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Article

The differences in environmental psychology within China elucidated by experts from both natural and social scientists

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Abstract: This study contributes to the empirical research on personal values theory within organizational settings. Through a case study of a group of scientists from China's national research institution of agricultural sciences, this research examines the association between individuals' value orientations of egoism, altruism, and the biosphere and their disciplinary backgrounds. According to the results of a questionnaire-based survey conducted among 678 scientists working within the Chinese Academy of Agricultural Sciences (CAAS), this study reveals a strong awareness of and concern for social values related to sustainability. It also shows that disciplinary background impacts individuals' value orientation. Compared to natural scientists, social scientists at CAAS demonstrate a lower level of value orientation towards altruism and biosphere. The findings advocate moving away from simplistic messages that aim to promote employees' pro-environmental behavior or from studies that focus solely on a narrow range of experiential factors. It concludes by emphasizing that sustainability transition efforts can promote the corporate greening process through a variety of managerial measures.

Keywords: egoistic value; altruistic value; biospheric value; organizational sustainability culture; organizational socialization

1. Introduction

Today, the analysis of ethical and sustainable behavior relating to sustainability is a burgeoning area of study across academia and business due to pressing challenges in industries such as environmental problems and the associated conduct of responsible management [1,2]. However, the employees have been frequently asserted as the heart of the sustainability development of an organization [3], and their sustainable values have been viewed as a general antecedent of organizational culture [4] relevant for understanding organizational citizenship behavior towards the environment [5], job satisfaction [6,7], organizational commitment [6,8]. Accordingly, an extensive set of studies has investigated the role of values on individuals and organizations [4,5,9,10].

Early perspectives on values suggested people are conditioned to make rational judgments and choices from which the greatest benefits are delivered [11,12]. However, the recognized contradictions that characterize ethical employee behavior as myth point to underlying problems within this field of research, such as a lack of knowledge on ethical decision-making [13] and attitude-behavior gaps [14–16]. When ethical employee behavior, for instance, just or moral behavior, is derived from categories of values influenced by organizational behavior [17], the decision-making process becomes an interactive and multidimensional subject [18,19]. The

'rationalism' approaches applied to economic modelling are based on spurious assumptions—such as value orientations are able to be measured using a single value scale and weighed up for maximizing goals—and these techniques take no account of the personal and organizational setting that informs how individuals experience value [5]. Other critiques argue that pro-environmental behavior is not, by itself, a sufficient solution to organizational environmental and social challenges, since it relies on decision-making processes that are largely shaped by organizational context and leadership ideologies [2]. When employees engage in acts of preferential judgment that are characterized often as either benefits or costs, individuals' perceived value is at the heart of this balancing, or 'trade-offs' [20]. Built upon the above critiques and debates, an emerging school of research prioritizes studying integrated values in organizations. Recognizing the limitations of studies that focus solely on individual cognition and responses to organizations, more recent research has begun to explore not only what employees personally value, but also how these values interact across organizational levels and what implications they have for both organizations and their members [4,21]. Such a value perspective, characterized by the process of daily organizational interaction, is contingent on organizational behaviors [22]. This kind of person-organization value emphasizes the distinction and integration between individuals' intrinsic values and those obtained through organizational socialization [5]. Organizational socialization is a process in which the employees' cognition and emotions will be developed or influenced by organizational behaviors [17]. For example, Bouman et al. [23] investigated whether and to what extent the individuals' values change through organizational socialization and found that biospheric values were strengthened, particularly among individuals who initially endorsed them less. Tuan [24] also confirms the interplay of organizational socialization processes and value orientations from the perspective of organizational culture. They argued that the original values might be challenged and even would be cultivated through corporate behavior. Consistent with this finding, Roccas and Sagiv [25] explored the role of organizational socialization along with the effects of typicality as to how values can be influenced by the organizational culture. The results were informative that the difference of values truly exists in cross-cultural comparisons. In addition, organizational socialization can also have an effect on the employees perceived person–organization values fit, influencing their attitudes [3], and even internalizing the organizational values [26] or changing their values through corporate behavior [27].

How organizational level is implicated in this process is exemplified by the case of values and professional socialization within the organization [12]. An extensive set of studies consistently shows that the workplace is a main avenue for the expression of values [12,28–30]. Knafo and Sagiv [31] studied the relationships between values and occupations based on the "Dictionary of Holland Occupational Codes" [32] and the "Schwartz Value Theory" [33]. They suggest that scientists, characterized by their investigation of physical or biological phenomena, tend to have values of universalism and benevolence and promote the attainment of the goals represented by these values. In contrast, other scholars explored the value hierarchies that characterize economists and indicated that economists attributed more importance to egoistic values and less importance to altruistic or biospheric values than members working on the environment [28]. Accordingly, the consistency and professional variability of

professional background differences in values are striking and demand explanation. Given our focus on sustainability ethics and transitions, individuals may reconsider their values and fulfillment in a new work setting.

This article is not an exploration of ethical and sustainable behavior, on which a large volume of scholarly work has already been conducted [34,35]. Nor does the article present answers to the attitude-behavior gap within ethical behavior and the challenges of positivist approaches in social sciences. Instead, this article delivers original results and insights on how organizational socialization (i.e., professional socialization within the academy) affects their value proposition of sustainability. We propose that the relationship of structure of values adjustment with organizational socialization is circumplex-like so that human values vary in how good a human resource management (HRM) system they are in the specific organizational context, with individual values and organizational culture variation in this "best fit." By exercising the theory of social value orientation on an elected group of agriculture researchers in China, the article takes an initial and deep look into how professional socialization within the academy can strengthen or modify the social value orientations among employees, which is critical to reach the sustainability objectives, and provides both empirical and conceptual contributions that have potential theoretical and managerial implications.

In sum, this research has potential value in contributing to further research on sustainability transition through pragmatist views on values in the workplace and disciplinary background. By conducting a case study and performing applied analysis on the group of academics from CAAS, the article asserts an ontological argument that sustainability values in the workplace emerge through the lived experience of professional socialization within the academy. The article discusses China's evolving societal views towards sustainable development and the roles that intellectual capital and disciplinary background can play. It concludes by discussing the challenges associated with China's research policies and sustainability transition.

Social value orientation and sustainability transition

The concept of value orientations is referred to as clusters of compatible values or value types [36]. By using carefully selected prompts to direct attention toward value-congruent information, an individual's values can be arrayed along three orientations that are relevant to sustainable consumption: egoistic value orientation, altruistic value orientation and biospheric value orientation [36–38]. Egoistic value focuses on an individual's concern for maximizing gains, such as money and status, and it calculates people's costs and benefits from each option presented and choice made [39]. Some studies found that egoistic value orientations were negatively related to sustainability beliefs, attitudes, intentions, and behavior [37,40–42], while others presented evidence revealing that society's interest in sustainability likely affects egoistic behavior [43,44]. Altruistic value reflects a desire to benefit the welfare of other human beings, acting in accordance with the interests of the collective [39]. People with strong altruistic value orientations may act ethically even though this may be somewhat personally costly. Previous studies showed that individuals who strongly endorsed altruistic value orientations were more likely to have a positive impact on

environmental self-identity and awareness and engage in green actions, relative to individuals with stronger egoistic value orientations [37,45]. These practical differences confirm common tendencies for altruistic individuals to focus primarily on ethical motives and act in the collective interest. Biospheric value denotes the distinction between values oriented toward the pursuit of human interests and values oriented toward a concern for the welfare of ecology and nature. Some studies found that people who endorsed biospheric values were more eager to contribute to sustainability initiatives and take action [46–48].

This study exercises the phenomenological inquiry of value by focusing on people's disciplinary background and professional affiliation. We draw a hypothesis from person-organization fit (P-O fit) theory of value that the formation of organizational ethical or value judgment emerges from organizational socialization, which in turn guides employee behavior accordingly [49,50]. The culture of the organization and its management practices will influence people's integrated experience of practical events that surround job satisfaction, commitment, and individual decision-making. Values serve to connect these experiences into a single whole, while intellectual elements help construct their meaning. Importantly, P-O fit theory argues that employees are more likely to exhibit positive workplace attitudes and reinforced behaviors when there is consistency between organizational culture and their values.

2. Materials and methods

2.1. Survey instrument

The questionnaire comprised three sections: the first section explained the research purpose, the second section covered the measurement of social value orientation (SVO) variables (see **Appendix** for the full list of variables), and the last section collected socio-demographic information.

To measure SVO, we followed the framework developed by De Groot and Steg [48], based on the notion that people know what their values are, hence value can be measured by asking people directly to rate their values. The social values tested were threefold—egoistic, altruistic and biospheric—with twelve sub-items (**Table 1**). The four sub-items constituting each of the three SVO variables comprise a carefully formulated list of values. Participants were asked to rate the importance of these 12 values on a 10-point scale ranging from not important to extremely important. The results serve as an indicator as to what degree the 12 values act as guiding principles in the subjects' lives. We opted for using general values in order to minimize the effect of individuals' traits, possible (negative or positive) past experiences, and prior knowledge on results.

The survey was conducted via electronic questionnaires. The use of e-questionnaires offers remarkable opportunities for qualitative and quantitative researchers aiming to capture employees's expressed attitudes for applied research. The e-questionnaire is an effective tool to gather information about employees's values and beliefs in addition to facts about themselves and their behavior [51]. Given the national coverage of CAAS, the e-questionnaire format enables broadened access to

the survey at a reduced research cost. Importantly, questions about individual beliefs and values are considered as communications and reflections at a deep level. Such personal information gathering is often challenging via face-to-face surveys because of the interviewer's presence. By using an anonymous e-survey, the respondents may avoid the influence of the popular biases associated with face-to-face surveys, e.g., acquiescence bias (or "yes-man phenomenon") and social desirability bias that often led to an exaggeration of people's beliefs and preferences conforming to acceptable norms.

Table 1. Value-items within value clusters.

Value Clusters	Value Items
Egoistic values	Social power
	Wealth
	Authority
	Influential
Altruistic values	Equality
	A world at peace
	Social justice
	Helpful
Biospheric values	Preventing pollution
	Respecting the earth
	Unity with nature
	Protecting the environment

Note: The classification of values is adopted from De Groot and Steg [10].

The e-questionnaire was enabled on both computer and mobile phone. An individual participant was asked to access and complete the e-questionnaire either on a computer-assisted device or a mobile phone without the researcher's on-site presence. The survey was piloted to identify unclear questions before the e-questionnaire was formally administered. In addition to inappropriate questions, technical problems were identified, such as the inability of the survey to refresh and other suspending events; the tool was redesigned and improved by allowing for navigating backwards and saving results upon interruptions.

2.2. Sample

The case study targeted researchers in China's national research institution of agricultural sciences. Founded in 1957, the Chinese Academy of Agricultural Sciences (CAAS) is attached to the Ministry of Agriculture and Rural Affairs. It conducts basic and applied research on agricultural and rural development. According to the Nature Index, the share of high-quality research published by CAAS has been consistently rising in the past few decades and reached 44.5% in September 2022–August 2023[1]. Defined mainly under the category of natural sciences, the index identifies Biological Sciences, Chemistry and Earth & Environmental Sciences as the primary subjects upon which the calculation is based.

Unlike universities, the geographical distribution of this research institution between affiliated centers across the country and its multidisciplinary research mean CAAS has a truly national outreach. For the 34 affiliated research centers, 59% of them are located outside Beijing and consist of diversified agro-ecological zones (AEZs) of agricultural production, including in the Northeast, North Plateau, Huang-Huai-Hai, Middle-lower Reaches of Yangtze, Northwest, South and Southwest. According to the classification of China's "first-order" AEZs [31], the CAAS research institutes cover 80 percent of the AEZs geographically. CAAS has naturally institutionalized its research over time into nine clusters of research subjects, including crop sciences; horticulture; animal husbandry and fishery; veterinary sciences; plant protection; food quality and processing; agricultural machinery and engineering; agricultural resources and environment; and information and economics sciences. 57 key research areas are nestled within the clusters. A visible divide exists between the natural and social sciences characterized by their financing, administration, and organization of research activities.

To study the association of disciplinary background and professional affiliation with people's social value orientation towards sustainability, this research targeted a mixed group of researchers in natural and social sciences. The research team first communicated with individual research centers and requested a list of researchers who represented the institute's main areas of research. Depending on the population and size of each research center, the number of respondents varied and ranged from 7 to 284. Some centers turned down the survey because the issues of ethics and values were sensitive to their work, e.g., genetic engineering. Although certain individual researchers agreed to complete the survey, our research team eliminated five centers where the response rates were low, or the administrative department of the center officially declined the survey. This deliberate sampling of respondents from selected research groups should be kept in mind when interpreting the results of this study.

The final survey was conducted in 2022, when the effects of the COVID-19 pandemic remained. Out of the planned sample of one thousand, a total of 678 questionnaires were fully completed. The omitted ones were due to them being incomplete or declined. As shown in **Table 2**, the respondents consisted of researchers in both natural and social sciences. For the group of natural science respondents (58% of the total sample), the majority of them were researching plant and animal sciences[2], agricultural machinery and engineering[3], and agricultural resource and environment science. Respondents in these areas accounted for 17.5% of the total sample. The respondents who were working on social science research subjects were mostly working on information and economics as well as rural development. The respondents were roughly equally distributed in gender with the percentage of female researchers slightly higher than male researchers. In total, 75% of the respondents were aged under 45 (see **Table 3**), indicating a strong presence of younger researchers. In terms of seniority, about 42.48% of the respondents were senior researchers with the title of professor or higher, and the remainder were junior research fellows, including postdoc and graduate students (see **Table 3**).

Table 2. Sample sizes and percentage distributions of natural and social sciences.

Research discipline information		No of observations (n = 678)	Percent
Natural Science		394	58.11%
	Plant Sciences	113	16.67%
	Animal Sciences	162	23.89%
	Engineering Sciences	64	9.44%
	Agricultural Resources and Environmental Sciences	55	8.11%
Social Science		284	41.89%
	Economic and Management Sciences	284	41.89%

Table 3. Socio-demographics of surveyed scientists in China's national research institution of agriculture sciences (total sample size 678).

Variable	Level	Percent
Age	18–24	14.45%
	25–34	27.87%
	35–44	32.74%
	45–54	13.86%
	55–64	10.47%
	≥ 65	0.61%
Gender	Female	53.10%
	Male	46.90%
Annual family income	≤ 50,000	8.70%
	50,001–100,000	18.73%
	100,001–150,000	19.62%
	150,001–200,000	14.45%
	≥200,000	38.50%
Title	Senior researcher	42.48%
	Junior researcher	26.40%
	Primary researcher	31.12%

Note: Exchange rate (between July and August 2022) was US$1 = RMB 6.9.

2.3. Methods

In this section, we detail a multivariate model that seeks to identify the impact of the studied variables in greater detail, in particular the heterogeneous effects of disciplinary background and qualifications on value development. We then present and discuss the results.

To calculate the importance of a researcher's disciplinary background on their social value orientations, the basic empirical model is specified as:

$$\text{Value}V_{ik} = \beta_0 + \beta_1 \text{sub}_i + \beta_2 \text{title}_i + \beta_3 \text{demo}_i + \beta_4 \text{inc}_i + \varepsilon_{ik} \quad (1)$$

where dependent $\text{Value}V_{ik}$ is the mean of each respondent's (i) social value cluster score (k) ($k = 1$ for egoistic value; $k = 2$ for altruistic value; and $k = 3$ for biospheric value).

The key independent variable of interest on the right-hand side of Equation (1), sub_i refers to research categories. This is an indicator variable that equals one if a researcher was from the field of social science, otherwise it equals 0. Likewise, title_i is an indicator variable that equals one if a respondent was a professor or senior

researcher. The reference group is researcher with a title of junior or primary research fellow; the coefficients, β_1 and β_2, thus measure change in disciplinary background and qualifications in research, respectively.

In addition, we also include a set of demographic characteristics (demo_i), like age and gender, into the estimate, with a dummy variable indicating whether the researcher is female. Lastly, to control for social and economic differences across fields, we included the annual income of CAAS researchers by using a binary variable and treated less than 20,000 RMB as the basic group. The coefficient β_3, when controlling other factors, measures the differential effect on the priority of social value orientations for female and older participants. Likewise, β_4 captures the effect of annual income on the development of researchers' value orientations, comparing participants from higher and lower income groups.

To avoid the problem of any correlation between the variables, the correlation among all variables was examined. Any one of the independent variables was found to have a correlation with the other variable of less than 1.1. The Breusch and Pagan LM test was conducted (Stata 15.0), and the null hypothesis that the variance of ε equals zero was rejected for all models except model 1.

3. Results

The overall scores of egoistic, altruistic and biospheric values were different. As shown in **Table 4**, the measured importance attributed to altruistic and biospheric values is higher than for egoistic value, which is only 3.45. It is likely the higher score of altruistic and biospheric values were associated with social desirability bias. However, it is our central interest to study the association of disciplinary background and social value orientation (SVO) we can assume that the presence of the social desirability bias is consistent for both the natural and social science groups.

Table 4. Statistical summary of social value orientation by value clusters.

Value Clusters	Value Items	Mean	Std. Dev.
Egoistic values		3.45	2.00
	Social power	2.78	2.65
	Wealth	3.27	2.56
	Authority	3.14	2.43
	Influential	4.61	2.49
Altruistic values		7.19	1.97
	Equality	7.35	2.71
	A world at peace	8.25	2.57
	Social justice	8.04	2.39
	Helpful	5.13	2.6
Biospheric values		8.86	1.94
	Preventing pollution	8.73	2.11
	Respecting the earth	8.76	2.14
	Unity with nature	8.87	2.05
	Protecting the environment	9.06	1.95

Note: 0 = least important, 10 = most important.
Source: Authors' calculations.

Within each of the categories, the SVO index demonstrated variance. **Table 4** shows the structure and importance of the value indices. The results show that researchers are highly concerned about the general concepts of social justice and world peace within the altruistic value cluster. Researchers are marginally less worried about the scale of 'helpful for the welfare of others' ($M = 5.13$). The results furthermore show an evident desire to mitigate existing harm rather than preserving existing resources and preventing possible future harm. Compared to the other two value orientations, researchers are marginally less confident about identifying themselves as selfish. In general, researchers in CAAS reveal an emerging self-identity and awareness about social values concerning sustainability.

The results in **Table 5** show that having an disciplinary background in the social sciences positively influenced individuals' egoistic values, but negatively influenced their altruistic and biospheric values. The coefficients of sub (−0.34 and −0.18, column 2 and 3 respectively) indicate that compared to researchers with a natural science background, while controlling for other variables, social scientists were less likely to ascribe an intrinsic value to altruism and biosphere, but they were willing to give priority to egoism (0.09, column 1). In other words, natural scientists at CAAS were more likely to recognize and be aware that human social activities had adverse consequences for the biosphere, though the effects are relatively modest.

Table 5. Estimation of social value orientation and individual characteristics, OLS Model.

	The score of SVO		
	Egoistic value (Model 1)	**Altruistic value (Model 2)**	**Biospheric value (Model 3)**
Knowledge background of social sciences (Yes = 1; No = 0)	0.09** (0.04)	−0.34*** (0.04)	−0.18*** (0.04)
Title of senior researcher (Yes = 1; No = 0)	0.14*** (0.05)	0.50*** (0.05)	0.39*** (0.05)
Age of researchers	0.05 (0.04)	−0.52*** (0.04)	−0.76*** (0.04)
Gender (Female = 0; Male = 1)	−0.01*** (0.00)	0.00 (0.00)	0.00 (0.00)
Annual family income above 200000 yuan (Yes = 1; No = 0)	−0.15*** (0.04)	0.07* (0.04)	0.15*** (0.04)
Constant	3.83*** (0.07)	7.41*** (0.07)	8.99*** (0.07)

Note: Standard errors are presented in parentheses.
*, **, *** Significance at 1%, 5%, 10% level

As seen in row 2 in **Table 5**, we find a relation between the title of a researcher and their value development. The most striking point is that all of the coefficients are positive and significant, with 0.14, 0.50, and 0.39, respectively. This implies that the order in which values are constructed or emphasized within the organization is largely determined by the roles individuals play, even though the effect of this factor has no differences within each value orientation.

In addition, individuals' demographic characteristics, such as gender, age, and income, were also found to have an impact on their value orientations. The effect of age and gender varied across the development of social value orientations. For

example, the coefficient of age for egoistic value orientation (0.05, column 1) is not statistically significant, while for altruistic (−0.52, column 2) and biospheric values (−0.76, column 3) are both negatively significant and larger than any other factor's effect. With regard to gender, only egoistic value is attributed greater priority by males, though the effects are relatively modest (−0.01, column 1, row 4). Overall, gender does not play a large role in affecting value systems. In contrast, annual income per capita is significantly positively linked to both altruistic and biospheric values, and negatively linked to egoistic values. Presumably, researchers with higher incomes do not need to prioritize material benefits, but rather can prioritize social or ecological benefits.

In general, these results demonstrate that in the case of CAAS researchers, ceteris paribus younger and high-income natural sciences senior researchers with the title of professor are more likely to ascribe an intrinsic value to altruism and biosphere.

4. Discussion

4.1. Values, disciplinary background and academic title

A disciplinary background of social science had significant effects on altruistic and biospheric values, with natural scientists reporting a substantially higher priority for both of these value orientations than social scientists. The consistency of disciplinary background differences in values is intriguing because it holds across an exceptionally wide range of organizations. Hence, it may reflect patterns or mechanisms inherent in organizational norms or ethics. Note, however, that this finding is limited to employees in CAAS, a small sample, and focused primarily on the agricultural academic profession and reveals only limited consistency of discipline differences.

What do our studies imply for the debate about discipline differences in social value orientations? The current literature on values and disciplinary background confirms that employee with a social science disciplinary background generally neglects the broader environmental context and are strewn with materialistic values [52], which are compatible with diminished value to the community or environment [46,53,54]. By default, at the top of their value hierarchy is money and all of its constituents: power, status, and the accumulation of wealth [52]. A study evidenced this by comparing MBA students to students of different subjects and found that throughout their studies, they were more egoistic and prioritized altruistic values less [55,56]. Thus, the differences in value orientations are a necessary prelude to an analysis of a difference in disciplinary background. We next consider how the two key theoretical perspectives in the field of disciplinary background differences, self-selection and self-identity theory, might explain these findings. This article can provide only basic explanations, not full explanations.

Initially, these differences can result from a self-selection process. People typically choose environments and organizations that are congruent with their traits, goals, and values [5,38,57–58]. Specifically, the values of scientists fit their research discipline from the onset of their studies. Thus, both motivational (i.e., values) and situational (e.g., university requirements) factors, through a self-selection process, may be operating in which scientists who emphasize egoistic values are particularly

attracted to studying economics, and individuals with natural interests engage in natural sciences. Values, as a guiding principle to behavior, may be viewed as one such mechanism.

Another mechanism for the transmission of values involves self-identity [24], which may influence above and beyond self-selection in value priorities between natural scientists and social scientists. In the long run, working with a congruent organizational culture with their values tends to enhance their individual attributes to the organization [5], regardless of their placement in the specific environment and situation. Meanwhile, individuals often act in accordance with the organization they belong to due to a strong sense of identification, even when they do not personally endorse the values emphasized by its culture. To adapt, they are motivated to internalize the value priorities promoted by the broader culture in which the organization is embedded [59], and strive to align their behavior accordingly. Accordingly, it is sensible that there are differences between individual scientists working in natural science-based research and those in social science-based research. Differences in disciplinary backgrounds shape distinct disciplinary identities, which hold different meanings for individuals and change for them over time as scientists adapt to organizational culture and disciplinary expectations. This may contribute either to the further acquisition and internalization of their value priorities or to an increased importance placed on each value, respectively [23].

Natural scientists, such as biologists, chemists, and physicists, approach science based on the philosophy of naturalism, which is also compatible with universalist values [12]. They primarily draw upon a realist and natural ontology, an objectivist epistemology, and a positivist or post-positivist philosophical perspective [60,61]. By default, these scientists emphasize self-direction values, and, to some extent, altruistic and biospheric values. In contrast, social scientists, such as economists, often identify and evaluate different management options' benefits and costs. Their version of ethics and social responsibility is not molded into virtuous activity but rather into a simultaneous concern for personal impression management and external public relations [52]. Especially when it is profitable, altruism or ecologism can be a "selling point" on which they can further the self-interests of organizations. In this sense, they may employ various defenses against social responsibility, depending upon their personality and the situational factors available to support such defenses [62]. Moreover, egoistic values (e.g., achievement) deal with personal issues because their consequences essentially affect only the actor, not others [63,64]. That may be congruent to the fact that social science disciplines study people issues, which lends to prioritizing egoistic values compared to other science disciplines; the reverse is true for altruistic and biospheric values.

The hierarchical position (i.e., academic title) effect on the priorities of social value orientations indicates that more senior researchers or professors attribute greater importance than others to all three value orientations. The complex mechanism that accounts for this phenomenon can be explained in detail elsewhere [65], where particular attention is given to the role-modeling aspect of leadership. Especially in the organization related to knowledge, leadership plays a pivotal role on due to the presence of specialized knowledge employees [65]. The impact of the leader on

employees could be so profound that leaders shape the organizational culture [66], thereby signaling the organization's values and priorities to subordinates.

4.2. The role of demographic factors and income level

However, our results also show that social value orientations depend, among other antecedents, on demographic characteristics, such as age, gender, and socio-economic level [64,67,68]. That means while disciplinary background impacts the structure of social value orientations, the role of demographic characteristics should not be ignored. In this study, the result shows that value orientations, especially altruistic and biospheric values, follow the structure of intra-age differences in value priorities. For example, lower age predicted a more notable increase in the importance of altruistic and biospheric values, which is contrary to some former studies [68,69].

How age is implicated in value priorities is exemplified by the case of historical time periods [70]. In particular, organizations tend to place greater importance on sustained growth and development [2], which may affect Millennial and Gen Z employees to come to see environmental sustainability as important in work compared to Generation X or traditionalists. Life course processes, on the other hand, may also act beyond individual differences in value priorities through experiencing different life events [70]. Individuals might have initially attributed higher importance to altruistic and biospheric values, and this may have decreased the importance they attribute to these values due to the situational demands of different life-course stages [70]. This hierarchy will be updated, reinforced, and integrated into a coherent self upon reflection of long-term behavioral choices [71]. For example, the roles of marriage and parenthood may be central in shaping the work values of husbands or wives [70,72]. Hence, this is consequential for explaining why younger cohorts are more sensitive to moral and ethical influences and ascribe more importance to biospheric values.

We also examined the direct effects of gender on value orientations, a key demographic characteristic variable. The results lead to the conclusion that men and women differ consistently in the importance they attribute to values. However, the size of gender differences was small, both absolutely and compared with other factors of difference. Moreover, gender differences do not differ significantly in the order of importance they attribute to the three social value orientations. Across all samples, men attach more importance to egoistic values than women, which is consistent with former research [67,73]. Such gender differences in value orientations towards work can be confirmed consistently.

The pattern of observed gender differences can be explained by the Expectancy-Value theory [74,75], which suggests that differences in the anticipated level of compromise between work and family responsibilities indirectly influence the extent to which men and women endorse certain work values [76]. Women with children often have to accommodate family responsibilities and invest relatively less than men do in their employment. Thus, different expectancies lead women to place less emphasis on egoism compared with men who are more concerned with achievement, status, power, and success at work [77]. An interesting finding is that there are no significant gender differences in altruistic and biospheric values towards sustainable

issues. Potentially, greater integration of women and men in the workplace may help reduce gender differences in work-related values.

We hypothesized that the value priorities of scientists in these samples would vary by income levels, a core index of social stratification, and the results confirmed that it was consistent with previous studies [78]. The complete relationship of value-income is probably a lot more complex to explain. As Kalleberg and Marsden argued that two different psychological mechanisms have been proposed to explain the development of work values [52]. Specifically, the reinforcement posits that people tend to value what they already have, developing work values based on biological needs, while the problematic rewards argue that employees are often motivated by job rewards they have not yet secured [70]. Thus, the value systems are the trade-offs between employees' basic needs and "higher order" needs such as self-actualization [79]. If the employees challenge with inadequate access to even fundamental requirements for income, they may come to place more value on material benefits than the affluent, who take these privileges for granted. For them, non-work needs are tied to their value system: causality flows from wealth to personal value orientations. Alternately, the pattern of values may be differentiated by the life context in which they live or the disciplinary background in which they are immersed, where different values are propagated. Consequently, the difference in value orientations in each income level group may be attributed to their somewhat distinct organizational socialization experiences.

5. Conclusion

This study built the empirical analysis on how individuals rank their value priorities within the organization, taking into account the educational and contextual factors that inform them. We conducted a questionnaire-based survey on 678 scientists working within the Chinese Academy of Agricultural Sciences and looked at five socio-demographic measures: disciplinary background, age, gender, title, and income. Several interesting findings were implied from this study. Initially, disciplinary background significantly affected how value priorities differed between natural scientists and social scientists. Thus, one factor influencing differences in value priorities is one's academic discipline. As detailed, this could be the result of the self-selection process and organizational socialization. Secondly, academic title, on the other hand, did not produce the same divide between natural and social scientists. Senior researchers and professors in both disciplines attributed greater importance to all three value orientations than junior or primary researchers. However, we are hesitant to further interpret this finding because this study only investigated one occupation. The reason behind this result needs to be further studied in the future.

Meanwhile, some unexpected findings emerged as well. For younger cohorts, altruism and biospherism were more important values than for older employees. This finding is especially interesting because studies have shown younger employees were more likely than older ones to consider sustainability the most important aspect [80]. We explain this phenomenon through historical time periods and the life-course process. With regards to gender, there were significant differences in one value orientation, egoism, with men reporting a substantially higher priority for this value than women. We explored how cultural expectancy could be the source of this

variation in value priorities, as women take more family responsibility compared to men, who respond to social power, authority, and wealth. Finally, turning to income, the results showed that more affluent scientists from this sample tended to give lower priority to egoistic values than lower-income scientists. Simultaneously, more affluent scientists accorded substantially more importance to all three value orientations than the rest of the sample population. This is grounded in reinforcement and problematic rewards, explaining how the individual's hierarchy of values is shaped.

5.1. Practical implications

This study explores variations in social value orientations among scientists at CAAS and investigates the factors that may account for them. The findings indicate that the values experienced as important might be a derivative of the organizational socialization impact, the organizational culture effect on the individual, while the values experienced as predominate might be grounded in the organizational socialization impact and underlying personality.

The way of expressing and ranking the priority of value orientations may depend on the culture of the organization and its management practices that offer the possibilities of such transformation and show ways for doing it. Therefore, in order to transform the organization towards sustainability, formulating green HRM policies and promoting sustainability work values throughout the organization are essential for internalizing a commitment to pro-environmental organizational citizenship behavior [17]. An organization can first select and recruit employees whose personal values align with the values emphasized in the work environment. This can increase employees' commitment towards the organization, their attraction to other organizational members, and their trust in the organization [5]. In addition, it is essential that employees clearly understand the organization's strategic objectives and their respective roles and responsibilities [81]. An organization can design differentiated and tailored communication to encourage employees to behave in an environmentally friendly way. By aligning organizational culture and sustainability targets with internal communication and participation mechanisms—such as green coordination groups—and by providing platforms that encourage interdisciplinary collaboration and dialogue, leaders can cultivate and sustain a strong corporate culture around sustainability. Another critical aspect to consider is incentive strategies and implementation. Providing appropriate incentives and measures to stimulate employees' commitment to organizational environmental goals and responsibilities is essential for fostering pro-environmental attitudes and organizational citizenship behavior toward the environment. Organizations may design a performance evaluation framework based on their environmental performance outcomes or their capabilities in advancing sustainability internally. Providing green training and development that equips employees with the necessary knowledge and skills for sustainability may also effectively promote sustainable organizational citizenship behavior.

5.2. Limitations

In sum, although we demonstrated the significant difference in the relative importance of egoistic, altruistic, and biospheric values across and between natural

and social scientists, there are a few limitations worth noting. Firstly, we did not go further to explore the meaning of the values' structure. Understanding the structure and importance of values orientations through the organizational socialization will require much longer-term longitudinal studies in a variety of social contexts. Secondly, value orientations in this study were assessed through self-reports, which creates the potential for common method bias. Self-reports of value orientation may be biased by self-esteem [82,83], thus diminishing the accuracy of reported value orientation. Moreover, relying on self-reported values may inflate relations due to shared-method variance [84]. Thus, using mixed-methods approaches to complement the questionnaire-based survey with qualitative interviews or observational data can help validate the findings and provide richer insights. Thirdly, our analyses focus on the employees within CAAS, but employees differ across workplaces. Additional research is needed to advance understanding of the influence of more diverse employees on the structure of value orientations under various organizational settings. Note, however, every longitudinal study has to confront the problem of sample attrition [85]. In our study, the sample is relatively stable, which can mitigate this sample issue and make the results more convincing and continuous. However, it is unlikely that this sampling bias would influence the relationship between the variables under study. Finally, we argue that the process of organizational socialization can differ for other values as well. We chose these three value orientations merely as illustrations of personal values. In further research with larger samples, one could consider introducing some value orientations based on specific value theory toward work, such as Sagie et al. [9], to provide better generality of the processes of organizational socialization reflected in values. In addition, the ambiguity of the causal nature of the social value orientations is complicated and remains open to further empirical and theoretical development [86]. Future research should aim to examine various contextually relevant drivers as we strive to comprehensively understand the roles of various aspects of the organizational socialization process, thereby examining the generalizability of our findings and the viability of the conclusions we have presented in this report. Despite these limitations, the present research provides an important perspective on value orientations. Future research should explore the relationships between work attitudes/behaviour, sustainable HRM, and value orientation priorities across employees in more detail. Additionally, future research needs to address how social and organizational culture intersect and shape the meanings and priorities people give to values.

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Notes

[1] Source: Chinese Academy of Agricultural Sciences (CAAS)|Institution outputs|Nature Index.

[2] The plant sciences were consisted of crop sciences, horticulture, and plant protection. The animal sciences were consisted of animal husbandry and fishery, and veterinary sciences.

[3] The engineering sciences were consisted of food quality and processing, and agricultural machinery and engineering.

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Appendix

Survey questions about SVO

Please indicate for every value to what degree it is a guiding principle in your personal life. The possible answers include 0 (opposed to my values or not important at all) to 10 (extremely important).

1) Control over others, dominance.
2) Material possessions, money.
3) The right to lead or command.
4) Having an impact on people and events.
5) Equal opportunity for all.
6) A world free of war and conflict.
7) Correcting injustice, care for the weak.
8) Working for the welfare of others.
9) Protecting natural resources.
10) Harmony with other species.
11) Fitting into nature.
12) Preserving nature.