Survey instrument for Cross Cities Comparison of Air Quality Valuation (Beijing version)

Introduction

Dear Participant,

You have been randomly selected to participate in an important study on Beijing's air quality. This study is conducted by researchers from universities in China, Singapore, and United States.

This short survey (about **20 minutes**) is designed to find out about your attitudes and concerns towards air quality in Beijing.

The findings from this survey will be used to help inform policies related to air pollution issues in Asia, and there are no right or wrong response to any of the questions. You can be assured that your responses are anonymous and the data will not be traceable to you.

If you have any questions, or if you want the study's final report, please contact Professor Qin Ping from Renmin University (pingqin@ruc.edu.cn).

Thank you for your time and input in this research.

a. Screening questions

1. Was Beijing your primary residence for the year 2018 (at least 10 months)?
   1. Yes
   2. No

2. Please provide the street address in Beijing where you lived in 2018 (Note: We just need you to provide the name of your street or general location and not your unit address).
   _____

3. Are you at least 21 years old?
   1) Yes
   2) No

b. Sociodemographic questions

1. What is your gender?
    1. Male
    2. Female

2. How old are you?
    Years_____

3. What is your marital status?
    1. Married
    2. Single
    3. Widow
    4. Divorced/Separated

4. What is the highest level of schooling you have attained?

    1. No schooling
    2. Primary school
    3. Middle school
    4. High school
    5. Technical secondary school
    6. Junior college
    7. Bachelor's degree
    8. Master's degree
    9. Doctoral degree

5. Which statement best describes your current employment?
    1. Salaried employee
    2. Head of own business
    3. Not working but looking
    4. Not working -- retired
    5. Work from home (telecommute or run business from home)
    6. Student
    7. Housewife

6. If you are employed, which of these description(s) best fit the nature of your work? (Choose all that applies)
    1. Mainly indoor
    2. Mainly outdoor
    3. My work requires physical labor most of the time
    4. My work is mostly non-physical labor

7. Please indicate the range of your yearly income before taxes (RMB)
    1. I have no income
    2. Less than 25,000
    3. 25,000 to 40,000
    4. 40,000 to 65,000
    5. 65,000 to 90,000
    6. 90,000 to 115,000
    7. 115,000 to 130,000
    8. 130,000 to 155,000
    9. 155,000 to 205,000
    10. 205,000 to 255,000
    11. 255,000 to 305,000
    12. 305,000 to 355,000
    13. 355,000 to 405,000
    14. More than 405,000

8. Please indicate the range of your family yearly income before taxes (RMB)
    1. Less than 25,000
    2. 25,000 to 40,000
    3. 40,000 to 65,000
    4. 65,000 to 90,000
    5. 90,000 to 115,000
    6. 115,000 to 130,000
    7. 130,000 to 155,000
    8. 155,000 to 205,000
    9. 205,000 to 255,000
    10. 255,000 to 305,000
    11. 305,000 to 355,000
    12. 355,000 to 405,000
    13. 405,000 to 455,000
    14. 455,000 to 505,000
    15. More than 505,000

9. How many people live in your household, including you? ____

10. How many 12 years old and below live in your household? ____

11. Including you, how many 60 years old and above live in your household? ____

12. What is your relationship to the head of household?
    1. I am the head of household
    2. Co-head of household
    3. Spouse
    4. Grandparents/parents/parents-in-laws
    5. Sibling
    6. Child
    7. Other family relationship
    8. Friend
    9. There is no head of household

c. <u>Awareness and attitude towards air pollution</u>

13. Thinking back over the past year, how satisfied are you with air quality in your community in Beijing?
    1. Very satisfied
    2. Satisfied
    3. Neutral
    4. Unsatisfied
    5. Very unsatisfied

14. Air quality was _____ in my community for 2018
    1. Bad throughout the year
    2. Bad only sometimes, but not during specific seasons
    3. Bad only during specific seasons (specify month(s): _____)
    4. Bad only rarely
    5. Mostly good
    6. I don't know

15. Do you think the air quality in your community in Beijing is better or worse than that in most other parts of Beijing?
    1. My community has much better air quality
    2. My community has better air quality
    3. There is no difference
    4. My location has worse air quality
    5. My location has much worst air quality
    6. It depends; sometimes it is better, but other times worse
    7. I do not know

16. Compared to 2017, do you feel overall air quality in Beijing improved in 2018?
    1. Improved significantly
    2. Some improvement
    3. Remained the same
    4. Some deterioration
    5. Worsened significantly

17. What do you think will be true about air quality in Beijing five years from now?
    1. Will improve significantly
    2. Will have some improvement
    3. Will remain the same
    4. Will have some deterioration
    5. Will worsen significantly
    6. Don't know/ No way of forecasting

18. What do you think are the ***main*** sources of air pollution in your community? (**Choose all that apply**)
    1. Industrial polluters from your city
    2. Industrial polluters from neighboring provinces
    3. Passenger vehicles (e.g. cars, motorcycles)
    4. Commercial vehicles (e.g. buses, trucks)
    5. Construction sites
    6. Neighbors or people living near you burning crops, fuel, or garbage
    7. I don't know
    8. Others, please specify: _____

19. Who do you think should be responsible to improve air quality? (**Choose all that apply**)
    1. Beijing city government
    2. Central government
    3. Government of neighboring provinces
    4. Government of neighboring countries
    5. Citizens and civil society
    6. Others, please specify: _____

20. If given sufficient resources, do you trust the city government to improve air quality in Beijing?
    1. Definitely yes
    2. Probably yes
    3. Probably no
    4. Definitely no
    5. Don't know

21. What types of health issues do you think air pollution in Beijing causes or exacerbates? **(Choose all that apply)**
    1. Premature death
    2. Asthma/Shortness of breath
    3. Cold/flu/fever/runny nose
    4. Sinus problems
    5. Lung cancer
    6. Heart issues
    7. High blood pressure/ Stroke
    8. Headaches/migraines

9. Eyes redness/swollen/tearing
10. Skin rashes/problems
11. Mood swings, depressions
12. Minimal or no health issues
13. Don't know
14. Others, please specify: _____

22. On any given month, which of these fuels do you use regularly (at least twice weekly) inside your residence? (e.g. for heating, cooking purposes) (**Choose all that apply**)
    1. Wood
    2. Charcoal
    3. Coal
    4. Kerosene
    5. LPG/Butane/Propane/Natural gas/ Biogas
    6. Electricity/Solar
    7. I use none of these fuels

23. Are there any smokers among your household members who live with you ***in Beijing***?
    1. Yes, there are _____ number of smokers among my household members
    2. No [Skip to question 27]

24. Does anybody smoke tobacco ***inside of your house in Beijing***?
    1. Yes
    2. No [Skip to question 27]

25. How many cigarettes/cigars are smoked ***inside of your house*** per day?
    1. More than one small pack per day (there are 10 cigarette sticks in a small-sized pack)
    2. One small pack per day
    3. At most a few sticks of cigarettes/cigars per day
    4. At most one stick of cigarette/cigar per day

26. How do you feel about being exposed to cigarette smoke?
    1. I am very bothered by it
    2. I am somewhat bothered by it
    3. I am barely bothered by it
    4. I am not bothered by it
    5. I don't know

27. Do you know air pollution levels can be measured scientifically?
    1. Yes
    2. No (skip to 30)

28. On average, how often do you consult information on local air quality?
    1. At least daily
    2. At least once a week

3. At least monthly
4. Very infrequent/never

29. How do you receive information on local air quality? (**Choose all that apply**)
    1. Mobile phone
    2. Radio, TV
    3. Newspaper
    4. Public display boards
    5. Computers/laptops
    6. Friends/co-workers/family members
    7. Others, please specify
    8. I do not receive information on local air quality

The three photos below are examples of **green spaces** that are found in Beijing. The greenery in these areas consists of grass and shrubs and/or trees. Residents often gather at these places for exercising, brisk walks, picnics, among many other activities.

Based on this definition of green spaces, please answer the following questions:

30. Is your home located within walking distance to green spaces (such as parks and recreational areas)?
    1. Yes
    2. No

31. How often do you visit green spaces for leisure and recreational purposes, including physical activity?
    1. At least daily
    2. At least once a week
    3. At least monthly
    4. Very infrequent/never

32. Among the four options listed below, where would you rather be under different air quality conditions for leisure and recreational purposes? Please indicate your most preferred and least preferred choices.

On a day with **perfect** air quality and **comfortable** climate, where would you prefer to be for leisure and recreational purposes?

1. In my home, without air purifiers in operation (see handout if you do not know what is an air purifier)
2. In my home, with air purifiers in operation (note that an air purifier usually cost around RMB 1,000 to RMB 3,000)
3. Outside of my home, but mostly indoors, e.g., shopping malls, restaurants, cinemas etc…
4. Outside of my home, at green spaces

A) Most preferred: _____; B) Least preferred: _____

On a day with **moderate** air quality and **comfortable** climate, where would you prefer to be for leisure and recreational purposes?

1. In my home, without air purifiers in operation (see handout if you do not know what is an air purifier)
2. In my home, with air purifiers in operation (note that an air purifier usually cost around RMB 1,000 to RMB 3,000)
3. Outside of my home, but mostly indoors, e.g., shopping malls, restaurants, cinemas etc…
4. Outside of my home, at green spaces

C) Most preferred: _____; D) Least preferred: _____

On a day with **bad** air quality (think of this as the worst air pollution you have experienced in Beijing) and **comfortable** climate, where would you prefer to be for leisure and recreational purposes?

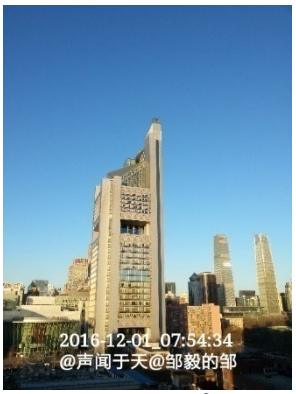
1. In my home, without air purifiers in operation (see handout if you do not know what is an air purifier)
2. In my home, with air purifiers in operation (note that an air purifier usually cost around RMB 1,000 to RMB 3,000)
3. Outside of my home, but mostly indoors, e.g., shopping malls, restaurants, cinemas etc…
4. Outside of my home, at green spaces

E) Most preferred: _____; F) Least preferred: _____

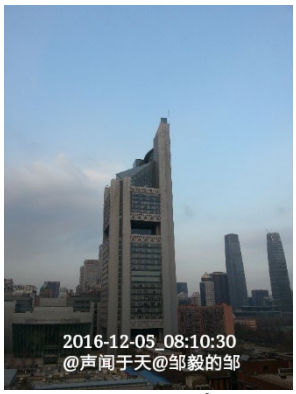
Contingent valuation

Beijing's air pollution is around **1.68 times worse** than the national air quality standards set by the **Ministry of Environmental Protection**. Hence, air quality in Beijing **does not meet** the national standards.

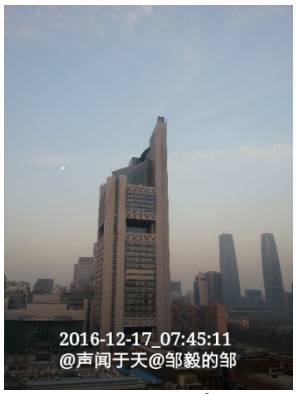
Here are photos of days in Beijing with differing levels of air quality. All these photos were taken at the same location in Beijing and roughly at the same time, taking into consideration of sun-rise. Indicated below each photo is the associated particulate matters level and government health advisory.



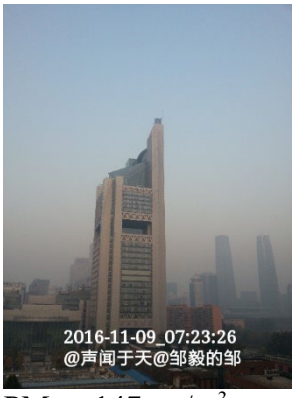
$PM_{2.5}$: 14 μg/m^3
Good conditions



$PM_{2.5}$: 64 μg/m^3
Moderate conditions



$PM_{2.5}$: 78 μg/m^3
Unhealthy for sensitive group



$PM_{2.5}$: 147 μg/m^3
Unhealthy for all

$PM_{2.5}$: 209 μg/m^3
Very unhealthy for all

$PM_{2.5}$: 342 μg/m^3
Hazardous for all

Information on health impacts of air pollution

The current level of air pollution in Beijing is known to poses significant public health risks.

Beijing's air pollution is around **1.68 times worst** than the national air quality standards set by the **Ministry of Environmental Protection**. Hence, air quality in Beijing **does not meet** the national standards.

According to scientists, when compared to the **national standards** set by the Ministry, these are the following known mortality risks at Beijing's current levels of air pollution:

a. About 21% more likely to die from respiratory illnesses
b. About 10% more likely to die from lung cancer
c. About 6% more likely to die from heart diseases
d. About 17% more likely to die from stroke

Apart from these mortality risks, risks of sickness from various physical ailments also increase because of air pollution (such as asthma and bronchitis). There is also new evidence showing that exposure to air pollution is associated with increased risks of mental illness, including depression, dementia, and Alzheimer's diseases.

33. Currently, Beijing's air pollution is around **1.68 times worst** than national air quality standards set by the **Ministry of Environment Protection**. Hence, air quality in Beijing **does not meet** the national standards.

    Beginning from 2019, I want you to imagine that Beijing could begin a series of stricter controls and measures to improve air quality, such as limiting factories emissions, stricter emissions standards for new vehicles, limiting crop burnings, increasing tree planting. Other than these examples, other measures could be implemented.

    Now, I want you to imagine that the program **will be successful**, and these measures would reduce Beijing's annual pollution from its current level to meet **national air quality standards**.

~~~~*Page Break*~~~~

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Now, I want you to imagine that the program **will be successful**, and these measures would reduce Beijing's annual pollution from its current level to meet **national air quality standards**.

These controls and measures would require a mandatory fee to be paid by **all** Beijing residents. Hence, all Beijing residents are required to vote whether they are in favor of implementing these measures.

Here, we want you to indicate whether you would vote "Yes" or "No" for this program if the mandatory fee is as stated in the question.

Before responding, please consider that if you contribute money towards this air quality improvement program, you are not going to be able to spend money on other things. In other surveys, we have seen that people sometimes give very high amounts because they have not carefully considered the other things they could buy with the money. Others give very small amounts because they do not think about all benefits.

There is no right or wrong answer, and it is important to us that you answer the following question as carefully and accurately as possible.
~~~~

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There is no right or wrong answer, and it is important to us that you answer the following question as carefully and accurately as possible.

How would you vote for this air quality improvement program if all residents are each required to pay RMB XXX ***annually***?

1. I vote Yes
2. I vote No

Option (RMB.)
500
2500
5000
7000
10000

34. { If "*I vote Yes*" in question 33} What were the reason(s) that made you vote in favor for the program? (**Choose all that apply**)
    1. Improving air quality will improve everyday health for me and for people that I care about
    2. I fear the mortality risk from high air pollution
    3. I don't like the smell of air pollution
    4. Improving air quality would allow me and my family to participate in more outdoor activities
    5. It costs too much to operate air purifiers and buy masks whenever air pollution is bad
    6. It is too mentally stressful to have to check outdoor air quality status before I leave home everyday
    7. I am concerned that if we do not control this problem now, it will be even more difficult to improve air quality in future
    8. Others, please specify: _____

    { If "*I vote No*" in question 33} What were the reason(s) that made you unwilling to vote in favor of the program? (**Choose all that apply**)
    1. I do not have enough money to pay this fee
    2. Air pollution is not a problem for me and my family
    3. Air quality improvement should not be paid for by Beijing residents as this problem is caused by neighboring provinces/factories
    4. Beijing residents are already paying enough taxes
    5. I do not believe it is possible to improve air quality in Beijing
    6. I do not trust the government to use the money wisely
    7. Others, please specify: _____

d. <u>Averting behaviors</u>

35. You may have undertaken some of the following activities or behavior changes during period of poor air quality in Beijing in the year 2018.

	Activities/Behaviors		
a.	Purchase of face masks (not including those given by employers or government)		RMB_____ spent in 2018
b.	Purchase of air purifiers for home	Number of air purifiers bought in 2018 for your household _____	RMB_____ spent in 2018
c.	The **worst** air quality condition at which you turn on your air purifiers?	1. Air quality at 'Good' level 2. Air quality at Moderate level 3. Air quality at Light Pollution level 4. Air quality at Mid Pollution level 5. Air quality at Heavy Pollution level 6. Air quality at Severe Pollution level 7. None of the above	List one option from (1) to (7)
d.	The **worst** air quality condition at which you start driving, take taxis, or other transportation means to avoid being exposed to air pollution?		List one option from (1) to (7)
e.	Did you spend any money on your household to treat common air pollution-related illnesses such as asthma, allergic reactions?		RMB_____ spent in 2018
f.	Temporarily leave Beijing to escape air pollution	Number of times your household left Beijing to avoid air pollution ____	RMB_____ spent in 2018 on transportation, food, lodging, and etc…

e. Time tradeoff

36. I want you to imagine another scenario now. Suppose that the two situations shown below could occur. **Both situations would be in Beijing.**

    In the first situation, you would live longer by good fortune. However, Beijing would have constant high levels of air pollution (think of this as the worst air quality you have encountered in Beijing).

    In the second situation, you would not live as long, but Beijing would have perfect air quality.

    Note that it will be a quick and painless death in both situations.

    Choose which of these two options you prefer.

	Option 1	Option 2
Lifespan:	75 years	60 years (you could die from accidents)
Air pollution:	Bad air	Perfect/clean air

    I choose _____.
    1. Option 1 {Go to 37}
    2. Option 2 {Go to 38}
    3. I am unable to choose

37. {If Option 1} Now consider this new set of options

	Option 1	Option 2
Lifespan:	75 years	65 years (you could die from accidents)
Air pollution:	Bad air	Perfect/clean air

    I choose _____.
    1. Option 1
    2. Option 2
    3. I am unable to choose

38. {If Option 2} Now consider this new set of options

	Option 1	Option 2
Lifespan:	75 years	55 years (you could die from accidents)
Air pollution:	Bad air	Perfect/clean air

I choose _____.

1. Option 1
2. Option 2
3. I am unable to choose

Description and examples of air purifiers sold in China

收藏 1506 24

空气净化器 编辑

空气净化器又称"空气清洁器"、空气清新机、净化器，是指能够吸附、分解或转化各种空气污染物（一般包括PM2.5、粉尘、花粉、异味、甲醛之类的装修污染、细菌、过敏原等），有效提高空气清洁度的产品，主要分为家用 、商用、工业、楼宇。

空气净化器中有多种不同的技术和介质，使它能够向用户提供清洁和安全的空气。常用的空气净化技术有：吸附技术、负（正）离子技术、催化技术、光触媒技术、超结构光矿化技术、HEPA高效过滤技术、静电集尘技术等；材料技术主要有：光触媒、活性炭、合成纤维、HEAP高效材料、负离子发生器等。现有的空气净化器多采为复合型，即同时采用了多种净化技术和材料介质。

中文名	空气净化器	主要功效	除甲醛、除PM2.5、除异味、烟气
外文名	Air Purifier	适用范围	室内

除烟尘 热销

小米 米家空气净化器PRO OLED显示屏， APP智能控制

约 ¥971 10811 人付款

暂无点评

共有208商家在售

适用11-20㎡（次卧） 热销

飞利浦 AC4072 智能双重感应器，自动智能控制

约 ¥1210 3657 人付款

点评 5414 条

共有49商家在售

除甲醛 热销

美的 KJ210G-C46 wifi远程遥控，智能触屏

约 ¥913 5065 人付款

点评 2205 条

共有25商家在售

除病菌 热销

美的 KJ400G-E33 防倾倒保护设计， 静音系统

约 ¥1969 2122 人付款

点评 51 条

共有42商家在售