

# Examining College Student Public Opinion on Climate Change in the United States and China



May 2014

## Students

Elora Leene, Emy Marier, Wes Meives, David Hahn and Helue Vazquez Valverde

## Faculty Mentor

Eric Jamelske

[jamelsem@uwec.edu](mailto:jamelsem@uwec.edu)

University of Wisconsin-Eau Claire  
Economics Department

**Chippewa Valley Center  
for Economic Research and Development**



We gratefully acknowledge generous funding support from the University of Wisconsin-Eau Claire Office of Research & Sponsored Programs, Blugold Commitment, International Fellows Program, Xcel Energy-Eau Claire and Northwestern Bank- Chippewa Falls

## **ABSTRACT**

Climate change is an important and divisive national and international policy issue. The United States and China are of particular interest in the discussion on climate change because they are the world's two largest emitters of greenhouse gases. As such, meaningful global action to address climate change must involve both China and the US. Thus, a better understanding of how US and Chinese citizens view climate change is of great interest.

We conducted surveys of adults and college students in the US and China to broaden our understanding of climate change public opinion in these two countries. This poster presents results from a subset of these data examining views of only college in these two important countries. Adult public opinion on climate change in the US and China is examined in a separate poster.

## **INTRODUCTION**

Despite overwhelming scientific consensus, many Americans misunderstand the realities of climate change and its causes. Moreover, research has revealed significant political divisions over climate change with conservatives more likely to be skeptical

The following quotes from the 2012 presidential race highlight this division.

"More droughts and floods and wildfires are not a joke. My plan will continue to reduce the carbon pollution that is heating our planet because climate change is not a hoax."

-Barack Obama

"Do I think the world's getting hotter? I don't know, I think it is, but I don't know if it's mostly caused by humans. What I'm not willing to do is spend trillions of dollars on something I don't know the answer to."

-Mitt Romney

As a result, the US has not taken a leadership role in recent United Nations Framework Convention on Climate Change meetings and President Obama has yet to denounce the Keystone XL Pipeline despite NASA scientist Dr. James Hansen's claims that the pipeline would be "game over" for the climate.

The reality is that politics, special interests and a misunderstanding of climate science are preventing action to address climate change in the US. Moreover, the lack of leadership and accountability by the US in international negotiations has limited the willingness of China to join international actions to address climate change.

The following quotes from Chinese government officials suggest no such political debate regarding the reality and seriousness of climate change.

“Climate change is a grave challenge to the sustainable development of the human society...the Chinese government is determined to address climate change in the process of pursuing sustainable development.”

“Developed countries must take responsibility for their historical cumulative emissions and current high per capita emissions to change their unsustainable way of life and to substantially reduce their emissions and provide financial support and transfer technology to developing countries.”

The preceding descriptions set the stage for comparing public opinion on climate change in the US and China. We now describe our methods and then present results from our survey of adults in the US and China.

## METHOD

We conducted online surveys of US college students in seven states (CA, CO, MD, NE, RI, SC, WI) between September and November 2013. The US sample consists of 2,335 students recruited from university classes. The surveys were conducted in 40 classes taught by 25 professors. Overall, 3,602 students were offered the survey yielding a response rate of 64.8%. The average age in the US sample was 19.4 years old with 34.4% freshmen, 38.4% sophomores, 18.9% juniors and 8.3% seniors.

In terms of gender and race/ethnicity, 49.6% of respondents were male and 50.4% were female, while 81.6% of respondents identified as white. No other racial/ethnic group had more than 7% representation in the sample. The most common major area of study reported by respondents was business/finance (52.7%) followed by other/undeclared (19.5%). About half of potential US participants were offered extra credit by their professor as an incentive to participate.

We also conducted online surveys of Chinese college students in four cities (Beijing, Chengdu, Guangzhou and Xian) over the same period. The China sample consists of 1,670 students recruited from university classes. The surveys were conducted in 42 classes taught by 23 professors.

Overall, 2,404 students were offered the survey yielding a response rate of 69.5%. The average age in the Chinese sample was 19.7 years old with 41.2% freshmen, 18.0% sophomores, 23.2% juniors and 17.5% seniors. In terms of gender and race/ethnicity, 44.9% of respondents were male and 55.1% were female, while 95.4% identified as Han majority.

The most common major area of study reported by respondents was business/finance (43.9%) followed by other/undeclared (22.6%). About one-third of potential Chinese participants were offered extra credit by their professor as an incentive to participate.

Neither the US or China samples are scientifically random, but rather they are convenience samples arranged at universities through contacts known to researchers. However, the response rates of over 60% in both the US and China gives some confidence that respondents are somewhat representative of the college student populations in each country. It is important to note that our results still may not

generalize to populations in both countries. That said, this information provides valuable insights in understanding how US and Chinese college students view climate change.

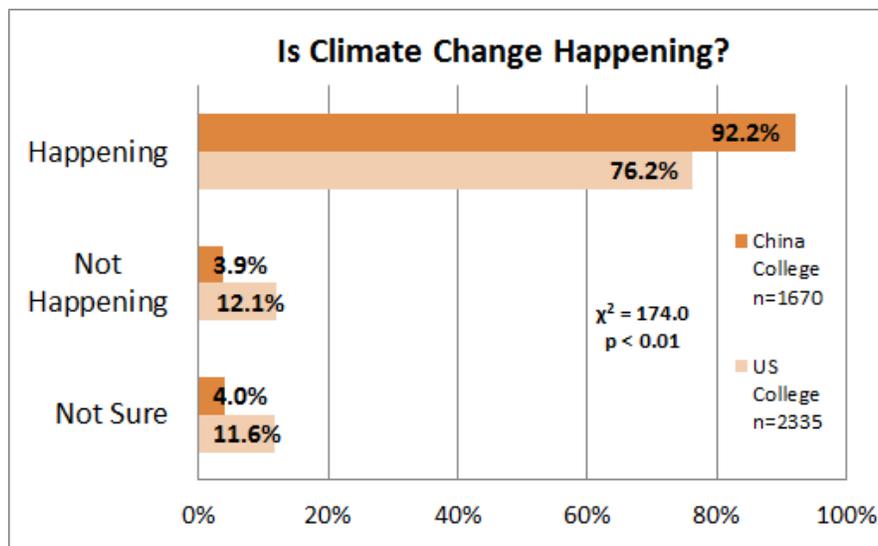
All survey materials and procedures were approved by the University of Wisconsin-Eau Claire Institutional Review Board. Many of the questions used for this survey were adapted with permission from surveys conducted by the Yale Project on Climate Change and the George Mason University Center for Climate Change Communication.

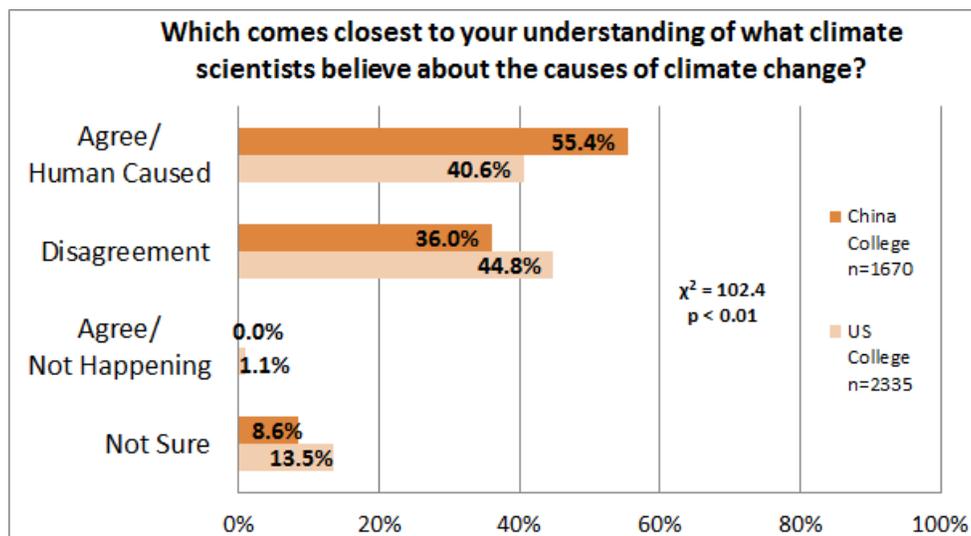
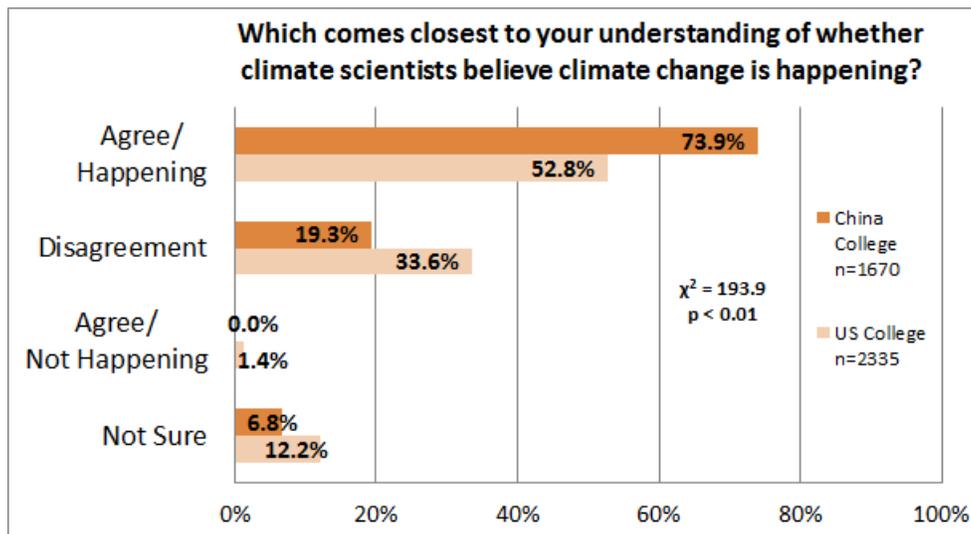
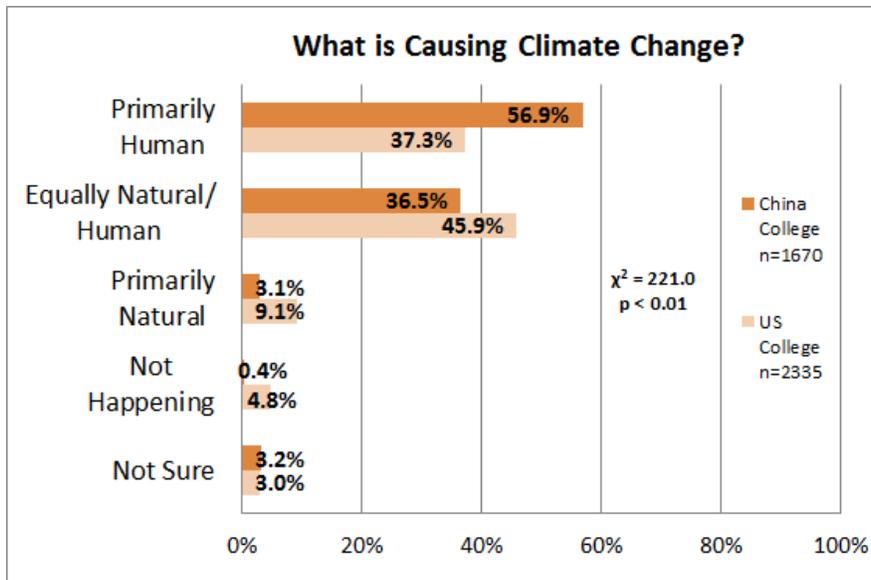
## RESULTS

### Is it Happening

Just over 76% of US college students say they believe climate change is happening compared to 92.2% of Chinese college students. US respondents are also less likely than their counterparts in China to attribute the causes of climate change to human actions.

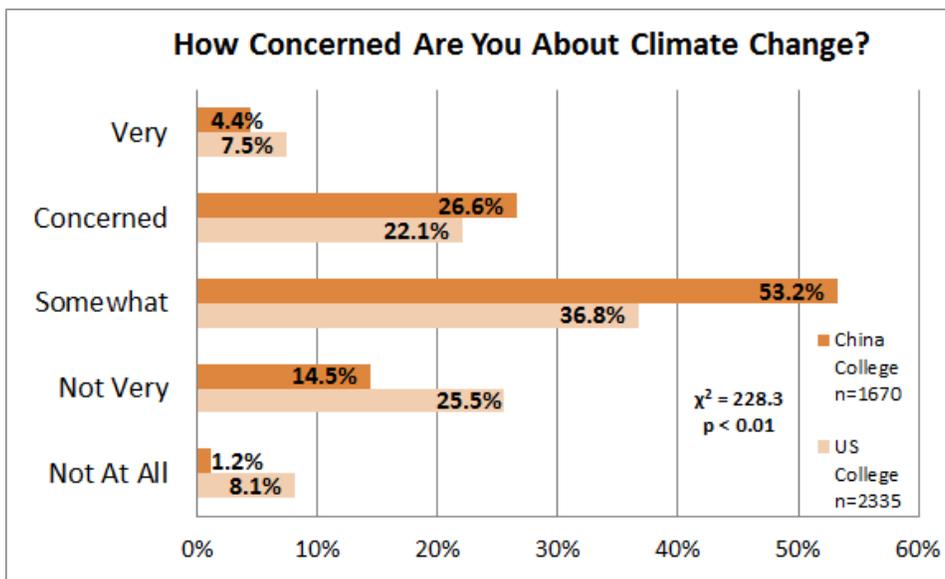
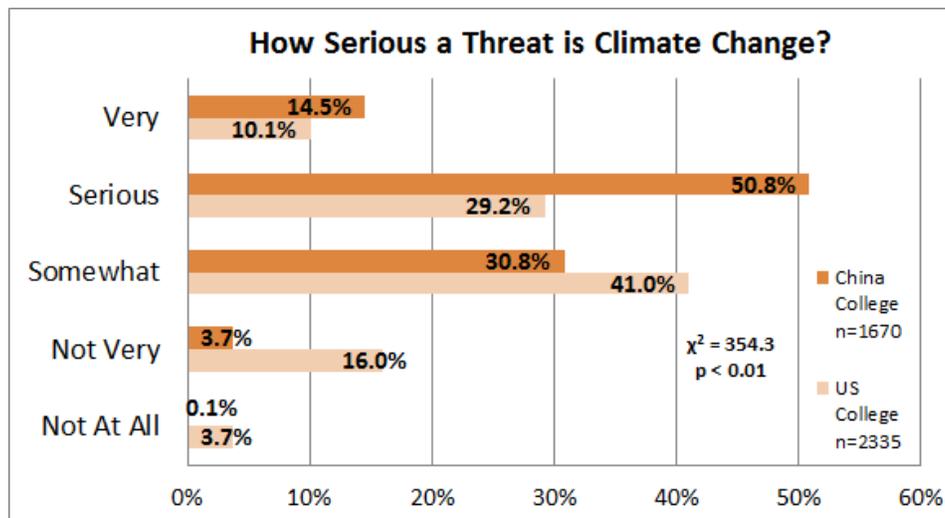
US respondents also show a greater misunderstanding of the scientific consensus on climate change and its causes. Specifically, more US college students think there is disagreement among climate scientists about whether climate change is happening (33.6% > 19.3%) and if human actions are the primary cause (44.8% > 36.0%).





## Threat and Concern

American college students are also less likely than Chinese college students (39.3% < 65.3%) to perceive climate change as a serious or very serious threat to humans. By a smaller margin, US respondents are less likely than Chinese respondents (29.6% < 31.0%) to report being concerned or very concerned about climate change. Similarly, US college students are more than twice as likely as Chinese college students (33.6% > 15.7%) to say they are not very or not at all concerned about climate change. This result is indicative of the significant divide in public opinion on climate change in the US compared to China.

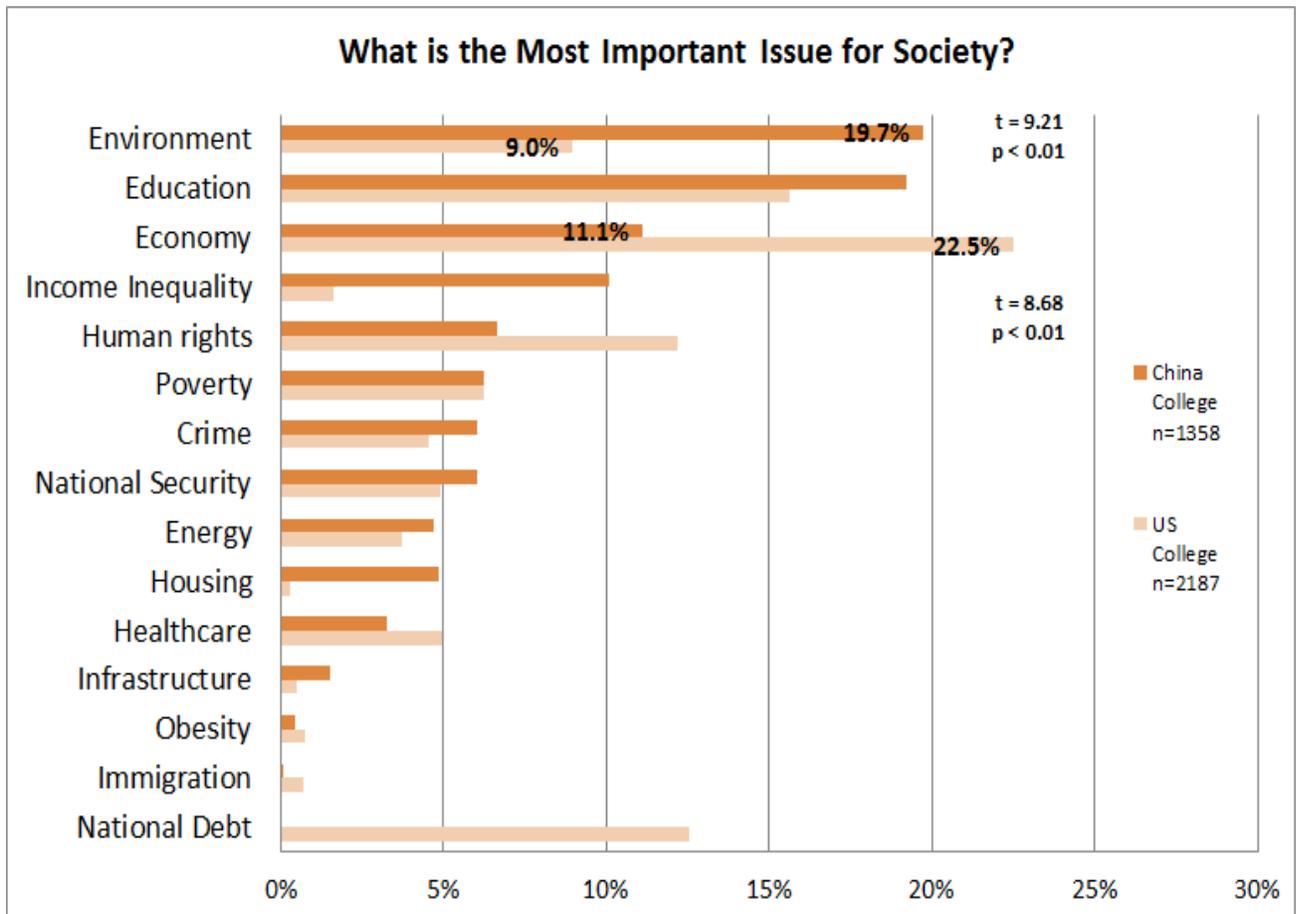


## Social Issues

When asked what is the most important issue for society to focus on, US college students convincingly choose the economy (22.5%) with the environment coming in a distant fifth (9.0%).

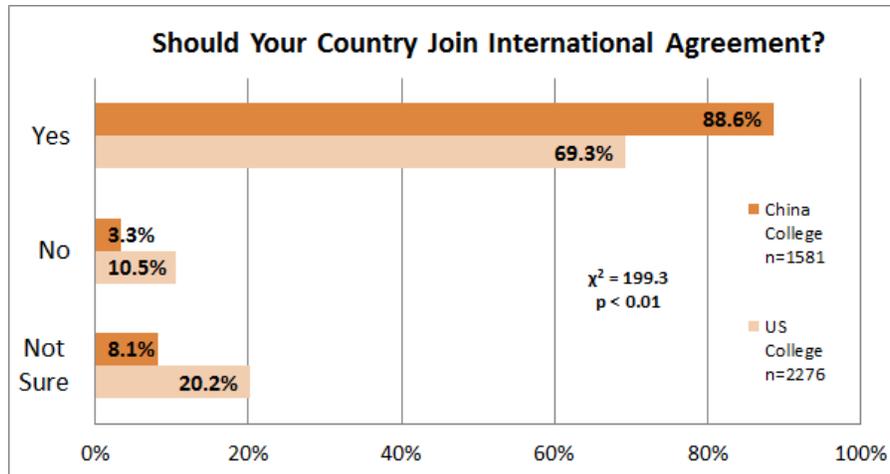
In contrast, more than twice as many Chinese college students (19.7% > 9.0%) identified the environment as the important issue compared to the economy.

This result is important given the perceived tradeoffs between economic activity and environmentalism especially in the US.



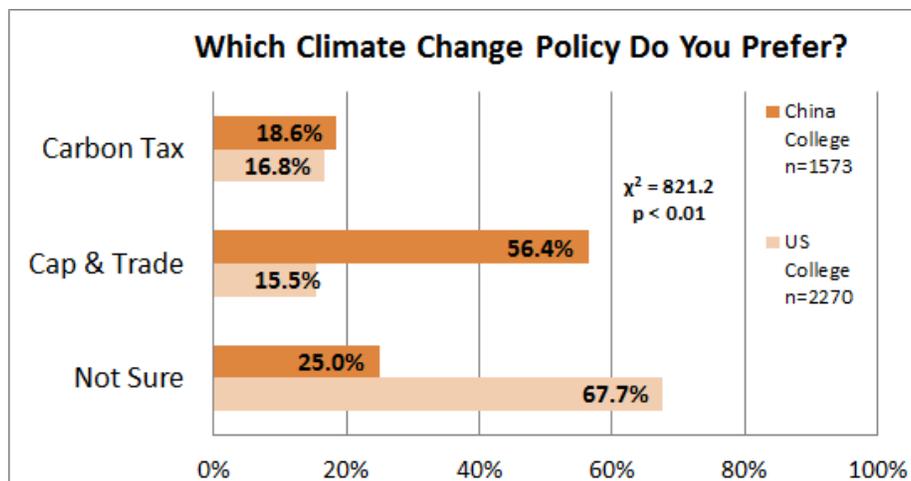
## Action

Despite the misunderstanding and debate about climate change among American college students, almost 70% say they think the US should join an international commitment to address climate change. Although over two-thirds of US college students favor such policy action, there is significantly more consensus among Chinese college students with more than 88% reporting they support joining an international agreement to address climate change.



## Policy

In terms of policies to address climate change, more than half (56.4%) of Chinese college students say they favor cap and trade over a carbon tax compared to just 15.5% of US college students. Interestingly, US respondents are far more likely (67.7% > 25.0%) to be uncertain regarding which of these policies they prefer.



## Willingness-to-Pay

All policies to address climate change will involve putting a price on emissions, and thus will result in a higher cost of goods and services such as transportation, energy, food etc. Although currencies and incomes are different in the US and China, the table below shows that college students in China are significantly more WTP to support climate change policy than US college students.

Approximately, 23% of US college students are not WTP an additional \$20 a month compared to just 6.3% of Chinese not WTP 20 Yuan. Similarly, only about 21% of US college students are WTP at least \$60 a month compared to 49.1% of Chinese WTP at least 60 Yuan.

<b>College Student Willingness to Pay (WTP) Added Cost of Living for Climate Change Policy in the United States and China</b>				
<b>US (n=767)</b>		<b>China (n=534)</b>		<b>Initial Value = \$20 or 20 Yuan</b>
186	24.3%	38	7.1%	Not WTP 10 (\$,Yuan)/month
139	18.1%	26	4.9%	WTP between 10 and 20 (\$,Yuan)/month
191	24.9%	61	11.4%	WTP between 20 and 40 (\$,Yuan)/month
251	32.7%	409	76.6%	WTP at least 40 (\$,Yuan)/month
<b>US (n=743)</b>		<b>China (n=511)</b>		<b>Initial Value = \$40 or 40 Yuan</b>
198	26.6%	36	7.0%	Not WTP 20 (\$,Yuan)/month
183	24.6%	47	9.2%	WTP between 20 and 40 (\$,Yuan)/month
201	27.1%	85	16.6%	WTP between 40 and 80 (\$,Yuan)/month
161	21.7%	343	67.1%	WTP at least 80 (\$,Yuan)/month
<b>US (n=759)</b>		<b>China (n=533)</b>		<b>Initial Value = \$60 or 60 Yuan</b>
258	34.0%	42	7.9%	Not WTP 30 (\$,Yuan)/month
174	22.9%	60	11.3%	WTP between 30 and 60 (\$,Yuan)/month
206	27.1%	124	23.3%	WTP between 60 and 120 (\$,Yuan)/month
121	15.9%	307	57.6%	WTP at least 120 (\$,Yuan)/month

## CONCLUSION

Our results on the views of US college students are generally consistent with the findings of other researchers regarding US public opinion on climate change. Despite little existing research on what Chinese citizens of any age think about climate change, our results on Chinese college students do align reasonably well with the limited results available for comparison. In particular, the fact that Chinese college students place a greater importance on the environment relative to the economy is similar to previous research findings.

Overall, it is troubling that Americans do not better understand the scientific consensus on the realities of anthropogenic climate change. The Intergovernmental Panel on Climate Change states "...the warming of the climate system is unequivocal..." and "...most of the observed increase in global average

temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic GHG concentrations.” Additionally, reviews of the climate literature indicate striking agreement (over 95%) with IPCC assessments.

This poster highlights the significant differences in how young educated US and Chinese citizens view the existence and causes of climate change as well as possible policies to address this important issue. Of course we are not sure exactly what these results mean in terms of the future of climate change policies in the US and China as well as globally, largely because of the vast economic, political, social and cultural differences between these two important countries.

However, we are sure that meaningful policies to address climate change must involve both China and the US. By presenting and publishing our results we hope to stimulate discussion, raise awareness and advocate for meaningful action to address global climate change.

\*All differences between US and Chinese respondents shown in graphs are statistically significant as determined by Chi-Squared tests.

\*\*Although not shown in this poster, regression analysis confirms findings of other studies; political ideology is a significant contributing factor to the division over climate change views among US college students.

## REFERENCES

1. Anderegg W. et al. (2010). Expert credibility in climate change. *Proceedings of the National Academy of Sciences of the USA*, 107(27), 12107–12109
2. Cook, J. et al. (2013). Quantifying the Consensus on Anthropogenic Global Warming in the Scientific Literature. *Environmental Research Letters*, 8, 7pp
3. Intergovernmental Panel on Climate Change (2007). *Climate Change 2007 Synthesis Report: Fourth Assessment Report*. Cambridge, UK and New York, NY, USA: Cambridge University Press
4. Intergovernmental Panel on Climate Change (2013). *Climate Change 2013 Summary for: Policymakers: Fifth Assessment Report*. Cambridge, UK and New York, NY, USA: Cambridge University Press
5. Leiserowitz, A. et al. (2013). *Global Warming's Six Americas, September 2012*. Yale University and George Mason University. New Haven, CT: Yale Project on Climate Change Communication
6. Leiserowitz, A. et al. (2011). *Politics & Global Warming: Democrats, Republicans, Independents, and the Tea Party*. Yale University and George Mason University. New Haven, CT: Yale Project on Climate Change Communication
7. Jamelske, E. et al. (2013). Comparing Climate Change Awareness, Perceptions, and Beliefs of College Students in the United States and China. *Journal of Environmental Studies and Sciences*. 3 (3), 269-278
8. Gilley, B., (2012). Authoritarian Environmentalism and China's Response to Climate Change. *Environmental Politics*, 21(2), 287-307
9. Liu, Chung-En & Leiserowitz, A. (2009). From Red to Green? Environmental Attitudes and Behavior in Urban China. *Environment*, 51(4):32-45