

Chinese Youth in Climate Action

Exploring the Influence of China's "3060" Decarbonization Target on Urban Youth Climate Action Intentions

Xiaoyan Kong

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Sustainability Studies



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Supervisor: Murray Scown and Bernard Ekumah, LUCSUS, Lund University

Abstract

China's "3060" target for carbon neutrality needs public action. This study explores how this goal influences urban Chinese youth's intention to take climate action. Based on surveys and interviews, this study found a positive link between them. While perceived policy benefits motivate youth to act, barriers include concerns about green product accessibility and lack of infrastructure. The policy raises awareness and provides direction but the gap between awareness and action still exists due to a lack of specific action guidance, infrastructure limitations, work pressure, and a weak connection to nature. Personal experiences with extreme weather and cultural values also influence intentions. The study suggests the policy's impact could be strengthened by clearer definitions, addressing access issues, culture adaptation, and building closer connections with nature. Overall, this contributes to the understanding of how climate policy interacts with individual factors to promote climate action among urban youth in China.

Keywords: *Climate Action; China; Youth; Policy Acceptance; Theory of Planned Behavior; PLS-SEM*

Word count: *10310 words*

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道阻且长，行则将至。 - 《荀子·修身》

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List of abbreviations

Action Plan	Action Plan for Carbon Dioxide Peak Before 2030
BCG	Boston Consulting Group
CYCAN	China Youth Climate Action Network
IPCC	Intergovernmental Panel on Climate Change
IEA	International Energy Agency
PCHes	Per Capita Household CO ₂ Emissions
PLS-SEM	Partial Least Squares Structural Equation Modeling
PRC	People's Republic of China
TPB	Theory of Planned Behavior
PAM	Policy Acceptance Framework
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
WWF	World Wide Fund for Nature
Working Guidance	Working Guidance for Carbon Dioxide Peaking and Carbon Neutrality in Full and Faithful Implementation of the New Development Philosophy

1 Introduction

1.1 Climate Change

The climate crisis is one of humanity's most consequential and challenging problems of this century (IPCC, 2022). Human activities, especially the burning of fossil fuels since the Industrial Revolution, are rapidly accelerating climate change (IPCC, 2022). In COP28, it was announced that the member states are off-track with the goals set in the Paris Agreement, the global average temperature is already 1.45°C above the pre-industrial level and it continues to increase rapidly (IPCC, 2023; UNFCCC, 2023). The consequences of climate change cannot be overemphasized, threatening human existence and degrading natural ecosystems (IPCC, 2022). Extreme climate events like wildfires, floods and heatwaves are becoming more frequent and severe, causing loss of lives, displacement of people, economic losses, and more (IPCC, 2022; UN, 2023; WWF and BCG, 2023). The rising temperatures also cause sea-level rise, threatening coastal communities and life under the sea (IPCC, 2022). The observed rise in frequency and intensity of extreme weather events demonstrate a clear link to anthropogenic climate change (IPCC, 2023; WWF and BCG, 2023). This necessitates a global response to mitigate climate change impacts and ensure the sustainability of Earth's ecosystems.

1.2 China and its “3060” decarbonization target

China, as the world's second-largest country in terms of population and first as to total carbon emissions, plays a crucial role in global climate action (Kyriakopoulou et al., 2023). Since the Reform and Opening-up¹, China has lifted 0.8 billion of the population out of poverty in 40 years (Lu et al., 2019; World Bank,

¹ The Reform and Opening-up is the general policy of China's socialist modernization and construction proposed by Deng Xiaoping in 1978, with economic reforms as the focus – “reform internally and open-up externally” (Lu et al., 2019).

2022). However, this rapid development has been facilitated by heavy investment in infrastructure and reliance on fossil fuel, like the other developed countries (Kyriakopoulou et al., 2023). Indeed, there is a strong correlation between economic development, living standards improvement, and greenhouse gas emissions from energy sources (Vasylieva et al., 2019; Liu et al., 2022). But economic impacts and losses from climate change are also evident, China's exposure to the negative effects of climate change is higher than the global average (IPCC, 2021; Asian Development Bank, 2021). This complex relationship between development, energy use, and climate vulnerability requires a collective effort from all key actors, including the government, industries, and the public.

The Chinese government announced a significant climate commitment in 2020, aiming for a carbon peak by 2030 and neutrality by 2060 (the "3060" target) (UN, 2020). This is a significant step in global governance and achieving carbon neutrality would also enable China to avoid 80% of its cumulative climate change loss (Institute of Energy, Environment and Economy, 2022). A year after the announcement, this target was officially elevated to the national strategy level (State Council of PRC, 2021a). China published a series of policy measures in order to achieve the target, with the "1+N" policy framework as its cornerstone (State Council of PRC, 2021b). "1" refers to the Working Guidance² which is the top-level design and the overall framework of the target policy, and "N" refers to the specific policies and programs formulated by various departments and local governments in accordance with the Working Guidance (State Council of PRC, 2021a). The overarching document for "N" is Action Plan³, which focuses on the implementation of ten carbon-peak actions with the ninth one being "The public action for green and low carbon society" (State Council of PRC, 2021c). Indeed, while the governmental and organizational

² Working Guidance refers to Working Guidance for Carbon Dioxide Peaking And Carbon Neutrality In Full And Faithful Implementation Of The New Development Philosophy (State Council of PRC, 2021a).

³ Action Plan refers to the Action Plan for Carbon Dioxide Peak Before 2030 (State Council of PRC, 2021c).

responsibilities are obvious, the success of the “3060” target also depends on broad public engagement, especially among the large Chinese youth⁴ population.

1.3 Chinese youth in climate crisis

China’s youth, a significant potential force for change with a nearly 400 million population, is not only vulnerable to climate change but also an important contributor to climate action (National Bureau of Statistics of China, 2021; Du et al., 2023). Since cities are the main driver of climate change, China’s rapidly urbanizing youth (71%) is key to reducing emissions (IPCC, 2022, State Council of PRC, 2022). However, the most recent studies show that there is a gap between their awareness of climate change and their engagement in climate action (Wu, 2019; CYCAN, 2020; Yang et al., 2021). This disconnect makes it difficult for them to see climate change’s direct impact on their lives, thus they might be confused about how to deal with it (Wang & Zhou, 2020; Yuan et al. 2022; Han et al., 2022). Chinese youth have a high trust in the government, more than 90% of them trust the central government and nearly 70% trust in local governments (Zou et al., 2021; Edelman Trust Barometer, 2023). According to Kitt et al. (2021) and Bruno et al. (2022), this trust could influence their policy acceptance. The “3060” target policy, announced in 2021, has gradually impacted urban Chinese youth life in many ways, including more education on climate change and pointing out directions for climate action (Liu, 2023). However, limited research has been conducted to explore the extent to which this policy bridges the awareness-action gap.

This thesis focuses on five specific actions (see Figure 1.) recommended in the Action Plan as it presents the potential to bridge the awareness-action gap (State Council of PRC, 2021c). These five actions are everyday choices that directly impact urban youth emissions and offer a starting point for them to engage in broader climate action: 1) reducing energy consumption, 2) using green transportation, 3) purchasing

⁴ China's Middle- and Long-term Youth Development Plan (2016-2025) defines youth as the age group from 14 to 35 (State Council of PRC, 2017).

green products, 4) reducing food waste and 5) sorting our trash (State Council of PRC, 2021c). However, the effectiveness of such policies hinges not just on their existence but also on how young people perceive them (Wan et al., 2017). Research suggests that several key factors influence individuals' willingness to engage in pro-environmental behaviors (Wang and Mangmeechai, 2021; Wang et al., 2021; Juma-Michilena et al., 2024). Two key frameworks inform this study: Policy Acceptance Model (PAM): This model focuses on policy perception, particularly perceived ease of use and usefulness. Theory of Planned Behavior (TPB): This model explores factors influencing behavioral intention, including attitudes, subjective norms (beliefs about what others expect), and perceived behavioral control.

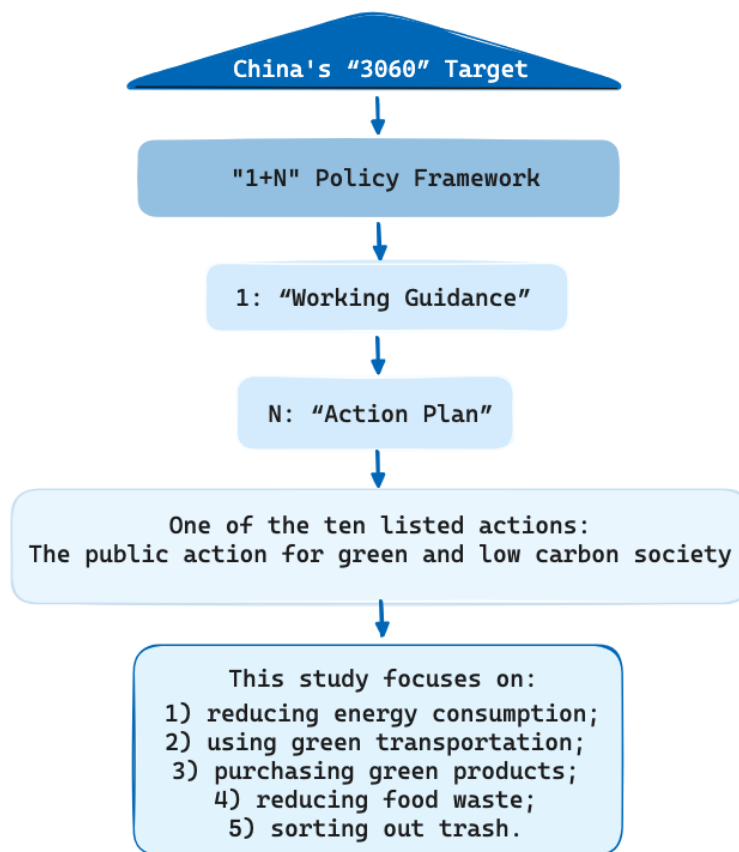


Figure 1. "1+N" Policy Framework under the "3060" target and the focus of this study

1.4 Research questions

By examining how urban Chinese youth perceive and respond to the policy, we can explore their potential influence on youth's overall intention to take climate action, considering the factors from both PAM and TPB.

The main research question for this study is:

How has policy under the “3060” target influenced urban Chinese youth’s intention to take climate action?

The sub-research questions are the following covering the mechanism, improvement and broader context of the policy:

1. To what extent do urban Chinese youth's perceptions of the usefulness and ease of use of the “3060” target policy influence their attitudes towards climate action?
2. How has the “3060” target policy influenced urban Chinese youth’s intention to take climate action, mediated by changes in attitude, subjective norm, and perceived behavioral control?
3. Beyond the theoretical framework, what factors influence urban Chinese youth to take or not take climate action and why?
4. How can policy under the “3060” target be improved to help urban Chinese youth take more climate action?

1.5 Contribution to Sustainability Science

This thesis will contribute to the sociological perspectives of sustainability science, which are often underutilized in this interdisciplinary field (Jerneck & Olsson, 2020; Longo et al., 2021). Given the youth's crucial role in achieving the decarbonization goal, this study stands out as the only one looking at national climate policy and its impact on urban Chinese youth's climate action. Understanding how youth perceive and respond to climate policy is crucial for achieving sustainability goals (Pickering et al., 2021; IPCC, 2022). Although per capita emission in China is not among the highest in the world, it is still above the global average and is predicted to increase in the upcoming years (IEA, 2024). Furthermore, GHG emissions produced by household consumption in China account for about 50% of the country's total GHG emissions, and urban total per capita household CO₂ emissions (PCHes) are higher than rural PCHes (Huang et al., 2018; Sun et al., 2021). Young people are not only future decision-makers but also a significant force for current change (Schusler et al., 2017). Their behavior choices and social influence can significantly impact household consumption patterns, especially in urban areas with higher CO₂ emissions (Flanagan et al., 2022). Hence, there is a need for research that examines the link between youth behavior and national climate policy. This thesis, as one of the first to explore this link in the context of China's urban youth, lights the way for future research within sustainability science to understand collective actions, especially youth engagement with different policy landscapes.

1.6 Structure

This thesis proceeds by introducing its theoretical framework, which is a combination of the TPB and the PAM. Then, a mix of the quantitative and qualitative methods is presented under the methodology section. A questionnaire is conducted under the TPB and PAM to collect the quantitative data, and the interview is conducted among the questionnaire participants to collect in-depth qualitative data that further explains the quantitative data. Descriptive statistics and Structural Equation Model (SEM) are used for

analyzing the quantitative data and Smartpls is the applied software for SEM (see Hair et al., 2019; Ringle et al., 2023 for more on SEM). The result section includes three parts: descriptive statistics, SEM data analysis and interview data analysis. The discussion section presents the interpretation of the results, suggestions for policy, suggestions for future research and limitations.

2 Theoretical framework

The Theory of Planned Behavior (TPB) is a widely used framework to understand individuals' behavioral intentions (Ajzen, 1991). It considers factors like attitude, subjective norm (perceived social pressure), and perceived behavioral control (Ajzen, 1991). However, climate action behavior is complex and influenced by more than just these traditional TPB factors (Steg and Vlek, 2009). The Policy Acceptance Model (PAM) addresses this by focusing on how individuals perceive a policy (Pierce et al., 2014). In the context of climate action, understanding urban Chinese youth's perception of the "3060" target policy is crucial. Therefore, this study adopts a comprehensive framework - the TPB-PAM framework - that integrates both models. This allows us to examine not only the traditional TPB factors but also youths' cognition and perception of the policy itself. This combined framework offers a more comprehensive understanding of how the "3060" target policy influences young people's willingness to take climate action.

2.1 Theory of Planned Behavior (TPB)

The TPB is a framework that considers motivational factors as determinants of the likelihood of performing a certain behavior (Montano et al., 2002). It assumes that the strongest predictor of a behavior is the intention behind it, the stronger the intention, the more likely the person will perform the behavior (Ajzen, 2020). This intention is controlled by attitude, subjective norm, and perceived behavioral control (Ajzen, 2020). According to Ajzen (1991), one's belief in the consequences of their behavior leads to a positive or negative **attitude** toward the behavior; one's belief in what other people expect of them

creates a sense of social pressure or **subjective norm**; and one's belief in their ability to perform the behavior generates the **perceived behavioral control**. Generally, the stronger the positive attitude, the subjective norm, and the perceived behavioral control, the stronger the intention to act in a certain way (Ajzen, 2006). If an individual believes they have the actual ability to perform the behavior and the opportunity occurs, they are more likely to implement their intention. So the intention is considered the direct cause of behavior (Bosnjak et al., 2020).

The TPB is an extension of the Theory of Reasoned Action (TRA), it includes an additional construct - the perceived behavioral control (Ajzen, 1991). After long theoretical testing and development, TPB has been proven to be a useful framework for explaining different behavioral outcomes (Hardeman et al., 2002). It is one of the most applied theories in social sciences and has been applied in various domains to either explain or predict behaviors, including health-relevant behaviors and policy-related behaviors (Krueger & Carsrud, 2010; Record, 2017; Bosnjak et al., 2020).

2.2 Policy Acceptance Model (PAM)

The PAM is a conceptual model that is employed to understand an individual's acceptance of policy changes (Pierce et al., 2014). PAM proposes that perceived ease of use, and perceived usefulness are two fundamental factors of an individual's attitude and intention toward using the policy (Davis, 1989; Pierce et al., 2014). **Perceived Usefulness** refers to an individual's assessment of how useful and helpful is the policy, and **Perceived Ease of Use** refers to how easy and effortless it is to use the policy (Venkatesh & Davis, 2000; Pierce et al., 2014).

The PAM was developed by Pierce et al. (2014). It is an extension of the Technology Acceptance Model (TAM) developed by Davis (1989). It shows that the higher the policy acceptance, the more positive the

attitude toward the policy will likely be formed (Pierce et al., 2014); thus, the connection to the TPB is via attitude. The “3060” target policy has a big impact on people’s lives, therefore it’s important to evaluate the policy itself and the public’s perception of it for a smooth transition (McLaughlin, 1987; Zhang et al., 2022). Although it is complicated to make a good policy, there are even more obstacles to getting them adopted (Gilbert & Taylor, 1999). The PAM offers a useful model to assess “3060” target policy adoption by considering perceived ease of use and perceived usefulness toward the policy (Pierce et al., 2014).

2.3 The integration of TPB and PAM for this thesis

The combination of TPB and PAM offers a valuable framework for understanding the factors influencing urban Chinese youth’s intention to take more climate action, concerning the “3060” target policy (Ignacio et al., 2019; Cho & Jeon, 2023). While TPB is a useful tool to explain behaviors, it focuses primarily on individual factors like attitude, subjective norm and perceived behavioral control (Ajzen, 1991). These factors are crucial but they might not fully capture the influence of a specific policy like the “3060” target policy on climate action intentions. Understanding policy acceptance through PAM is essential because it helps clarify how youth perceive the policy itself. This perception can also impact the TPB factors, for example, if youths view the “3060” target policy favorably (high policy acceptance), their overall attitude towards climate action might become more positive (Bruno et al., 2022). Essentially, PAM helps bridge the gap between policy and individual intentions. Building on this, the TPB-PAM framework goes beyond simply understanding intentions. It allows us to explore how knowledge about the policy translates into concrete behavioral changes (Lin & Roberts, 2020; St Quinton et al., 2021). Figure 2 illustrates the integrated framework of TPB and PAM.

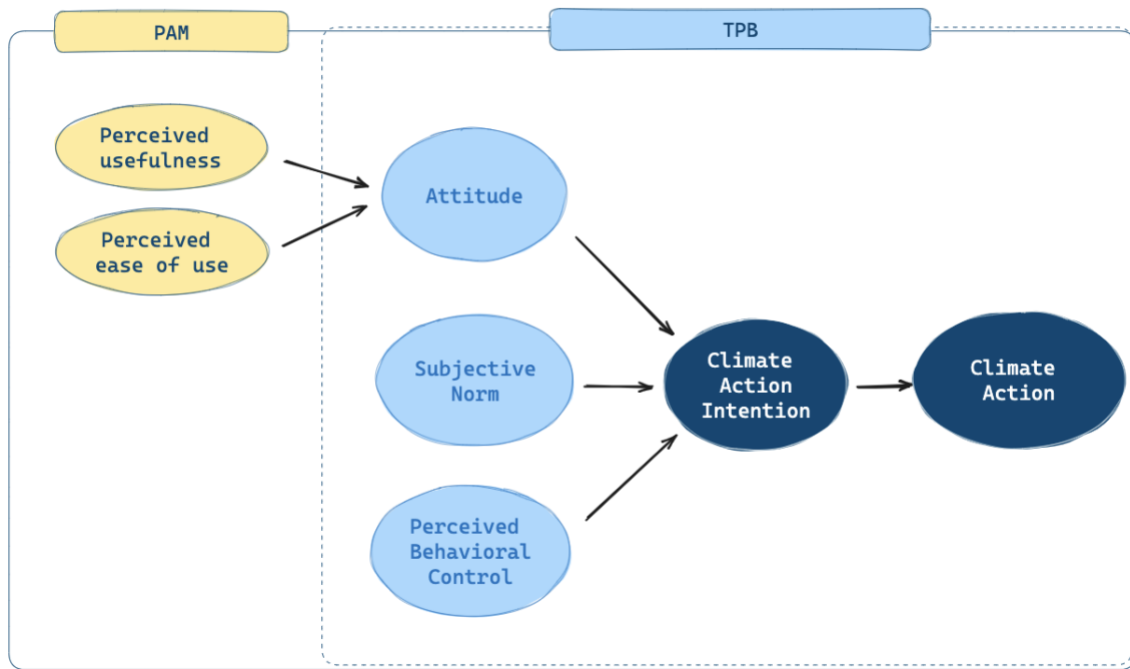


Figure 2. TPB-PAM Model. Adapted from Taylor & Todd (1995), Ignacio et al. (2019), and Cho & Jeon, (2023).

For this thesis, the intention is determined as - the intention of urban Chinese youth taking more climate action influenced by the “3060” target policy. Thus, the three factors from the TPB are defined as follows:

- 1) Attitude: assesses how urban Chinese youth’s perception of the “3060” target policy influences their views about the benefits of taking more climate action.
- 2) Subjective norm: assesses how the perception of policy could contribute to putting social pressure on the urban Chinese youth to take more climate action.
- 3) Perceived behavioral control: assesses whether the perception of policy has provided knowledge or infrastructure to enable urban Chinese youth to take more climate action.

Perceived usefulness refers to their perception of the policy's effectiveness in achieving climate action goals. And perceived ease of use refers to urban Chinese youth's perception of how easy it is to implement the "3060" target policy in their daily lives.

3 Methodology and Methods

3.1 Research Design

This research uses a mixed-methods approach with a sequential design. The first part of the study consists of a structured questionnaire followed by Ajzen's (2006) instructions. The second part comprises semi-structured interviews with some participants who were involved in the first part. All the interviewees were selected through their voluntary sign-up from the questionnaires.

The quantitative data is used in descriptive analysis and partial least squares structural equation modeling (PLS-SEM). While the descriptive analysis shows how the data is distributed and which values occur most frequently in each question (Kemp et al., 2018), the PLS-SEM explores the estimation of complex cause-effect relationships between different factors in the model (Hair & Alamer, 2022). The qualitative data is coded and analyzed along with the questionnaire data. It is not only a supplement to the qualitative result but also explains factors that are beyond the questionnaire, thus providing more in-depth information.

3.2 Quantitative data collection and analysis

A questionnaire with 24 questions was sent out between March 14th and March 21st, 2024 through the Powercx platform. A total of 274 responses were collected and 268 of them completely filled the questionnaire.

3.2.1 Sampling

The sample for this thesis comprised 268 respondents from the questionnaire and 20 interviewees from the questionnaire respondents. No financial compensation is provided to avoid potential biases (Cook, 1994).

The researcher shared the questionnaire mainly among the social media groups that she is part of in WeChat⁵ (微信), and asked her friends and communities to share it in their online groups that she is not part of. To avoid the similar-interest bias, groups and communities with different interests and geographical locations were taken into consideration when sharing the questionnaire. For instance, the questionnaire was intentionally shared in online groups that cover people from all different provinces in China and with different occupational status. The study also uses purposive sampling to identify additional respondents through other public channels (Campbell et al., 2020), such as Xiaohongshu⁶ (小红书) and personal encounters when the researcher was in China during February, 2024.

3.2.2 Questionnaire constructs

This section describes the constructs of the questionnaire and their corresponding measurement items used in the research. Constructs are latent variables that are not measured directly but are inferred from measured questionnaire questions. The questionnaire is theory driven. The constructs in the questionnaire are based on the TPB and the PAM to understand factors influencing urban Chinese youth's intention to engage in climate actions aligned with the "3060" target policy. They were measured by existing and established scales from literature. The constructs are policy acceptance (perceived ease of

⁵ Wechat is a Chinese social media and multipurpose application that has over 1.2 billion users, is a widely used platform among Chinese researchers for sharing academic questionnaires (Montag et al., 2018).

⁶ Xiaohongshu is a commonly used social media app in urban China among people in their 20s and 30s (Dai et al., 2023).

use, and perceived usefulness), attitude, subjective norm, and perceived behavioral control. The constructs and their corresponding items are presented in Table 1. All the questions used to measure the constructs were adapted to the research topic.

Q1-Q4 are demographic questions of the participants. Q5 and Q6 are the prior questions that help to understand the respondents' baseline understanding and concern of climate change. They can be useful for assessing potential target group bias (Clement et al., 2014; Si et al., 2019). The seven-point bipolar scale is recommended by TPB and used in the questionnaire to measure participants' agreement with each statement (Ajzen, 2020). Higher scores indicate stronger agreement with the construct (1 = Strongly Disagree, 7 = Strongly Agree). It is the same for Q5 and Q6, higher scores indicate a higher level of concern and higher intensity. The platform to deliver the questionnaire is called Powercx, it is a commonly used research platform in China (Wang & Yeung, 2022; Zhang et al., 2023; He et al., 2024). The questionnaire was delivered in Chinese (Appendix 1) and the questions are translated to English here.

Table 1. Questionnaire Constructs

Constructs	<i>Scale: 1-2-3-4-5-6-7</i> Q5: 1=not at all concerned 2=slightly concerned 3=somewhat concerned 4=moderately concerned 5=concerned 6=very concerned 7=extremely concerned Q6: 1=very low 2=low 3=somewhat low 4=neutral 5=somewhat high 6=high 7=very high Q7-Q24: 1=strongly disagree 2=disagree 3=somewhat disagree 4=neutral 5=somewhat agree 6=agree 7=strongly agree	Sources
Defined Behavior	Urban Chinese youth aged between 14-35 take more climate actions after acknowledging China's "3060" target policy	(Ajzen, 2006)
General Questions		
Demographic or other individual variables that help investigate the behavior	Q1-Q2. Which city are you from? What is your gender?	(Francis et al., 2004; Ajzen, 2006; Baker et al., 2007)
	Q3-Q4. What is age group? What is your educational level?	
	Q5. How much do you care about climate change?	
	Q6. How would you rate your level of participation in climate action initiatives such as reducing energy consumption, using green transportation, green products, reducing food waste and sorting out trash.	
Perceived Usefulness		
Perceived economic usefulness	Q7. I believe taking climate actions suggested by the "3060" target policy can help me save money	(Bell et al., 2001; Ajzen, 2006; Pierce et al., 2014; Yang et al., 2019; Fu et al., 2021; Lin & Lan, 2023)
Perceived environmental usefulness	Q8. I believe taking climate actions suggested by the "3060" target policy can help protect the environment	
Perceived Ease of Use		
The degree to which an individual believes that using the policy is easy both physically and mentally	Q9. I think those suggested climate action in the "3060" target policy is easy to understand	(Ajzen, 2006; Han et al., 2010; Kim et al., 2013; Chen & Tung, 2014; Chen, 2016; Ogiemwonyi et al., 2023)
	Q10. I think those suggested climate action in the "3060" target policy is easy to implement	
Attitude		
Beliefs about a behavior	Q11. My actions can be a contribution to reduce the impact of climate change*	(Ajzen, 2006; Han et al., 2010; Kim et al., 2013; Chen & Tung, 2014; Chen, 2016; Ogiemwonyi et al., 2023)
	Q14. I believe I should take more climate actions following the "3060" target policy	
	Q13. I think it is important for individuals to follow the "3060" target policy and promote low-carbon behaviors	
Evaluation of outcome	Q12. I believe the "3060" target policy is effective in addressing climate change	
Subjective Norm		
Normative beliefs about social norms/pressure from other	Q15. My peers believe the "3060" target policy helps tackle climate change	(Ajzen, 2006; Han et al., 2010; Kim et al., 2013; Chen & Tung, 2014; Chen, 2016; Ogiemwonyi et al., 2023)
	Q16. My family believes the "3060" target policy helps tackle climate change	
	Q17. I feel the pressure from my environment to act upon the "3060" target policy	
Motivation to comply	Q18. I think public figures (e.g., celebrities, politicians, influencers) have an influence on the "3060" target policy	(Ajzen, 2006; Han et al., 2010; Kim et al., 2013; Chen & Tung, 2014; Chen, 2016; Ogiemwonyi et al., 2023)
	Q19. I think society in general expects individuals to follow the "3060" target policy	
Perceived Behavior Control		
Normative beliefs about external barriers/enablers	Q20. I have the necessary external resources to take climate actions advocated by the "3060" target policy, such as reducing energy use, taking green transportation, purchasing green products and services, etc	(Ajzen, 2006; Han et al., 2010; Kim et al., 2013; Chen & Tung, 2014; Chen, 2016; Ogiemwonyi et al., 2023)
	Q21. The "3060" target policy has provided more available support for me to take more climate actions, such as reducing energy use, taking green transportation, purchasing green products and services, etc	
Normative beliefs about internal barriers/enablers	Q22. I have the knowledge and skills to take climate actions supported by the "3060" target policy	(Ajzen, 2006; Han et al., 2010; Kim et al., 2013; Chen & Tung, 2014; Chen, 2016; Ogiemwonyi et al., 2023)
	Q23. I feel stress or other feelings to take those climate actions supported by the "3060" target policy*	
Intention		
	Q24. I tend to take more climate actions after acknowledging the "3060" target policy	
*Q11 is removed due to its indirect connection with the policy in its wording, and Q23 is removed due to its replication with Q17 since the questionnaire in Chinese uses the same words for "pressure" and "stress".		

Free text box option

An optional open-ended text box was added at the end of the questionnaire, allowing participants to share any additional thoughts on this topic (Troost & Hultåker, 2016).

3.2.3 Statistical analysis: PLS-SEM

Structural equation modeling (SEM) is a powerful statistical method that helps evaluate theoretically supported linear and additive causal models, especially for social science research (Hair & Alamer, 2022). It can use the unobservable and hard-to-predict latent variables to deal with policy-related research questions (Mahdavi, 2021). There are two approaches to SEM: the first is covariance-based SEM (CB-SEM) and the second one is partial least squares (PLS) which focuses on variance-based SEM (Hair et al., 2022).

PLS-SEM is a soft modeling approach to SEM that does not require assumptions about data distribution (Vinzi et al., 2010). However, the main reason to choose PLS-SEM over CB-SEM is that CB-SEM is based on the common factor model while PLS-SEM is based on the composite model which is more suitable for the TPB-PAM model used in this study (Hair et al., 2017).

This study uses SmartPLS (version 4.1.0.1) for the PLS-SEM analysis as recommended by Sakaria et al. (2023). Policy acceptance (perceived usefulness and perceived ease of use), attitude, subjective norm, perceived behavioral control, and intention were modeled as latent reflective variables. Each of the questions under the factors is the indicator in the PLS-SEM. The constructed model is presented in Figure 3.

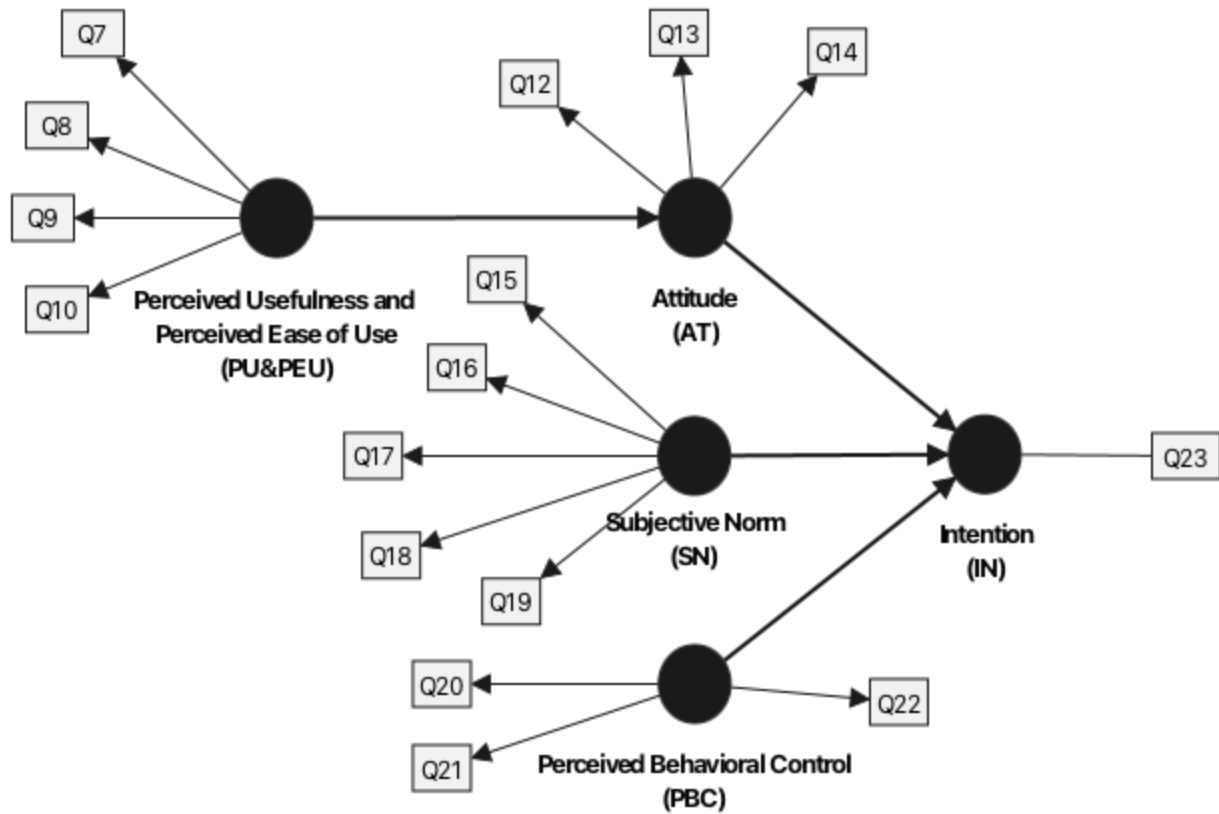


Figure 3. Illustration of constructed PLS-SEM

3.2.4 Evaluation of the PLS-SEM model

Evaluation of the PLS-SEM model consists of two steps. The first step is to evaluate the reflective measurement model, which assesses indicator reliability, internal consistency, convergent validity, and discriminant validity (Table 2). According to Hulland (1999) and Hair et al. (2022), indicator reliability reflects how well individual indicators represent the underlying concept they are designed to measure in the model. Internal consistency measures how well multiple indicators of a construct measure the same underlying concept (Bagozzi and Yi, 1988; Hair et al., 2022). Convergent validity indicates whether the indicators truly measure the construct they are intended to represent (Bagozzi and Yi, 1988; Chin, 1998; Hair et al., 2022). Discriminant validity ensures that the constructs are distinct from each other (Henseler et al., 2015; Hair et al., 2022).

After the construct measures are confirmed reliable and valid, the next step is to evaluate the structural model results to see whether it provides satisfactory results in explaining and predicting the aiming constructs (Hair et al., 2022). The assessment includes collinearity issues, significance and relevance, explanatory power, and predictive power as shown in Table 2 (Hair et al., 2022). Collinearity issues refers to a situation where two or more variables in the model are highly correlated with each other (Mason and Perreault, 1991; Becker et al., 2015; Hair et al., 2022). Significance and relevance represent the hypothesized relationships among the constructs (Aguirre-Urreta & Rönkkö, 2018; Hair et al., 2022). The explanatory power says about how well the model explains the relationships between the constructs (Cohen, 1988; Chin, 1998; Hair et al., 2019; Hair et al., 2022). Finally, the predictive power tells how well the model generalizes beyond the data used to develop it (Shmueli et al., 2016; Shmueli et al., 2019; Hair et al., 2022).

Table 2. PLS-SEM Evaluation Criteria

Criteria	What to look for in SmartPLS	Threshold	References
<i>Evaluation of the reflective measurement model</i>			
Indicator reliability	"Outer loadings" values	0.70 or higher is preferred. 0.4 is adequate if other items have high scores of loadings to complement AVE and CR	Hulland (1999); Hair et al. (2022)
Internal consistency	Cronbach's alpha (CA), composite reliability (CR), reliability coefficient	0.60 to 0.70 are acceptable in exploratory research, while in more advanced stages of research, values between 0.70 and 0.90 can be regarded as satisfactory.	Bagozzi and Yi (1988); Hair et al. (2022)
Convergent validity	Average variance extracted (AVE) values	0.5 or higher	Bagozzi and Yi (1988); Chin, (1998); Hair et al. (2022)
Discriminant validity	Heterotrait-Monotrait (HTMT) values	0.9 or lower	Henseler et al. (2015); Hair et al. (2022)
<i>Evaluation of the structural model</i>			
Collinearity	Variance Inflation Factor (VIF) values	Variance inflation factor (VIF): ≤ 5 , ideally ≤ 3	Mason and Perreault (1991); Becker et al. (2015); Hair et al. (2022)
Significance and relevance of the structural model relationships	Path Coefficients	Path coefficients are significant when 1) P value $< 5\%$; t statistic > 1.96 ($\alpha = 0.05$) and 2) The 95 % percentile or bias-corrected confidence interval ($\alpha = 0.05$) does not straddle a 0	Aguirre-Urreta & Rönkkö (2018); Hair et al. (2022)
Explanatory power	Coefficients of determination; R^2	The R^2 value ranges from 0 to 1, with higher levels indicating higher levels of explanatory power. 0.25 Weak, 0.5 Moderate, 0.75 Strong	Cohen (1988); Chin (1998); Hair et al. (2019); Hair et al. (2022)
Predictive power	PLS predict procedure	$Q^2 > 0$, 0-0.25 small, 0.25-0.5 medium, > 0.5 large	Shmueli et al. (2016); Shmueli et al. (2019); Hair et al. (2022)

3.3 Qualitative data

Semi-structured interviews were conducted through WeChat among 20 participants in China to gain deeper insights into the survey. These interviewees voluntarily signed up through the survey. There are a total of 30 respondents signed up, however, only 20 of them were successfully contacted and interviewed. The interview questions were guided by the survey questions, but focused more on the reasons and real-life experience around the policy recommended actions on: 1) reducing energy consumption, 2) using green transportation, 3) purchasing green products, 4) reducing food waste and 5) sorting our trash (State Council of PRC, 2021c). Each interview took about 45-60 minutes to complete. Before the interview, a pre-message (Appendix 2) was sent to each interviewee asking their permission to record the interview and inform the potential usage of their quotes in this thesis. All of them agreed. Besides the guiding questions, there was also space for the interviewees to express other thoughts regarding the topic (Trost & Hultåker, 2016). All the interviews were conducted and transcribed in Chinese (using the iFlyRec platform). After that, the transcriptions were manually coded based on two key aspects: the five policy actions and the five constructs from the PLS-SEM in order to find themes and patterns that support or challenge the relationships identified in the PLS-SEM result.

3.4 Positionality & Limitations

Both questionnaires and interviews are more or less influenced by my background, experiences and biases (Ajzen, 2011). Similarly, participants also bring their own experiences, social backgrounds and biases to the research which can shape how they answer questions or respond in interviews (Greaves et al., 2013). Limited by the research topic and sampling method, only people who are aware of the “3060” target policy were eligible to respond, excluding the others who were not aware of the policy or less engaged with online platforms from participating in the research. The wording and framing of questions can also influence how respondents interpret and respond to them (Sutton et al., 2003). The participants might

answer the questionnaire or interview in a way they believe is socially desirable rather than expressing their true thoughts (Milfont, 2009). Finally, there might be power dynamics between the interviewees and interviewers to prevent them from sharing the most honest opinions (Karnieli-Miller et al., 2009).

To mitigate the limitations, a pilot test was conducted for the questionnaire and the interview with a small group of targeted people to identify any of the issues mentioned above. I am also aware of my own biases and how they might influence the process. The quotes are also shared with the interviewees to see if they resonate with the interviewees' experiences. Finally, some additional literature is used to get a more complete picture of the thesis topic to strengthen the validity of the outcomes.

3.5 Ethical Considerations

Ethical issues in research are important because unethical practices might negatively affect the respondents, the researcher, or the involved institution (Wa-Mbaleka, 2019). Good ethical practices guarantee trust in the findings of the research (Watts et al., 2017). This thesis followed the social sciences standard recommended by Cook, (1994), Merriam & Tisdell (2015) and Creswell & Poth (2016) for both quantitative and qualitative research:

- 1) *Protection of the participants, the researcher, the research setting, and the affiliated institutions, community, or organizations:* No one is hurt as a result of this research.
- 2) *Avoidance of physical, emotional, and spiritual harm:* There is no harm involved in the research and the researcher is aware of avoiding emotional stress. No participants have reported having any of the harm or stress.
- 3) *Minimization of risk to the lowest level:* There is no observed minimal risk involved online.

- 4) *Reciprocity*: While the researcher gains access to the data information, the participants can benefit from sharing their opinions to motivate policy change and being heard. Some participants also requested to have a look at the thesis outcome, so they could improve their behaviors, their community, and work.
- 5) *Interest in humanizing and dignifying the research participants*: The researcher acknowledges they and the participants are on an equal footing no matter their social status.
- 6) *Respect for the participants*: The researcher respects participants' rights, culture, and worldview.
- 7) *Special care for special groups of participants*: One special group of age under 18 is identified and given special care such as confirmation from their guardians and more explanation of the topic.
- 8) *Voluntary participation*: The participants are given informed consent without any pressure. They are also free to leave the questionnaire or interview at any time they feel uncomfortable. There is also no compensation in any form involved in this study that might create biases.
- 9) *Privacy*: All interviewees chose the time and physical location to participate in the online interview.
- 10) *Confidentiality*: All participants' information is kept confidential.

4 Results

The descriptive data analysis mainly shows the demographics and background of the urban Chinese youth, the average score, and the distribution of each response. This helps identify the characteristics of the study sample, their perception related to the TPB and PAM constructs, and their overall intention to take more climate action. Following the descriptive analysis, PLS-SEM helps test the TPB-PAM theoretical framework and identify the strength and significance of the relationships within. Finally, the analysis of the interview data provides a deeper understanding and clarification of the quantitative data, thus contributing to a more robust understanding of how the “3060” Target policy influences urban Chinese youth’s climate action.

4.1 Descriptive analysis

Most people agreed that following the climate actions recommended by the “3060” policy would have a positive impact on climate change. These policy-recommended climate actions would also help them save money and benefit the environment around them. However, more people chose “somewhat agree” rather than agree with the environmental benefits. Respondents also considered the policy to be relatively easy to understand, but more people considered the policy easy to understand rather than easy to implement. Respondents largely agreed that the policy would have a positive impact on climate change, but a few also strongly disagreed. At the same time, most people agreed that individuals should follow the climate actions recommended by the “3060” policy and join a low-carbon lifestyle, and also believed that they should do so. However, a small number of respondents also expressed disagreement.

Respondents believed that their peers were more likely to agree that the “3060” policy can help climate change and that public figures such as celebrities and politicians have a positive impact on promoting the climate actions recommended by the “3060” policy. However, many people did not feel pressure from the environment to follow the actions recommended by the “3060” policy, nor did they think that society was asking them to do so. Most respondents believed that they had the necessary external resources to help them implement the actions recommended in the policy, but fewer people chose “agree” and “strongly agree” for the necessary knowledge and skills.

4.1.1 Demographics and prior concern about climate change

As Table 3 shows, among the 268 respondents, 73% of them were female and most (64%) of them fell within the age group of 26-35 (note that “26-35” has the biggest age range compared to “15-18” and “19-25”). In terms of the educational level, 45% hold a degree higher than a bachelor’s, 43% have a bachelor’s degree (or are currently pursuing one), and 12% have a degree lower than a bachelor’s. Respondents

came from cities in 28 different provinces in China, with 53% from the three first-tier cities⁷: Shanghai, Beijing, and Guangzhou (Wang et al., 2021).

Table 3. Demographics of the respondents

Variable	Category	Frequency	<i>n=268</i>
			Percentage
Gender	Female	196	73%
	Male	72	27%
	Other	0	0%
Age	14-18	5	2%
	19-25	90	34%
	26-35	173	64%
Educational Level	Lower than bachelor	32	12%
	Bachelor' s degree	115	43%
	Higher than bachelor	121	45%
City Distribution	Shanghai	63	24%
	Beijing	43	16%
	Guangzhou	36	13%
	Chengdu	12	4%
	Nanjing	12	4%
	Tianjin	11	4%
	Shenzhen	9	3%
	Other cities	82	31%
	Covered provinces	28	82%*

**Here n=34, because there are 34 province-level administrative divisions in China. The cities respondents chose are from 28 of them.*

⁷ China's city tier system was proposed by Yicai Media Group, mainland Chinese cities are divided into six tiers based on their performance in terms of business, transportation, urbanization, lifestyle diversity, and development potential (Wang et al., 2021).

Respondents express a high average level of concern about climate change (Q5; mean = 5.575) and a moderate to high average level of participation in climate action initiatives (Q6; mean = 5.246) as shown in Fig. 4. They both have more results towards the higher scores, which means more concern and participation compared to the lower scores.

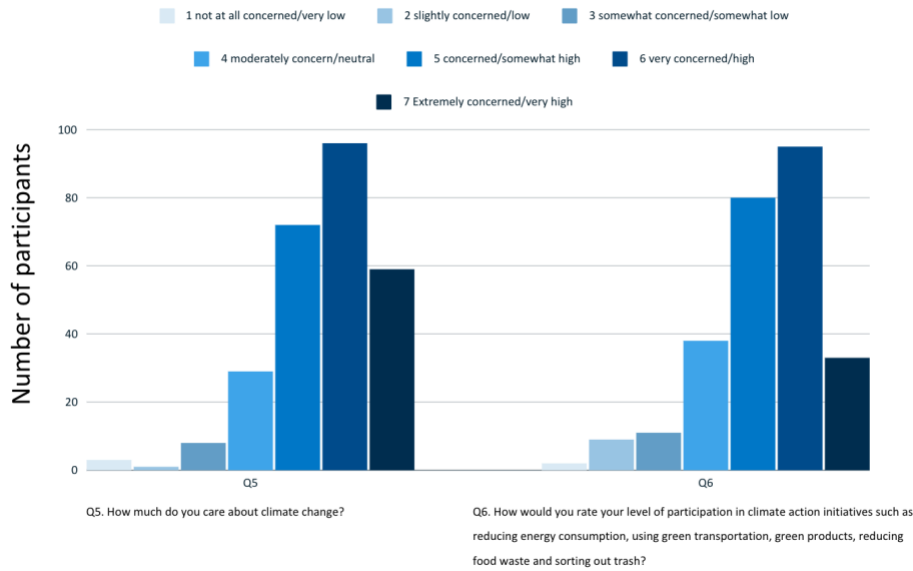


Figure 4. Distribution of responses to questions about concern about climate change and level of participation in climate action (Q5 & Q6)

4.1.2 Perceived usefulness and perceived ease of use

Respondents showed a generally high perception of the economic usefulness of taking climate actions suggested by the “3060” target (Q7; mean = 5.496) and 219 (82%) respondents chose scores above 4 (neutral) (Fig. 5). Respondents generally believe taking climate actions suggested by the “3060” target can help protect the environment (Q8; mean = 5.937) with 104 (39%) respondents choosing score 6, indicating an “agree” level. Notably, no respondent chose score 1 (strongly disagree) (Fig. 5). Moreover, most of the respondents agreed that the suggested climate action in the “3060” target is easy to understand (Q9; mean = 5.754). However, not as many people agree that the suggested climate action in the “3060” target is easy to implement (Q10; mean = 4.593).

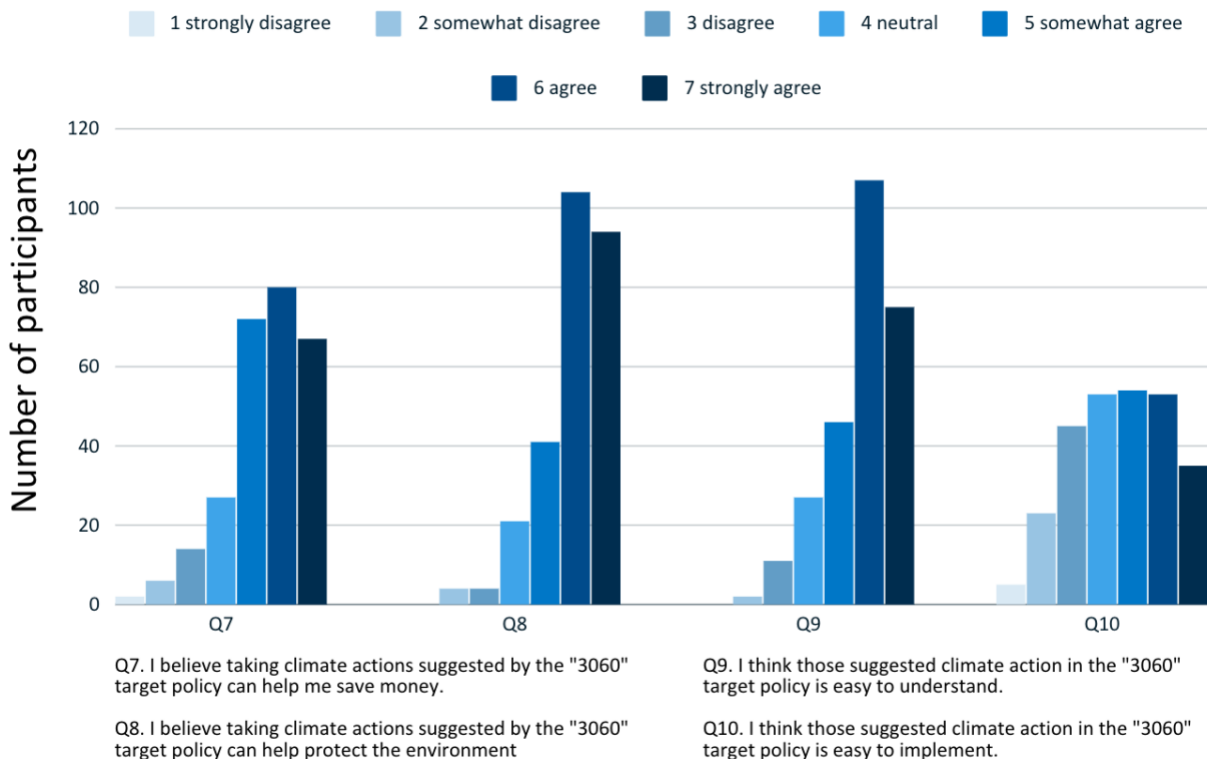


Figure 5. Distribution of responses to questions about perceived usefulness and perceived ease of use (Q7-10)

4.1.3 Attitude

There is a high agreement that the “3060” target is effective in addressing climate change (Q12; mean = 5.433), with a few respondents strongly disagreeing (Fig. 6). And there is even a higher agreement on individual’s responsibility to follow the “3060” target and promote low-carbon behaviors (Q13; mean = 5.746). 173 respondents chose either “agree” or “strongly agree” as shown in Fig. 6. Similar to Q13, there’s a strong overall agreement among the respondents that they themselves should take more climate actions following the “3060” target” (Q14; mean = 5.713) with 166 participants choosing “agree” or “strongly agree”. Particularly, there is no response of “disagree” in this question.

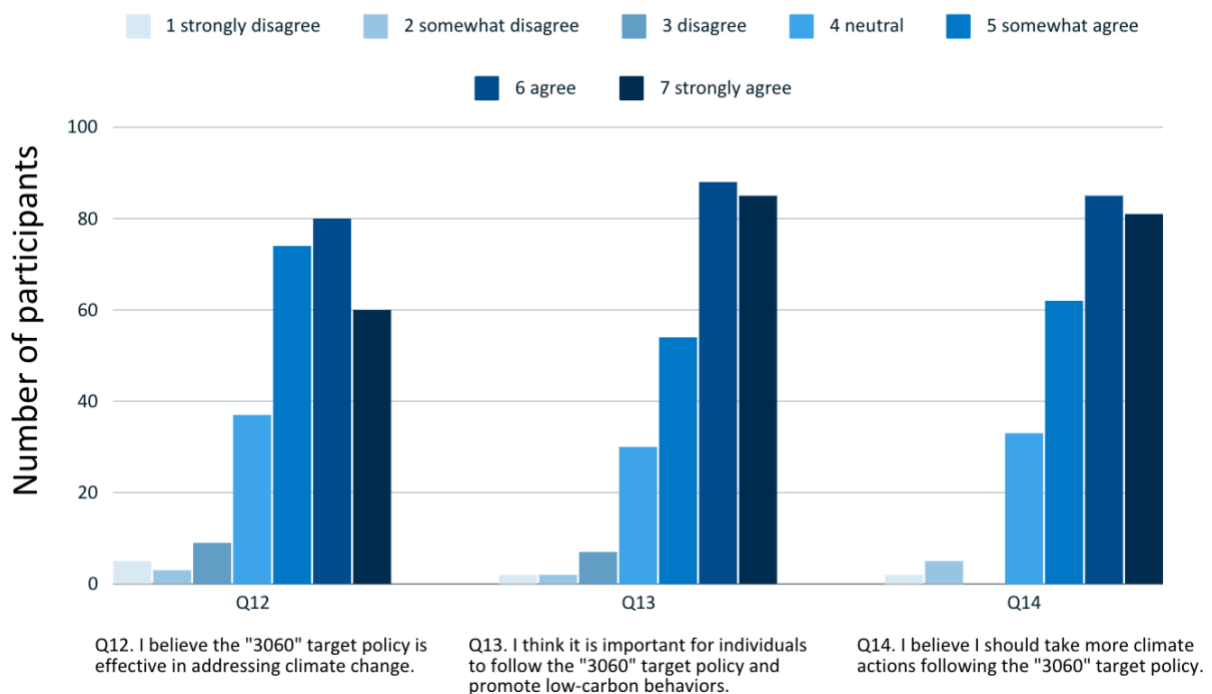


Figure 6. Distribution of responses to questions about attitude (Q12-14)

4.1.4 Subjective norm

Respondents have a moderate agreement that their peers believe the “3060” target helps tackle climate change (Q15; Mean = 5.168). And a more neutral agreement that their family believes “3060” target helps tackle climate change (Q16; Mean = 4.817). The respondents also don’t feel too much pressure from their environment to act upon the “3060” target (Q17; Mean = 4.403). Particularly, more people are choosing “strongly disagree” than any other questions in the subjective norm and this questionnaire in general as shown in Figure. 7. However, most respondents agree that public figures (e.g., celebrities, politicians, influencers) influence the “3060” target (Q18; Mean = 5.772). And a moderate agreement that society in general expects individuals to follow the “3060” target”. More people chose “neutral” in this question compared to the other ones (Fig. 7).

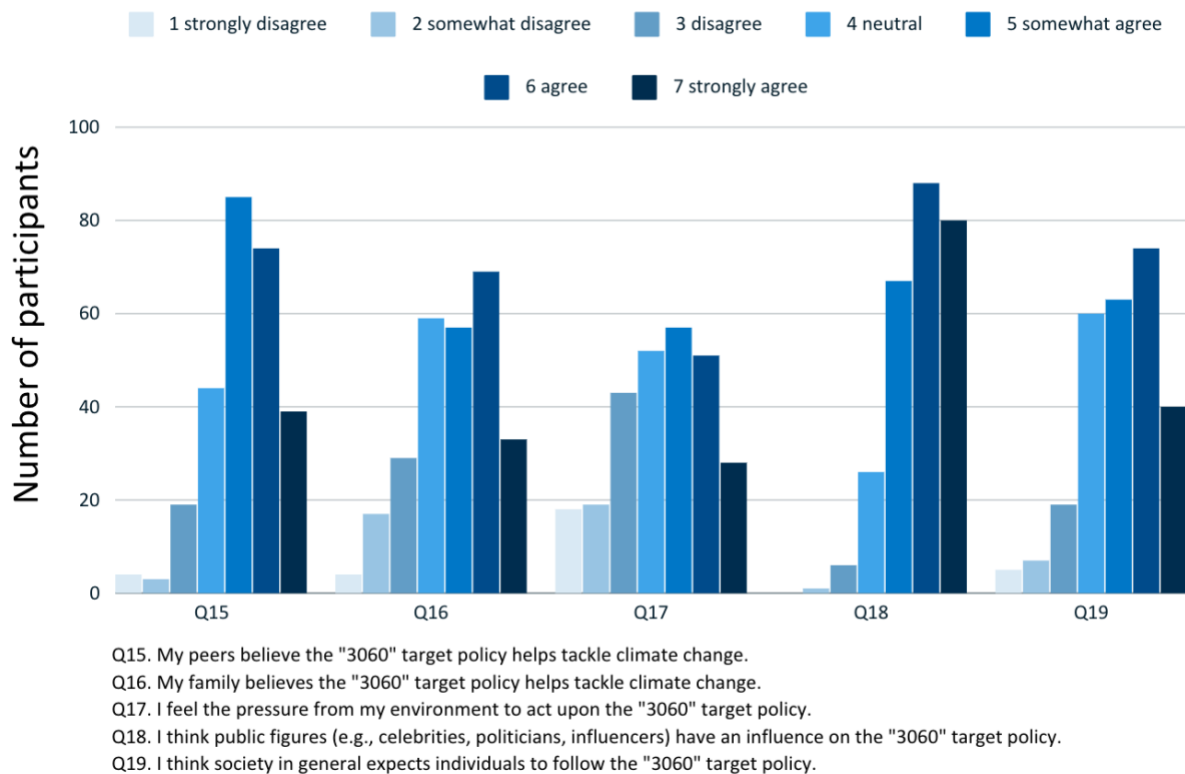


Figure 7. Distribution of responses to questions about subjective norm (Q15-19)

4.1.5 Perceived behavioral control

There is a general agreement that the respondents have the necessary external resources to take climate actions advocated by the “3060” target, such as reducing energy use, taking green transportation, purchasing green products and services, etc.” (Q20; Mean = 5.474). More than 100 respondents chose the “agree” option, which is much higher than Q21 and Q22 as shown in Fig. 8. But there's still an overall agreement that the “3060” target has provided more available support for them to take more climate actions (Q21; Mean = 5.440). And respondents moderately believe that they have the knowledge and skills to take climate actions supported by the “3060” target (Q22; Mean = 5.209).

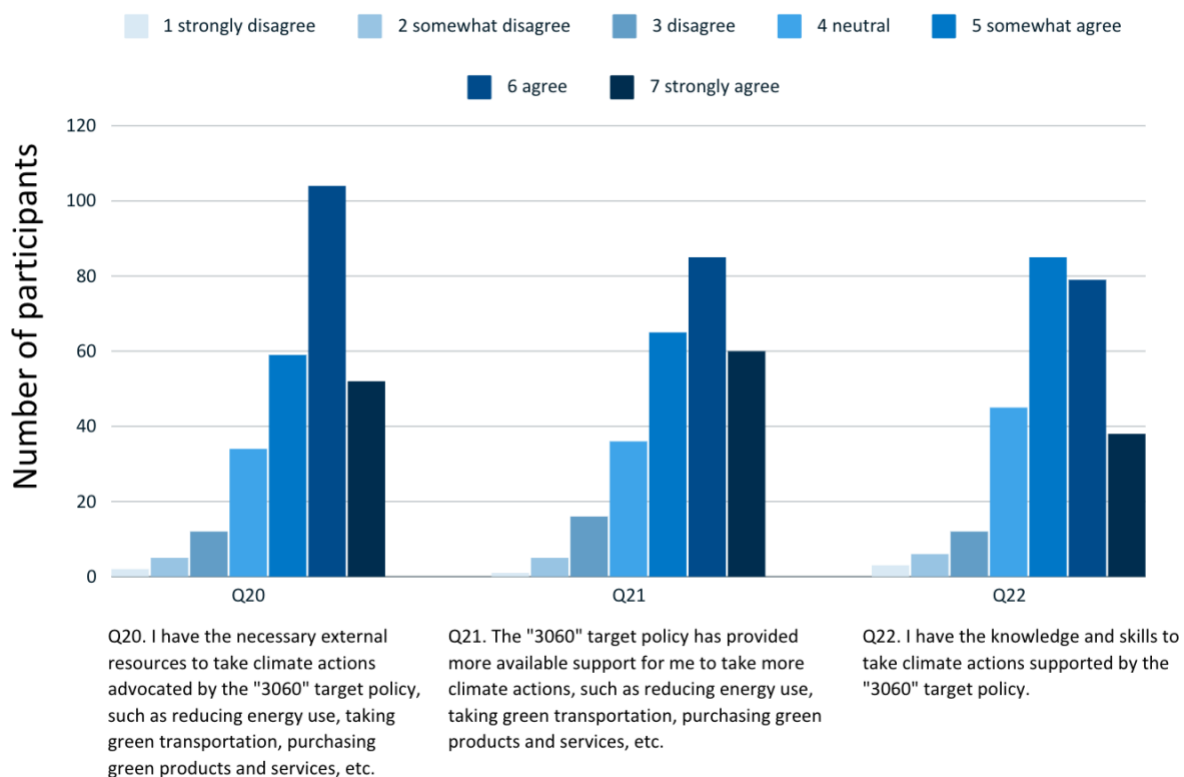


Figure 8. Distribution of response to questions about perceived behavioral control (Q20-22)

4.1.6 Intention

The respondents generally agree that they intend to take more climate actions after acknowledging the policy with 207 respondents choosing options above “neutral” (Q24; Mean = 5.332). Among them, 42 chose “strongly agree”, 87 chose “agree” and 78 chose “somewhat agree” as shown in Fig. 9. There are a small number of people who do not agree that their intention has increased after knowing the policy.

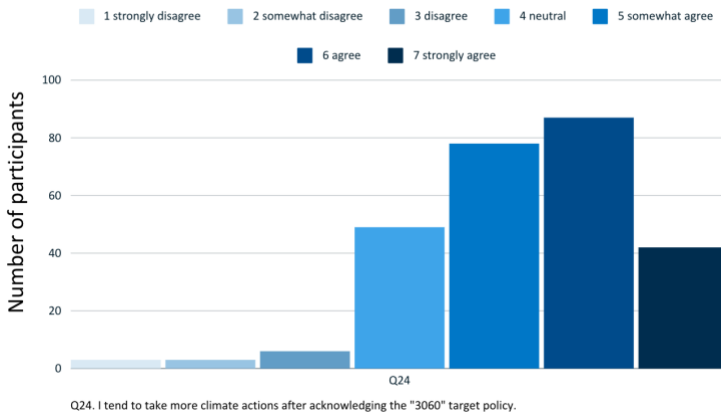


Figure 9. Distribution of response to question about intention (Q24)

To summarize, respondents showed high agreement for the policy's positive impact on climate change and cost savings, but there is less recognition of the environmental benefits (Fig.9). While the policy is considered clear, implementation appears to be more challenging among the respondents. It is worth noting that most people agree with personal responsibility for climate action, but there are some different voices. While peers and public figures were perceived to be driving the policy, there was little perceived social pressure to participate. Finally, external resources were perceived to be sufficient, but the knowledge and skills to implement change were less certain.

4.2 PLS-SEM analysis

PLS-SEM examines the cause-effect association between different factors: policy acceptance (perceived ease of use and perceived usefulness), attitude, subjective norm, perceived behavioral control, and intention (Hair et al., 2022).

The measurement model is acceptable according to the running result (Hair et al., 2022). First, to assess the internal consistency, Cronbach's alpha (CA), reliability P_a and composite reliability (CR) are between 0.691 to 0.89 which all lie between the acceptable threshold of 0.6-0.9 as presented in Table 4. The average variance extracted (AVE) for three latent variables are all above threshold 0.5 (Table 4), meaning that convergent validity is acceptable. Although three outer loadings are below 0.7, the indicators are retained because the construct's internal consistency, reliability and convergent validity meet the recommended threshold (Hair et al., 2022). Finally, the discriminant validity is tested with the Heterotrait-Monotrait (HTMT) ratio and they are all under the threshold of 0.9 as shown in Table 5.

Table 4. Evaluation of reflective measurement model and variance inflation factors (VIF)

Latent Variable	Indicator	Indicator Reliability	Internal Consistency Reliability			Convergent Validity	Collinearity
		Loadings	Cronbach's Alpha	Reliability P _a	Composite Reliability P _c	AVE	VIF
		>0.7		0.6-0.9		>0.5	≤ 5
PU&PE U	Q7	0.819					1.824
	Q8	0.831	0.769	0.783	0.853	0.595	1.814
	Q9	0.778					1.502
	Q10	0.642					1.279
AT	Q12	0.812					1.594
	Q13	0.869	0.815	0.819	0.89	0.73	1.958
	Q14	0.881					2.021
	Q15	0.776					1.834
SN	Q16	0.734					1.854
	Q17	0.722	0.773	0.772	0.846	0.525	1.557
	Q18	0.633					1.218
	Q19	0.75					1.554
PBC	Q20	0.822					1.589
	Q21	0.875	0.691	0.725	0.83	0.623	1.688
	Q22	0.653					1.178

Table 5. Discriminant Validity

Latent Variable	AT	IN	PBC	PU&PEU
Attitude_(AT)				
Intention_(IN)	0.708			
Perceived Behavioral Control_(PBC)	0.794	0.674		
Perceived Usefulness and _Perceived Ease of Use_(PU&PEU)	0.863	0.638	0.778	
Subjective Norm_(SN)	0.809	0.649	0.842	0.743

The structural model evaluation is based on a collinearity assessment, the coefficient of determination and the path coefficient significance β . An evaluation of full collinearity is conducted using variance inflation factors (VIFs) as recommended by Becker et al. (2015). All VIFs fell below the threshold of 3, implying that multicollinearity does not pose a significant threat to the model's validity (Hair et al., 2022). The R2 value (R2 = 0.481) indicates that 48.1% of the variance in taking more climate action intention can be explained by the causal relationships with the other constructs in the model.

The analysis revealed significant and positive relationships between the key constructs (Table 5; Figure 10). Perceived usefulness and perceived ease of use (PU&PEU) of the “3060” target had a strong positive effect on attitude towards taking more climate actions (AT) ($\beta = 0.686$, $t = 14.305$, $p < 0.05$). Furthermore, attitude (AT) significantly influenced the intention to take more climate action (IN) ($\beta = 0.388$, $t = 5.076$, $p < 0.05$). Additionally, perceived behavioral control (PBC) and subjective norm (SN) also had positive but moderate effects on intention to take more climate action (IN) ($\beta = 0.205$, $t = 2.457$, $p < 0.05$ for PBC; $\beta = 0.200$, $t = 2.831$, $p < 0.05$ for SN). The direct effect (path coefficient) of attitude on intention is higher than it is on subjective norm and perceived behavioral control (Table 6).

Table 6. Evaluation of structural model

	Path Coefficients	t-statistics	f-square	p Values	95% Confidence Intervals
Perceived Usefulness and _Perceived Ease of Use_ (PU&PEU) -> Attitude_(AT)	0.686	14.305	0.890	0	0.761
Attitude_(AT) -> Intention_(IN)	0.388	5.076	0.149	0	0.505
Perceived Behavioral Control_(PBC) -> Intention_(IN)	0.205	2.457	0.044	0.007	0.346
Subjective Norm_(SN) -> Intention_(IN)	0.200	2.831	0.038	0.002	0.322

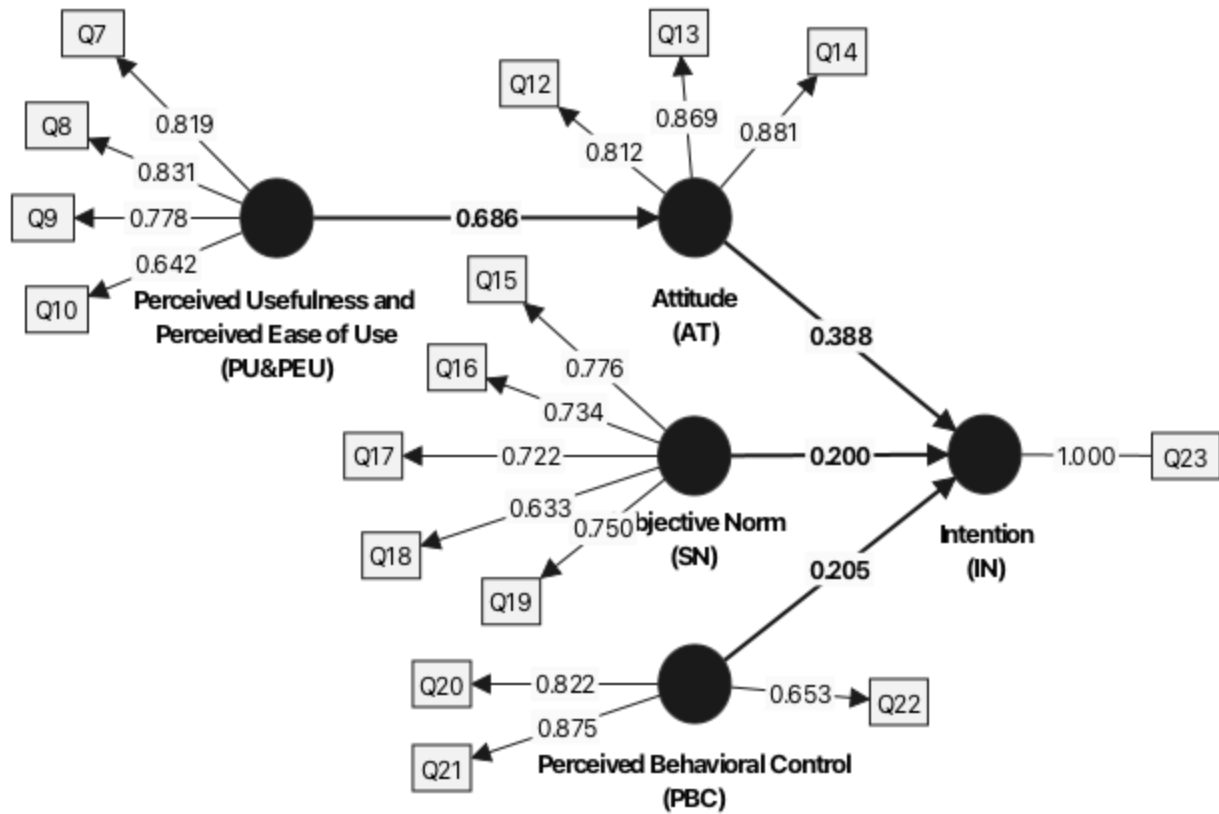


Figure 10. PLS-SEM of climate action intention based on PAM-TPB. Values between indicators and latent variables are outer loadings (indicator reliability); values between latent variables are path coefficients (direct effect).

4.3 Qualitative data analysis

The demographic information of the interviewees and the coding of the interviews are provided in Appendix 3 and Appendix 4. The participants were mostly females from 11 cities in China: Beijing, Chengdu, Changsha, Fuzhou, Guangzhou, Guizhou, Ji'nan, Jilin, Nanjing, Shanghai and Suzhou. The participants had diverse backgrounds, including students and junior professionals. Some of these professionals worked in climate change-related fields, while others worked in various other industries.

4.3.1 Perceived usefulness and perceived ease of use

Participants generally found the climate action suggested in the “3060” target policy to be easy to understand. However, some specific aspects, such as “purchase green products” is considered too broad

or lacking clear definitions. One says that “there is no complete or trustworthy certification system for green products, so people don’t know which ones are actually “green”. Another interviewee expresses the need for more information about different energy sources and their sustainability credentials. With regard to trash sorting, most interviewees find it most challenging to implement due to lack of infrastructure, awareness or knowledge.

Interviewees recognized the potential benefits of the policy for both personal savings and environmental protection which are the same findings as from the survey. However, they were concerned about the cost of green products and the uneven distribution of environmental burdens. Most of them believed that the suggested actions could save money in areas like transportation, energy consumption, and food waste reduction, but the opposite when it comes to “purchasing green products”. Interviewees from cities like Chengdu and Guiyang which have more complex geographic landscapes express their concern that they have no choice but to take flight to get to other places. One interviewee raised concerns about the unequal distribution of environmental burdens, saying that “rural residents should not bear the pollution caused by urban activities”.

4.3.2 Attitude

More than half of the interviewees acknowledge the policy raises their awareness about climate change, motivating them to consider more actions. One of the interviewees mentioned,

“I was wondering why we have this policy, then I realized something must have gone wrong in our seemingly fine life.”

In general, the interviewees’ trust in the government gives them a more positive attitude towards this policy because “we believe that the government will do what it says it will do” and “it’s always good to follow the government”. Some interviewees who have already implemented climate action in their daily

lives feel supported by the policy, making them more confident and positive in contributing to climate solutions - "It turns out that the government is also realizing the problem and I feel that my action is supported and echoed". While some who already acted on climate change in their daily life feel neutral about the attitude change because they think:

"One does what one should do, policy doesn't influence me much".

However, some interviewees find the policy lacks actionable steps that lead to no action or question the impact of the policy on individuals. A few of them express that even though their attitude to take climate action becomes more positive, it doesn't mean they have a good attitude towards the policy itself. One of them mentioned that some measurements in the policy need to be carefully considered, for example, the development of green energy has to respect the local environment and people - "One shouldn't sacrifice the rural residents to serve people in the cities".

4.3.3 Subjective norm

Overall, the participants acknowledged that the "3060" policy is gradually building social pressure for climate action among urban Chinese youth but in a very subtle way. Many interviewees mentioned that "There is a lot of propaganda promoting a low-carbon lifestyle in public spaces, like metros, companies, and neighborhood areas. But only people who care seem to notice them".

This social pressure might present more in a sustainability-related community or work environment than others. On the other hand, some interviewees feel overwhelmed by the stress of urban life:

"The overall environment feels like a rat race. Young people are mentally strained, concerned daily with keeping their jobs and their pensions. There is no mood or moral space to focus on something grander."

Interestingly, although the older generation is not particularly open to new policies and making changes, their behaviors may be more sustainable. Some respondents mentioned that they might be influenced by the idea of thrifty since they grew up in a resource-scarce environment. And some may be guided by the traditional Taoist concept of “Tianrenheyi” (oneness of human and nature). However, some interviewees express the concern that this focus on resourcefulness might lead to priority in material well-being over emotional needs “People of my parent's generation felt that things were more important than people, and when we broke something, their first reaction was to blame the person”. Finally, most interviewees agree that celebrities have a very positive influence on this. Fans in general would follow what their idols encourage them to do”, one of the interviewees said. For example, there are celebrities promoting vegetarianism on Chinese social media, and documentaries about environmental protection that caught a lot of young people’s attention.

4.3.4 Perceived behavioral control

Most interviewees report that they have enough infrastructure support for green transportation mainly due to the fast-developed high-speed trains and completed subway system. The interviewee from Guiyang mentioned that the government even provided free tickets for the subway for a few months to encourage citizens to take public transportation instead of using their own cars. Moreover, the increase in charging stations for electric vehicles (EVs) and lower EV charging costs also motivated people to choose green transportation. But for interviewees coming from cities like Chengdu and Guiyang (the city of mountains) find it hard to travel to other places without taking a flight which contributes to more carbon emissions:

“We don't want to fly, but we are situated in a basin, surrounded by mountains. We are also far from anywhere, so we have to fly.”

For green products, first of all, many interviewees were still not clear about the definition. For those who know, some express the concern that green products are not so approachable compared to those tier-one cities. Regarding the food waste reduction, some interviewees appreciate the fact that many restaurants adopt the concept of “N-1” recommended by the government, meaning ordering N-1 portions of food for N people since many people over-ordering their food especially when the group is big.

While a city like Shanghai has strict regulations and a system of sorting out trash, interviewees from other cities mostly are concerned about the lack of infrastructure and regulations to do it. “Even if I want to sort out the trash, there is only one trash can for all types of trash in my place”.

4.3.5 Intention

Interviewees are mostly positive about the influence of policy on their intention to take more climate action. Some say that the policy and the goal are a continuation of President Xi’s concept of “Clear waters and green mountains are as valuable as mountains of gold and silver” (绿水青山就是金山银山) which was brought up in 2015, so it is not strange for them to follow (State Council of PRC, 2021d). According to many interviewees, this policy provides a sense of direction and support, and their trust in the government also helps form a positive response to the policy. For people who have limited climate change knowledge, the policy helps them identify specific actions to reduce carbon footprints. For others, the improvements in their surrounding environment reinforce the effectiveness of the policy, thus motivating them to take more action. Many also recognize the limitation of individual effort, but they believe there always has to be someone to take the lead. A few also mentioned they don't intend to take more action after knowing the policy.

4.4 Other factors

Beyond the “3060” policy, there are a range of factors influencing people’s intention to take more climate action. First, it is the personal experience with climate change - half of the interviewees have directly experienced extreme climates like floods, heatwaves, hail and wildfires, etc. causing people they know to be hurt or dead. The real experience hit them hard and made them feel the urgency of climate change and the need to act upon it. Second, it is the cultural values, many interviewees mentioned that harmony with nature is a concept they grew up with. Third, it is personal value - many people associate climate action with their own values and beliefs. They express that they just don’t want to hurt others, which includes all kinds of lives and the surrounding environment.

Regarding the obstacle factors, some youth say that it is challenging for them to connect with nature because they grow up in the cities, and the places they feel most belong to are the shopping malls. There is a need for them to break the wall between the city and nature so they could experience it, connect with it and then try to protect it. Most professional interviewees expressed their pressure on both work and life, the “crisis” that’s right in front of them. When they hear that the planet is also facing the crisis - “Let us all perish and relief” - their thoughts are rather negative.

5 Discussion

This part presents the findings and implications of the results, limitations of the study, recommendations for the policy, and future research.

5.1 Findings and implication of results

5.1.1 The “3060” target positively influences urban Chinese youth’s climate action

In response to the main research question, the first finding is that policy under the “3060” target positively influenced urban Chinese youth’s intention to take more climate action. The result aligns with the findings

from Han et al. (2022) and Yuan et al. (2022) that Chinese youth are generally concerned about climate change, and they have a generally high trust in the government (Zou et al., 2021). However, it is important to note that the positive influence of the policy appeared stronger among female participants with higher educational levels in this study. This aligns with research by Bush and Clayton (2023) suggesting that women are usually more concerned about climate change and actions, because they can be at higher risk due to their vulnerability to climate change (Desai & Zhang, 2021). Notably, there are a few participants who consider policy brings no change to them, suggesting that the policy might not be implemented effectively into concrete actions related to their experience.

5.1.2 Policy perception positively influences the attitude toward taking more climate action

In response to the sub-research question 1, urban Chinese youth's policy perception positively influences their attitude toward climate action. The finding aligns with studies stress the positive influence of policy perception on climate action attitudes (Nisbet, 2009; Drews & Van den Bergh, 2016). While the participants perceived some actions as easy to understand and implement (“using green transportation” and “reducing food waste”), some faced the challenge of unclear definitions and lack of infrastructure (“purchasing green products” and “sorting out trash”). In general, the results show that it’s easier to understand the policy than to implement it, which highlights the gap between awareness and action on a policy level. Trash sorting is the most challenging aspect due to a lack of knowledge and infrastructure limitation, where the latter aligns with Gifford’s (2011) argument about the difficulty of turning awareness into action without proper infrastructure. Furthermore, participants recognized the potential personal savings and environmental benefits, but they brought concern about the cost of green products and the uneven distribution of environmental burdens between urban and rural areas. This resonates with research from Agyeman et al., (2016) that social inequalities might be influenced by top-down environmental policies.

5.1.3 Attitude influences more than subjective norm and perceived behavioral control

In response to sub-research question 2, the findings also indicate that all three factors: attitude, subjective norm and perceived behavioral control – encourage the urban Chinese youth to take more climate action. However, attitude shows a bigger influence than subjective norms and perceived behavioral control. This can be explained by the nature of attitude as Ajzen (2006) states that attitude is shaped by personal beliefs and values. Participants who expressed a positive attitude often mentioned their existing concerns about the environment. This shows that positive attitudes can be a more sustainable driver of long-term climate action (Liao et al., 2023). However, the positive relationships between subjective norm/perceived behavioral control and intention also suggested that policymakers need to improve on the structural conditions to enable the youth to undertake more climate actions.

5.1.4 Other factors that influence urban Chinese youth climate action

Many other factors influence urban Chinese youth to take (or not take) climate action beyond the TPB-PAM theory framework. Extreme climate weather experiences and cultural values are the two main factors that influence them to take climate action, while work and life pressures and lack of personal connection with nature are the main factors that influence urban youth not to take climate action.

Extreme climate weather experiences

Among the urban Chinese youth interviewed in the study, many of them found it easy to relate climate change to their daily life, because either they have personal experience with extreme weather caused by climate change or have heard frequent reports about it through the media. This is different from what Wu (2019) and Wang & Zhou (2020) present in their research that Chinese youth find it hard to relate climate change to their daily life. The youth feel the changes, they see the destruction, thus they have a

strong urge to do something. The policymakers need to acknowledge this change of awareness among the youth, considering involving the consciousness of youth in the policy-making process.

Cultural values

Some of the participant see climate actions as an extension of their cultural values. The study shows a strong connection between environmental responsibility and concepts like “Tianrenheyi” from Taoism (oneness of humans and nature) and “Jiejian” (thrift). This finding aligns with research on public engagement in other cultures. For example, Uganda thinks it is important to communicate climate change in ways that resonate with their religion or indigenous values (Corner et al., 2014). In the western culture, more focus is on individual actions and technology solutions (Greif, 1994). Taoism, as a guiding philosophy for the Chinese over the past 2500 years, emphasizes humans should live in harmony with nature (Wang & Stringer, 2000; Schonfeld, 2013), suggesting promoting conservation, living a post-consumerist lifestyle, and an ethical approach to addressing climate change (Xia and Schönfeld, 2011). Similarly, “Jiejian” (thrifty) reflects a cultural emphasis on the careful use of resources, mostly shaped by personal experiences or collective memories of resource scarcity and food shortages from the older generation, this focus on using limited resources wisely aligns with environmental sustainability goal (Zhang & Yan, 2023). Therefore, climate action is not a new practice for some parts of the urban Chinese youth. Recognizing the synergies between cultural values and climate action is important for policymakers to leverage these values to build a solid foundation for a sustainable future.

Work and life pressures

The work and life pressures might leave very little mental space for some urban Chinese youth to focus on climate change (Bao, 2022). This implies that even if the youth have a positive action towards climate action, work and life pressures might restrict them from taking more significant moves beyond basic

climate actions. This implies that changing the working environment and reinforcing the law to improve working hours and staff mental health can also indirectly impact their climate actions. Moreover, if the infrastructure or the knowledge is hard to access, then it is even more difficult for the youth to put extra energy into performing the behaviors.

Lack of personal connection with nature

Since the target group in this study is youth living in urban areas, a main feature of them is that they mostly grew up in a built environment with little natural spaces such as rivers and forests. Only a few of them live in a city that is closely surrounded by nature, and they show more empathy towards the environment and other life's in nature. As Goodall (2012) suggests, "You have to understand to be able to care and act", this implies that pro-environmental behaviors could be increased through the enhancement of nature connectedness (Thomson & Roach, 2023). Interestingly, in recent years, many Chinese cities like Beijing, Shanghai and Shenzhen, etc. are addressing this issue by transforming former industrial areas into parks and green spaces (Urban Design Alliance, 2023). This approach not only recreates the urban landscapes but also provides the needed access to nature for urban residents and improves their connections with nature.

5.1.5 Recommendations for the policy

With the positive impact of the "3060" target on climate action among urban Chinese youth, policy improvements can further empower this target group or larger Chinese audiences. The following are some recommendations for the "3060" policy:

- 1) Provide transparent and accessible guidelines for "green" products and energy sources helps improve the perceived ease of use of the policy, thus empowering urban Chinese youth and

promote environmentally friendly choices. But it has to be careful with the potential for greenwashing.

- 2) Embrace more lively policy communication strategies instead of dry and stiff pronouncements. Policymakers can come up with engaging formats and narratives to capture public attention and inform them with the meaning behind climate change and climate actions instead of translation of facts.
- 3) Acknowledge the influence of respected individuals and groups (influencers) to strengthen the subjective norm. By collaborating with influencers, policymakers and educators can extend their reach and social capital to promote climate action.
- 4) Address concerns about equity of resources and responsibility between different tiers of cities, and between urban and rural can help decrease the potential social conflicts and strengthen the policy. It is also recommended to mention the potential negative social and environmental impacts like the just development of green energy to provide more complete information.
- 5) Build supporting infrastructure to enhance individual's climate action, especially in the green energy sector and trash sorting system. A more comprehensive green product certification system is also needed to facilitate climate action.
- 6) Recognize the important role of youth and involve them in this policy decision-making process to foster their ownership or personal responsibility in this climate change issue.
- 7) Frame policy around existing cultural values such as "Tianren Heyi" (oneness of human and nature) and "Jiejian" (thrifty) to increase policy resonance, but this should be done with caution to avoid the potential for misinterpretation and the variance of culture in different regions in China.
- 8) Integrate certain climate actions into existing work routines through workplace initiatives to reduce mental burdens on youth professionals. This requires the employer to transform the working culture to a more climate-friendly one and it requires adjustments to work processes.

- 9) Promote outdoor activities and environmental education in the schools and communities to address the lack of connection to nature among urban Chinese youth.

By addressing these various aspects and potential trade-offs, policymakers can create a more comprehensive framework for urban youth in China to take more climate action.

5.2 Limitations

There are some limitations that need to be acknowledged in this study. Firstly, the sample is likely biased towards urban, educated young females with pre-existing concerns about climate change. This limits the generalization of findings to the broader population, particularly male youth and those with less environmental awareness. Moreover, even though not intentionally, the data collected focuses on a few major cities in China, with large sample differences to smaller cities. This could potentially overlook the regional variance thus creating biased results based on major cities' perspectives and experiences.

Furthermore, the study primarily uses the TPB model, which is a general framework and often criticized for not considering the ingrained habits, emotions or beliefs that could have a large influence on behavior (Jokonya, 2017; Ulker-Demirel & Ciftci, 2020). This limits the ability to fully examine the behavioral change. To address this, the study added content-specific model PAM and "other factors" to help strengthen the validity of the theoretical framework. Finally, the questionnaire could be rather long and decrease the motivation according to Oluka et al. (2014) as the success rate of completion is only 25%.

5.3 Future research

There could be research conducted with other groups of targeted audiences considering gender diversity, educational background, socioeconomic status and geographical diversity (environmental risk). For

example, focusing on male, less educated youth, or smaller cities and rural areas on this very same topic can inform inclusive policy design. There could also be a more in-depth study on gender gaps in this issue of active participation in climate policy and climate action. Moreover, future research on comparative studies between different urban tiers and between rural and urban populations could reveal how geographic location and level of development affect climate actions to inform the policy to adapt locally. Finally, the scope can be broadened to an international level to compare and analyze the impacts of climate policies on youth in different countries. This could explore how policy design and cultural contexts shape responses to climate change from different countries thus learning from other contexts.

6 Conclusion

This study examines the impact of the "3060" target policy on urban Chinese youth's climate action intentions with focuses on five specific actions. The findings suggest that the policy positively influences their intentions to take those actions, with attitude influence more than the subjective norm and perceived behavioral control. It is important to note that this positive influence appeared stronger among female higher-educated participants. Moreover, their perception of policy positively influences their attitude toward climate action. The policy is generally considered as environmentally and economically beneficial, except "purchasing green products" costs more money. While actions like "using green transportation" and "reducing food waste" are both easy to understand and implement, "sorting out trash" faces the challenges of lacking the infrastructure and knowledge. There is also confusion about the definition of "green products" and "green energy resources". Furthermore, there is not much social pressure around taking climate action in society, but participants do agree that influencers like celebrities have a big impact on their followers regarding this issue.

Recommendations for policymakers include clear guidelines for green products and energy resources, transparent communication strategies, supporting the influencers' impact, adapting to cultural values, and building necessary infrastructure. In addition, addressing work-life pressures and fostering nature connection are also crucial. This research demonstrates the potential of a well-designed policy to motivate youth climate action. By understanding the factors influencing their intentions, policymakers can create a more comprehensive framework for youth engagement. Future research can dive deeper into sample diversity and compare urban-rural and international contexts. They can further direct the way for more effective youth-inclusive climate action strategies. Ultimately, empowering youth is critical as they are the significant changemakers in combating global climate change.

7 Reference

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8 Appendices

Appendix 1. Questionnaire in Chinese

构造	尺度:1-2-3-4-5-6-7 Q5: 1=完全不关心 2=略微关心 3=有点关心 4=中度关心 5=关心 6=非常关心 7=极其关心 Q6: 1=非常低 2=低 3=略低 4=中立 5=略高 6=高 7=非常高 Q7-Q24: 1=非常不同意 2=不同意 3=有点不同意 4=中立 5=有点同意 6=同意 7=非常同意	来源	
行为定义	中国 14-35 岁城市青年在中国 "3060" 目标政策的影响下采取更多气候行动	(Ajzen, 2006)	
常规问题			
有助于调查行为的人口统计学变量或其他个人变量	Q1-Q2. 你常住的地方是? 你的性别是? Q3-Q4. 你的年龄是? 你的受教育程度是? Q5. 你有多关心气候变化? Q6. 你如何评价自己参与气候行动的程度, 如减少能源消耗、使用绿色交通、购买绿色产品、减少食品浪费和垃圾分类等?	(Francis et al., 2004; Ajzen, 2006; Baker et al., 2007)	
Perceived Usefulness			
感知经济有用性	Q7. 我相信采取“3060”政策建议的气候行动“减少能源消耗、使用绿色交通、购买绿色产品、减少食品浪费和垃圾分类等”能在经济层面上对我有益处。	(Bell et al., 2001; Ajzen, 2006; Pierce et al., 2014; Yang et al., 2019; Fu et al., 2021; Lin & Lan, 2023)	
感知环境有用性	Q8. 我相信采取“3060”政策建议的气候行动“减少能源消耗、使用绿色交通、购买绿色产品、减少食品浪费和垃圾分类等”能在环境层面上对我有益处。		
Perceived Ease of Use			
个人认为使用该政策容易的程度	Q9. 我认为“3060”政策中建议的气候行动“减少能源消耗、使用绿色交通、购买绿色产品、减少食品浪费和垃圾分类等”很容易理解。 Q10. 我认为“3060”政策中建议的气候行动“减少能源消耗、使用绿色交通、购买绿色产品、减少食品浪费和垃圾分类等”很容易实施。		
态度			
对行为的信念	Q11. 我的行动有助于减少气候变化的影响。* Q14. 我认为我应该依据“3060”双碳政策采取更多低碳行为。 Q13. 我认为个人遵循“3060”双碳政策并采取低碳行为是非常重要的。	(Ajzen, 2006; Han et al., 2010; Kim et al., 2013; Chen & Tung, 2014; Chen, 2016; Ogiemwonyi et al., 2023)	
成果评估	Q12. 我相信“3060”双碳政策能帮助解决气候变化问题。		
主观规范			
关于社会规范的规范性信念/来自其他方面的压力	Q15. 我的同龄人认为“3060”双碳政策有助于应对气候变化。 Q16. 我的家人认为“3060”双碳政策有助于应对气候变化。 Q17. 我感受到了来自周围环境的压力, 要求我根据“3060”目标采取低碳行为。		
遵守的动机	Q18. 我认为公众人物(如政治家、明星、网红等)对塑造人们对“3060”双碳政策的态度有影响。 Q19. 我认为社会普遍期望个人遵循“3060”双碳目标。		
知觉行为控制			
关于外部障碍/促进因素的规范性信念	Q20. 我有必要的外部资源来采取政策所倡导的气候行动, 如清洁能源、绿色交通工具、绿色产品和服务等。 Q21. “3060”双碳政策为我采取更多气候行动提供了更多支持, 如减少能源使用、乘坐绿色交通工具、购买绿色产品和服务等。		
关于内部障碍/促进因素的规范性信念	Q22. 我有知识和技能来采取“3060”双碳政策所支持的气候行动。 Q23. 我对于采取“3060”双碳政策所支持的气候行动感到有压力或被其他感受所影响。*		
意图			
	Q24. I tend to take more climate actions after acknowledging the "3060" target policy		
*由于 Q11 的措辞与政策有间接联系, 因此将其删除; 由于研究者在中文问卷中的把 pressure 和 stress 共同翻译为“压力”用词相同, 因此 Q23 与 Q17 重复, 将其删除。			

Appendix 2. Pre-message for the interviewees

“你好呀，还有一小时采访开始，小燕再次感谢你的支持。如果你同意我用手机进行录音和在我的研究中使用我们的采访内容，请回复‘同意’，如果不同意，请回复‘不同意’。

麻烦提前五分钟找一个安静的环境，查看电子设备电量是否充足。我们一会线上见！”

English translation:

“Hello, there's an hour left for the interview to begin, thank you again for your support. If you agree with me recording the interview and using your quotes in my research, please answer ‘yes’, otherwise, answer ‘no’.

Please find a quiet environment five minutes in advance and check if your electronic devices are fully charged. I'll see you online in a bit!”

Appendix 3. Demographics of interviewees

Name	Date of Interview	Background	Age group	Gender	Educational Level	City in China
Interviewee A	22.03.2024	Studying philosophy and finance	19-25	Female	College student	Guangzhou
Interviewee B	23.03.2024	Studying tourist management	19-25	Female	College student	Chengdu
Interviewee C	23.03.2024	Studying math	19-25	Female	College student	Beijing
Interviewee D	25.03.2024	Working on carbon data collection	26-35	Female	Master's degree	Shanghai
Interviewee E	25.03.2024	Studying sustainability development	26-35	Male	Master's student	Guangzhou
Interviewee F	27.03.2024	Studying climate science	19-25	Female	College student	Chengdu
Interviewee G	27.03.2024	Working with rural development	26-35	Female	Bachelor's degree	Chengdu
Interviewee H	27.03.2024	Working with sustainability	26-35	Female	Bachelor's degree	Shanghai
Interviewee I	29.03.2024	Working with government on climate	26-35	Female	Bachelor's degree	Guangzhou
Interviewee J	29.03.2024	Working with nature education	26-35	Male	Lower than bachelor	Chengdu
Interviewee K	29.03.2024	Studying statistic and math	19-25	Female	College student	Ji'nan
Interviewee L	29.03.2024	Working with medical	26-35	Female	Bachelor's degree	Beijing
Interviewee M	29.03.2024	Working with nature education	26-35	Female	Bachelor's degree	Nanjing
Interviewee N	29.03.2024	High school student	14-18	Female	Bachelor's degree	Suzhou
Interviewee O	30.03.2024	Studying linguistics	19-25	Female	College student	Jilin
Interviewee P	30.03.2024	High school student	14-18	Male	High school student	Shanghai
Interviewee Q	31.03.2024	Working with administration	26-35	Male	Bachelor's degree	Guizhou
Interviewee R	31.03.2024	Freelancer	26-35	Female	Bachelor's degree	Changsha
Interviewee S	01.04.2024	Working with agriculture	19-25	Female	Master's degree	Beijing
Interviewee T	01.04.2024	Working with ESG	19-25	Male	Bachelor's degree	Fuzhou

