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It starts from home? Explaining environmentally responsible resource and waste management

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Resource and waste management are indispensable to environmentally conscious action and a large part of EU Green politics. Little is known about factors affecting individual propensity for resource and waste management. The article examines the effects of environmental concerns, perceptions of climate change, preferences for EU integration, and media exposure (traditional and new) on the propensity to save resources and waste management employing a representative sample of 904 respondents in the Czech Republic. Methodologically we rely on principal component analysis, correlations, and a set of ordinal regression analyses. The results suggest that environmental and climate concerns increase the propensity to save resources and separate waste. The preferences for EU integration and media exposure were unrelated to saving resources and waste management, except exposure to online news, which negatively affected the environmentally motivated reduction of unnecessary car trips. The results imply immense consequences on the conceptual and policy-making levels. On the conceptual level the results suggest, that the mass media stopped to fulfill its developmental and persuasive functions, as generally people do not relate their pro-environmental behavior to the mass media exposure. From the policy-making perspective the mass media proves to be a poor resource for the pro-environmental actions as in case of social networks the role of mass media on waste management proved negative. We also suggest that saving resources and waste management stopped to be a topic of political and media influence but transferred to the domain of personal values and economic decisions.

KEYWORDS

pro-environmental behavior, resources saving, EU green politics, waste management, public perceptions, climate change, media exposure impact, animal-based protein consumption

1 Introduction

Environmentally responsible resource and waste management is indispensable for environment protection. This is accomplished by reducing consumption of natural resources, reducing the amount of hazardous waste produced, and responsibly disposing of the waste that is created. Environmentally responsible resource and waste management is an important part of environmentally responsible consumption on all the three stages of the latter. First, it involves careful consideration of resource use at the level of purchasing decision; second, it assumes careful consumption with little waste produced on the stage of storage and consumption; third, it implies environmentally conscious waste management (for the three stages of consumption see [Stern, 2000](#)).

Environmentally responsible consumption bears immense potential for environment protection and mitigation of climate change as currently consumers contribute to more than 70% of urban greenhouse gases (GHG) emissions (Hertwich and Peters, 2009; Lee and Lee, 2014; Ding, et al., 2017; Wiedenhof, et al., 2017). Reducing the household-based carbon footprint in some countries could reduce almost 40% of national GHG emissions (e.g., National Strategy of Japan by 2030, Oshiro et al., 2017).

Environmentally responsible consumption is a subject of many policy initiatives on the level of the EU and single countries (Calabro, 2007; Skovgaard, 2014; Fischer and Geden, 2015). Environmentally friendly policy initiatives are generally well accepted by populations as they promise clean environment and mitigation of climate change. However, in some countries, the Czech Republic is the example, environmentally charged EU policies traditionally evoke certain controversy, as they negatively affect the economies of coal-producing regions and impose additional monetary and non-monetary burdens (Cabelkova et al., 2020; Cabelkova et al., 2022).

Environmentally conscious actions, that need to follow legislative measures, require joint determination of diverse social actors (Sahakian and Seyfang, 2018; Xu et al., 2018), each of which is influenced by the individual attitudes, emotions, motivations, perceptions, values and norms (for the review see Wijekoon and Sabri, 2021). The impact of knowledge achieved through education or mass media (traditional, social, or new) cannot be overestimated. Previous research has shown that agendas presented in the mass media and discussion platforms create group norms and affect intentions and behavior (Moore and Moschis, 1983; Willnat and Weaver, 2018; Chen, et al., 2019). However, in the field of sustainable actions, research on the media's role is still largely missing (Chen et al., 2019).

The early theories on green consumption start from the Fisk's (1974) theory of responsible consumption, Henion and Kinnear's (1976) ecological marketing and Kardash's (1974) theory of ecologically concerned consumer. Theoretical and empirical studies concentrated on the factors affecting environmentally responsible behaviour in an attempt to predict and improve environmental outcomes. The early studies concentrated on socio-demographic predictors in the boundaries of the literature on market segmentation. Later studies suggested psychological and institutional factors to be the main predictors of environmentally friendly actions (Van Dam and Apeldoorn, 1996; Kilbourne and Beckmann, 1998). The more recent literature studied the role of environmental knowledge, economic rationality, attitudes, beliefs and values (Bartkus et al., 1999; Eriksson, 2004; Jackson, 2005; Han, et al., 2007; Carrus et al., 2008). The latest literature on the topic presented the role of the media (Jain et al., 2020; Wagdi et al., 2022), yet, this field remains understudied (Chen et al., 2019).

This paper studies factors affecting the propensity of the population to engage in environmentally conscious consumption, namely, in saving resources and sorting waste. We hypothesize that environmental concerns, perceptions on climate change, attitude to EU integration, and media exposure predict more saving resources and better household waste management in the Czech Republic. Methodologically we rely on principal component analysis, correlation, and ordinal regression analyses employing a representative sample of 904 respondents (aged 15–95 years, $M \pm SD$: 47.74 \pm 17.66; 51.40% women, 19.40% with higher education) from the Czech Republic.

2 Environmentally responsible resource and waste management as a part of environmentally responsible consumption

Environmentally responsible consumption starts with purchasing decisions, follows with consumption, and closes with waste management (Stern, 2000, Figure 1). Environmentally responsible resource and waste management resides in all the three parts of environmentally responsible consumption. In the first part—choosing “green” products and limiting excessive consumption—resources might be saved in choosing the products with less resource input (e.g., energy or resource effective products), choosing the products producing less waste (e.g., products without packaging), or limiting excessive consumption and, thus excessive resource use. At the second stage—consumption *per se*—one could reduce waste by adequate storage technologies and use of utilities. At the third stage—waste sorting and disposal—waste itself may be considered as a resource and waste separation is one of the ways both to produce additional resources and reduce waste.

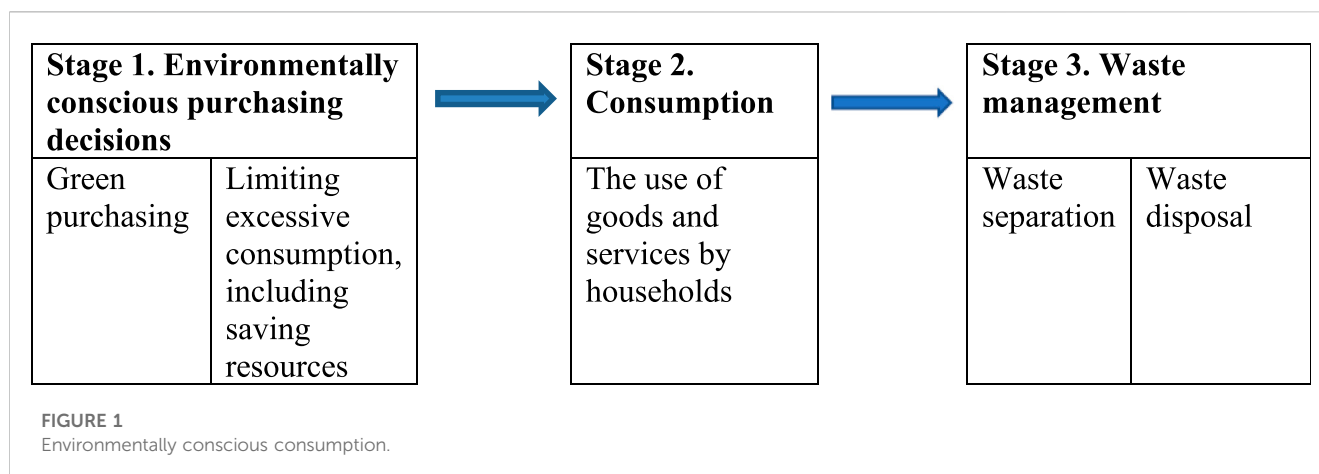
An indispensable part of household consumption consists of food items. Recent studies that have examined environmentally conscious purchasing focus primarily on protein consumption. They have shown a strong relationship between environmentally conscious purchasing and protein consumption. This relationship is important for both individuals and society as a whole. According to Flynn et al. (2016), individuals who prioritize environmental sustainability in their purchasing decisions tend to consume less protein. This is because animal-based protein production, such as beef and poultry, has a significantly larger carbon footprint than plant-based protein sources like beans and lentils (Steinfeld et al., 2006). Gerber (2013) also found that the meat industry is responsible for approximately 18% of global greenhouse gas emissions. Individuals can significantly reduce their carbon footprint and contribute to climate change mitigation by reducing their consumption of animal-based protein and opting for more environmentally friendly options. Furthermore, McDougall et al. (2002) found that plant-based diets have a lower environmental impact and numerous health benefits compared to diets high in animal protein. The health benefits include a reduced risk of chronic diseases such as heart disease and type 2 diabetes (McDougall et al., 2002).

2.1 Environmentally responsible consumption

2.1.1 Green purchasing

Figure 1 Green purchasing (GP) refers to 1) purchasing environmentally friendly products, which are usually recycled and bring benefits to the environment, and 2) avoiding products that harm the environment (Chan, 2001; Mostafa, 2007; Steg and Vlek, 2009). In this regard, GP should be distinguished from sustainable purchasing, which, besides environmental sustainability, accounts for economic, social, health, and other sustainability aspects (Miemczyk, et al., 2012).

Green purchasing is also related to food consumption. This is particularly true about protein consumption. While protein



consumption has long been considered an essential component of a healthy diet, recent studies have also highlighted the environmental impact of protein production, with animal-based protein sources often being particularly damaging to the environment. In response to this, many individuals and organizations have begun to adopt green purchasing practices, choosing protein sources that are both sustainable and environmentally friendly.

For example, [Weber and Matthews \(2008\)](#) found that the production of animal-based proteins requires significantly more resources and generates more greenhouse gas emissions than plant-based protein sources. [Crowe et al. \(2014\)](#) found that adopting a plant-based diet can significantly positively impact both individual and global health while reducing the environmental impact of protein production. This has led to a growing interest in plant-based protein sources, such as legumes, nuts, and seeds, which can provide high-quality protein while also being sustainable and environmentally friendly.

In addition to the environmental benefits of choosing plant-based protein sources, many organizations are also adopting green purchasing practices to support local agriculture and reduce food miles. This can help reduce the environmental impact of protein production, supporting the local economy and promoting food security ([Rangan et al., 2013](#)).

2.1.2 Saving resources

Besides favouring environmentally friendly products, consumers may reduce some parts of consumption to save the environment. Two types of saving can be considered: 1) limiting resource use, such as reducing waste of energy and water via water and energy-saving technologies, and 2) limiting unnecessary consumption, such as limiting car drives, reusing the clothes and bags instead of buying new, changing the furniture in an apartment less often, etc.

The first alternative often implies additional costs for new technologies and can be regulated by the governments (e.g., the prohibition of selling electric bulbs in the EU). Though these actions may benefit the environment, the prohibitions may create societal tensions, as they create discrepancies on an economic level. The opinion of the citizens on these policy measures should be considered, especially in light of the increasing activity of EU policymakers in the field of environmental protection and climate change.

The second alternative suggests voluntary consumption deprivation to protect the environment (e.g., limiting car drives, flights, reusing clothes or plastic bags, etc. ([Nenckova, et al., 2020](#)). This strategy implies economic and behavioral aspects. Limiting unnecessary consumption reduces financial expenses and decreases consumption's utility ([Pangarkar, et al., 2021](#)). This utility loss might be compensated by the positive feeling of being environmentally conscious ([Ketelsen, et al., 2020](#)), which, in turn, requires building this consciousness. The exposition to mass media (including all kinds of online and offline discussion platforms) and education are likely to be the affecting factors ([Trivedi, et al., 2018](#); [Liobikienė and Poškus, 2019](#)).

2.1.3 Waste management

Environmentally motivated waste separation and disposal generally require extra efforts, which are shown to reduce the intentions for environmentally correct waste management ([Wan et al., 2015](#); [Welfens, et al., 2016](#)). The governments compensate for these efforts via financial motivations ([Chalcharoenwattana and Pharino, 2016](#); [Xu et al., 2017](#)). For example, separated waste in the Czech Republic can be disposed of free of charge, while the utilization of mixed waste is charged. Besides, separated food waste can be used as fertilizers for further agricultural production if composted. However, not all households have access to composting facilities. In any case, the motivation for environmentally conscious waste management is impacted by the agenda of environmental protection, style of life, and financial motivations ([Vassanadumrongdee and Kittipongvises, 2018](#)).

2.2 Factors affecting environmentally responsible consumption in the literature

The roots of green consumption can be seen in centuries past, but the phrase itself was first used in the 1970s in the United States alongside the development of "societal marketing," which addressed environmental questions. Fisk's Theory of Responsible Consumption ([Fisk, 1974](#)), Henion and Kinnear's Ecological Marketing ([Henion and Kinnear, 1976](#)), and Kardash's Ecologically Concerned Consumer ([Kardash, 1974](#)) were all theories that categorized green consumption. Research initially

TABLE 1 The theories of environmentally conscious consumption and affecting factors as presented in the literature.

| Theory/Factor | Author/Source |
|--|---|
| Early theories of environmentally conscious consumption (1970th) | |
| Theory of Responsible Consumption | Fisk, (1974) |
| Ecological Marketing Ecologically Concerned Consumer | Henion and Kinnear (1976) Kardash (1974) |
| Early studies focusing on understanding green consumer attitudes and conduct evolved into efforts to comprehend their motivations, psychology, and the influence of institutional factors | Kilbourne and Beckmann (1998); Van Dam and Apeldoorn (1996) |
| Factors affecting environmentally responsible consumption | |
| Economic Rationality: green consumption as affected by economic incentives. However, consumers need to be aware of the incentives and understand the impacts | Jackson (2005), Eriksson (2004), Bartelings and Sterner (1999), Shen and Wang (2022), Wang et al. (2021) |
| Socio-demographics: market segmentation of green consumers according to sex, age, presence and number of children, educational level, and socioeconomic class | Laroche, et al. (2001), Robinson and Smith (2002), Jenkins, et al. (2003), Walia et al. (2020) |
| Income and spending: more affluent households produced considerably higher environmental footprint but can afford more green consumption | Lenzen and Murray (2003), Cymru (2002), Huang, et al. (2022) |
| Environmental knowledge. The results are controversial. Some authors report positive effect of more environmental knowledge on green consumption. The others report no or unclear effect | Positive effect of knowledge on green consumption (Bartkus et al., 1999) |
| | No or unclear effect of knowledge on green consumption (Davies, et al., 2002; Pedersen and Neergaard, 2006) |
| | Rustam, et al. (2020) |
| Attitudes, Beliefs, and Values | |
| Emotions and habits are more important than rational choices | Carrus et al. (2008), Han, et al. (2007), Wang, et al. (2019) |
| Existing models of values - Schwartz's value model. Altruist values are positively related to pro-environmental behavior | Pepper, et al. (2009), Ahmad, et al. (2020) |
| Specific environmental values and beliefs influence pro-environmental behavior | Leiserowitz, et al. (2006), Dietz, et al. (2005), Sivapalan et al. (2021) |
| Pro-environmental values increase consumers' willingness to pay a premium for green products such as organic food or green electricity tariffs and engage in recycling | Nixon et al. (2009), Krystallis and Chrysosoidis (2005), Laroche et al. (2001), Saraiva et al. (2021) |
| Pro-environmental values increase product reuse and waste-minimization intentions and behaviors but not recycling, where practicalities were more influential | Barr, (2007) |
| Pro-environmental values increase the intention to recycle and conserve water but not to buy organic food or avoid leaving appliances on standby | Lyndhurst, B. (2004) |
| Cultural/ethnic group norms impact pro-environmental behavior | Kilbourne et al. (2002), Johnson et al. (2004), Halder et al. (2020) |
| Dominant social paradigm (DSP) impacts pro-environmental behavior, which reduces the role of the value factors above. For example, consumerism reduces willingness to engage in green consumption | Kilbourne and Polonsky, (2005), Fischer et al. (2021) |
| Responsibility, Control, and Personal Effectiveness—understanding personal responsibilities for both causing and solving environmental problems and believing that the action they take can have a meaningful impact | Gupta and Ogden (2009), Yue et al. (2020) |
| Lifestyles and Habits Lifestyles and habits may be able to explain the inconsistencies in consumers' behaviors | Leiserowitz et al. (2010), Empacher and Götz (2004), ElHaffar et al. (2020), Vita et al. (2019) |
| Green Consumer Identities and Personalities (consumer's sense of self-identity) | Fekadu and Kraft (2001); Mannetti et al. (2004), Sharma et al. (2020) |
| Contextual factors—green consumption is not a homogeneous phenomenon and policies need to depend on context | Moisander (2007), Vermeir and Verbeke (2006), Nair, and Little (2016) |
| Spatial Dimensions (local, urban/rural, regional, and national) | Munksgaard, et al. (2000)—urban/rural difference in waste infrastructure |
| | Hines and Peattie (2006)—style of housing, agricultural systems, and specific mix of energy sources |
| | Tang, et al. (2022)—models for urban and rural localities |
| Consumption as a Social Process - the importance of the social, political, and historical context and conditions of our lives and lifestyles | Moisander, (2007), Connolly and Prothero (2003), Fischer et al. (2021), Beatson et al. (2020) |

(Continued on following page)

TABLE 1 (Continued) The theories of environmentally conscious consumption and affecting factors as presented in the literature.

| Theory/Factor | Author/Source |
|------------------------------------|---|
| Social Norms about the Environment | Zukin and Maguire (2004) |
| | Fischer et al. (2021), Beatson et al. (2020) |
| | Barr (2007)—recycling is adopted because it is perceived as normal |
| | Krystallis and Chrysohoidis (2005) - existing prices are the norm and that greener products represent an expensive luxury |
| The Media | Haron et al. (2005), Jain et al. (2020), Wagdi et al. (2022) |

Source: the table is based on structure presented in Peattie (2010) and existing literature.

centered on energy use and pollution related to the automobile, oil, and chemical industries. Recycling, energy savings, and consumer reactions to advertising and labeling were primary topics of study (Kilbourne and Beckmann, 1998; Henion and Kinnear, 1976; Peattie, 2010; Table 1).

In the 1980s, the resurging interest in environmental protection was propelled by various major events, such as the Exxon Valdez oil spill, and strong evidence of environmental damage. Data from market research, the popularity of green consumer guides, and the worldwide boycott of aerosols powered by chlorofluorocarbons (CFCs) showed that consumers were becoming increasingly aware of environmental issues. This presented a business opportunity for various companies, and sparked further research into green consumer behavior (Henion and Kinnear, 1976). Early studies focusing on understanding green consumer attitudes and conduct evolved into efforts to comprehend their motivations, psychology, and the influence of institutional factors (Van Dam and Apeldoorn, 1996; Kilbourne and Beckmann, 1998; Peattie, 2010). The Table 1 provides literature review of the early theories of environmentally conscious consumption and the affecting factors.

The current empirical literature on factors affecting environmentally sustainable consumption tests various sets of factors presented in Table 1. This paper contributed to this literature by studying the role of environmental fears attitudes and preferences including the agenda of climate change, attitudes and trust to political institutions (namely, the EU), the impact of the media exposure, and socio-demographics. The following sections describe the current contexts of these four factors with respect to environmentally conscious consumption and the relevant literature.

2.3 The factors affecting environmentally responsible consumption studied in this paper. the literature, agendas and context

2.3.1 The agenda of climate change

The role of concerns about climate change on environmentally sustainable consumption is well documented in the literature (Valle et al., 2005; Wynveen and Sutton, 2015; Vassanadumrongdee and Kittipongvises, 2018). Though climate change is a subset of environmental protection, the agenda of climate change, as presented in the media, significantly differs

from the agenda of environmental protection. First, local environmental changes are more visible to the public than climate change's global effects. Second, the agenda of climate change is somewhat controversial as it can be easily affected by commercial and political elites.

The literature describes the two roles played by the traditional mass media - 1) mass media as an outlet to elite cues (political, economic, other, see (Brulle, et al., 2012; Carmichael and Brulle, 2017; Schäfer and Painter, 2021) and 2) as an outlet for accurate scientific information (for the discussion see Cabelkova et al., 2022). Corporations and political movements expose alarming messages on climate change in the media as they profit from green policies. On the other hand, the climate skeptic movements question the existence of climate change and diminish its importance in the eyes of the media consumer (McCright and Dunlap, 2011; Weber and Stern, 2011). The engagement of stakeholders presenting their interests in the media led to the overrepresentation of climate change issues compared to the general agenda of environmental protection (Legagneux et al., 2018). New media, such as online news servers, social networks, blogs, and discussion platforms, exaggerate these controversies via intense opinions polarization and information bubbles (Pearce, 2019).

In any case, the methods to fight climate change are presented primarily as the reduction of greenhouse gas emissions via green consumption, green housing, recycling, and green travel (Alfredsson, 2004). Consumers, for example, are suggested to reuse clothes more often and reduce meat consumption. Morren et al. (2021) found that more environmentally conscious individuals were also more likely to reduce their protein consumption. This is because many protein sources, such as meat and dairy products, have a higher environmental impact than plant-based proteins. Individuals can decrease their carbon footprint by reducing protein consumption, thus helping to protect the environment (Morren et al., 2021). Consumers are also advised to reduce purchases of commodities in disposable packaging to purchase locally produced products, save water and energy, limit traveling by car or plane, etc. (Alfredsson, 2004; Pavlovič, 2020).

The effects of waste management on climate change are described in the literature as reducing landfill methane emissions, the need for industrial energy due to recycling, energy recovery from waste, and saving forests for carbon sequestration (Ackerman, 2000; Castro, et al., 2021). The waste agenda, as presented in the media, is more related to general environment protection and saving resources (Cabelkova et al., 2022).

In the Czech Republic, the discussion on climate change in mass media is related to the coal industry. Contrary to other countries, where coal consumption reduction was caused by depletion of reserves or competition of other sources of energy (for the story of UK see [Beatty et al., 2007](#); [Turnheim and Geels, 2013](#)), the reduction of coal production in the Czech Republic is primarily argued from the point of view of environmental or climate concerns, which, however, bring direct economic problems to the people and regions. However, the appeal to fight climate change via the adoption of climate-conscious behavioral patterns is dominant ([Trunečková, 2015](#); [Navrátilová, 2021](#); [Cabelkova, et al., 2022](#)). On the other hand, in the context of economically important areas (such as coal mining), the climate effects of fossil fuels were effectively forgotten ([Lehotský et al., 2019](#); [Černý and Ocelík, 2020](#); [Cabelkova, et al., 2022](#)).

2.3.2 The agenda of environmental protection

The impact of environmental concerns on environmentally conscious consumption is well documented in the literature ([Lin and Niu, 2018](#); [Janssen, 2018](#); for the review, see [Suciu et al., 2019](#)). While the dangers of climate change are often distant and not primarily visible in the Czech Republic, environmental degradation is more often experienced directly ([Hůnová, 2020](#)). The health effects of polluted food, smog, frequently appearing in the cities, and changes in biodiversity in ecosystems are experienced directly. In the Czech Republic, the agenda and environmental effects of coal mining and processing are directly visible to the general public in exposed regions ([Lehotský and Černík, 2019](#)).

The coal-producing regions report intense environmental degradation resulting in significant health effects ([Frantál and Nováková, 2014](#)), though the reduction in coal production and combustion produced substantial social and economic disparities ([Frantál, 2016](#); [Lehotský and Černík, 2019](#)). In any case, a direct negative experience with environmental problems substantially affected the willingness to protect the environment.

2.3.3 The role of preferences for EU integration. the specifics of the Czech Republic

The preferences for EU integration are closely related to the EU regulations on one side and EU financial compensations on the other. The EU regulations relevant to consumer behaviour can be divided into product and waste legislation. Product legislation includes environmental product requirements, information and labeling requirements, rules on product guarantees, and climate legislation ([Sajn, 2020](#)). Waste legislation motivates waste recycling, processing, and environmentally friendly waste disposal. Though these policies are beneficial for the Czech environment, they aroused certain controversy, as they affected the economies of coal-producing regions, limited the supply of cheap but environmentally damaging products, and increased prices due to environmental measures ([Cabelkova et al., 2020](#); [Cabelkova et al., 2022](#)). The attitude toward EU integration was compromised in affected regions.

2.3.4 The role of the media

Scholars have reported that a lack of information might prevent individuals from sustainable consumption, as

information impacts people at multiple psychological levels ([Testa et al., 2015](#); [Cerri et al., 2018](#)). The role of the media is difficult to overestimate. Traditional media studies suggest that media serve as agenda setters ([Dumitrescu and Anthony, 2010](#); [McCombs and Valenzuela, 2020](#)). Media play an essential role in disseminating information, thus influencing people's knowledge, awareness, attitudes, and socioeconomic choices ([Madajewicz et al., 2007](#); [Jalan & Somanathan, 2008](#)). The impact of the media is then dependent upon the extent and the prominence of media coverage (the quantity coverage theory, [Mazur, 2009](#)). However, the information presented in traditional media may be biased as it is heavily affected by the stakeholders ([Brick and Cawley, 2008](#); [Andrews and Caren, 2010](#)).

The new (online, discussion-based) media, social networks, and blogs present a counterpole to the traditional ones in terms of the impact of stakeholders. However, the new media are subject to incorrect information, polarisations, and the creation of information bubbles ([Pearce, 2019](#)). The impact of the media on environmentally responsible attitudes and behaviors varies according to the type of media and the agenda the media presents ([Cabelkova et al., 2020](#); [2022](#)).

Two types of environmentally related agendas have been recently stressed in the media—environment degradation (including pollution, land degradation, and overuse of resources) and the effects of climate change (including global warming, [Jati and Rahayu, 2020](#)). Both are supposed to be exacerbated by anthropogenic pressure and in both cases, human action is required.

3 Data and methods

3.1 The model and hypotheses

The model presented in this paper is built on a line of modified Theory of Planned Behaviour ([Godin and Kok, 1996](#); [Conner and Armitage, 1998](#)). We hypothesize, that environmentally conscious waste management and saving resources are related to concerns with the environment and climate change, EU attitudes, media exposure, and sociodemographic characteristics ([Figure 2](#)).

3.2 The data

We rely on data collected by the Czech Institute of Sociology in July 2021 in a survey entitled Our society. A total of 904 respondents (aged 15–95 years, $M \pm SD$: 47.74 ± 17.66 ; 51.40% women, 19.40% with higher education) answered the questions in the questionnaire voluntarily and anonymously under the supervision of 139 experienced interviewers. All participants were Czech native speakers living in the Czech Republic. All the questionnaires were included in the data sample. The sampling relied on quotes (geographical position, age, gender, and education) to achieve representativity. According to quotes, the data sample is representative of the Czech Republic. The data were kindly provided by the Czech Social Science Data Archive (Sociologický ústav. Akademie věd ČR. 2021).

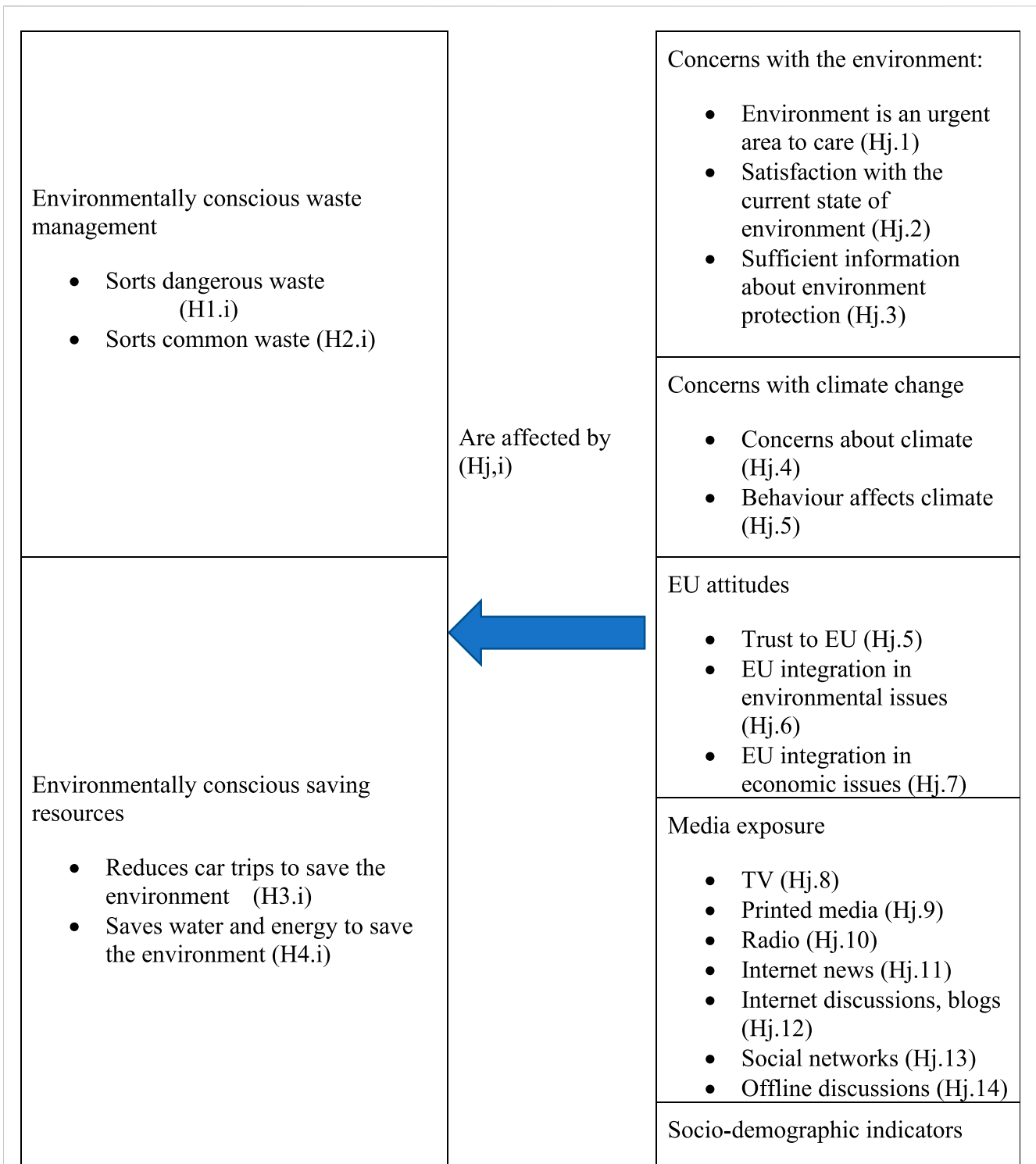


FIGURE 2
The model and hypotheses (Hj.i).

3.3 The indicators

3.3.1 Environmentally conscious behaviour

Based on three phases of consumption (Figure 1), three indicators of environmentally conscious consumption are depicted in Table 2. This paper primarily concentrates on saving resources and waste management; however, we also conduct

exploratory Principal component analysis to study the structure of all the indicators of environmental consumption.

The exact wording of the questions and the distribution of the respondents of the indicators for environmental consumption are presented in Tables 3, 4.

The least frequent environmentally responsible behavior is reported in the cases of buying organic food (22.30% report buying

TABLE 2 Environmentally conscious consumption. Indicators.

| Environmental consumption indicators | | |
|---|--|--|
| Green purchasing | Saving resources | Waste management |
| Indicators | Indicators | Indicators |
| • buying organic food | • limiting car journeys to protect the environment | • handing in, separating hazardous waste |
| • buying locally-produced food | • saving energy and water to protect the environment | • separating regular waste |
| • when buying products, being guided by whether they are environmentally friendly | | |

Source: own research.

TABLE 3 Environmental consumption indicators. The exact wording of the questions and the distribution of the respondents (%).

| As far as your household is concerned, you | Always | Often | Rarely | Never | N/A |
|--|--------|-------|--------|-------|-------|
| Purchasing decisions | | | | | |
| buy organic food | 3.10 | 19.20 | 45.00 | 28.40 | 4.30 |
| buy locally-produced food | 8.10 | 50.10 | 30.10 | 7.50 | 4.20 |
| when buying products you are guided by whether they are environmentally friendly | 7.00 | 23.80 | 32.20 | 26.80 | 10.20 |
| Waste management | | | | | |
| Separate, hand in your hazardous waste | 48.30 | 32.00 | 11.60 | 3.80 | 4.30 |
| separate your regular waste | 52.00 | 33.70 | 10.40 | 3.40 | 0.50 |
| Saving resources | | | | | |
| limit car journeys to protect the environment | 4.30 | 17.30 | 30.90 | 27.70 | 19.80 |
| save energy and water to protect the environment | 15.00 | 40.60 | 24.60 | 16.90 | 2.90 |

Source: own computations based on representative raw data from Sociologický ústav. Akademie věd ČR. (2021).

it always or often, and 28.40% of the respondents report never buying them), and limiting car journeys to protect the environment (21.60% of the respondents report limiting car journeys always or often and 27.70% report never buying them). On the other side, the Czech population showed to be environmentally conscious in waste management, where 80.30% of the respondents reported handing in and sorting hazardous waste always or often, and 85.70% of the respondents reported always or often sorting regular waste (Table 3).

3.3.2 Perceptions on the environment, climate change, attitude to EU policies

The exact wording of the questions and the distribution of the respondents are presented in Table 4.

Environment and climate issues raise considerable concerns. Almost eighty percent of the respondents perceive environmental protection as urgent or rather urgent (Table 4). More than half of the respondents are worried or rather worried about climate change (53.9%). On the other hand, three-quarters of respondents are very or rather satisfied with the state of the environment in their neighborhood. Almost seventy percent of the respondents believe that change in behavior could at least slow (and at most can stop) climate change.

There is considerable polarization in beliefs on whether European integration is beneficial and whether the respondents trust the EU: Approximately a third of the respondents (33.8% in the case of economic policies and 26.4% in the case of environmental policies) believe that EU integration is harmful to the Czech Republic. 42.6% of the respondent reported some level of distrust of the EU.

3.3.3 Media exposure

The exact wording of the questions on media exposure and the distribution of the respondents are presented in Table 5.

TV is still the most frequently used media, while the second place is occupied by radio and online news (Table 5). The exposition to printed newspapers, magazines, and offline discussions is relatively rare. The exposition to social networks is rare - 40.9% of the respondents never use them.

3.3.4 Socio-demographic characteristics

We control for the standard of living (very good 8.8%, rather good 45.7%, neither good nor bad 35.2%, rather bad 8.6%, very bad 1.2%), gender (51.4% women), age (aged 15–95 years, $M \pm SD$: 47.74 ± 17.66) education (19.40% with higher education), political orientation (1 left - 11 right, $M \pm SD$: 6.56 ± 2.27), subjective town size (21.5% big city, 3.4% suburb of big city, 26.7% average town, 24.7% small town, 8.9% big village, 14.3% small village).

3.4 The method

We conduct exploratory Principal Component Analysis to study the structure of environmentally conscious consumption indicators (Table 2). Namely, we are interested in whether the grouping suggested above (purchasing activities, waste management, and saving resources) correspond to the structure of components presented in the data.

TABLE 4 Perceptions on the environment, climate change, EU. The distribution of the respondents (%).

| <i>How urgent do you think it is to address the following areas in the Czech Republic this year: Environment protection</i> | | | | |
|---|--------------------|-------------------------------------|-----------------------|------|
| Not urgent at all | Rather urgent | Very urgent | N/A | |
| 19.8 | 48.8 | 29.5 | 1.9 | |
| <i>How satisfied are you with the environment in the place where you live?</i> | | | | |
| Very satisfied | Rather satisfied | Rather dissatisfied | Very dissatisfied | N/A |
| 19.7 | 56.2 | 18.8 | 4.6 | 0.7 |
| <i>Do you have enough information about how to be environmentally friendly?</i> | | | | |
| Definitely enough | Rather enough | Rather not enough | Definitely not enough | N/A |
| 15.3 | 52.2 | 22.9 | 4.0 | 5.6 |
| <i>How worried are you about the impacts of climate change?</i> | | | | |
| Very worried | Rather worried | Rather not worried | Not worried at all | N/A |
| 13.2 | 40.7 | 26.2 | 9.2 | 10.7 |
| <i>Do you think that if people changed their current behavior, they could change the current climate change?</i> | | | | |
| Could stop it completely | Could slow it down | Could not affect the climate change | N/A | |
| 5.9 | 63.3 | 15.0 | 15.8 | |
| <i>In your opinion, is European integration beneficial or harmful in these areas: economy</i> | | | | |
| Definitely beneficial | Rather beneficial | Rather harmful | Definitely harmful | N/A |
| 11.7 | 44.0 | 26.2 | 7.6 | 10.5 |
| <i>In your opinion, is European integration beneficial or harmful in these areas: environment</i> | | | | |
| Definitely beneficial | Rather beneficial | Rather harmful | Definitely harmful | N/A |
| 12.2 | 46.2 | 20.0 | 6.4 | 15.2 |
| <i>Please tell me, how much do you trust the European Union</i> | | | | |
| Definitely trust | Rather trust | Rather distrust | Definitely distrust | N/A |
| 5.2 | 45.5 | 27.2 | 15.4 | 6.7 |

Source: own computations based on representative raw data from Sociologický ústav. Akademie věd ČR. (2021).

TABLE 5 Media exposure. The wording of questions and the distribution of the respondents (%).

| How often do you follow social life on | At least 1x a day, % | Several times a week, % | 1x a week, % | Less than 1x a week, % | Never, % | N/A, % |
|--|----------------------|-------------------------|--------------|------------------------|----------|--------|
| TV | 42.1 | 33.8 | 10.3 | 7.3 | 5.9 | 0.6 |
| Printed newspapers, magazines | 7.2 | 18.3 | 23.0 | 24.2 | 26.7 | 0.6 |
| Radio | 19.1 | 28.4 | 16.7 | 14.3 | 20.6 | 0.9 |
| Online news servers | 19.6 | 29.1 | 15.8 | 12.9 | 22.0 | 0.6 |
| Social networks | 14.2 | 18.7 | 11.0 | 14.2 | 40.9 | 1.0 |
| Offline discussion | 7.1 | 24.8 | 21.8 | 20.9 | 24.1 | 1.3 |

Source: own computations based on representative raw data from Sociologický ústav. Akademie věd ČR (2021).

Second, we conduct a set of ordinal regression analyses to test the hypotheses presented in Figure 2 according to Formula (1).

$$\begin{aligned}
 \text{Behavior}_i = & \text{logit} (a_0 + a_{1-3}\text{Environment} + a_{4,5}\text{Climate} + a_{6-8}\text{EU} \\
 & + a_{9-15}\text{Info} + a_{16}\text{Standart} + a_{17}\text{Gender} + a_{18}\text{Age} \\
 & + a_{19}\text{Political orientation} + a_{20-22}\text{Education} \\
 & + a_{23-27}\text{Town size} + e
 \end{aligned}
 \tag{1}$$

Where.

Behavior_i—stands for the frequency of conducting environmentally conscious activities consequently (separate and hand in hazardous waste, separate regular waste, limit car journeys to protect the environment, save energy and water to protect the environment, for the distribution of the respondents see Table 3). *Environment*—1) the extent the environmental protection is urgent, 2) the level of satisfaction with the environment in the locality of the respondent, 3) the extent the respondent has sufficient information about how to behave in an environmentally friendly way (for the distribution of the respondents see Table 4).

Climate—concerns about the effects of climate change and belief that people's behavior can mitigate climate change (for the distribution of the respondents, see Table 4).

EU—the attitude to EU policies, namely: whether European integration in the fields of economy and environment is beneficial or harmful, and the extent the respondents trust the EU.

Info—six variables reflecting exposition to media sources, namely: TV, printed newspapers and magazines, radio, online news serves, social networks, and offline discussions (for the distribution of the respondents, see Table 4).

Standard—subjective standard of living of the respondents (very good to very bad, 5-point scale).

Gender and Age—gender and age of the respondents.

Political orientation—political orientation (left-right, 11-point scale).

Education—education dummies (primary, secondary w/o state exam, secondary with state exam, higher).

Town size—dummies for subjective town size (big city, suburb of big city, average town, small town, big village, small village).

The bivariate correlations between the variables above are presented in Supplementary Appendix S1.

4 Results

We run exploratory principal components analysis for the indicators of environmental consumption (Table 3) to study the internal structures.

4.1 Environmental consumption. the principal component analysis

The results of the principal component analysis are presented in Tables 5, 6. Three components were extracted.

- Component 1: saving resources and buying products to protect the environment.
- Component 2: waste management.
- Component 3: purchasing decisions.

Factor extraction was determined by the fixed number of factors equal to three, and all variables were extracted as expected. The Bartlett test of sphericity with a Chi-Square value 1232.92 ($p < 0.001$) and Kaiser-Meyer-Olkin Measure of sampling adequacy was equal to 0.757 (>0.5), suggests that the data are suitable to identify factor dimensions.

The three extracted components were able to capture 73.43% of the total variance. The distribution of the indicators to components roughly corresponds to the distribution presented in Table 3: purchasing decision (for the total variance explained see Table 7), waste management, and saving resources. The only indicator assigned to an unexpected component was purchasing environmentally friendly products, though the commonality with purchasing decisions is also high (0.402).

For the sake of conciseness, in the following ordinal regressions we concentrate primarily on the indicators belonging to Components 1 (saving resources) and Component 2 (waste management), leaving green purchasing for another analysis.

TABLE 6 Environmental consumption indicators. Results of principal component analysis. Rotated component matrix.

| | | Components | | |
|---|---|--------------|--------------|--------------|
| | | 1 | 2 | 3 |
| 1 | you limit car journeys to protect the environment | 0,884 | 0.022 | 0.119 |
| | you save energy and water to protect the environment | 0,745 | 0.314 | 0.136 |
| | when buying products, you are guided by whether they are environmentally friendly | 0,697 | 0.088 | 0.402 |
| 2 | you sort your regular waste | 0.086 | 0,883 | 0.126 |
| | you hand in, sort your hazardous waste | 0.168 | 0,876 | 0.055 |
| 3 | you buy organic food | 0.141 | -0.012 | 0,903 |
| | you buy locally-produced food | 0.305 | 0.298 | 0,63 |

Source: own computations based on representative raw data from Sociologický ústav. Akademie věd ČR (2021). Extraction method: principal component analysis. Rotation Method: Varimax with Kaiser Normalization. The number of components to extract was set to 3. Component 1: saving resources and buying products to protect the environment. Component 2: waste management. Component 3: Purchasing decisions. N = 625.

The bold values denote the attribution of particular variable to particular component.

TABLE 7 Environmental consumption indicators. Results of principal component analysis. Total Variance Explained.

| Component | Sums of squared loadings | | |
|-----------|--------------------------|---------------|--------------|
| | Total | % of variance | Cumulative % |
| 1 | 1,971 | 28,161 | 28,161 |
| 2 | 1,743 | 24,902 | 53,064 |
| 3 | 1,426 | 20,375 | 73,439 |

Source: own computations based on data (Sociologický ústav. Akademie věd ČR. 2021). Extraction method: principal component analysis. Rotation Method: Varimax with Kaiser Normalization. Component 1: saving resources and buying products to protect the environment. Component 2: waste management. Component 3: Purchasing decisions.

TABLE 8 Environmentally conscious saving resources and waste management as predicted by environment protection, concerns about climate change, EU policies, exposition to media, and socio-demographics. Results of ordinal regression analyses.

| | Saving resources | | | | Waste management | | | |
|--------------------------------------|-------------------|--------------|------------------------|--------------|-----------------------|--------------|--------------------|--------------|
| | Reduces car trips | | Saves water and energy | | Sorts dangerous waste | | Sorts common waste | |
| | Estimate | Sig | Estimate | Sig | Estimate | Sig | Estimate | Sig |
| Threshold = 1 | -1,361 | 0.153 | 0.499 | 0.553 | 3,347*** | <,001 | 2,993** | 0,001 |
| Threshold = 2 | 0.726 | 0.440 | 2,804*** | <,001 | 5,483*** | <,001 | 5,210*** | <,001 |
| Threshold = 3 | 2,661** | 0,005 | 4,324*** | <,001 | 7,240*** | <,001 | 7,017*** | <,001 |
| Environment protection | | | | | | | | |
| Urgent areas - environment | -0.114 | 0.248 | -0,194* | 0,033 | -0,443*** | <,001 | -0.099 | 0.332 |
| Satisfaction with the environment | 0.012 | 0.929 | 0.194 | 0.111 | 0,480*** | <,001 | 0,341* | 0,010 |
| Enough info about environment | 0.054 | 0.681 | 0,333** | 0,006 | 0,807*** | <,001 | 0,534*** | <,001 |
| Concerns about climate change | | | | | | | | |
| Behaviour affects climate | 0,493* | 0,017 | 0.199 | 0.277 | -0,528* | 0,010 | -0.347 | 0.086 |
| Concerns about climate | 0,415*** | <,001 | 0,463*** | <,001 | 0,388** | 0,003 | 0,259* | 0,038 |
| EU policies | | | | | | | | |
| EU integration, environment | 0.027 | 0.844 | 0.161 | 0.203 | 0.170 | 0.224 | 0.100 | 0.466 |
| EU integration, economy | 0.060 | 0.664 | -0.149 | 0.246 | -0.129 | 0.364 | -0.163 | 0.247 |
| Trust to EU | -0.078 | 0.546 | -0.017 | 0.887 | 0.257 | 0.053 | 0.158 | 0.231 |
| Political orientation (left-right) | -0.057 | 0.170 | 0.011 | 0.768 | -0.010 | 0.816 | 0.029 | 0.490 |
| Exposition to media | | | | | | | | |
| TV | -0.169 | 0.098 | -0.047 | 0.602 | 0.053 | 0.611 | 0.020 | 0.834 |
| Printed media | 0.105 | 0.202 | -0.116 | 0.128 | 0.031 | 0.718 | -0.051 | 0.537 |
| Radio | 0.051 | 0.495 | -0.042 | 0.537 | -0.072 | 0.342 | -0.061 | 0.410 |
| Online news | -0,191* | 0,021 | 0.015 | 0.848 | 0.091 | 0.295 | 0.097 | 0.261 |
| Online discussions, blogs | 0.168 | 0.055 | 0.018 | 0.824 | 0.035 | 0.704 | -0.035 | 0.696 |
| Social networks | 0.020 | 0.802 | 0.059 | 0.438 | -0.099 | 0.248 | -0,174* | 0,040 |
| Offline discussions | 0.102 | 0.199 | 0.064 | 0.384 | 0.004 | 0.962 | 0.094 | 0.238 |
| Socio-demographics | | | | | | | | |
| Standard of living | -0.062 | 0.622 | 0.213 | 0.056 | 0,279* | 0,023 | 0,296* | 0,014 |
| Gender (men) | 0,584** | 0,002 | 0.324 | 0.061 | -0.046 | 0.810 | 0.150 | 0.423 |
| Age | -0.007 | 0.289 | -0,015* | 0,015 | -0.001 | 0.846 | -0.004 | 0.592 |
| Education | | | | | | | | |
| Basic | 0.143 | 0.713 | -0.072 | 0.827 | 0.533 | 0.136 | 0.686 | 0.053 |
| Secondary w/o state exam | 0.265 | 0.302 | 0.296 | 0.228 | 0.200 | 0.462 | 0.465 | 0.086 |
| Secondary with state exam | -0.135 | 0.571 | -0.065 | 0.777 | -0.006 | 0.982 | 0.045 | 0.860 |
| Town size | | | | | | | | |
| Large City | -0.243 | 0.453 | 0,656* | 0,026 | 0,893** | 0,007 | 0,826* | 0,013 |
| Large city suburb | -0.382 | 0.472 | -0.339 | 0.488 | 0.644 | 0.235 | 0.373 | 0.492 |
| Average town | -0.342 | 0.262 | 0.314 | 0.259 | 0.027 | 0.933 | 0,653* | 0,039 |
| Small town | -0,778* | 0,010 | -0.356 | 0.202 | 0.484 | 0.120 | 0.615 | 0.051 |
| Big village | 0.259 | 0.503 | 0.042 | 0.907 | -0.025 | 0.952 | -0.312 | 0.468 |
| N | 463 | | 536 | | 528 | | 540 | |
| Sig | | <,001 | | <,001 | | <,001 | | <,001 |
| Pseudo R-Square | | | | | | | | |
| Cox and Snell | 0.158 | | 0.155 | | 0.221 | | 0.153 | |
| Nagelkerke | 0.172 | | 0.168 | | 0.252 | | 0.178 | |
| McFadden | 0.069 | | 0.066 | | 0.119 | | 0.084 | |

Link function: Logit, reference variables: women, higher education, small village. *** significant at the 0.001 level (2-tailed). ** significant at the 0.01 level (2-tailed). * significant at the 0.05 level (2-tailed). Source: own computations based on data (Sociologický ústav. Akademie věd ČR. 2021).

The bold values denote statistically significant coefficients.

TABLE 9 Predicting environmentally conscious consumption. Results of ordinal regression analyses. Statistically significant associations on conventional levels (5%, 1%, 0.1%).

| | Saving resources, frequency of | | Waste management, frequency of | |
|--|--------------------------------|-------------------------|--------------------------------|----------------------|
| | Reduction of car trips | Saving water and energy | Sorting dangerous waste | Sorting common waste |
| Environment protection | | | | |
| Urgent areas - environment | | + | + | |
| Satisfaction with the environment | | | + | + |
| Enough info about environment | | + | + | + |
| Concerns about climate change | | | | |
| Behavior affects climate | + | | - | |
| Concerns about climate | + | + | + | + |
| EU integration and political orientation | | | | |
| EU integration, environment | | | | |
| EU integration, economy | | | | |
| Trust to EU | | | | |
| Political orientation (left-right) | | | | |
| Exposition to mass media | | | | |
| TV | | | | |
| Printed media Radio | | | | |
| Online news Online discussions, blogs | - | | | |
| Social networks | | | | - |
| Offline discussions | | | | |
| Socio-demographics | | | | |
| Standard of living | | | + | + |
| Gender (women) | + | | | |
| Age | | + | | |
| Education | | | | |
| Basic | | | | |
| Secondary w/o state exam | | | | |
| Secondary with state exam | | | | |
| Town size | | | | |
| Large City Large city suburb | | - | - | - |
| Average town | | | | - |
| Small town | + | | | |

Note: + denotes positive association, - denotes negative association.

4.2 Ordinal regression analysis

The results of ordinal regression analyses are presented in Table 8.

Table 9 summarises the statistically significant associations presented in Table 8.

The signs of the associations might be different from the signs of coefficients presented in Table 8 as they reflect the encoding of the variables. Reference variables: men, higher education, small village. The exact wording of the associations depicted in the table are presented in Supplementary Appendix S2.

Environment protection attitudes and concerns about climate change predict positively environmentally conscious saving resources and waste management (Table 8, 9). However, the more respondents believed that change in behavior could mitigate climate change, the less they were willing to sort dangerous waste. This result is still to be explained.

Attitudes to EU integration, political orientation, and exposition to mass media showed to be less related to environmentally conscious saving resources and waste management than expected. The political variables were unrelated, while the impact of media exposition, if significant, was negative. Online news negatively predicted reducing car trips, and social networks negatively predicted sorting common waste.

Age, gender and standard of living were positively related to some indicators of environmentally conscious waste management and saving resources (see Table 9) though education also proved to be unrelated. Women tended to reduce car trips more than men. Higher standard of living predicted positive environmentally conscious waste management. Age positively predicted saving water and energy. People living in small villages proved to engage in more environmentally conscious waste management and saving resources than people living in other settlements.

5 Discussion

The literature suggests that green consumption can be divided to three main activities roughly representing the three stages of consumption: purchasing decision, consumption itself and green waste management (Stern, 2000). In this article we studied the first stage in the context of saving resources and choosing the green products, second stage in the context of saving resources and the third stage in the aspect of waste management. The results of principal component analysis indicate that consumers view the activities of purchasing, saving resources and waste management separately, which might indicate that the predictors of green behavior in these areas vary. In this paper we primarily concentrated on saving resources and waste management from the point of view of environment protection.

We hypothesized that the main predictors of pro-environmental behavior in resource and waste management include concerns with environment and climate change, political attitudes (including the attitudes to the EU), exposure to the mass media and socio-demographics. The results of ordinal regression analysis suggest, that environmentally-motivated resource and waste management proved to be statistically significantly predicted by climate and environmental concerns, while political attitudes and media exposure were not statistically significant.

Similarly to existing literature, most of the indicators of concerns about the environment and climate change proved to increase environmentally conscious saving resources and waste management (Wynveen and Sutton, 2015; Valle et al., 2005; Vassanadumrongdee and Kittipongvises, 2018; Lin and Niu, 2018; Janssen, 2018; for the review see Suci, et al., 2019). However, some significant differences showed up.

5.1 Saving resources

Saving resources reflected the difference in agendas of environmental protection and climate change. While both indicators of climate change proved to reduce unnecessary car trips, neither of the three indicators of environmental concerns (environment as an urgent area, current satisfaction with the environment, and information about environmentally conscious behavior) showed to affect car trip reduction. This result reflects the agenda of reduction of greenhouse gasses (GHG) which, arguably, is primarily related to climate change rather than environmental protection. Saving water and energy have both the dimension of environmental protection (in the sense of reduction of wasting resources) and climate change (in the sense that producing energy generally may also produce GHG). In addition, we suggest, similarly to Barr (2007), in case of car trips practicalities might be more important than ideas about environment or climate change.

The mass media (both traditional and new) did not effectively support saving resources. All but one media were unrelated to saving resources—online news proved to reduce the tendency to spare car trips to protect the environment. This effect of online news might reflect the general polarization of ideas of environmental protection measures and the existence of climate change existing in online media (Pearce, 2019) or self-selection of the respondents. This result is rather surprising as much of research published in various times showed the media effect (Haron et al., 2005; Jain et al., 2020; Wagdi, et al., 2022).

The lack of media influence on saving resources has scientific and policy-making implications. From the scientific point of view, this result contradicts the existing studies. From the policy-making perspective, the none-existing effect of the media exposure suggests that the media does not fulfill its informative and motivating function and cannot be considered an effective channel to distribute government-relevant agenda. More work needs to be done to find the right communication channel, content and framing (see also Kronrod, et al., 2023).

5.2 Waste management

Although the agendas of climate change and environmental protection are somewhat different, they produced similar associations in the case of the two waste management indicators. The concern about environmental protection (including the protection urgency, the state of the environment in the neighborhood, and the relevant information about environmentally conscious behavior) increase the tendency to sort waste (similar to Leiserowitz, et al., 2006; Dietz, et al., 2005; Sivapalan et al., 2021). Similarly, the worry about climate change increases waste sorting. However, the idea that if people changed their behavior, they could slow down climate change proved to reduce the tendency to sort waste. While similarly irrational, this result may correspond to the overall dysphoria about the possibility of stopping climate change, as reflected by a very small percentage of the respondents (5.9%) who believe that behavior could stop climate change.

The role of traditional mass media and social networks has shown to be suboptimal. First, the media exposure proved to be largely unrelated to environmentally conscious waste management. The only exception—exposition to social networks—was negatively related to waste management. This might reflect the idea that some people following social networks belong to specific information bubbles that discourage sorting the waste, or, at least, do not view that as urgent any case, social networks do not support environmentally conscious waste management. The information bubble's role on social networks needs to receive more attention. Similar to the case of saving resources, the low relation of media exposure to waste management is rather surprising as previous research showed the opposite (Haron et al., 2005; Jain et al., 2020; Wagdi, et al., 2022). People living in large cities and in average-sized towns proved less prone to separate waste. Similarly to Xu et al. (2017) and Challcharoenwattana and Pharino (2016), we suggest this reluctance to be related to the financial aspects of waste sorting. People living in villages more often live in family houses and more often have to pay for each waste bin of unsorted waste. They can dispose of separated waste free of charge. On the other hand, waste disposal in larger cities and towns is paid for together by many people. Financial motivation is less direct here.

Besides, food waste can be used as fertilizers for further agricultural production if composted. However, not all households have access to composting procedures. In most cases, people living in villages in family houses have access to composting capacities. Thus, the motivation for waste management is impacted by both the agenda of environmental protection (and climate change) and financial motivations (Vassanadumrongdee and Kittipongvises, 2018).

To sum it up, the waste management was supposed to be impacted by four factors: the concerns about the state of environment (and climate change), the political orientation including the attitude to EU, the exposition to the mass media and the socio-demographics. Understandably, the concerns with the environment and climate change proved to be statistically significant predictors, while the impact of political attitude and the media was less than expected and, in some cases, even negative. The low impact of political orientation, besides others, can be attributed to the vague understanding about left- and right-political orientation in the population. Given the eminent importance of the environmentally friendly waste management, these results are important from the scientific perspective and from the point of view of the policymakers. From the scientific perspective we might suggest, that the media should provide the information on waste management and motivate people for environmentally friendly behavior. From our results it follows, that the role of the media is suboptimal. Moreover, in some cases they actually on average demotivate people from environmentally friendly action. From the policy making perspective, the lack of the media effect presents a significant obstacle, obstructing the public absorption of reasonable societal agendas. The reasons behind this are still to be explained as they may reflect the actual role of the media in society as opposed to the theoretical one.

5.3 Limitations and suggestions for further research

As with any study, this research is subject to several limitations. First, the Green attitude-behavior gap (Witek, 2019; Wang, et al., 2019; Joshi and Rahman, 2015) suggests that the intention to behave does not always transform into real action. However, the questions in the questionnaire asked about the frequency of a particular action, not the intention to act. Moreover, the intention to behave in an environmental way and the actual behavior are shown to be driven by the same determinants (Janssen, 2018). Thus, the factors studies are still relevant.

The impact of the mass media (online and offline) on environmentally conscious consumption showed the biggest controversy and requires more research. We suggest two explanations. First, the exposition to certain media types is subject to considerable self-selection. Second, the role of polarization and information bubbles need to be studied.

6 Conclusion

To conclude, the results suggest that total waste morale in the Czech Republic is rather good - 80.30% of the respondents reported handing into special places and sorting hazardous waste always or often, and 85.70% of the respondents reported always or often sorting regular waste (Table 3). This motivation seems to be largely given by environmental concerns and, possibly, by the financial motivations enacted in the differently-sized towns.

The least coherent proved to be the role of the media exposition. Most of the media sources, traditional or new, proved to be largely unrelated to waste management. Moreover, the exposure to social networks proved to negatively impact environmentally conscious waste management. We suggest that online media resources are prone to polarization and the creation of information bubbles. More work needs to be done in this direction. Neither the preferences for EU integration nor political orientation revealed a significant association with waste management and saving resources, although the EU largely pushed these agendas. We suggest that more work needs to be done in media research to study the exact reasons for the results above.

This paper contributes to the research on factors affecting the environmentally responsible consumption of household. Our results partly confirmed the effect of values and perceptions about environment and climate changes on conscious consumption behavior. We reported the effect of economic rationality and location effects in higher propensity to separate waste in smaller towns. The effect of personal responsibility for climate change and perceived ability to contribute to its mitigation on environmental resource and waste management proved to be the opposite that what we expected, in which still need to be explained.

Data availability statement

The data analyzed in this study is subject to the following licenses/restrictions: The data were kindly provided by the Czech Social Science Data Archive. The data are available upon reasonable request and signing the relevant forms. Requests to access these datasets should be directed to <https://archiv.soc.cas.cz/cz/>.

Ethics statement

The studies involving human participants were reviewed and approved by Ethics committee of the Czech University of Life Sciences. The patients/participants provided their written informed consent to participate in this study.

Author contributions

Conceptualization, IC and LS; methodology, IC; data curation, DB writing—original draft preparation, DB and MH; writing—review and editing, MH, LS, IC, DB, and PP; supervision, IC; project administration, LS; funding acquisition, PP. All authors contributed to the article and approved the submitted version.

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Supplementary material

The Supplementary Material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fenvs.2023.1136171/full#supplementary-material>

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