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Ecological Citizens: Identifying Values and Beliefs that Support Individual Environmental Responsibility among Swedes

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Abstract: As it has been suggested that involvement of individuals in environmental work is necessary for halting environmental degradation, one focus for contemporary environmental policy and political theory is the need for comprehensive individual lifestyle changes. Ecological Citizenship (EC) has been suggested within the field of political theory as an approach to realize personal responsibility for the environment. However, empirical research on whether EC can serve this purpose is still lacking. Based on a survey sent to 4,000 Swedish households, this paper makes the theory of EC empirically operational and explores whether, and to what extent, people in general hold values and beliefs in line with what is expected of EC, in order to shed light on the feasibility of cultivating ecological citizens in Sweden. The study concludes that a significant proportion of the respondents do demonstrate a value base consistent with EC, *i.e.*, non-territorial altruism and the primacy of social justice. While additional tests and studies are needed, the results support the use of EC as a theoretical model for behavioral change.

1. Introduction

While a significant amount of work on the concept of Ecological Citizenship, as a novel values-based approach to strengthening patterns of pro-environmental behavior has been done in recent years, on the individual level, these efforts have been largely theoretical [1-4]. Only a small number of studies have approached Ecological Citizenship (EC) empirically [5-9]. Yet fewer have scrutinized the strength of an EC values-structure among the general public (as opposed to within delimited activist groups) and thereby evaluated its usefulness as a theoretical model for initiating and sustaining a broad societal engagement for environmental issues.

This lack of empirical data is an obvious shortcoming in the literature on EC, as empirically scrutinizing the extent to which mass beliefs and values align with, or are conducive to, the theoretical notion of EC is an imperative task when evaluating its possibilities for application in political practice. An individual's values and beliefs are well established factors that underpin not only behavioral choices and formation of attitudes towards emerging social issues, but also his or her acceptance of and response to new public policies and policy instruments [10-14]. This function of values and beliefs is particularly well-researched in the environmental context, verifying their significance as causal drivers of a range of pro-environmental behaviors and responses towards public policy [15-17]. Thus, focusing the basic values-structures suggested by the theory of EC, rather than centring in on actual behavioral patterns, adds additional meaning as it reveals also the extent to which different sets of motivational factors are relevant, and indeed also politically viable, to apply for promoting broad societal changes in behavior.

The purpose of this article is to translate the political-theoretical concept of EC into an empirically testable model that enables us to make the theory of ecological citizenship operational, as well as, with reference to current and dominating research on environmental attitudes, explore the strength of the values and beliefs on which the concept of EC rests among the general public. In other words, we ask if the average citizen is a latent ecological citizen, willing to take on a greater pro-environmental responsibility and responsive to a new set of motivational factors?

Development during the past decades has seen a growing 'individualistic turn' in the discourses of ecological sustainability, leading up to a broad consensus that the efforts and aspirations of international communities, national governments and business and industry must be complemented, and indeed also initiated, by a change in the day-to-day choices and activities of single individuals. In political practice, the significant role of individuals in the environmental work has, to date, predominately been approached through the use of policy tools aiming at increasing the costs for non-cooperative, in this case non-environmentally friendly, behavior. Following consequential logic [18], the introduction of legal punishments and economic incentives drives the individual to react by changing behavior in response to extrinsic motivations, keeping the new behavior intact for as long as these motivations are in place. Although this approach of changing incentive incitement structures from the top and down has been demonstrated as being quite effective when it comes to governing changes in specific behaviors in a short-term perspective [19], several scholars have also argued that this also risks making pro-environmental behavioral change highly volatile in a longer perspective [20-22]. Not the least since a strong reliance on rational interest calculations on the part of the individual, and on external policy instruments to guide them, makes any increase in individual

environmental responsibility-taking strongly dependent both on the context-specific outcome of each person's cost/benefit-calculations as well as highly sensitive to changes in the direction of political wind and to expressive shifts in public opinion. As cooperation thereby is made dependent on the value of external incitements, it is doubted that market-based instruments will provide an enduring solution to the environmental collective-action problem [23]. Furthermore, governing behavioral change through the application of external motivations, whether these are taking the form of market-based or command-and-control instruments, has proven both unreliable and in some cases even counter-productive due to its crowding-out effect on other strands of motivation [5,24].

In response to the predominant focus on changing specific behaviors as a *reaction* to external factors, political theorists have also suggested alternative discourses of individual pro-environmental behavior (PEB) that rather emphasize the necessity to engage citizens in a deeper, more profound rethinking of the consequences of their daily choices and activities: to motivate individuals to *act* based on their values and thus to install a more long-term stable change in individual lifestyles. At the centre of the stage, the concept of Ecological Citizenship builds on an expanded catalogue of rights and responsibilities, taking into account also the global, non-territorial effects of individual actions; expanding the public sphere to incorporate also activities within the household; and applying the value of justice as the chief motivator for rethinking individual lifestyle patterns. This, proponents of EC argue, would constitute a more stable base for individual PEB built on each citizen's obligation to do justice [2,20], thus allowing for governments and policymakers to promote a further transition towards ecological sustainability at the individual level without having to rely single-handedly on constructing external, and ultimately rather costly, incitement structures. From this horizon, EC constitutes, at least in theory, a promising route away from individual responses that are ultimately based on calculations of self-interest, and towards a stronger reliance on other-regarding values as the foundation for stable behavioral change. But what of the presence of such values in society?

Using data on values, beliefs and attitudes among Swedish households, collected within the SHARP (Sustainable Households: Attitudes, Resources and Policy Instruments; financed for 2003–2008 by the Swedish Environmental Protection Agency) Research Program, we explore the existence and frequency of values and beliefs thought to form the cognitive base of the ecological citizen. Theoretically, the overall aspiration is to examine the degree to which publicly held belief systems are consistent with the environmentally protective agenda of EC. Therefore, the following three questions are derived: (1) How can the theoretical value constructs of the ecological citizen be conceptualized and made operational?; (2) How do the public's priorities among core values correspond to the expectations linked to EC?; and (3) How do the public's value priorities translate into more specific pro-environmental beliefs, willingness to accept new environmentally protective policy instruments and willingness to change behavior in a pro-environmental direction?

The paper proceeds as follows. First we present the notion of EC as an alternative framework for individual environmental action, and introduce a principal model that highlights the proposed value base associated with the ecological citizen. Second, using empirical data we explore the existence and strength of the ecological citizen's values and beliefs, along with the policy preferences and willingness to change behavior that these induce. Finally, we discuss the implications of our results for the theory of EC.

2. Theoretical Conceptualizations of the Ecological Citizen

In contrast to the common political framing of individual environmental action as a rational, self-interested response to external incitements or commands [25-29], EC suggests an alternative view of the drivers behind both obligatory and voluntary individual environmental responsibilities.

In particular, the fundamental relationship between the individual and the state has been granted significant attention as the individualization of the environmental issue has suggested new interpretations of what lies (or, rather, should lie) in the concept of democratic citizenship [1,2,22,30,31]. EC captures this rethinking of the values guiding the state/individual relationship by moving beyond traditional (e.g., liberal and civic-republican) conceptions of what denotes 'the political' and 'the state'. In contrast to the remits of traditional political citizenship, some of the EC proponents typically use the metaphor of the ecological footprint [32], as a starting point for balancing civic rights and duties. Given that individuals in some parts of the world let their activities expand way beyond what would be possible had resources been evenly distributed, the ecological footprint as such underpins EC's holding of social justice as its core value or virtue.

Although the political stimuli of specific behavioral changes through economic and regulative tools may very well be significant for combating the environmental problems, this does not create ecological citizens, neither judging by the range of behavioral change nor by the values or motivations underpinning these actions. Only when pro-environmental activities are guided by an intrinsic moral motivation, and not by a financial incentive, should they be considered acts of EC. It is following [33], not just a matter of doing green things; it is also a matter of being green in doing them. Thus, in contrast to policy-driven changes in market behavior, the crucial idea behind EC is the comprehensive rethinking of the values and beliefs that dominate the contemporary notion of the proper state/individual and mankind/nature relationships. EC therefore also implies a political responsibility for citizens to promote structural changes, for instance through active participation in deliberations on the values that ought to guide society and policy making [22,34]. Three aspects in particular relate to personal environmental obligations and function as the distinguishing characteristics of the ecological citizen.

First, inspired by feminist political thought [35], ecological citizenship argues that also private activities and non-contractual relations between citizens have an impact on the public arena and thus should be considered as of a citizenly character alongside participation in "politics proper" [36], is a cornerstone in the theory of ecological citizenship. According to [2], as each person's occupation of ecological space neither intellectually nor practically can be confined to traditional public life of society, the traditional private/public divide constituting the foundation for contemporary notions of civic rights and duties should be re-conceptualized. Instead, all those activities and private relations that affect others, within as well as across generations, should be thought of as forming the basis for assigning individual environmental responsibilities. As a direct consequence of rethinking the boundaries for citizenship, a new set of values are also recognized as core civic virtues. As an example, whereas civic-republican citizenship draws predominately on Machiavellian values supporting civil service and protection of the community (courage, strength and obedience), ecological citizenship also recognizes motivational values that draws on personal relationships (social justice) [2]. This feature also indicates a shift in focus from the motivational domains constituting the main demarcation line in

the state/individual relations of traditional citizenship theory (e.g., individualism *versus* collectivism) to values in the range between self-transcending values, and values promoting more of a self-enhancing behavior.

Second, the centrality of interpersonal relations indicates that responsibilities, rather than rights, are core principles for the ecological citizen. EC, furthermore, expands the territorial scope of these responsibilities. From being confined within a nation-state, citizenship is now thought of as being global and universal in character. Remembering that ecological citizenship is not exclusively defined in terms of the relations between the individual and the state, but rather expanded to also include private-sphere relations between citizens themselves, this indicates that ecological citizenship not needs to be identified with any contingent political space or a political authority towards which citizens owe duties or can claim rights. Instead the space of ecological citizenship is synonymous with the spread of negative effects actions have for others and, since most environmental problems have the capacity to spread both geographically and over time, the scope of citizen duties can be extended both from one generation to another and across territorial borders.

Third, as a consequence of the primacy of social justice the duties of the ecological citizen are non-reciprocal in character. In other words, individuals are not asked to take on new duties with the motivation that they personally will gain from them and be able to claim some right or benefit in return (even if they will, especially in the long run, this is not the motivation). Rather, the duties of ecological citizenship are described as responsibilities for all personal actions that "always already" affect others [2]. Since all acts, in the case of environmentalism especially those in the private sphere, have an impact on other individuals, the civic duties therefore lies in making these impacts as sustainable as possible and not to use an unequal amount of environmental services, capital or space compared to others.

As illustrated in Figure 1, the core causality in the EC paradigm is founded on the assumption that a set of very basic values (self-transcendent altruism in both inter- and anonymous personal relations driven by the primacy of social justice) constitute the foundation on which the ecological citizen's personal norms of behavior and acceptance of stronger environmentally protective policies ultimately rest (Arrow 3). In order to trigger behavioral responses in the environmental policy domain, these foundational values are, for the most part, explicated by beliefs about both the general state of the environment, and of each individual's personal responsibilities for the situation (Arrows 1 and 2).

This will now be used as a framework for analyzing the extent to which a value foundation for EC currently exists in Sweden, and thereby to assess the value of EC as an approach to address individual environmental action. Do people in general hold values and beliefs in line with what is expected of the ecological citizen?
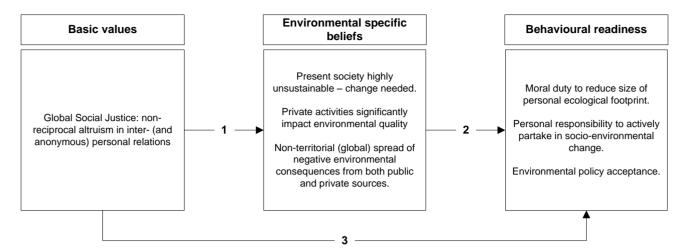
Figure 1. Principle factors and causality within the EC paradigm.

3. Data Description

In the spring of 2004, a mail survey was conducted in four Swedish municipalities (Piteå, Huddinge, Växjö and Gothenburg) that vary in population size from 40,000 to 470,000 citizens and are situated in different parts of Sweden. A randomly selected sample of 4,000 individuals aged 20–75 received a questionnaire inquiring about their general values and environmental beliefs; about how they perceived different pro-environmental behaviors (PEB's) that can be undertaken within the private sphere of the household to improve the environment (household waste-sorting and recycling; private transportation choices; and the consumption of eco-labeled products) and about their opinions on a set of policy instruments that can be implemented to encourage these activities. After two reminders, the overall response rate was 32%, varying from 26% to 35% across municipalities. The socioeconomic characteristics (gender, age, education and income) of the respondents were compared with those of an average resident in each of the four municipalities. The correspondence was found to be reasonable, although the sample contained somewhat more women and, for two of the municipalities (Piteå and Huddinge), the sample age was slightly older than the population at large. A difficulty when interpreting environmentally related questionnaires is the possible self-selection bias occurring if people with a stronger than average pro-environmental orientation to a larger extent choose to take part in the survey. However, comparing the results from both surveys to those of other studies with higher response rates, either utilizing partly the same analytical tools (e.g., the NEP-scale in [23] and [37]) or asking a range of similar environmentally-related questions [38], indicates that self-selection bias due to pro-environmental attitudes not appears to be a significant problem. Also, when comparing the results from the since 1986 yearly recurring SOM-surveys, conducted by the Society, Opinion and Media Institute at Gothenburg University and consistently displaying a response-rate above 60%, the results from the surveys are confirmed. When making comparative analyses across the four municipalities, neither general values nor environmental attitudes displayed significant differences. In this article, the results from the four municipalities are thus treated as one sample and analyzed collectively.

Within the international community, Sweden is frequently depicted as one of the most environmentally and socially concerned countries in the world [39]. Furthermore, together with other
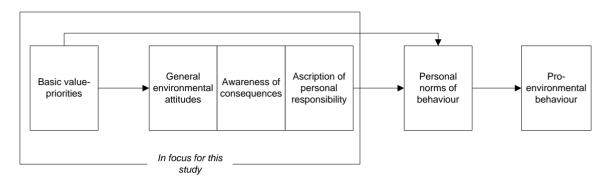
Scandinavians, Swedes are often placed at the top in terms of environmentally friendly attitudes [40]. This means Sweden should constitute an ideal testing ground for locating ecological citizen prototypes: it is more likely that they will be identified in Sweden than elsewhere. However, Sweden can be viewed as a critical test of the assumption that there might already be a "tribe" of ecological citizens out there too. *i.e.*, if they are not found in the Swedish population (or among any other Scandinavians for that matter), they are not likely to be found anywhere.

4. Making the Ecological Citizen Operational

Following the political-theoretical propositions, the ecological citizen's predisposition to form pro-environmental norms of behavior is expected to originate in the way that trade-offs among very basic motivational values are struck; granting priority to altruism over egoism, and to an extension of distributive justice beyond the own in-group. Furthermore, general value-priorities translate into a readiness for PEB's via more specific conceptions of reality, where the ecological citizen understands the present socio-environmental situation *first* as an apparent threat to the goal of global social justice as well as, second, significantly impacted by private, day-to-day activities (see Figure 1). Thus, it is through a survey of the strength of these values and beliefs we will be able to highlight the existence of necessary EC-components among the general public. In this endeavor, both basic value priorities and more specific beliefs concerning the causes of, responsibilities for and perceived solutions to the environmental problem will be considered in the empirical part of the study, as will the respondents self-reported willingness to change behavior. Following the outline of EC above, the analysis aims to shed light on how the respondents (i) prioritize among core values, primarily along the continuum between global altruism and narrow egoism; (ii) position themselves on questions both regarding the seriousness of the environmental situation, as well as the impact of private (and indeed personal) activities on global environmental problems; and (iii) translates these values and beliefs into a readiness for PEB.

Although the literature on EC to date is lacking in empirical studies, and thus in tools to uncover EC values and beliefs, the connection between systems of beliefs and various pro-environmental behaviors are by no means unexplored. Research on mass-belief systems and public opinion concludes that value-orientations lie at the core of people's political behavior and choice on a wide range of issues [11,14,41-43]; as well as that values and beliefs account for variance in environmentally-related behaviors [15,16,45,46]. Within environmental psychology, it has long been established that a person's basic value-priorities and general environmental beliefs form the core elements of a causal value-belief-norm (VBN) chain, leading up to a range of private sphere behaviors and to pro-environmental policy support as illustrated in Figure 2 below [17,44].

Figure 2. Basic relationship between values, beliefs and behavior (Figure after the VBN-model of environmental activism, e.g., [17,44].

Consistent with the concept of EC, these studies also suggests a hierarchical ordering where basic value-priorities are thought to affect policy-specific attitudes and motivations to PEB when being activated by general environmental beliefs and a sense of personal responsibility. As the VBN-model has been empirically tested in numerous studies, we suggest that an analytical framework for EC could draw on the survey tools here comprised. This seems a suitable choice as the VBN-model incorporates surveys of both basic value-priorities as well as general environmental and behavioral specific beliefs, thus covering the main elements thought to underpin EC. Being a combination of different theoretical perspectives it thus links (1) a well-researched approach for studying and structuring basic value-priorities (*i.e.*, the Schwartz Value-Survey) with (2) the extensively applied New Ecological Paradigm-scale for mapping environmental worldviews as well as (3) a more specific focus on beliefs regarding environmental awareness and personal environmental responsibility. By structuring the empirical analysis round these three elements, a comprehensive image of public belief-systems, highly significant for EC, is assumed to be the result. An overview of our analytical framework is illustrated in Table 1 below, and is further developed alongside the empirical surveys in Section 5.

Table 1. Suggested use of survey-tools for uncovering EC.

	Significance for Ecological Citizenship	**Empirical Survey Tools**
Basic values	Priority of social justice and non-personal/ non-territorial altruism	Schwartz' Value-Survey (SVS)
Environmental specific beliefs	High environmental risk awareness Belief in the significance of private activities for environmental quality Awareness of a global spread of negative consequences	New Ecological Paradigm (NEP)-scale Specific questions on ascription of responsibility (AR) and awareness of consequences (AC)
Behavioral readiness	Sense of moral duty for PEB Feeling of personal responsibility to change Environmental policy acceptance	Indices for willingness to change (WTC) and willingness to accept (WTA)

5. Empirical Results

As evident from Figure 2 above, the approach applied here acknowledges that a person's basic values and beliefs forms a hierarchically ordered structure in which a priority amongst very stable and general values inform, constrain and guide the formation both of more salient, but also more volatile, beliefs on specific matters, as well as of personal norms of behavior. Let us, therefore, begin by identifying and specifying the respondents' basic value-priorities, and then move on to consider beliefs more specifically oriented towards the environment, and environmental problems.

5.1. Basic Values

As a first step in the analysis, a shortened version of [47] value-inventory scale is applied for assessing the importance the respondents assign to basic values, as well as how they make priorities among them. The value-inventory scale arranges a set of 10 motivational value-types based on the inherent conflict and compatibility between each type's organizing value-items and have undergone numerous empirical tests confirming its validity for categorizing those values that individuals employ as guiding principles in life. The results from this inventory are therefore believed to provide a reliable first indication of how the respondents rate the importance and significance of fundamental normative principles, such as loyalty, power, security, and freedom. Furthermore, following the hierarchical structure of the values-construct, basic value priorities have been shown as lying at the core of the individuals' formation of beliefs on a wide range of more specific topics, for instance political orientations and environmentalist predispositions [41,48,49]. Thereby, how the respondents prioritize among basic values is believed to be of additional significance as it provides relevant first-hand information also on which type of issues that are the most salient for the individual, which assists her interpretation of the outside world, and will guide her formation of empirically oriented beliefs and policy-preferences.

In completing the value-inventory scale, the respondents in the two samples were asked to indicate the degree to which 20 indicator-values functioned as, following [12], guiding principles in their life. A 9-point scale, ranging from −1 (opposed to my values) to 7 (of supreme importance), was provided for marking their answers. The mean score for all value-items from these samples are illustrated in Table 2 below, along with any significant changes in the importance attributed a value-item between the two samples. This initial inventory of basic value-priorities conveys that the respondents in both samples attribute the highest importance to the two value-items FAMILY SECURITY and FREEDOM. At the very bottom of the list are the value-items SOCIAL POWER and AUTHORITY, both of which enjoys a markedly low support. A further six items, distributed over all positions in [46]'s motivational continuum also receive a mean score over 5.0, which point towards their overall importance for the respondents. Among these is the value-item of specific relevance for the policy-domain studied in this thesis: PROTECTED ENVIRONMENT. This goes to show that, although not the most important, a general interpretation of environmental protection can nevertheless be assumed a salient issue with the respondents.

Table 2. Value-items (mean score).

Value-item	Mean score (N = 1189–1207)
BROAD-MINDED (being tolerant towards different ideas and beliefs) (U)	4.68
PROTECTED ENVIRONMENT (preserving diversity in the ecological system) (U)	5.11
SOCIAL JUSTICE (correcting injustice, care for the weak) (U)	5.21
HELPFUL (working for the welfare of others) (B)	4.52
LOYALTY (faithful to one's friends and group) (B)	5.54
WEALTH (material possessions, money) (P)	3.31
SOCIAL POWER (control over others, dominance) (P)	.54
AUTHORITY (having the right to lead or command others) (P)	1.04
INFLUENTIAL (having an impact on people and events) (A)	3.31
SUCCESSFUL (successful, achieving goals) (A)	4.13
SELF-DISCIPLINE (self-restraint, resistance to temptation) (C)	3.90
OBEDIENCE (meeting one's obligations) (C)	5.20
SOCIAL ORDER (a stable society) (SEC)	5.31
FAMILY SECURITY (safety for loved ones) (SEC)	6.36
RESPECT FOR TRADITION (preservation of time-honored customs) (T)	3.48
FREEDOM (freedom to think and act) (SD)	6.17
INDEPENDENCE (self-reliant, self-sufficient) (SD)	5.20
CREATIVITY (being unique, imaginative) (SD)	4.15
CURIOSITY (interest in everything, exploring) (SD)	4.18
A VARIED LIFE (a life filled with challenge, novelty and change) (STI)	3.87

NOTE: The value-items are labeled according to their belonging to a motivational value-type (UNIVERSALISM; BENEVOLENCE; POWER; ACHIEVEMENT; CONFORMITY; SECURITY; TRADITION; SELF-DIRECTION; STIMULATION) and grouped together based on one of the four basic value-domains: SELF-TRANCENDENCE (U + B); SELF-ENHANCEMENT (P + A); CONSERVATION (C + SEC + T); and OPENNESS TO CHANGE (SD + STI). The number of items used in the Schwartz value-survey varies considerably across different research-projects. Originally, 45 items were used and several more recent surveys applies somewhat expanded scales of 56 or 57 items, but also shorter versions of the scale have been applied and proved reliable (e.g., [16,48]).

However, analyzing how people rate single value-items provides only limited information about their overall value-orientation. This is due to several causes, not the least since the generality of the value-items opens up for a range of subjective interpretations on their meaning. In this sense, a value-item might be described as a floating signifier, since it is ascribed different meanings by different individuals in different contexts and can thus be fully understood only when connected to a chain of other items. In order to provide a more comprehensive analysis of people's basic priority of values we need to consider how single value-items form coherent value-domains, and take into account the compatibility and conflict between different single values that these domains convey. In particular, following the emphasis of a non-territorial, asymmetrical social justice as a core principle

underpinning the notion of EC, it seems reasonable to apply the respondents' priority among core values for considering how they inform judgements concerning distributive justice. In other words, which groups or entities are singled out for their welfare being of significant priority?

To their essence, values addressing welfare-priorities have a strong political-ideological bearing as they underpin understandings of economic egalitarianism, and guide the individual to different political preferences on this issue [14,41]. Within the environmental policy domain, how the importance between personal and social context outcomes is rated is of course of significant relevance. One reason is that the attainment of positive environmental outcomes might entail both economic and social costs for the individual (hence the framing of them as collective-action dilemmas), another that environmental problems may be conceptualized as threats to a number of different groups (self, in-group, out-group) the significance of which is determined by these values. The egoism/altruism demarcation that this value-dimension elucidates has therefore been widely applied to characterize both the sources of the environmental problem as well as the necessary change of individuals' consciousness in the process of amending it [2]. In this endeavor, [5,50] highlights the divide by distinguishing between the motivational differences behind the two roles of altruistic citizen and the self-regarding consumer. Values expressing priorities of distributive justice thus lay at the core of how the relationships both between human beings and nature (e.g., a moral sphere expanded also to other species or entities), and between state and individual (e.g., non-territorial or global duties for the citizen) are understood.

However, merely making the distinction between egoism and altruism do not adequately capture the full complexity of an individual's value-system. Although the SELF ENHANCEMENT-cluster (see Table 2) presents a rather straight-forward orientation towards personal benefits, altruistic motivations might be both narrow and broad in scope. Altruism might thus incorporate a preference for welfare on a global (perhaps even non-human or intergenerational) scale, as suggested by EC, as well as for prioritizing the welfare of primary groups. By not discriminating between these two interpretations of altruism, the egoism/altruism-divide becomes a rather blunt instrument for reliably establishing whose welfare the respondents assign priority to [45]. This highlights the need for making a further demarcation of value-domains expressing a prominent universal and narrow social scope respectively. In order to nuance the territorial breadth of altruism, a triarchal classification of motivational domains is constructed as suggested by [51-53] and [48]. The three motivational value domains—here termed *Universal*, *Social* and *Self-Enhancement*—collect values that indicate both how an individual prioritizes various motivational value types (e.g., power, benevolence, universalism, conformity), and how he or she defines proper distribution of justice. As such, these three domains can be used to indicate both a respondent's motivation to pursue, or at least accept, activities with particular consequences [48].

SELF-ENHANCEMENT is a higher-order value type elaborated on by [47], and contains motivations for the individual to pursue "personal interests (even at the expense of others)". This self-regarding focus is consistent with what other studies have classified as an economic [53], egoistic [48] or egocentric [52] value orientation, focusing on outcomes that maximize self-interest rather than the interest of the larger community. So is [50]'s characterization of the motives inherent in the consumer role, which thereby places the values in this domain directly opposite those of the broad-scope altruistic ecological citizen. SELF-ENHANCEMENT instead guides the formation of attitudes in a way

that makes the individual less inclined to take action or respond positively to policies aimed at increasing environmental protection, if these entail some form of individual cost. At the same time, these individuals are more inclined to accept policies promising some form of personal benefit in exchange for individual action [53].

The SOCIAL and a UNIVERSAL value-domains are computed using value-items which accentuate the preference either for "welfare of people with whom one is in frequent personal contact" or for "welfare of all people and for nature" [54]. This makes them similar, but not entirely correspondent, to those value-orientations termed either Biospheric and Social-Altruistic [47], or Ecocentric and Homocentric [51]. An important difference from these categorizations is the less pronounced demarcation between ecocentrism and anthropocentrism in our value-orientations. Also universalism has an anthropocentric orientation evident by, for instance, the inclusion of social justice and broad-mindeness as two of its motivating values. We should, however, remember that it is neither expected that the ecological citizen is anything but a shallow-ecologist or a weak-anthropocentric [2], thus corresponding to the value base of universalism. Our domains could also be applied as providing an indication of the respondent's motivation to pursuit, or at least accept, activities with a particular set of consequences directed towards particular groups or entities [48]. A SOCIAL value-domain indicates prioritising a sense of belongingness and acceptance from others as well as a pursuit of goals which enhances the welfare of close others as a means to this end. This value-domain therefore incorporates items which emphasizes the welfare of the in-group and motivates the individual to restrain actions that are likely to upset others and violate social norms [47-53]. This also highlights the connections between a narrow scope of altruism and more collectivist cultures as suggested by [47]. Although with an altruistic base, the priority of care for close others expressed by this value-domain is not entirely in line with the non-territorial, intergenerational moral sphere linked to EC; instead it reflects a notion of territoriality when rank-ordering the welfare of different groups, where priority is granted those individuals who share membership in a community either taking the shape of the family or of some other form of in-group. In this way, a SOCIAL value-domain thereby expresses a significant principle on which traditional ideas of citizenship (or state/individual relations) are constructed: the moral relationship among people within the same politically defined society. Thus, from a perspective of environmentalism, individuals holding a strong social value-orientation are expected not to support environmental protective policies in those instances where these are understood as having short-term negative consequences for close others, and actively support environmental claims if they are perceived as beneficial for the own in-group and/or for their own social status [53].

In contrast, people holding a UNIVERSAL value-orientation are believed not to make any sharp distinctions between members of the in- and out-groups when developing criteria for welfare distribution. The UNIVERSAL domain is most closely associated with the morality and non-territoriality of the post-cosmopolitan ecological citizen, as we remember that EC applies the metaphor of the ecological footprint and the inter-personal relationships this generate as a starting-point [1,2]. These defining characteristics correspond rather well with the value-items included in the UNIVERSAL value-domain, and their recognition of global interdependency as well as of distant or anonymous relationships without any form of in-group contacts (e.g., [46]) are clearly distinguished from the altruistic value-items within the SOCIAL domain. The strong connections between universalism and pronounced environmental attitudes should therefore come as no surprise. People

holding it as their dominating value-domain are expected to be motivated by the perceived benefit or cost to the world at large, including the non-human environment, not based on the short-term costs facing either the own person or close others [47,53]. It is also within this value domain that the strongest connections to pronounced environmental attitudes and norm activation resulting in PEB are observed [23,48].

In Table 3, the means, standard deviations and scale-reliabilities for the three value-domains are outlined. The indices were created by summing up the responses to each included value item and dividing by the total number of items within the domain. Scale-reliability (Cronbach's α) was also generated for each value domain. In both samples, the reliabilities for the value-domains range between 0.62 and 0.76, which are considered reasonably high enough to generate indices for each.

Table 3. Welfare of greatest concern.

	Mean	Standard deviation	Scale reliability (Cronbach's α)
SELF-ENHANCEMENT	2.47	1.20	0.76
SOCIAL	4.54	1.09	0.67
UNIVERSAL	5.00	1.23	0.62

NOTE: SELF-ENHANCEMENT is comprised of five items: WEALTH, SOCIAL POWER, AUTHORITY, INFLUENTIAL and SUCCESSFUL. The SOCIAL value-domain organizes the items TRADITION, SELF-DISCIPLINE, OBEDIENCE, HELPFUL and LOYALTY. Three items make up the UNIVERSAL value-domain: BROAD-MINDED, SOCIAL JUSTICE and PROTECTED ENVIRONMENT.

According to our results, when discriminating between altruism with a narrow and a broad scope, respondents attribute higher importance to the latter. This is a clear demonstration of the fact that also non-territorial relationships are granted significant weight when developing personal criteria for distributive justice. However, the high mean-scores of two altruistic domains suggest that respondents, to some extent, attribute importance to both a broad as well as a narrow interpretation of altruism. It is also perfectly reasonable to argue that a person can have multiple preference orderings and therefore show different preferences in different contexts [55]. Sometimes, however, individuals are faced with situations where value trade-offs between two or more conflicting values domains become unavoidable [56]. It is in these conflict situations that a person's hierarchical ordering of values is believed to be of great importance, serving as a guide for choosing among different attitudinal or behavioral strategies [57]. Thus, since we are dealing with individuals' predisposition to act (or accept policies) in a context full of potential conflicts between personal, social and universal outcomes, it seems reasonable to consider how people rate the three motivational value domains relative to each other; how large is the share of potential ecological citizens in the sample?

To determine the extent to which the respondents should be assigned one of the three value domains as being dominant (and by inference the extent to which the respondents hold mixed or uncertain value domains), we applied two criteria [53]. First, each respondent's mean-score for his or her dominant value-domain should be higher than his/her mean-scores for (any one of) the opposing value-domain(s). Second, to be considered dominant, the respondent's own mean-score for this

value-domain also should be above the mean-score for the same value-domain calculated among the total population. In this way, we argue that the strength of the respondents' priority of one value domain is adequately displayed. Table 4 illustrates the distribution of dominant value domains.

Table 4. Dominant value-domains concerning welfare (% of respondents).

Value-domain	Strong	Weak
SELF-ENHANCEMENT	1.5	1.5
SOCIAL	22.7	32.9
UNIVERSAL	40.9	61.3
UNCERTAIN/MIXED	34.9	4.3

NOTE: It was possible to assign a dominant value domain for about 65% of the respondents, whereas the remaining 35% held either uncertain or mixed value domains, thus making them impossible to place in one of the three categories. It should however be noted that when only the 'highest mean score criterion' was applied, respondents in the uncertain/mixed category were distributed among the SOCIAL and UNIVERSAL value domains as illustrated in the far-right column (weak dominant value domain). As can be seen, a larger proportion of these respondents held UNIVERSAL as their highest rated value domain, whereas none displayed a highest mean score for SELF-ENHANCEMENT.

Overall, these results suggest that altruism with a broad scope is firmly established among the respondents with over 40% holding UNIVERSAL as dominant value-domain. This, again, suggests that the distinction between the welfare for members of the own in-group and for others, is not as sharp among the respondents. Consistent with EC, the groups whose welfare is of greatest concern are thereby identified based on other criteria than a predetermined, territorially bound membership and the moral community therefore stretched out as to encompass also people and entities with whom no personal contacts exists.

Although a UNIVERSAL orientation certainly is dominant among the respondents, it should nevertheless be noted that the SOCIAL value-domain was possible to assign as weakly dominant among one-third of the respondents. This, however, could indeed be interpreted as a movement in this direction. In EC-theory, social-altruism is considered a first way-station on the road towards a transformed ecological consciousness, as: "once the shift from "self-regarding" individual to "other-regarding" citizen has been made, it is a much smaller step to extend that public concern to foreigners, future-generations and non-human nature" [58].

5.2. Environmental Beliefs

So far, we can conclude that altruism with a broad scope is of significant importance. But how does this distribution of general value preferences translate into a formation of environmental beliefs? Previous research has demonstrated the connection between values and attitude formation, concluding that personal values function as a backstop for attitudes on more specific matters, thus indicating how an individual responds to e.g., new public policies. This is certainly true also for environmental issues, where values are thought to affect both general environmental attitudes and a person's predisposition to PEB. Investigating also the extent to which the value domains explained above guide respondents'

support of an environmental worldview therefore seems highly relevant in the endeavor of scrutinizing the existence of the ecological citizen.

To determine how the respondents rate the importance of specific environmental beliefs, we used the New Ecological Paradigm (NEP) scale [59]. This scale has been widely used to measure people's pro-environmental orientations, and findings from such studies suggest a significant relationship between NEP ratings and both behavioral intentions and actual behavior [48,49]. Therefore, individuals' NEP ratings are taken to reflect their inclination to form pro-environmental attitudes on a wide range of issues, and, by inference, their probable responses towards policies addressing these issues [59]. The NEP scale aims at capturing a person's view on five facets believed to form the core of environmental concern, and serves to tap individuals' understanding of policy-specific issues, e.g., the overall causes and seriousness of environmental problems and the prospect for society to solve environmental problems. In line with the notion of EC, the NEP scale thereby indirectly describes the tension between new and old politics e.g., by accentuating universal care for others and the need for comprehensive lifestyle changes and new politics in the form of increased individual participation, and by deemphasizing technological optimism and market solutions [60].

In the survey, we asked the respondents to indicate the extent to which they agreed or disagreed with 15 statements about the environment. The response categories range from 1 (completely disagree) to 5 (completely agree). Whereas agreement indicates a worldview in line with the NEP scale for eight of the statements, seven statements, marked (-), were worded so that disagreement agrees with the NEP scale. Calculating mean NEP scores necessitates reversal of the ordering of these seven items to make high scores correspond to a stronger pro-environmental orientation than low scores. Based on the connection between universal values and environmental attitudes proposed above, we hypothesize further that individuals holding a strong UNIVERSAL orientation display a high NEP score in total and a low score for the seven items marked (-). Table 5 presents the survey results, including the significance of the respective relationships between the mean scores of each of the three value domains and the NEP-items.

We note that both samples demonstrate a fairly high internal consistency ($\alpha = 0.78$) for the 15-item NEP-scale. This validates the creation of a NEP-index incorporating all of these items. When doing so, it is furthermore possible to conclude that the respondents overall lend a strong support for the NEP-scale as a whole (mean NEP-score = 3.67). Overall, they display both a high sense of environmental risk awareness and an acknowledgement of the place of human beings *in* nature rather than *above* it. Respondents prioritizing the Universal value domain display the most positive disposition towards the NEP worldview (r = 0.254, *p* = < 0.01, significant negative correlations is displayed for both SOCIAL and SELF-ENHANCEMENT), in particular regarding a reported awareness that current practices within developed countries imply significant negative consequences for the natural environment. At the other end of the spectrum, respondents holding strong self-regarding values are significantly less inclined to support the NEP worldview. These values are instead strongly connected to the worldview of the Dominant Social Paradigm [49,60], which implies a belief in the privileged status of human beings (pronounced anthropocentrism) and a strong trust in the market's and technology's ability to solve problems of environmental degradation and resource depletion. Nevertheless, due to the marginality of this group among the respondents, we conclude that people in general agree on the basic causes of the environmental problem and express a need both to rethink the

human beings/nature relationship and to move beyond short-term technological inventions as the primary tool for reaching sustainability. This clearly points towards the environmentally protective agenda linked to EC.

Table 5. Mean NEP score (including significance for dominant value domain).

	UNIVERSAL	SOCIAL	S-E	TOTAL
NEP TOTAL (α = .78)	3.83***	3.59*	3.33***	3.67
POSSIBILITY OF AN ECO-CRISIS				
• Humans are severely abusing the environment.	4.36***	4.11*	4.00	4.17
• If things continue on their present course, we will soon experience a major ecological catastrophe.	3.89***	3.57**	3.75	3.70
• The so-called 'ecological crisis' facing humankind has been greatly exaggerated (-).	2.20***	2.76***	3.08***	2.55
REJECTION OF EXEMPTIONALISM				
• Humans' ingenuity will insure that we do *not* make the Earth unliveable (-).	2.77***	2.95**	3.50***	2.87
• Despite our special abilities, humans are still subject to the laws of nature.	4.30***	4.12**	3.92**	4.20
• Humans will eventually learn enough about how nature works to be able to control it (-).	2.62***	2.93***	3.00	2.79
REALITY OF LIMITS TO GROWTH				
• We are approaching the limit of the number of people the Earth can support.	3.51	3.48	3.85	3.49
• The Earth has plenty of natural resources if we just learn how to develop them (-).	3.90**	3.91**	4.00	3.82
• The Earth is like a spaceship with very limited room and resources.	3.87***	3.60**	3.54	3.70
ANTIANTHROPOCENTRISM				
• Humans have the right to modify the natural environment to suit their needs (-).	1.83***	1.97	2.85***	1.99
• Plants and animals have as much right as humans to exist.	4.24**	4.27	3.38***	4.15
• Humans were meant to rule over the rest of nature (-).	1.88***	2.33***	3.23***	2.14
FRAGILITY OF NATURE'S BALANCE				
• When humans interfere with nature, it often produces disastrous consequences.	4.03***	3.87	3.54***	3.89
• Nature's balance is strong enough to cope with the impacts of modern industrial nations (-).	1.75***	2.33***	2.46**	2.10
• The balance of nature is very delicate and easily upset.	4.29***	4.04***	3.67***	4.14

NOTE: * $p < .10$ (two-tailed); **$p < .05$ (two-tailed); ***$p < .01$ (two-tailed).

We remember that the necessity for individuals to take on an increased environmental responsibility is the blurring of public and private domains, in that private actions always have also public (and global) consequences and therefore should be granted political connotations. The ecological citizen thus recognizes that also everyday private activities can have severe environmental effects, for the local as well as the global community. To probe deeper into the EC-supportive beliefs among the

respondents, we asked the respondents to indicate whether, and to which degree, they agree or disagree with statements addressing the seriousness and direction of the environmental threat posed by three daily household-activities. Table 6 illustrates the respondents' understanding of problem seriousness.

Table 6. Seriousness of problem—specific activities (% of respondents).

	Completely agree	Partly agree	Unsure	Partly disagree	Completely disagree	N
Unsorted household waste is such a serious problem that measures need to be taken immediately	18.3	28.8	34.7	11.4	6.7	1,224
Air pollution from private car use is such a serious problem that measures need to be taken immediately	25.2	26.3	30.9	11.2	6.3	1,213
The consumption and production of non eco-labelled goods is such a serious problem that measures need to be taken immediately	11.1	20.0	42.6	15.5	10.8	1,219

NOTE: When asked about the scope of threat from these private-sphere activities, well over 60% of the respondents agreed, completely or partly, that unsorted household waste presents a threat in both a local, a national and a global perspective. For private car-use, this number was about 70% and for consumption-practices between 35–40%. Overall, these three household-related activities were seen by the respondents as being more damaging on the global level. The stated feeling of moral obligation to amend these problems followed a similar pattern, with 82% stating that they felt a moral obligation to sort household waste, 74% to reduce private car-use; and 70% to increase consumption of eco-labelled products.

It stands clear that many respondents consider the adverse environmental effects of these daily private-sphere activities to be significant. Together with the strong support of a Universal value-domain, the above results thereby strengthens the conclusion that a significant share of the respondents hold beliefs rather close to what is expected of an ecological citizen. Furthermore, exploring perceptions of one's own personal contribution to the environmental problem is one common method for elucidating the strength of a person's ascription of responsibility (see Figure 2). Following the connection between predictors of pro-environmental behavior outlined in the VBN-theory, it seems reasonable to assume that recognizing private activities as contributing to an adverse environmental situation also indicates the presence of beliefs suggesting the ability, and perhaps even duty, of individuals to refrain from such activities.

Our analysis of value domains among the Swedish public has so far demonstrated that values and environmental attitudes related to EC enjoy rather strong support. Taken together with the respondents' overall high NEP score, it seems reasonable to conclude that a significant share of people

in general indeed hold the core values that not only imply a predisposition to support or engage in comprehensive individual environmental action, but also induce a sense of "being green in doing them" [33].

5.3. Behavioral Readiness

Our final inquiry deals with the respondents' self-reported willingness to accept policy-instruments that promote pro-environmental contributions from individuals, and with the respondents' willingness to change behavior in a more pro-environmental direction. Note that the aim here is to shed light on the level of support for individual environmental activities and policy instruments presently debated in society. The questions do not capture the entire spectrum of possible policy measures, nor do they indicate respondent willingness to express environmental awareness in new and innovative ways. It is also necessary to acknowledge that the value-behaviour connection is unavoidably distorted by other factors such as context, resource constraints and personal habits [17]. Hence, rejection of a certain policy measure, or failure to comply with an activity in practice, may be due to other reasons than rejection of the core values on which it rests. Although we firmly believe that the results presented in the rest of this section indicate that the respondents overall are willing to accept new policy instruments and increased environmental responsibility, they should still be interpreted with caution. The question posed is whether an orientation towards other-regarding values also drives the practice of EC. If tangible measures that have actual implications for the respondents' social and economic status are presented, how are their reported pro-environmental disposition affected?

First, is the Swedish public willing to take on a greater individual environmental responsibility? In the survey, respondents were asked to rate their willingness to increase pro-environmental contributions through three different measures that are currently suggested as important household contributions on a scale from 1 (completely disagree) to 5 (completely agree). Table 7 summarizes the responses, together with a Willingness-to-Change (WTC) index combining the three items. The significance of the relationship between the mean value of the WTC and the dominant value-domain is also displayed.

Table 7. Mean value for willingness to change behavior.

	UNIVERSAL	SOCIAL	S-E	Total
I am willing to increase my sorting of household waste in order to reduce the negative effects on the environment.	4.33***	4.00	3.38	4.06
I am willing to reduce my car use in order to reduce the negative effects on the environment.	3.39***	2.93	2.42	3.04
I am willing to increase my purchase of eco-labeled goods in order to reduce the negative effects on the environment.	4.08***	3.58***	3.46	3.74
WILLINGNESS TO CHANGE INDEX (α = .66)	3.90***	3.50	3.06	3.59

NOTE: ***$p < .01$ (two-tailed).

In all three value domains respondents reported a relatively strong willingness to increase their personal pro-environmental efforts. Not surprisingly, activities with little conflict between environmental and socio-economic outcomes (e.g., household waste management) enjoy stronger support than activities with more apparent conflicts involved (e.g., car use and green consumption). Here it should be noted that the relatively lower willingness among respondents to reduce car use may also partly be explained by the significant structural and habitual difficulties constraining the transition from private car to public transport [61]. Also as predicted, respondents' WTC varies with their value priorities; having universal values clearly implies a higher WTC in all three types of behavior. Similarly, although not statistically significant, respondents prioritizing self-regarding values reported less overall inclination to change behavior, which is consistent with previous research on the connection between collectivism, self-enhancement and pro-environmental norms of behavior [46]. These results further support the proposition that 'citizen-values' are significant drivers of personal readiness to act in environmental matters and that the theory of EC therefore can be valuable as an approach to attain individual environmental responsibility.

Second, respondents were asked to state the extent to which they supported an introduction of new policy instruments aimed at promoting change in household waste management, patterns of transportation and private consumption. The scale used ranged from −2 (completely against) to 2 (completely for), with 0 meaning 'neither for nor against'. The self-reported willingness to accept new policy instruments is illustrated in Table 8.

Table 8. Willingness to accept new policy instruments.

	UNIVERSAL	SOCIAL	S-E	Total
INFORMATION CAMPAIGN (HOUSEHOLD WASTE MANAGEMENT)	0.88***	0.74	0.31***	0.71
WEIGHT-BASED SYSTEM (HOUSEHOLD WASTE MANAGEMENT)	0.59***	0.29*	0.38	0.37
MUNICIPAL WASTE COLLECTION SYSTEM	−0.15***	−0.63**	0.00***	−0.38
INFORMATION CAMPAIGN (CAR USE)	0.35***	−0.07***	−1.38*	0.04
RAISED TAX ON PETROL	−0.53***	−1.14***	−1.15	−0.90
INCREASED PUBLIC TRANSPORT AVAILABILITY	1.33***	0.96**	0.92	1.07
INFORMATION CAMPAIGN (GREEN CONSUMPTION)	0.69***	0.26**	−0.08***	0.41
INTRODUCE TAX ON NON ECO−LABELED PRODUCTS	0.23***	−0.33***	−0.38	−0.14

NOTE: * $p < .10$ (two-tailed); **$p < .05$ (two-tailed); ***$p < .01$ (two-tailed).

As Table 8 illustrates, the respondents on average are considerably less supportive of the push measures (*i.e.*, policy instruments in the shape of fiscal disincentives) included in the survey. Consequently, negative results are displayed for the introduction of taxes on petrol (discouraging private car use) and non eco-labeled goods (encouraging green consumption). Respondents are also negative to the introduction of a municipal waste collection system where households would no longer have to transport their waste to drop-off stations themselves as is common practice in Sweden today. The respondents who hold a strong social value domain (followed by those holding a strong universal

value domain) are the most negative to an introduction of such a system. It might thus be hypothesized that the practice of taking household waste to the drop-off station is perceived as a highly valued activity in itself. Doing one's share by sorting household waste might be understood as an activity that produces a notable outcome for individuals with a strong pro-environmental orientation, or as an activity that demonstrates conformity with what is believed to be a strong social norm. Persons holding strong universal or social value domains could therefore be anticipated to be particularly sensitive to this type of motivation. Regarding the relatively low willingness to decrease private car use, there is overall weak support for both a raised tax on petrol and for an information campaign aimed to encourage alternative modes of transport. Again, if habits and structures are the main constraints for car-use reduction, then informative instruments will not address the experienced difficulties properly.

The strongest overall support is displayed for the introduction of policy instruments that facilitate individuals to increase their participation (pull measures). Hence, there is overall support for information campaigns aimed to encourage pro-environmental behavior, and, in particular, for improved public transport system through increased availability (more departures) and lower prices. The relatively weaker support for many of these instruments among respondents with SELF-ENHANCEMENT as their dominant value-domain might be due to the fact that our questions specified that the information campaigns would be financed by municipal tax revenues.

These results suggest a significant relationship between the *universal* value domain and the reported willingness to accept all proposed policy instruments. e.g., respondents prioritizing this value domain are more inclined to support the introduction of new policy instruments, including one of the push measures (taxes on non eco-labeled goods). This further supports the assumption that the values inherent in this domain are of considerable importance for the acceptance of personal environmental responsibility. In comparison with respondents with the SELF-ENHANCEMENT or the SOCIAL value-domains, respondents holding what we here characterize as the value base of ecological citizens are clearly more willing both to accept policies aimed to transform behavioral patterns and to change their own behavior.

6. Discussion

This explorative study set out to assess the existence and strength of a value-base for ecological citizenship (EC) among the Swedish public, using both theoretical and empirical contributions. Although the concept of EC is frequently applied in green political discourse as an alternative to market-based individual environmental action, little empirical work has been done to analyse the value of this theoretical approach as a route towards a more comprehensive environmental responsibility, *i.e.*, a responsibility built on personal morals rather than a response towards external incitements. We therefore suggest that the factors and causality suggested within the EC paradigm might benefit from an empirical survey of the frequency of already existing ecological citizens and their features. In practice, exploring the strength of EC-values and beliefs among the general public also provides useful insights for political decision-makers and public administrators concerning the prospect of policies suggesting more comprehensive individual environmental action to be accepted as legitimate. Following on from the increasing individualization of the environmental work is the need for policy-makers to know how the priority of different value domains translates into environmental

attitudes and affects environmental policy acceptance and compliance. Such an understanding can be used to construct a more legitimate environmental policy, and to increase the chances of selecting policy instruments that work as intended.

Some limitations of our analysis should be acknowledged. In particular, the respondents were drawn from four Swedish municipalities and not from the Swedish population as a whole, and with a relatively low response rate (32%) this suggests that generalizations should be made with care. Furthermore, as discussed earlier in the paper and as indicated in our results; since the responses signal that our sample is rather green, it may be tempting to conclude that there is a bias in the sample towards respondents with green values while the "grey" respondents have chosen not to respond in the first place. However, when comparing our results with other surveys, some of which are based on representative samples of the Swedish population (*cf.*, several publications from the SOM-institute www.som.gu.se) the results from our study are confirmed: In general, the Swedish population has rather green values and a strong concern for the environment. Also, it should once again be pointed out that this study has focused on values and attitudes and therefore makes no claims regarding any connection between values and behavior. As behavior is dependent on several other factors as well (hence the "value-action gap"), our results should only be taken to shed light on one of the factors controlling behavior, *i.e.*, predisposition to act in relation to environmental matters. Rather than viewing this delimitation as a shortcoming, we, however, suggest that this study offer excellent opportunities for new research. For example, our results invite for studies focusing on how factors such as world-view, personal norms and not the least *social norms* affect (actual as well as self-estimated) individual behavior. Furthermore, as values differ among cultures and contexts, the possibility for these results to travel well should probably not be overstated. We also believe that the present analysis of environmental values and beliefs is of significance for understanding not only the value of EC as a theoretical model for individual environmental responsibility, but also to adequately comprehend the ideational context in which environmental policy-making in Sweden operates. The latter discussion also invite for interesting research in the future. For example, to what degree can the results be generalized to other countries and other political contexts? To what degree do factors such as political culture affect people's environmental behavior? To answer these questions clearly require data allowing for country comparisons, to our knowledge not available at present.

What about the actual outcome of the study? Our results demonstrate, first, that the concept of EC indeed can be made operational and studied empirically, thus increasing its value also for discussing policy-making in practice. Through the application of the VBN-model developed within environmental psychology, it is possible to empirically capture the main factors deemed significant for initiating a morally-based behavioral change along the lines of what is suggested within the EC-paradigm. In doing so, we conclude that a value base consistent with EC, emphasizing non-territorial altruism and the primacy of social justice, already exists among a significant share of Swedes. The dominant value-orientation represents care for all people regardless of their whereabouts. Drawing a parallel from these values to a contemporary debate within green political thought, the importance ascribed also non-territorial relationships (including the value item SOCIAL JUSTICE) aligns perfectly with the notion of the ecological citizen. This broad-scope altruism held by a majority of the respondents is certainly of significance as it opens up for considering also global environmental problems, with less (or at least an abstract) significance for the own person or in-group, as of importance to counteract. We

therefore conclude that the sometimes envisioned need to deal with individuals as rational consumers, promoting individual environmental action through fiscal (dis)incentives and the promise of reciprocity, should not be taken for granted. As Swedes, according to our results, attributes a considerably higher importance to other-regarding values, this should be taken to reflect the likeliness for a positive formation of attitudes towards policies promoting a greater individual environmental responsibility on the basis of altruism and social justice.

This rather strong inclination towards other-regarding values is further confirmed by the support of an environmental worldview (following the NEP scale). Consistent with the dominance of basic values expressing broad-scope altruism, it is evident that a large majority of the respondents recognizes the rights also of other species and rejects any notion of human beings as being at the top of a nature's hierarchy. Taken together, this initial survey of environmental beliefs suggests that the respondents are favorably disposed to general acts of and policies for environmental protection. The respondents understand the environmental problem to be highly serious (even when described as an imminent crisis or a catastrophe); global in scope and with its causes to be found both in human activities in general and in private, household-related activities. This level of environmental risk-awareness further suggests that the respondents believe that adapting social practices to nature's limits, for example through lifestyle-changes on the level of individuals, are the solutions available. This, furthermore, drives the respondents' predisposition to accept and voluntary engage in individual environmental action.

All in all, we conclude that an EC value-base seems to be present among a significant share of the respondents, spanning basic value-priorities, environmental beliefs, as well as attitudes and personal norms conducive to PEB. We therefore find EC to be a constructive approach to individual environmental responsibilities, and a theoretical construct amenable to further development and application in political practice.

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References and Notes

1. Van Steenbergen, B. The Condition of Citizenship: An Introduction. In *The Condition of Citizenship*; Van Steenbergen, B., Ed.; Sage Publications: London, UK, 1994; pp. 1-9.
2. Dobson, A. *Citizenship and the Environment*; Oxford University Press: Oxford, UK, 2003.
3. Hayward, T. Ecological Citizenship: Justice, Rights and the Virtue of Resourcefulness. *Environ. Polit.* **2006**, *15*, 435-446.
4. MacGregor, S. Beyond Mothering Earth. In *Ecological Citizenship and the Politics of Care*; University of British Columbia Press: Vancouver, Canada, 2007.
5. Berglund, C.; Matti, S. Citizen and Consumer: The Dual Roles of Individuals in Environmental Policy. *Environ. Polit.* **2006**, *15*, 550-571.

6. Carter, N.; Huby, M. Ecological Citizenship and Ethical Investment. *Environ. Polit.* **2005**, *14*, 255-272.

7. Jagers, S.C. In search of the Ecological Citizen. *Environ. Polit.* **2009**, *18*, 18-36.

8. Seyfang, G. Ecological Citizenship and Sustainable Consumption: Examining Local Organic Food Networks. *J. Rural Stud.* **2006**, *22*, 383-395.

9. Wolf, J.; Brown, K.; Conway, D. Ecological Citizenship and Climate Change: Perceptions and Practice. *Environ. Polit.* **2009**, *18*, 503-521.

10. Converse, P.E. The Nature of Belief Systems in Mass Publics. In *Ideology and Discontent*; Apter, D., Ed.; Free Press: New York, NY, USA, 1964.

11. Feldman, S. Structure and Consistency in Public Opinion: The Role of Core Beliefs and Values. *Am. J. Polit. Sci.* **1988**, *32*, 416-440.

12. Rokeach, M. *The Nature of Human Values*; Free Press: New York, NY, USA, 1973.

13. Zaller, J. *The Nature and Origins of Mass Opinion*; Cambridge University Press: Cambridge, UK, 1992.

14. Barnea, M.; Schwartz S.H. Values and Voting. *Polit. Psychol.* **1998**, *19*, 17-40.

15. Dietz, T.; Fitzgerald, A.; Schwom, R. Environmental Values. *Annu. Rev. Environ. Resour.* **2005**, *30*, 335-372.

16. Steg, L.; Dreijerink, L.; Abrahamse, W. Factors Influencing the Acceptability of Energy Policies: A Test of VBN Theory. *J. Environ. Psychol.* **2005**, *25*, 415-425.

17. Stern, P.C. Toward a Coherent Theory of Environmentally Significant Behaviour. *J. Soc. Issues* **2000**, *56*, 407-424.

18. March, J.G.; Olsen, J.P. *Rediscovering Institutions*; Free Press: New York, NY, USA, 1989.

19. Sterner, T. *Policy Instruments for Environmental and Natural Resource Management*; RFF Press: Washington, DC, USA, 2002.

20. Dobson, A. Environmental Citizenship: Towards Sustainable Development. *Sustain. Dev.* **2007**, *15*, 276-285.

21. Young, O.R. *The Institutional Dimensions of Environmental Change: Fit*, *Interplay and Scale*; MIT Press: Cambridge, MA, USA, 2002.

22. Barry, J. *Rethinking Green Politics*; Sage Publications: London, UK, 1999.

23. Widegren, Ö. The New Environmental Paradigm and Personal Norms. *Environ. Behav.* **1998**, *30*, 75-100.

24. Deci, E. Meta-analytic Review of Experiments Examining the Effects of Extrinsic Rewards on Intrinsic Motivation. *Psychol. Bulletin* **1999**, *125*, 627-668.

25. Matti, S. Exploring Public Policy Legitimacy. In *A Study of Belief-System Correspondence in Swedish Environmental Policy*; Luleå University of Technology: Luleå, Sweden, 2009.

26. Hobson, K. Competing Discourses of Sustainable Consumption: Does the "Rationalisation of Lifestyles" Make Sense? *Environ. Polit.* **2002**, *11*, 95-120.

27. Hobson, K. Sustainable Consumption in the United Kingdom: The "Responsible" Consumer at "Arm's Length". *J. Environ. Dev.* **2004**, *13*, 121-139.

28. Martens, S.; Spaargaren, G. The Politics of Sustainable Consumption: The Case of The Netherlands. *Sustain. Sci. Pract. Policy* **2005**, *1*, 1-14.

29. Seyfang, G. Shopping for Sustainability: Can Sustainable Consumption Promote Ecological Citizenship? *Environ. Polit.* **2005**, *14*, 290-306.

30. Dobson, A.; Valencia Saiz, A. *Citizenship*, *Environment*, *Economy*; Routledge: London, UK, 2007.

31. Bell, D. Liberal Environmental Citizenship. *Environ. Polit.* **2005**, *14*, 179-194.

32. Wackernagel, M.; Rees, W.E. *Our Ecological Footprint: Reducing Human Impact on the Earth*; New Society Publishers: Philadelphia, PA, USA, 1996.

33. Dryzek, J.S. *The Politics of the Earth*, 2nd ed.; Oxford University Press: Oxford, UK, 2005.

34. Achterberg, W. Can Liberal Democracy Survive the Environmental Crisis? Sustainability, Liberal Neutrality and Overlapping Consensus. In *The Politics of Nature: Explorations in Green Political Theory*; Dobson, A., Lucardie, P., Eds.; Routledge: London, UK, 1994; pp. 81-104.

35. Prohovnik, R. Public and Private Citizenship. From Gender Invisibility to Feminist Inclusiveness. *Fem. Rev.* **1998**, *60*, 84-104.

36. Curry, P. Redefining Community: Towards an Ecological Republicanism. *Biodiv. Conserv.* **2000**, *9*, 1059-1071.

37. Gooch, G.D. Environmental Beliefs and Attitudes in Sweden and the Baltic States. *Environ. Behav.* **1995**, *27*, 513-539.

38. Lundmark, C. *Eco-Democracy. A Green Challenge to Democratic Theory and Practice*; Ph.D. Thesis; Umeå University: Umeå, Sweden, 1998.

39. Lundqvist, L.J. *Sweden and Ecological Governance. Straddling the Fence*; Manchester University Press: Manchester, UK, 2004.

40. Witherspoon, S. Democracy, the Environment and Public Opinion in Western Europe. In *Democracy and the Environment*; Lafferty, W.M., Meadowcroft, J., Eds.; Edward Elgar: Cheltenham, UK, 1996; pp. 39-70.

41. Caprara, G.V.; Schwartz, S.H.; Capanna, C.; Vecchione, M.; Barbaranelli, C. Personality and Politics: Values, Traits, and Political Choice. *Polit. Psychol.* **2006**, *27*, 1-28.

42. Mitchell, G.; Tetlock, P.E.; Newan D.G.; Lerner, J.S. Experiments behind the Veil: Structural Influences on Judgments of Social Justice. *Polit. Psychol.* **2003**, *24*, 519-547.

43. Rohan, M.J.; Zanna, M.P. Value Transmission in Families. In *The Ontario Symposium: The Psychology of Values*; Seligman, C., Olson, J.M., Zanna, M.P., Eds.; Lawrence Erlbaum Associates: Mahwah, NY, USA, 1996; pp. 253-276.

44. Stern, P.C.; Dietz, T.; Abel, T.; Guagnano, G.A.; Kalof, L.A. Value-Belief-Norm Theory of Support for Social Movements: The Case of Environmentalism. *Hum. Ecol. Rev.* **1999**, *6*, 81-97.

45. Hansla, A.; Gamble, A.; Juliusson, A.; Gärling, T. The Relationships between Awareness of Consequences, Environmental Concern, and Value Orientations. *J. Environ. Psychol.* **2008**, *28*, 1-9.

46. Nordlund, A.; Garvill, J. Value Structures behind Proenvironmental Behaviour. *Environ. Behav.* **2002**, *34*, 740-756.

47. Schwartz, S.H. Universals in the Content and Structure of Values: Theoretical Advances and Empirical Tests in 20 Countries. *Adv. Exp. Soc. Psychol.* **1992**, *25*, 1-65.

48. Stern, P.C.; Dietz, T.; Kalof, L.; Guagnano, G.A. Values, Beliefs, and Proenvironmental Action: Attitude Formation toward Emergent Attitude Objects. *J. Appl. Soc. Psychol.* **1995**, *25*, 1611-1636.

49. Schultz, W.P.; Zelezny, L. Values as Predictors of Environmental Attitudes: Evidence for Consistency across 14 Countries. *J. Environ. Psychol.* **1999**, *19*, 255-265.

50. Sagoff, M. *The Economy of the Earth*; Cambridge University Press: Cambridge, UK, 1998.

51. Schwartz, S.H.; Bilsky, W. Toward a Universal Psychological Structure of Human Values. *J. Pers. Soc. Psychol.* **1987**, *53*, 550-562.

52. Merchant, C. *Radical Ecology*; Routledge: London, UK, 1992.

53. Axelrod, L.J. Balancing Personal Needs with Environmental Preservation: Identifying the Values that Guide Decisions in Ecological Dilemmas. *J. Soc. Issues* **1994**, *50*, 85-104.

54. Rohan, M.J. A Rose by Any Name? The Values Construct. *Pers. Soc. Psychol. Rev.* **2000**, *4*, 255-277.

55. Schwartz, S.H. Normative Influences on Altruism. *Adv. Exp. Soc. Psychol.* **1977**, *10*, 221-279.

56. Tetlock, P.E.; Peterson, R.S.; Lerner, J.S. Revising the Value Pluralism Model: Incorporating Social Content and Context Postulates. In *The Ontario Symposium of Values*; Seligman, C., Olson, J.M., Zanna, M.P., Eds.; Lawrence Erlbaum Associates: Mahwah, NJ, USA, 1996; Volume 8, pp. 25-47.

57. Rossteucher, S. Explaining Politics: An Empirical Test of Competing Value Measures. *Eur. J. Polit. Res.* **2004**, *43*, 769-795.

58. Carter, N. *The Politics of the Environment. Ideas*, *Activism*, *Policy*; Cambridge University Press: Cambridge, UK, 2001.

59. Dunlap, R.E.; Van Liere, K.D.; Mertig, A.G.; Jones, R.E. Measuring Endorsement of the New Ecological Paradigm: A Revised NEP Scale. *J. Soc. Issues* **2000**, *56*, 425-442.

60. Milbrath, L.W. Environmental Beliefs and Values. In *Political Psychology*; Hermann, M.G., Ed.; Jossey-Bass Inc. Publishers: San Francisco, CA, USA, 1986; pp. 97-138.

61. Eriksson, L.; Garvill, J.; Nordlund, A. Interrupting Habitual Car Use: The Importance of Car Habit Strength and Moral Motivation for Personal Car Use Reduction. *Transp. Res. Part F* **2008**, *11*, 10-23.