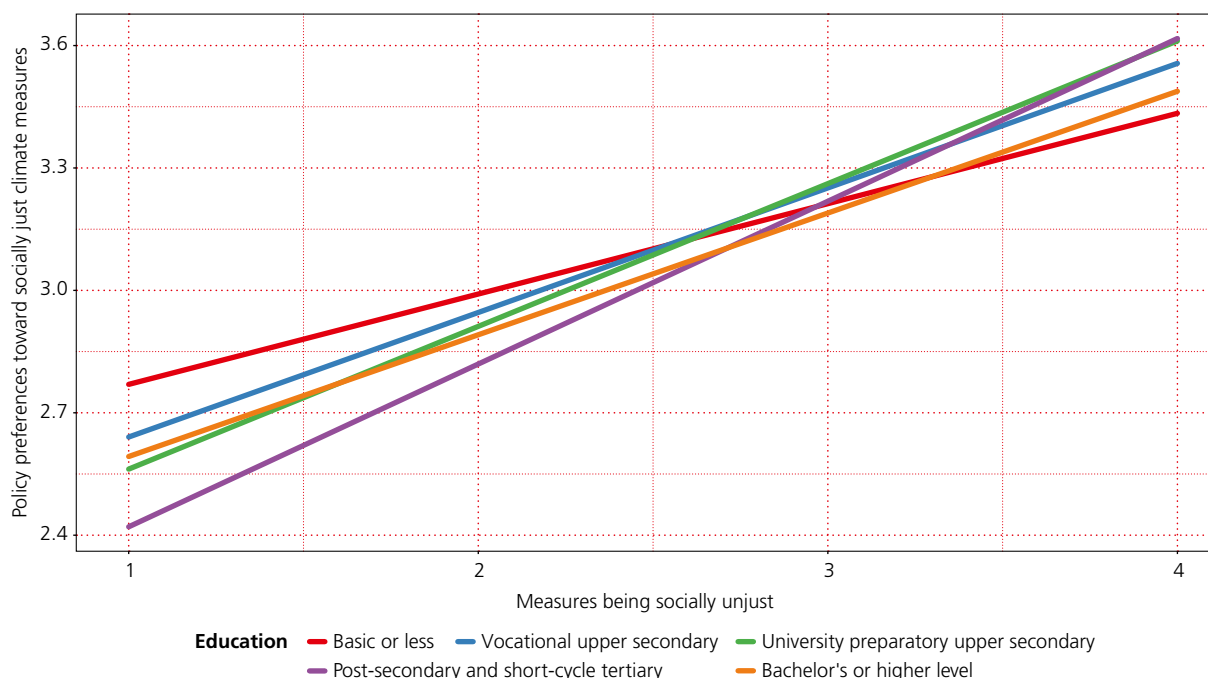
Examining education, we find some differences in the relationship between perceptions of social injustice and support for socially just measures. Figure 13 shows that this relationship becomes steeper with higher levels of education – except among those with a bachelor’s degree, where the relationship aligns more closely with that of individuals with vocational sec-

ondary education. Country-specific differences reveal that this variation by education is primarily driven by Sweden, where the relationship is more pronounced than in Denmark and Germany, see Appendix 6A. The findings suggest that the least educated individuals show most support for socially just compensation schemes, whereas among individuals with higher levels of education, the preference for compensating low-income households for costly climate policies is more closely associated with their perceptions of existing climate policies as socially unjust.

When it comes to income, we also find differences in the relationship between perceptions of climate protection as socially unjust and preferences for compensation of low-income individuals. The relationship is steeper among high-income individuals and lower among low-income individuals, see Appendix 6B. This difference is mainly driven by Sweden, which is the only country where the relationship differs depending on income, see Appendix 6B. This indicates that low-income individuals support financial aid for people with low incomes even if they do not perceive the present climate regulation to be socially unjust. This might be due to self-interest among these individuals instead of more ideological reasons of fairness.

Overall, the relationship between perceptions of climate measures as socially unjust and preferences for socially just policies does not vary significantly across the urban/rural scale, see Appendix 6C. However, when examining each country separately, we find a difference in Denmark: in the largest cities, the perception of the climate transition as socially unjust is more strongly associated with support for socially just measures, see Appendix 6C.

Figure 13. Relationship between perceptions of social injustice in climate and environmental protection and preferences for socially just policies by education



Note: The relationship between perceptions of social injustice in climate and environmental protection and preferences for socially just policies depending on education is estimated from the statistical testing in Appendix 6A, model 2.

4

CONCLUSIONS AND PERSPECTIVES

This report explores the connections between climate concern, personal responsibility, policy preferences, and social justice perceptions in the climate transition across Denmark, Sweden, and Germany. Although climate concern is widespread, translating this concern into concrete support for climate policies or personal behaviour changes remains challenging, particularly when these policies impose financial costs. By analysing survey data, the study highlights how sociodemographic factors – education, income, and urban/rural residence – influence attitudes toward climate action and support for green policies, underscoring the need to design an inclusive and socially just approach to climate policy and a just transition.

Findings indicate that education consistently predicts climate concern, personal responsibility, and support for climate transition policies. Individuals with higher education, especially those with a bachelor's degree or more, display the strongest climate concern, a heightened sense of personal responsibility, and substantial support for climate transition policies. These results suggest that higher-educated individuals may have greater awareness of environmental issues, which translates into a commitment to climate action. The relationship between concern and personal responsibility, as well as concern and policy preferences, is generally consistent across educational levels, meaning that climate concern strongly translates into both personal responsibility and support for climate transition policies across all education groups.

Education plays a different role when it comes to perceptions of social justice within climate policy. Those with higher levels of education are less likely to perceive climate transition policies as socially unjust and are also less supportive of measures that compensate low-income groups for climate transition policy costs. Even though highly educated individuals are more likely to view the climate transition positively and support its policies, they are somewhat less supportive of policies that compensate low-income groups. Still, also among highly educated individuals a large majority support compensating low-income individuals for the adverse consequences of climate policy measures. Despite lower support for socially just measures, the relationship between perceptions of social injustice and policy support becomes steeper with increasing education. This finding implies that when high-education groups view the climate transition as socially unjust they are more inclined to translate this perception of unjust climate policies to support for compensating

low-income individuals than other groups. Across all educational groups, we find broad support for compensating low-income groups that are adversely affected by climate measures.

Income, in comparison, demonstrates a more complex influence on climate attitudes and policy preferences. While income does not significantly affect general levels of climate concern, personal responsibility, or policy preferences, differences emerge in how these variables relate to each other within different income groups. The relationship between concern and policy preferences is stronger among higher-income individuals than among lower-income individuals, suggesting that those with higher incomes can more easily translate climate concern into policy support, likely due to their greater capacity to bear consumer costs associated with green policies. For low-income groups, climate concern translates less strongly into support for costly climate transition policies, indicating an »inequality effect« where limited resources may hinder the extent to which climate concern drives policy support.

The urban/rural scale also affects policy preferences, particularly in Denmark and Germany, where urban residents tend to support climate transition policies more strongly than rural residents. No significant differences are observed, however, between urban and rural populations regarding general climate concern or personal responsibility. Urban/rural residence does not influence perceptions of social justice or support for socially just measures in climate policy. However, in Denmark, residents of larger cities tend to view climate measures as less socially unjust than rural residents, potentially due to better access to public transportation and eco-friendly infrastructure. This finding suggests that urban residents may face fewer of the inconveniences that climate transition policies impose on rural communities, such as those related to car tolls.

Perceptions of social justice in the climate transition reveal additional complexities. Across all countries, low-income individuals are more likely to view climate transition measures as socially unjust and support compensatory policies. In Denmark, Sweden, and Germany, low-income groups perceive a greater risk of economic inequity within climate transition policy measures, which likely contributes to their higher support for financial aid in the climate transition. By contrast, high-income individuals are less supportive of compensatory policies, which could reflect a lack of awareness or understanding of the challenges faced by

low-income groups. The strong support for financial assistance among low-income groups, even among those who do not view climate transition policies as unjust, underscores the need for policy makers to address this concern among low-income individuals to secure their support for the climate transition.

In conclusion, this report highlights the need for climate transition policies that balance climate goals with social equity to secure public support across all social groups. Including compensatory measures for low-income, rural, and lower-educated groups may help bridge the gap between climate concern and policy support. As climate policy continues to evolve, an approach that strikes a balance between effective climate policies and redistributive measures to compensate low-income families and individuals will likely prove essential for fostering a broad-based support for the climate transition across Denmark, Sweden, and Germany.

Appendix

APPENDIX 1

Effect of education, income and residency on concern, personal responsibility, and policy preferences

| | <i>Dependent variable:</i> | | |
|---|---|--------------------------------|---------------------------|
| | Concern | Personal responsibility | Policy preferences |
| | (1) | (2) | (3) |
| Education | Reference: Basic or less | | |
| Vocational upper secondary | 0.014 (0.015) | 0.019 (0.012) | 0.011 (0.016) |
| University preparatory upper secondary | 0.072*** (0.015) | 0.042*** (0.012) | 0.014 (0.016) |
| Post-secondary and short-cycle tertiary education | 0.057*** (0.019) | 0.046*** (0.014) | 0.052*** (0.020) |
| Bachelor's or higher level | 0.096*** (0.013) | 0.078*** (0.010) | 0.081*** (0.014) |
| Country | Reference: Denmark | | |
| Germany | 0.006 (0.012) | -0.019** (0.009) | -0.050*** (0.013) |
| Sweden | -0.030** (0.012) | -0.006 (0.009) | -0.083*** (0.012) |
| Income (1,000 €) | -0.012 (0.012) | 0.003 (0.010) | -0.013 (0.013) |
| Income * Income (1,000 €) | 0.001 (0.002) | -0.0004 (0.001) | 0.0004 (0.002) |
| Urban/rural | Reference: Less than 1,000 inhabitants | | |
| 1,000–9,999 inhabitants | -0.013 (0.020) | -0.024 (0.015) | 0.017 (0.021) |
| 10,000–99,999 inhabitants | 0.007 (0.018) | -0.012 (0.014) | 0.043** (0.020) |
| 100,000–999,999 inhabitants | 0.033* (0.019) | -0.004 (0.015) | 0.077*** (0.021) |
| 1,000,000 or more inhabitants | 0.021 (0.022) | 0.003 (0.017) | 0.093*** (0.023) |
| Controls | ✓ | ✓ | ✓ |
| Constant | 0.561*** (0.050) | 0.590*** (0.038) | 0.604*** (0.054) |
| Observations | 3,153 | 3,153 | 3,153 |
| R ² | 0.047 | 0.064 | 0.037 |
| Adjusted R ² | 0.042 | 0.059 | 0.032 |
| Residual Std. Error (df = 3136) | 0.256 | 0.196 | 0.275 |
| F Statistic (df = 16; 3136) | 9.605*** | 13.348*** | 7.558*** |

*p<0.1; **p<0.05; ***p<0.01

Note: The included controls are gender and age (squared).

APPENDIX 1A

Effect of education, income and urban/rural on climate concern, countries

| | <i>Dependent variable:</i> | | |
|---|---|--------------------------|--------------------------|
| | Concern | | |
| | Denmark | Sweden | Germany |
| | (1) | (2) | (3) |
| Education | Reference: Basic or less | | |
| Vocational upper secondary | 0.007 (0.024) | 0.028 (0.026) | -0.017 (0.035) |
| University preparatory upper secondary | 0.047* (0.026) | 0.069** (0.028) | 0.086*** (0.026) |
| Post-secondary and short-cycle tertiary education | 0.031 (0.029) | 0.085*** (0.027) | |
| Bachelor's or higher level | 0.081*** (0.024) | 0.120*** (0.025) | 0.070*** (0.023) |
| Income (1,000 €) | -0.014 (0.022) | -0.038** (0.018) | 0.020 (0.027) |
| Income * Income (1,000 €) | 0.002 (0.003) | 0.003 (0.003) | -0.002 (0.005) |
| Urban/rural | Reference: Less than 1,000 inhabitants | | |
| 1,000–9,999 inhabitants | 0.006 (0.030) | -0.001 (0.036) | -0.037 (0.038) |
| 10,000–99,999 inhabitants | -0.002 (0.027) | 0.001 (0.033) | 0.016 (0.037) |
| 100,000–999.999 inhabitants | 0.063** (0.030) | 0.012 (0.034) | 0.024 (0.038) |
| 1.000.000 or more inhabitants | 0.035 (0.033) | -0.004 (0.038) | 0.023 (0.043) |
| Controls | ✓ | ✓ | ✓ |
| Constant | 0.634*** (0.081) | 0.450*** (0.078) | 0.567*** (0.103) |
| Observations | 1,003 | 1,044 | 1,106 |
| R ² | 0.057 | 0.082 | 0.039 |
| Adjusted R ² | 0.044 | 0.069 | 0.028 |
| Residual Std. Error | 0.247 (df = 988) | 0.239 (df = 1029) | 0.277 (df = 1092) |
| F Statistic | 4.261*** (df = 14; 988) | 6.530*** (df = 14; 1029) | 3.449*** (df = 13; 1092) |

*p<0.1; **p<0.05; ***p<0.01

Note: The included controls are gender and age (squared). There are no estimates for Germany in the educational category »Post-secondary and short-cycle tertiary education« since there were no educational categories in Germany that fit into this category.

APPENDIX 1B

Effect of education, income and urban/rural on personal responsibility, countries

| | <i>Dependent variable:</i> | | |
|---|---|--------------------------|--------------------------|
| | Personal responsibility | | |
| | Denmark | Sweden | Germany |
| | (1) | (2) | (3) |
| Education | Reference: Basic or less | | |
| Vocational upper secondary | 0.018 (0.019) | 0.032* (0.020) | -0.003 (0.026) |
| University preparatory upper secondary | 0.046** (0.021) | 0.050** (0.021) | 0.033* (0.020) |
| Post-secondary and short-cycle tertiary education | 0.037 (0.023) | 0.066*** (0.021) | |
| Bachelor's or higher level | 0.081*** (0.020) | 0.091*** (0.019) | 0.061*** (0.017) |
| Income (1,000 €) | 0.011 (0.017) | -0.004 (0.014) | 0.003 (0.021) |
| Income * Income (1,000 €) | -0.002 (0.003) | 0.001 (0.002) | 0.001 (0.004) |
| Urban/rural | Reference: Less than 1,000 inhabitants | | |
| 1,000–9,999 inhabitants | -0.013 (0.024) | -0.044 (0.028) | -0.022 (0.029) |
| 10,000–99,999 inhabitants | -0.011 (0.021) | -0.039 (0.025) | 0.0001 (0.028) |
| 100,000–999.999 inhabitants | 0.009 (0.024) | -0.043 (0.026) | 0.005 (0.029) |
| 1.000.000 or more inhabitants | 0.048* (0.027) | -0.067** (0.029) | 0.014 (0.032) |
| Controls | ✓ | ✓ | ✓ |
| Constant | 0.623*** (0.065) | 0.544*** (0.059) | 0.565*** (0.077) |
| Observations | 1,003 | 1,044 | 1,106 |
| R ² | 0.069 | 0.097 | 0.046 |
| Adjusted R ² | 0.056 | 0.084 | 0.034 |
| Residual Std. Error | 0.198 (df = 988) | 0.181 (df = 1029) | 0.208 (df = 1092) |
| F Statistic | 5.214*** (df = 14; 988) | 7.851*** (df = 14; 1029) | 4.012*** (df = 13; 1092) |

*p<0.1; **p<0.05; ***p<0.01

Note: The included controls are gender and age (squared). There are no estimates for Germany in the educational category »Post-secondary and short-cycle tertiary education« since there were no educational categories in Germany that fit into this category.

APPENDIX 1C

Effect of education, income and urban/rural on policy preferences, countries

| | <i>Dependent variable:</i> | | |
|---|---|--------------------------|--------------------------|
| | Policy preferences | | |
| | Denmark | Sweden | Germany |
| | (1) | (2) | (3) |
| Education | Reference: Basic or less | | |
| Vocational upper secondary | 0.029 (0.026) | -0.020 (0.030) | 0.030 (0.035) |
| University preparatory upper secondary | 0.001 (0.027) | 0.007 (0.033) | 0.041 (0.026) |
| Post-secondary and short-cycle tertiary education | 0.063** (0.030) | 0.044 (0.032) | |
| Bachelor's or higher level | 0.067*** (0.026) | 0.110*** (0.030) | 0.053** (0.023) |
| Income (1,000 €) | 0.011 (0.023) | -0.022 (0.022) | -0.025 (0.027) |
| Income * Income (1,000 €) | -0.002 (0.003) | 0.001 (0.003) | 0.004 (0.005) |
| Urban/rural | Reference: Less than 1,000 inhabitants | | |
| 1,000–9,999 inhabitants | -0.010 (0.031) | 0.015 (0.043) | 0.058 (0.038) |
| 10,000–99,999 inhabitants | 0.032 (0.028) | 0.027 (0.039) | 0.076** (0.037) |
| 100,000–999.999 inhabitants | 0.060* (0.032) | 0.051 (0.041) | 0.123*** (0.038) |
| 1.000.000 or more inhabitants | 0.098*** (0.035) | 0.066 (0.045) | 0.110*** (0.043) |
| Controls | ✓ | ✓ | ✓ |
| Constant | 0.605*** (0.085) | 0.542*** (0.092) | 0.512*** (0.102) |
| Observations | 1,003 | 1,044 | 1,106 |
| R ² | 0.042 | 0.059 | 0.033 |
| Adjusted R ² | 0.028 | 0.046 | 0.022 |
| Residual Std. Error | 0.261 (df = 988) | 0.282 (df = 1029) | 0.276 (df = 1092) |
| F Statistic | 3.098*** (df = 14; 988) | 4.594*** (df = 14; 1029) | 2.877*** (df = 13; 1092) |

*p<0.1; **p<0.05; ***p<0.01

Note: The included controls are gender and age (squared). There are no estimates for Germany in the educational category »Post-secondary and short-cycle tertiary education« since there were no educational categories in Germany that fit into this category

APPENDIX 2

Relationship between concern and personal responsibility, general and countries

| | <i>Dependent variable:</i> | | | |
|--------------------------|--------------------------------|-------------------------------|------------------------------|-------------------------------|
| | Personal responsibility | | | |
| | (1) | (2) | (3) | (4) |
| Concern | 0.560*** (0.009) | 0.552*** (0.010) | 0.589*** (0.016) | 0.586*** (0.017) |
| Country | Reference: Denmark | | | |
| Germany | | -0.022*** (0.007) | -0.014 (0.013) | -0.005 (0.014) |
| Sweden | | 0.010* (0.006) | 0.034** (0.014) | 0.049*** (0.015) |
| Concern * Country | Reference: 0 * Denmark | | | |
| Concern * Germany | | | -0.033 (0.022) | -0.030 (0.022) |
| Concern * Sweden | | | -0.049** (0.023) | -0.071*** (0.024) |
| Controls | | ✓ | | ✓ |
| Constant | 0.348*** (0.005) | 0.280*** (0.027) | 0.340*** (0.010) | 0.259*** (0.028) |
| Observations | 3,604 | 3,153 | 3,604 | 3,153 |
| R ² | 0.518 | 0.549 | 0.526 | 0.551 |
| Adjusted R ² | 0.517 | 0.547 | 0.525 | 0.548 |
| Residual Std. Error | 0.140 (df = 3602) | 0.136 (df = 3135) | 0.139 (df = 3598) | 0.136 (df = 3133) |
| F Statistic | 3,864.844*** (df = 1; 3602) | 224.826*** (df = 17; 3135) | 797.188*** (df = 5; 3598) | 202.043*** (df = 19; 3133) |

*p<0.1; **p<0.05; ***p<0.01

Note: The included controls are gender and age (squared). There are no estimates for Germany in the educational category »Post-secondary and short-cycle tertiary education« since there were no educational categories in Germany that fit into this category

APPENDIX 2A

Relationship between concern and personal responsibility, educational levels

| | <i>Dependent variable:</i> | | | | |
|---|-------------------------------------|-------------------------------|-----------------------------|------------------------------|------------------------------|
| | Personal responsibility | | | | |
| | All countries | | Denmark | Sweden | Germany |
| | (1) | (2) | (3) | (4) | (5) |
| Concern | 0.562*** (0.016) | 0.574*** (0.016) | 0.636*** (0.035) | 0.529*** (0.042) | 0.569*** (0.021) |
| Education | Reference: Basic or less | | | | |
| Vocational upper secondary | 0.039** (0.016) | 0.034* (0.018) | 0.018 (0.031) | 0.094*** (0.032) | -0.036 (0.037) |
| University preparatory upper secondary | 0.007 (0.017) | 0.016 (0.018) | 0.034 (0.033) | 0.004 (0.034) | 0.028 (0.031) |
| Post-secondary and short-cycle tertiary education | 0.032 (0.020) | 0.028 (0.021) | 0.098*** (0.036) | -0.007 (0.033) | |
| Bachelor's or higher level | 0.040*** (0.015) | 0.044*** (0.015) | 0.088*** (0.031) | 0.028 (0.030) | 0.037 (0.024) |
| Concern * Education | Reference: 0 * Basic or less | | | | |
| Concern * Vocational upper secondary | -0.022 (0.029) | -0.044 (0.030) | -0.009 (0.052) | -0.149*** (0.057) | 0.082 (0.063) |
| Concern * University preparatory upper secondary | -0.003 (0.027) | -0.026 (0.029) | -0.031 (0.053) | 0.018 (0.059) | -0.071 (0.048) |
| Concern * Post-secondary and short-cycle tertiary education | 0.005 (0.033) | -0.026 (0.035) | -0.147** (0.059) | 0.051 (0.057) | |
| Concern * Bachelor's or higher level | -0.012 (0.023) | -0.034 (0.024) | -0.096* (0.050) | -0.0002 (0.051) | -0.027 (0.036) |
| Controls | | ✓ | ✓ | ✓ | ✓ |
| Constant | 0.329*** (0.009) | 0.268*** (0.028) | 0.217*** (0.049) | 0.303*** (0.049) | 0.245*** (0.053) |
| Observations | 3,604 | 3,153 | 1,003 | 1,044 | 1,106 |
| R ² | 0.523 | 0.550 | 0.568 | 0.521 | 0.575 |
| Adjusted R ² | 0.522 | 0.547 | 0.560 | 0.512 | 0.568 |
| Residual Std. Error | 0.139 (df = 3594) | 0.136 (df = 3131) | 0.135 (df = 983) | 0.132 (df = 1024) | 0.139 (df = 1088) |
| F Statistic | 438.472*** (df = 9; 3594) | 182.099*** (df = 21; 3131) | 68.086*** (df = 19; 983) | 58.542*** (df = 19; 1024) | 86.520*** (df = 17; 1088) |

p<0.1; **p<0.05; ***p<0.01

Note: The included controls are gender, age (squared), income (squared) and urban/rural. Country is included as control in model 2. There are no estimates for Germany in the educational category »Post-secondary and short-cycle tertiary education« since there were no educational categories in Germany that fit into this category.

APPENDIX 2B

Relationship between concern and personal responsibility, urban/rural

| | <i>Dependent variable:</i> | | | | |
|---|---|-------------------------------|-----------------------------|------------------------------|------------------------------|
| | Personal responsibility | | | | |
| | All countries | | Denmark | Sweden | Germany |
| | (1) | (2) | (3) | (4) | (5) |
| Concern | 0.599*** (0.032) | 0.597*** (0.032) | 0.714*** (0.049) | 0.499*** (0.060) | 0.524*** (0.060) |
| Urban/rural | Reference: Less than 1,000 inhabitants | | | | |
| Vocational upper secondary | 0.004 (0.023) | 0.011 (0.023) | 0.040 (0.037) | -0.042 (0.044) | -0.011 (0.041) |
| University preparatory upper secondary | 0.021 (0.022) | 0.016 (0.022) | 0.069** (0.033) | -0.038 (0.040) | -0.020 (0.040) |
| Post-secondary and short-cycle tertiary education | -0.018 (0.023) | -0.013 (0.023) | 0.066* (0.040) | -0.076* (0.041) | |
| Bachelor's or higher level | 0.024 (0.026) | 0.027 (0.026) | 0.131*** (0.043) | -0.075 (0.046) | -0.001 (0.047) |
| Concern * Urban/rural | Reference: Less than 1,000 inhabitants | | | | |
| Concern * Vocational upper secondary | -0.047 (0.038) | -0.052 (0.038) | -0.105* (0.062) | -0.004 (0.072) | 0.017 (0.067) |
| Concern * University preparatory upper secondary | -0.059* (0.036) | -0.059* (0.036) | -0.146*** (0.056) | -0.003 (0.066) | 0.020 (0.065) |
| Concern * Post-secondary and short-cycle tertiary education | -0.009 (0.037) | -0.020 (0.037) | -0.168*** (0.064) | 0.049 (0.068) | 0.099 (0.068) |
| Concern * Bachelor's or higher level | -0.045 (0.042) | -0.065 (0.042) | -0.186*** (0.069) | 0.020 (0.076) | 0.006 (0.075) |
| Controls | | ✓ | ✓ | ✓ | ✓ |
| Constant | 0.340*** (0.019) | 0.255*** (0.032) | 0.179*** (0.052) | 0.321*** (0.054) | 0.264*** (0.062) |
| Observations | 3,432 | 3,153 | 1,003 | 1,044 | 1,106 |
| R ² | 0.523 | 0.550 | 0.569 | 0.514 | 0.575 |
| Adjusted R ² | 0.522 | 0.547 | 0.560 | 0.505 | 0.568 |
| Residual Std. Error | 0.140 (df = 3422) | 0.136 (df = 3131) | 0.135 (df = 983) | 0.133 (df = 1024) | 0.139 (df = 1087) |
| F Statistic | 416.764*** (df = 9; 3422) | 182.310*** (df = 21; 3131) | 68.196*** (df = 19; 983) | 57.060*** (df = 19; 1024) | 81.732*** (df = 18; 1087) |

p<0.1; **p<0.05; ***p<0.01

Note: The included controls are gender, age (squared), income (squared) and education. Country is included as control in model 2.

APPENDIX 2C

Relationship between concern and personal responsibility, income levels

| | <i>Dependent variable:</i> | | | | |
|---|--------------------------------|-------------------------------|-----------------------------|------------------------------|------------------------------|
| | Personal responsibility | | | | |
| | All countries | | Denmark | Sweden | Germany |
| | (1) | (2) | (3) | (4) | (5) |
| Concern | 0.536*** (0.019) | 0.530*** (0.019) | 0.568*** (0.038) | 0.507*** (0.035) | 0.533*** (0.031) |
| Income (1,000 €) | 0.009 (0.008) | 0.004 (0.008) | 0.015 (0.014) | 0.014 (0.013) | -0.014 (0.015) |
| Income * In-come (1,000 €) | -0.001 (0.001) | -0.001 (0.001) | -0.003* (0.002) | -0.001 (0.002) | 0.002 (0.002) |
| Income (1,000 €) * Concern | 0.011 (0.007) | 0.010 (0.007) | 0.007 (0.012) | 0.003 (0.013) | 0.013 (0.014) |
| Controls | | ✓ | ✓ | ✓ | ✓ |
| Constant | 0.333*** (0.014) | 0.293*** (0.029) | 0.263*** (0.050) | 0.317*** (0.048) | 0.262*** (0.054) |
| Observations | 3,262 | 3,153 | 1,003 | 1,044 | 1,106 |
| R ² | 0.528 | 0.550 | 0.564 | 0.513 | 0.573 |
| Adjusted R ² | 0.528 | 0.547 | 0.557 | 0.506 | 0.567 |
| Residual Std. Error | 0.139 (df = 3257) | 0.136 (df = 3134) | 0.136 (df = 986) | 0.133 (df = 1027) | 0.139 (df = 1090) |
| F Statistic | 911.830*** (df = 4; 3257) | 212.490*** (df = 18; 3134) | 79.817*** (df = 16; 986) | 67.726*** (df = 16; 1027) | 97.604*** (df = 15; 1090) |

p<0.1; **p<0.05; ***p<0.01

Note: The included controls are gender, age (squared), urban/rural and education. Country is included as control in model 2.

APPENDIX 3

Relationship between concern and personal responsibility, general and countries

| | <i>Dependent variable:</i> Policy preferences | | | |
|--------------------------|---|------------------------------|------------------------------|------------------------------|
| | (1) | (2) | (3) | (4) |
| Concern | 0.557*** (0.015) | 0.548*** (0.016) | 0.550*** (0.027) | 0.575*** (0.030) |
| Country | Reference: Denmark | | | |
| Germany | | -0.053*** (0.011) | -0.029 (0.023) | -0.017 (0.025) |
| Sweden | | -0.066*** (0.011) | -0.093*** (0.024) | -0.064** (0.025) |
| Concern * Country | Reference: 0 * Denmark | | | |
| Concern * Germany | | | -0.032 (0.037) | -0.064 (0.039) |
| Concern * Sweden | | | 0.056 (0.039) | -0.003 (0.042) |
| Controls | | ✓ | | ✓ |
| Constant | 0.254*** (0.009) | 0.297*** (0.047) | 0.294*** (0.017) | 0.281*** (0.049) |
| Observations | 3,604 | 3,153 | 3,604 | 3,153 |
| R ² | 0.268 | 0.288 | 0.279 | 0.289 |
| Adjusted R ² | 0.268 | 0.284 | 0.278 | 0.285 |
| Residual Std. Error | 0.239 (df = 3602) | 0.236 (df = 3135) | 0.237 (df = 3598) | 0.236 (df = 3133) |
| F Statistic | 1,320.915*** (df = 1; 3602) | 74.671*** (df = 17; 3135) | 277.930*** (df = 5; 3598) | 67.032*** (df = 19; 3133) |

*p<0.1; **p<0.05; ***p<0.01

Note: The included controls are gender, age (squared), urban/rural, income (squared) and education.

APPENDIX 3A

Relationship between concern and policy preferences, educational level

| | <i>Dependent variable:</i> | | | | |
|---|-------------------------------------|------------------------------|-----------------------------|------------------------------|------------------------------|
| | Policy preferences | | | | |
| | All countries | | Denmark | Sweden | Germany |
| | (1) | (2) | (3) | (4) | (5) |
| Concern | 0.551*** (0.027) | 0.546*** (0.028) | 0.661*** (0.057) | 0.634*** (0.078) | 0.491*** (0.035) |
| Education | Reference: Basic or less | | | | |
| Vocational upper secondary | 0.035 (0.028) | 0.030 (0.030) | 0.110** (0.050) | 0.017 (0.060) | 0.070 (0.063) |
| University preparatory upper secondary | -0.019 (0.028) | -0.020 (0.031) | -0.017 (0.053) | 0.026 (0.064) | 0.025 (0.053) |
| Post-secondary and short-cycle tertiary education | 0.032 (0.035) | 0.024 (0.037) | 0.147** (0.058) | 0.009 (0.062) | |
| Bachelor's or higher level | 0.004 (0.025) | 0.004 (0.027) | 0.071 (0.051) | 0.070 (0.056) | -0.059 (0.040) |
| Concern * Education | Reference: 0 * Basic or less | | | | |
| Concern * Vocational upper secondary | -0.064 (0.049) | -0.052 (0.052) | -0.163* (0.085) | -0.109 (0.107) | -0.062 (0.106) |
| Concern * University preparatory upper secondary | 0.007 (0.046) | -0.008 (0.050) | -0.022 (0.085) | -0.116 (0.111) | -0.043 (0.081) |
| Concern * Post-secondary and short-cycle tertiary education | -0.023 (0.057) | -0.005 (0.060) | -0.189** (0.096) | -0.032 (0.107) | |
| Concern * Bachelor's or higher level | 0.041 (0.040) | 0.041 (0.042) | -0.095 (0.081) | -0.060 (0.096) | 0.128** (0.060) |
| Controls | | ✓ | ✓ | ✓ | ✓ |
| Constant | 0.250*** (0.016) | 0.299*** (0.049) | 0.185** (0.079) | 0.251*** (0.091) | 0.233*** (0.089) |
| Observations | 3,604 | 3,153 | 1,003 | 1,044 | 1,106 |
| R ² | 0.272 | 0.289 | 0.331 | 0.281 | 0.298 |
| Adjusted R ² | 0.270 | 0.284 | 0.318 | 0.267 | 0.287 |
| Residual Std. Error | 0.238 (df = 3594) | 0.236 (df = 3131) | 0.219 (df = 983) | 0.247 (df = 1024) | 0.235 (df = 1088) |
| F Statistic | 149.422*** (df = 9; 3594) | 60.581*** (df = 21; 3131) | 25.566*** (df = 19; 983) | 21.031*** (df = 19; 1024) | 27.191*** (df = 17; 1088) |

p<0.1; **p<0.05; ***p<0.01

Note: The included controls are gender, age (squared), urban/rural and income (squared). Country is also included as control in model 2.

APPENDIX 3B

Relationship between concern and policy preferences, income levels

| | <i>Dependent variable:</i> | | | | |
|---|------------------------------|------------------------------|-----------------------------|------------------------------|------------------------------|
| | Policy preferences | | | | |
| | All countries | | Denmark | Sweden | Germany |
| | (1) | (2) | (3) | (4) | (5) |
| Concern | 0.464*** (0.033) | 0.469*** (0.033) | 0.480*** (0.061) | 0.540*** (0.065) | 0.441*** (0.052) |
| Income (1,000 €) | -0.008 (0.013) | -0.026* (0.014) | -0.004 (0.023) | -0.009 (0.024) | -0.053** (0.025) |
| Income * In-come (1,000 €) | -0.002 (0.002) | -0.00003 (0.002) | -0.003 (0.003) | -0.0005 (0.003) | 0.004 (0.004) |
| Income (1,000 €) * Concern | 0.039*** (0.013) | 0.035*** (0.013) | 0.036* (0.020) | 0.014 (0.025) | 0.038* (0.023) |
| Controls | | ✓ | ✓ | ✓ | ✓ |
| Constant | 0.288*** (0.023) | 0.345*** (0.050) | 0.300*** (0.081) | 0.305*** (0.090) | 0.260*** (0.092) |
| Observations | 3,262 | 3,153 | 1,003 | 1,044 | 1,106 |
| R ² | 0.270 | 0.290 | 0.328 | 0.280 | 0.296 |
| Adjusted R ² | 0.269 | 0.286 | 0.318 | 0.269 | 0.286 |
| Residual Std. Error | 0.239 (df = 3257) | 0.236 (df = 3134) | 0.219 (df = 986) | 0.247 (df = 1027) | 0.236 (df = 1090) |
| F Statistic | 300.723*** (df = 4; 3257) | 71.089*** (df = 18; 3134) | 30.138*** (df = 16; 986) | 24.928*** (df = 16; 1027) | 30.515*** (df = 15; 1090) |

p<0.1; **p<0.05; ***p<0.01

Note: The included controls are gender, age (squared), urban/rural and education. Country is included as control in model 2.

APPENDIX 3C

Relationship between concern and policy preferences, urban/rural

| | <i>Dependent variable:</i> | | | | |
|---|---|------------------------------|-----------------------------|------------------------------|------------------------------|
| | Personal responsibility | | | | |
| | All countries | | Denmark | Sweden | Germany |
| | (1) | (2) | (3) | (4) | (5) |
| Concern | 0.582*** (0.054) | 0.596*** (0.056) | 0.664*** (0.079) | 0.457*** (0.112) | 0.636*** (0.101) |
| Urban/rural | Reference: Less than 1,000 inhabitants | | | | |
| 1,000–9,999 inhabitants | 0.063 (0.039) | 0.069* (0.040) | 0.038 (0.061) | –0.060 (0.081) | 0.188*** (0.070) |
| 10,000–99,999 inhabitants | 0.042 (0.037) | 0.061 (0.038) | 0.100* (0.054) | –0.086 (0.075) | 0.144** (0.068) |
| 100,000–999,999 inhabitants | 0.058 (0.039) | 0.087** (0.040) | 0.030 (0.065) | 0.040 (0.077) | 0.140** (0.071) |
| 1.000.000 or more inhabitants | 0.087** (0.044) | 0.102** (0.045) | 0.154** (0.069) | 0.007 (0.086) | 0.131 (0.080) |
| Concern * Urban/rural | Reference: 0 * Less than 1,000 inhabitants | | | | |
| Concern * 1,000–9,999 inhabitants | –0.087 (0.064) | –0.084 (0.066) | –0.095 (0.101) | 0.142 (0.134) | –0.208* (0.114) |
| Concern * 10,000–99,999 inhabitants | –0.017 (0.060) | –0.040 (0.062) | –0.124 (0.090) | 0.209* (0.123) | –0.139 (0.110) |
| Concern * 100,000–999,999 inhabitants | –0.019 (0.063) | –0.052 (0.065) | –0.022 (0.103) | 0.013 (0.125) | –0.059 (0.114) |
| Concern * 1.000.000 or more inhabitants | –0.018 (0.071) | –0.038 (0.072) | –0.136 (0.112) | 0.115 (0.140) | –0.065 (0.126) |
| Controls | | ✓ | ✓ | ✓ | ✓ |
| Constant | 0.207*** (0.033) | 0.271*** (0.056) | 0.194** (0.085) | 0.348*** (0.100) | 0.142 (0.106) |
| Observations | 3,432 | 3,153 | 1,003 | 1,044 | 1,106 |
| R ² | 0.276 | 0.289 | 0.328 | 0.285 | 0.298 |
| Adjusted R ² | 0.274 | 0.284 | 0.315 | 0.271 | 0.286 |
| Residual Std. Error | 0.237 (df = 3422) | 0.236 (df = 3131) | 0.219 (df = 983) | 0.246 (df = 1024) | 0.236 (df = 1087) |
| F Statistic | 144.591*** (df = 9; 3422) | 60.497*** (df = 21; 3131) | 25.307*** (df = 19; 983) | 21.450*** (df = 19; 1024) | 25.634*** (df = 18; 1087) |

p<0.1; **p<0.05; ***p<0.01

Note: The included controls are gender, age (squared), income (squared) and education. Country is also included as control in model 2..

APPENDIX 4

Effect of education, income and residency on perceptions of social injustice in the green transition

| | <i>Dependent variable:</i> | | | |
|---|--|----------------------------|-----------------------------|-----------------------------|
| | Measures for climate and environmental protection are socially unjust since they have an impact on low earners in particular. | | | |
| | (1 = Do not agree at all, 4 = Completely agree) | | | |
| | All countries | Denmark | Sweden | Germany |
| | (1) | (2) | (3) | (4) |
| Urban/rural | Reference: Less than 1,000 inhabitants | | | |
| 1,000–9,999 inhabitants | 0.002 (0.069) | –0.056 (0.107) | 0.161 (0.129) | 0.002 (0.128) |
| 10,000–99,999 inhabitants | –0.113* (0.063) | –0.165* (0.096) | –0.032 (0.118) | –0.060 (0.122) |
| 100,000–999.999 inhabitants | –0.056 (0.067) | –0.230** (0.109) | 0.056 (0.122) | 0.042 (0.128) |
| 1.000.000 or more inhabitants | –0.097 (0.075) | –0.297** (0.120) | 0.175 (0.136) | –0.113 (0.143) |
| Income (1,000 €) | –0.125*** (0.043) | –0.127 (0.079) | –0.096 (0.065) | –0.087 (0.091) |
| Income * Income (1,000 €) | 0.010 (0.007) | 0.012 (0.011) | 0.008 (0.010) | –0.006 (0.016) |
| Country | Reference: Denmark | | | |
| Germany | 0.031 (0.043) | | | |
| Sweden | 0.121*** (0.040) | | | |
| Education | Reference: Basic or less | | | |
| Vocational upper secondary | 0.00002 (0.052) | 0.003 (0.087) | 0.001 (0.091) | 0.061 (0.117) |
| University preparatory upper secondary | –0.078 (0.052) | –0.057 (0.094) | –0.133 (0.100) | 0.007 (0.088) |
| Post-secondary and short-cycle tertiary education | –0.204*** (0.065) | –0.329*** (0.104) | –0.097 (0.097) | |
| Bachelor's or higher level | –0.253*** (0.047) | –0.212** (0.088) | –0.208** (0.090) | –0.274*** (0.076) |
| Controls | ✓ | ✓ | ✓ | ✓ |
| Constant | 2.694*** (0.174) | 2.744*** (0.291) | 2.898*** (0.277) | 2.458*** (0.343) |
| Observations | 3,153 | 1,003 | 1,044 | 1,106 |
| R ² | 0.039 | 0.049 | 0.031 | 0.060 |
| Adjusted R ² | 0.034 | 0.035 | 0.018 | 0.048 |
| Residual Std. Error | 0.890 (df = 3136) | 0.890 (df = 988) | 0.846 (df = 1029) | 0.925 (df = 1092) |
| F Statistic | 7.898*** (df = 16; 3136) | 3.624*** (df = 14; 988) | 2.370*** (df = 14; 1029) | 5.322*** (df = 13; 1092) |

p<0.1; **p<0.05; ***p<0.01

Note: The included controls are gender and age (squared).

APPENDIX 5

Effect of education, income and residence on preferences for socially just green policy

| | <i>Dependent variable:</i> | | | |
|---|---|----------------------------|-----------------------------|-----------------------------|
| | People with a low income ought to be provided with greater financial support if costs for electricity, heating and mobility rise due to climate protection measures. | | | |
| | (1 = Do not agree at all, 4 = Completely agree) | | | |
| | All countries | Denmark | Sweden | Germany |
| | (1) | (2) | (3) | (4) |
| Urban/rural | Reference: Less than 1,000 inhabitants | | | |
| 1,000–9,999 inhabitants | 0.014 (0.063) | -0.039 (0.105) | 0.021 (0.125) | 0.112 (0.104) |
| 10,000–99,999 inhabitants | -0.003 (0.058) | -0.029 (0.095) | 0.013 (0.114) | 0.057 (0.100) |
| 100,000–999.999 inhabitants | 0.075 (0.062) | -0.072 (0.108) | -0.009 (0.118) | 0.306*** (0.104) |
| 1.000.000 or more inhabitants | 0.054 (0.069) | -0.003 (0.118) | 0.030 (0.131) | 0.155 (0.116) |
| Income (1,000 €) | -0.185*** (0.040) | -0.295*** (0.078) | -0.157** (0.063) | -0.113 (0.074) |
| Income * Income (1,000 €) | 0.009 (0.006) | 0.023** (0.011) | 0.005 (0.010) | 0.001 (0.013) |
| Country | Reference: Denmark | | | |
| Germany | 0.169*** (0.039) | | | |
| Sweden | 0.097*** (0.037) | | | |
| Education | Reference: Basic or less | | | |
| Vocational upper secondary | 0.033 (0.048) | -0.028 (0.086) | 0.121 (0.088) | -0.045 (0.095) |
| University preparatory upper secondary | 0.012 (0.048) | -0.036 (0.092) | 0.055 (0.096) | 0.032 (0.071) |
| Post-secondary and short-cycle tertiary education | -0.090 (0.059) | -0.158 (0.102) | -0.007 (0.093) | |
| Bachelor's or higher level | -0.104** (0.043) | -0.133 (0.087) | -0.045 (0.086) | -0.131** (0.062) |
| Controls | ✓ | ✓ | ✓ | ✓ |
| Constant | 3.169*** (0.159) | 3.594*** (0.287) | 3.186*** (0.267) | 2.894*** (0.279) |
| Observations | 3,153 | 1,003 | 1,044 | 1,106 |
| R ² | 0.071 | 0.065 | 0.063 | 0.070 |
| Adjusted R ² | 0.067 | 0.051 | 0.051 | 0.059 |
| Residual Std. Error | 0.817 (df = 3136) | 0.878 (df = 988) | 0.816 (df = 1029) | 0.753 (df = 1092) |
| F Statistic | 15.070*** (df = 16; 3136) | 4.874*** (df = 14; 988) | 4.969*** (df = 14; 1029) | 6.326*** (df = 13; 1092) |

p<0.1; **p<0.05; ***p<0.01

Note: The included controls are gender and age (squared).

APPENDIX 6

Effect of perceptions on preferences for socially just green policy, countries

| | <i>Dependent variable:</i> | | | |
|--|--|------------------------------|------------------------------|------------------------------|
| | People with a low income ought to be provided with greater financial support if costs for electricity, heating and mobility rise due to climate protection measures. (1 = Do not agree at all, 4 = Completely agree) | | | |
| | (1) | (2) | (3) | (4) |
| Perceptions of socially just transition | 0.313*** (0.015) | 0.294*** (0.016) | 0.353*** (0.025) | 0.355*** (0.027) |
| Country | Reference: Denmark | | | |
| Germany | | 0.160*** (0.037) | 0.594*** (0.102) | 0.591*** (0.108) |
| Sweden | | 0.061* (0.035) | 0.086 (0.107) | 0.064 (0.114) |
| Perceptions of socially just transition * Country | Reference: 0 * Denmark | | | |
| Perceptions of socially just transition * Germany | | | -0.126*** (0.035) | -0.154*** (0.037) |
| Perceptions of socially just transition * Sweden | | | -0.0003 (0.037) | -0.004 (0.039) |
| Controls | | ✓ | | ✓ |
| Constant | 2.304*** (0.043) | 2.376*** (0.157) | 2.085*** (0.072) | 2.206*** (0.167) |
| Observations | 3,604 | 3,153 | 3,604 | 3,153 |
| R ² | 0.112 | 0.167 | 0.130 | 0.173 |
| Adjusted R ² | 0.112 | 0.162 | 0.129 | 0.168 |
| Residual Std. Error | 0.796 (df = 3602) | 0.774 (df = 3135) | 0.788 (df = 3598) | 0.771 (df = 3133) |
| F Statistic | 456.568*** (df = 1; 3602) | 36.960*** (df = 17; 3135) | 107.952*** (df = 5; 3598) | 34.546*** (df = 19; 3133) |

*p<0.1; **p<0.05; ***p<0.01

Note: The included controls are gender, age (squared), urban/rural, income (squared) and education.

APPENDIX 6A

Effect of education on relationship between perceptions of and preferences for socially just green policy

| | <i>Dependent variable:</i> | | | | |
|---|---|------------------------------|-----------------------------|------------------------------|-----------------------------|
| | People with a low income ought to be provided with greater financial support if costs for electricity, heating and mobility rise due to climate protection measures. | | | | |
| | (1 = Do not agree at all, 4 = Completely agree) | | | | |
| | All countries | | Denmark | Sweden | Germany |
| | (1) | (2) | (3) | (4) | (5) |
| Perceptions of socially just transition | 0.231*** (0.027) | 0.221*** (0.028) | 0.328*** (0.067) | 0.206** (0.080) | 0.186*** (0.033) |
| Education | Reference: Basic or less | | | | |
| Vocational upper secondary | -0.397*** (0.141) | -0.213 (0.149) | -0.034 (0.266) | -0.175 (0.326) | -0.123 (0.298) |
| University preparatory upper secondary | -0.499*** (0.134) | -0.336** (0.146) | -0.193 (0.291) | -0.288 (0.312) | -0.365 (0.226) |
| Post-secondary and short-cycle tertiary education | -0.687*** (0.160) | -0.527*** (0.167) | -0.123 (0.296) | -0.677** (0.314) | |
| Bachelor's or higher level | -0.413*** (0.113) | -0.254** (0.119) | -0.171 (0.253) | -0.451 (0.281) | -0.036 (0.165) |
| Perceptions of socially just transition * Education | Reference: 0 * Less than 1,000 inhabitants | | | | |
| Perceptions of socially just transition * Vocational upper secondary | 0.087* (0.046) | 0.084* (0.049) | 0.002 (0.089) | 0.101 (0.107) | 0.022 (0.096) |
| Perceptions of socially just transition * University preparatory upper secondary | 0.128*** (0.045) | 0.128*** (0.048) | 0.063 (0.098) | 0.132 (0.103) | 0.136* (0.074) |
| Perceptions of socially just transition * Post-secondary and short-cycle tertiary education | 0.162*** (0.055) | 0.177*** (0.057) | 0.029 (0.106) | 0.242** (0.104) | |
| Perceptions of socially just transition * Bachelor's or higher level | 0.070* (0.039) | 0.077* (0.040) | 0.041 (0.087) | 0.164* (0.093) | -0.017 (0.056) |
| Controls | | ✓ | ✓ | ✓ | ✓ |
| Constant | 2.667*** (0.083) | 2.591*** (0.171) | 2.708*** (0.329) | 2.606*** (0.345) | 2.439*** (0.285) |
| Observations | 3,604 | 3,153 | 1,003 | 1,044 | 1,106 |
| R ² | 0.126 | 0.170 | 0.185 | 0.190 | 0.130 |
| Adjusted R ² | 0.124 | 0.165 | 0.169 | 0.175 | 0.116 |
| Residual Std. Error | 0.791 (df = 3594) | 0.773 (df = 3131) | 0.822 (df = 983) | 0.761 (df = 1024) | 0.730 (df = 1088) |
| F Statistic | 57.720*** (df = 9; 3594) | 30.638*** (df = 21; 3131) | 11.762*** (df = 19; 983) | 12.659*** (df = 19; 1024) | 9.539*** (df = 17; 1088) |

p<0.1; **p<0.05; ***p<0.01

Note: The included controls are gender, age (squared), urban/rural and income (squared). Country Is included as control in model 2.

APPENDIX 6B

Effect of income on relationship between perceptions of and preferences for socially just green policy

| | <i>Dependent variable:</i> | | | | |
|---|---|------------------------------|-----------------------------|------------------------------|------------------------------|
| | People with a low income ought to be provided with greater financial support if costs for electricity, heating and mobility rise due to climate protection measures. | | | | |
| | (1 = Do not agree at all, 4 = Completely agree) | | | | |
| | All countries | | Denmark | Sweden | Germany |
| | (1) | (2) | (3) | (4) | (5) |
| Perceptions of socially just transition | 0.217*** (0.031) | 0.209*** (0.032) | 0.277*** (0.067) | 0.240*** (0.058) | 0.174*** (0.050) |
| Income (1,000 €) | -0.215*** (0.034) | -0.262*** (0.053) | -0.333*** (0.097) | -0.269*** (0.091) | -0.145 (0.108) |
| Income * Income (1,000 €) | | 0.009 (0.006) | 0.020* (0.011) | 0.005 (0.009) | 0.004 (0.013) |
| Perceptions of socially just transition * Income (1,000 €) | 0.032*** (0.012) | 0.036*** (0.012) | 0.027 (0.022) | 0.047** (0.022) | 0.013 (0.022) |
| Controls | | ✓ | ✓ | ✓ | ✓ |
| Constant | 2.865*** (0.094) | 2.617*** (0.176) | 2.835*** (0.325) | 2.485*** (0.300) | 2.485*** (0.309) |
| Observations | 3,262 | 3,153 | 1,003 | 1,044 | 1,106 |
| R ² | 0.153 | 0.169 | 0.186 | 0.189 | 0.127 |
| Adjusted R ² | 0.152 | 0.165 | 0.173 | 0.176 | 0.115 |
| Residual Std. Error | 0.777 (df = 3258) | 0.773 (df = 3134) | 0.820 (df = 986) | 0.760 (df = 1027) | 0.731 (df = 1090) |
| F Statistic | 195.807*** (df = 3; 3258) | 35.499*** (df = 18; 3134) | 14.084*** (df = 16; 986) | 14.953*** (df = 16; 1027) | 10.547*** (df = 15; 1090) |

p<0.1; **p<0.05; ***p<0.01

Note: The included controls are gender, age (squared), urban/rural and education. Country is included as control in model 2.

APPENDIX 6C

Effect of urban/rural on relationship between perceptions of and preferences for socially just green policy

| | <i>Dependent variable:</i> | | | | |
|---|---|------------------------------|-----------------------------|------------------------------|-----------------------------|
| | People with a low income ought to be provided with greater financial support if costs for electricity, heating and mobility rise due to climate protection measures. | | | | |
| | (1 = Do not agree at all, 4 = Completely agree) | | | | |
| | All countries | | Denmark | Sweden | Germany |
| | (1) | (2) | (3) | (4) | (5) |
| Perceptions of socially just transition | 0.300*** (0.051) | 0.274*** (0.052) | 0.296*** (0.082) | 0.326*** (0.106) | 0.201** (0.089) |
| Urban/rural | Reference: Less than 1,000 inhabitants | | | | |
| 1,000–9,999 inhabitants | 0.096 (0.192) | 0.021 (0.197) | –0.057 (0.330) | 0.185 (0.407) | –0.027 (0.321) |
| 10,000–99,999 inhabitants | –0.095 (0.171) | –0.071 (0.174) | –0.174 (0.281) | –0.068 (0.341) | 0.022 (0.299) |
| 100,000–999.999 inhabitants | 0.114 (0.181) | 0.110 (0.184) | 0.032 (0.312) | –0.165 (0.351) | 0.517 (0.315) |
| 1.000.000 or more inhabitants | –0.268 (0.200) | –0.121 (0.202) | –0.554 (0.339) | –0.102 (0.398) | 0.173 (0.335) |
| Perceptions of socially just transition * Urban/rural | Reference: 0 * Less than 1,000 inhabitants | | | | |
| Perceptions of socially just transition * 1,000–9,999 inhabitants | –0.017 (0.063) | –0.002 (0.064) | 0.012 (0.109) | –0.071 (0.134) | 0.048 (0.104) |
| Perceptions of socially just transition * 10,000–99,999 inhabitants | 0.037 (0.056) | 0.035 (0.057) | 0.071 (0.093) | 0.033 (0.114) | 0.017 (0.097) |
| Perceptions of socially just transition * 100,000–999.999 inhabitants | –0.022 (0.060) | –0.008 (0.061) | –0.016 (0.106) | 0.048 (0.117) | –0.076 (0.102) |
| Perceptions of socially just transition * 1.000.000 or more inhabitants | 0.099 (0.067) | 0.073 (0.067) | 0.246** (0.116) | 0.025 (0.132) | 0.002 (0.110) |
| Constant | 2.307*** (0.156) | 2.436*** (0.212) | 2.785*** (0.354) | 2.249*** (0.390) | 2.406*** (0.380) |
| Observations | 3,432 | 3,153 | 1,003 | 1,044 | 1,106 |
| R ² | 0.119 | 0.168 | 0.191 | 0.187 | 0.129 |
| Adjusted R ² | 0.117 | 0.162 | 0.175 | 0.172 | 0.115 |
| Residual Std. Error | 0.796 (df = 3422) | 0.774 (df = 3131) | 0.819 (df = 983) | 0.762 (df = 1024) | 0.731 (df = 1087) |
| F Statistic | 51.302*** (df = 9; 3422) | 30.062*** (df = 21; 3131) | 12.190*** (df = 19; 983) | 12.372*** (df = 19; 1024) | 8.955*** (df = 18; 1087) |

p<0.1; **p<0.05; ***p<0.01

Note: The included controls are gender, age (squared), income (scale) and education. Country Is included as control in model 2.

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