

Demand Under the Ban

- China Ivory Consumption Research 2019

A report from GlobeScan Incorporated



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Project: 3640









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1. Background and Objectives









Foreword by WWF

The large-scale consumption of wildlife parts, products, and derivatives across the globe is increasingly being recognized as a driving factor toward substantial declines in populations for many species. Mainland China (hereafter referred to as 'China' in this report) is thought to be one of the largest markets, leading conservation professionals to explore the potential for targeted advocacy, social marketing, and multi-media campaigns to deliver real and rapid impact in reducing this demand. WWF have implemented several behavior change interventions in recent years to reduce demand for illegal wildlife products like ivory, pangolin scales, rhino horn, and tiger bones. Consumers including antique collectors, outbound tourists, businessmen, millennials and traditional Chinese medicine users have been targeted in those behavior change interventions.

Within this context, a "game-changing" ban on commercial processing and trade in elephant ivory was implemented by the State Council, China's Cabinet on 31 December 2017. TRAFFIC and WWF commissioned GlobeScan before the ban became effective in 2017 to conduct the largest-ever ivory consumer research in China. This research seeks to discover the nature of ivory consumption in 15 major cities in China, to understand consumers' perception toward the ivory ban, and to assess effective messaging and mechanisms for demand reduction based on a pre- and a post-ban surveys, conducted in September – October 2017 (pre-ban), May – June 2018 (post-ban) and May – July 2019 (post-ban). The research will also serve as the foundation of WWF's future behavior change strategies and interventions.

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Research Objectives – Context

In early 2019, WWF commissioned GlobeScan to conduct research to build upon previous consumer analysis and to generate up-to-date insights about ivory consumption and consumer perceptions toward the ivory ban after its implementation (December 31, 2017). This study follows previous research conducted by GlobeScan on both the pre- and post-domestic ivory ban in Mainland China. We identify target consumer groups, products, and drivers of consumption that need to be addressed

as a priority and provide data for designing, developing, and delivering interventions. By continuing to monitor the perceptions and actions of Chinese consumers, WWF can incorporate changes in consumer behavior into their latest demand reduction campaigns and thereby increase the effectiveness of these campaigns.







Research Objectives

The objectives of these studies – the Pre-ban survey (2017) and Post-ban surveys (2018 and 2019) – can be summarized as follows:

- Understand to what extent the implementation of the ban has impacted ivory purchase and if this trend is continuing over time.
- Measure the awareness and perceptions of the ban and its influence on the decision-making processes of buyers and/or potential buyers.
- Identify the key consumer/buyer segments of elephant ivory (products) before the implementation of the ban, and track if their perceptions, awareness, and purchase behavior is changing after the ban.
- Track the size of these segments to see whether consumers are becoming more influenced by the ban.
- Identify the prevalence of ivory purchase.
- Identify the major motivations driving these purchases and the deterrents that buyers perceive.

- Analyze psychosocial and socio-demographic characteristics, attitudinal dimensions, and other aspects of each consumer segment in order to gain insight into:
 - A. The specific triggers, motivations, and drivers for each segment's use or purchase of each of these products;
 - B. The underlying desire to purchase or own ivory and the barriers which will deter (potential) buyers from future purchase;
 - C. The awareness and attitudes of each consumer segment toward legislative provisions, penalties, and other deterrents restricting or prohibiting the use of these products.
- Test various concept messages (in the Pre-ban Survey) and campaign awareness/effectiveness (in the Post-ban Surveys) as input for future ivory demand reduction communication and behavior change interventions.



Research Design

Survey Design

This study uses quantitative data collection to answer the research questions. Quantitative data collection provides robust, comparable results that allow for analysis of trends and preferences across a large geographic area. These data can be used to spot trends in ivory consumption, beliefs, knowledge, and attitudes. This three-year study is the first long-term, comparable study of the purchase behaviors and attitudes toward ivory products in China from a consumer perspective.

Consumer Sampling

According to China Internet Watch, the national internet penetration rate in China is 60 percent, but in urban centers it is estimated to be 75 percent, with different genders, ages, and education levels well represented online. This has led China to be one of the most Internet-driven economies in the world. As with the 2017 and 2018 surveys, the 2019 survey utilized the ability of online research to gain insights from a wide variety of respondents. Respondents could answer the survey either on their smartphones or on their computers, at their convenience.

The 2019 survey was conducted from the 29th of May to the 19th of July. Respondents from an online panel were invited to participate in the online

survey via email. The survey had a questionnaire length of 20:41 minutes on average, with a median length of 17:05 minutes.

Survey respondents could indicate the city in which they live from a list of 15 cities – Beijing, Shanghai, Guangzhou, Chengdu, Xiamen, Kunming, Fuzhou, Xi'an, Shenyang, Tianjin, Nanning, Chongqing, Nanjing, Jinan, and Shenzhen. This allowed for a broad geographic range of respondents while still focusing on the key areas known to be of importance in the ivory trade. For this survey, the cities have been reclassified into layers (not related to China city tiers) as per TRAFFIC's definition, in order to adequately reflect the trade of ivory in China (see Slide 10). Hangzhou was added to the 2019 survey because market visits conducted by WWF and TRAFFIC indicate that it might be an important market for ivory purchase. In order to keep the 2019 results comparable with the previous surveys, Hangzhou was analyzed separately and is presented separately in chapter 5.

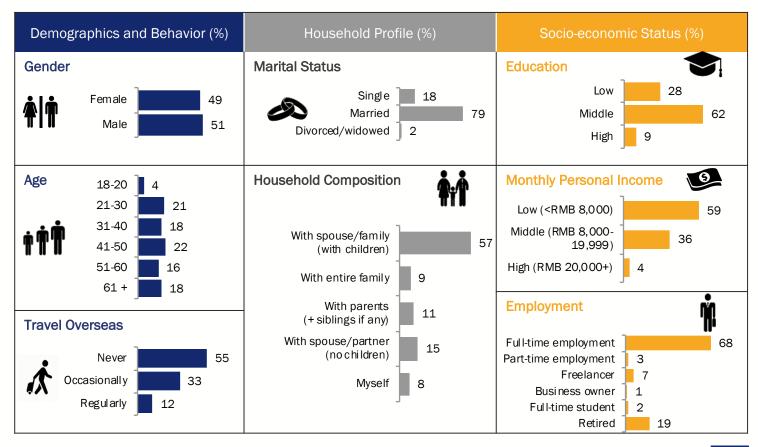
Any respondents under 18 years of age and those working in the advertising, public relations, marketing, market research, and media industries were screened out and were not allowed to participate in the survey.



Total Sample Profile - Post-ban Survey 2019

The same quotas for age, gender, city, and the same "soft quotas" for education were used as per previous surveys (based on Mainland China general population sample).

As with the profiles of respondents in 2017 and 2018, the demographic profile of the respondents in the 15 cities surveyed is nationally representative of the population of Mainland China: the demographics after weighting deviate less than 1% of the nationally representative demographics (See Slide 92). The majority of respondents have received a mid-level of education, are married, are employed full time, and live with their family.





GLOBESC

Geographic Scope

Definition: City Layers

Cities were divided into layers 1, 2, and 3 per TRAFFIC's definition to reflect the ivory trade and consumption in major cities in China. Grouping cities by layers allows for comparisons on the dynamics of ivory trade to be made between types of markets (cities).

TRAFFIC nominated these cities as being strategic and active centers of the ivory trade in China, rather than being representative of China as a whole. This is different from a geographical spread as used in past surveys on ivory.

Hence, the data in the report are centered on these selected cities rather than on a balanced, nationally-representative sample.

Hangzhou was reported to be a possible important market for ivory trade in 2019 and was added to the survey with n = 200 respondents. To keep the results comparable to previous years these data were analyzed separately (see Chapter 5).



The (weighted) sample achieved by Layer in the Post-ban Survey is as follows:

- n=927 in **Layer 1** cities (Beijing, Shanghai, Guangzhou, Chengdu)
- n=459 in Layer 2 cities (Xiamen, Kunming, Fuzhou, Xi'an, Shenyang, Tianjin)
- *n*=614 in **Layer 3** cities (Nanning, Chongqing, Nanjing, Jinan, Shenzhen)
- n=200 in **newly added** city (Hangzhou)



Analysis Deployed: Market Segmentation

Market Segmentation is a statistical process that divides a broad target market into a subset of smaller segments, or groups, based on natural points of differentiation between consumers in that market. In order to identify homogenous groups of customers in terms of their behavior, intentions, attitudes, and motives, we have developed a custom segmentation using the Decision Tree statistical algorithm (see Slides 95 - 96)

Why Perform a Market Segmentation?

A market segmentation provides organizations with targeted intelligence on discrete groups of consumers, providing evidence to support positioning and communication strategies for target consumer segments. This allows us to identify swing groups for strategic communications. We can also track these segments over time and see how public perception shifts between years.

Segmentation Analysis: Methodology Used

The model developed in 2017 was also used in 2018 and 2019 to predict the likelihood of buying ivory after the ban is imposed, and to identify segments of respondents sharing similar patterns of responses to the question on past purchases, intention to purchase, and advocacy for ivory consumption.

Input variables included: attitudes, motives, and barriers, past and future intended purchasing, and agreement/disagreement with the ban.

Based on this predictive modeling, we have identified three distinct segments: Diehard Buyers, Ban Influenced Citizens, and Rejectors.

This segmentation is a different indicator than the Ivory Purchase Index (IPI) (see explanation in the next slide), which was also deployed. While both indicators use different methodologies to be compiled, they share common input variables. Both indicators include past and future purchase, measured before and after the respondents read the Notice of the ban in the survey. However, the segmentation also includes attitudes, motives, and barriers, unlike the IPI.

Respondents are not re-interviewed between years to assess their personal shifts between segments. Rather, the segments and the shifts between them are indicative of general trends, not individual changes.

Segmentation Analysis - Post-ban Surveys

In order to recreate the segments (e.g., Diehard Buyers, Ban Influenced Citizens, and Rejectors) identified in the Pre-ban poll, statistical algorithms were used and extracted using Discriminant Function Analysis.



Analysis Deployed: Ivory Purchase Index

Ivory Purchase Index: Definition

For this survey, we have recreated the Ivory Purchase Index developed in the Pre-ban Survey.

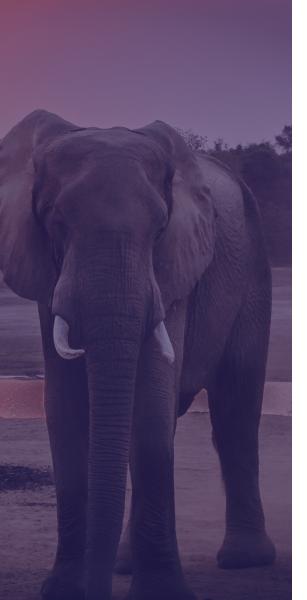
- The Ivory Purchase Index can be considered as a barometer or a measure of purchase intention or attractiveness.
- It allows us to customize strategies and messages for specific subgroups, e.g., buyer segments, city layers, age groups, etc.
- The Ivory Purchase Index helps to see the overall picture, i.e., who are the most persistent ivory buyers.

How Is it Compiled?

 The Index is an aggregate measure that distils many indicators down to a single number enabling quick comparisons across buyer segments, city layers, age groups, etc.

- The Ivory Purchase Index was developed by reducing all attributes that were related to past and future purchase of ivory down to three dimensions:
 - Past purchase
 - Future purchase
 - Impact of the ivory ban (i.e., future purchase of ivory after implementation of the ban and recommendation to purchase ivory after implementation of the ban).
- It is a sum of these three dimensions/sub-indices, based on a 10-point scale, with 1 being lowest (least persistent in buying ivory) to 10 being the highest.





2. Key Findings





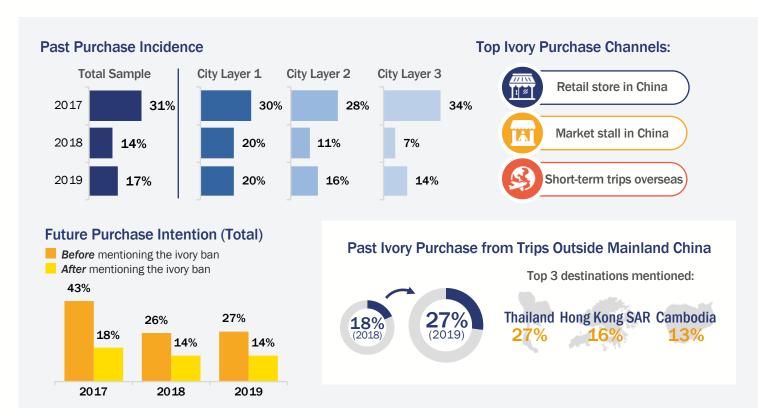




Overall Stated Ivory Purchase Behavior

Self-reported purchase of ivory in the past 12 months remains at around half of the levels of pre-ban purchase (31%), but has risen between 2018 (14%) and 2019 (17%).

- As in 2018, Layer 3 cities have the lowest stated rates of ivory purchase, but have higher future purchase intention than last year. Overall, the purchase level between layer 1, 2 and 3 has stabilized, at a much lower level compared to pre-ban, but at a still persistently-high post-ban level.
- Regular Overseas Travelers have become more persistent in their ivory purchase habits and remain the only group to have significantly higher rates of ivory purchase in the past 12 months, and intention to purchase ivory ever in the future.
- Respondents who bought ivory abroad most frequently cited Thailand and Hong Kong SAR as the markets in which they bought it, followed by Cambodia (though it receives far fewer Chinese tourists than Thailand or Hong Kong SAR).

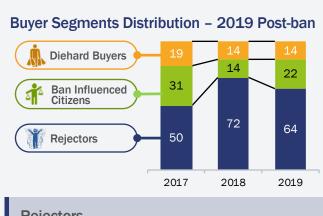




Buyer Segments: Purchase Behaviors

Among the buyer segments, the proportion of Diehard Buyers has remained stable, while Ban Influenced Citizens have grown.

- Some Ban Influenced Citizens who became Rejectors under the immediate influence of the ban in 2018 appear to be reverting to their previous perceptions surrounding ivory i.e. a fear of legal repercussions has caused them to have a lower ivory purchase intention (which has dropped further in 2019) and purchase in the past 12 months. Rejectors who shifted to Ban Influenced Citizens are less certain about their rejection of ivory and now consider the ban the primary (but not necessarily only) reason not to purchase it.
- Diehard Buyers remain persistent in their ivory purchasing habits and have seen an increase in their ivory purchase index score.
- With a low ivory purchase index score, ivory purchase behavior and intention to purchase ivory, Rejectors have maintained their low past 12 month and future purchase intent.







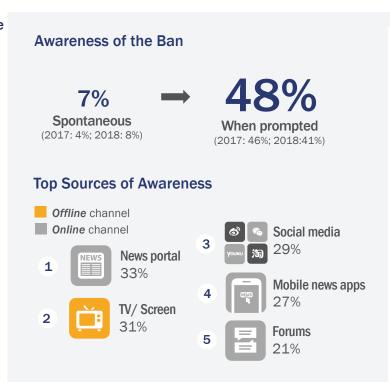




Awareness of and Attitude toward the Ivory Ban

Although more people are aware that there are regulations surrounding ivory trade, they are less able to specifically identify the ban. However, when prompted, they recognize it at a higher rate than 2018.

- In 2019, 85% of respondents believe that the sale of ivory in China is illegal.
- While spontaneous awareness of the ban has not significantly changed (8% - 7%), prompted awareness of the ban has increased (41% - 48%).
- Online channels are the dominant sources of awareness about the ivory trade ban, as they were in 2018.
- More respondents agree that legal control is necessary over ivory trade than in 2018.
- Respondents strongly believe that the
 effects of the ban will be positive, with the
 "negative" responses that it will make them
 purchase ivory elsewhere or make people
 purchase ivory via illegal channels
 significantly lower than 2018.



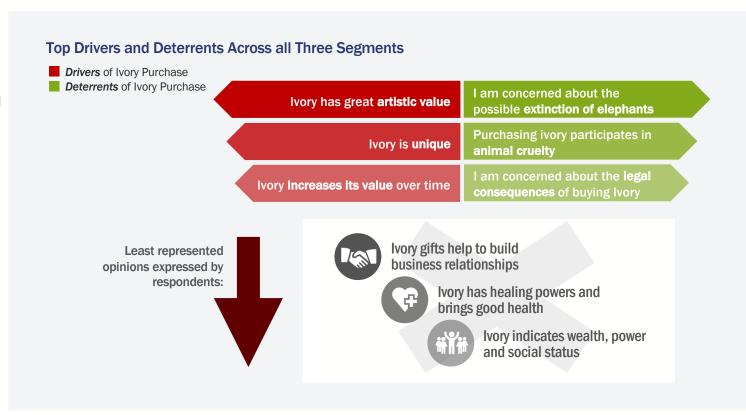




Drivers and Deterrents of Ivory Purchase

The top drivers and deterrents of ivory purchase were the same in Rejectors, Ban Influenced Citizens and Diehard Buyers. However, the relative strength of these opinions differed - Diehard Buyers considered the drivers of ivory purchase to be more important than the deterrents.

- Respondents were most concerned about the extinction of elephants and the cruelty related to ivory trade, as they were in 2017.
- The legal consequences of ivory was the third most reported deterrent from purchase.
- Other strong opinions included the desire to share information on illegal ivory purchase with family, friend or the authorities.
- The least important driving factors were the belief that ivory helped with business relationships (down from 2017), brings good health and that it indicates social status and power, though these beliefs were stronger in Diehard Buyers.

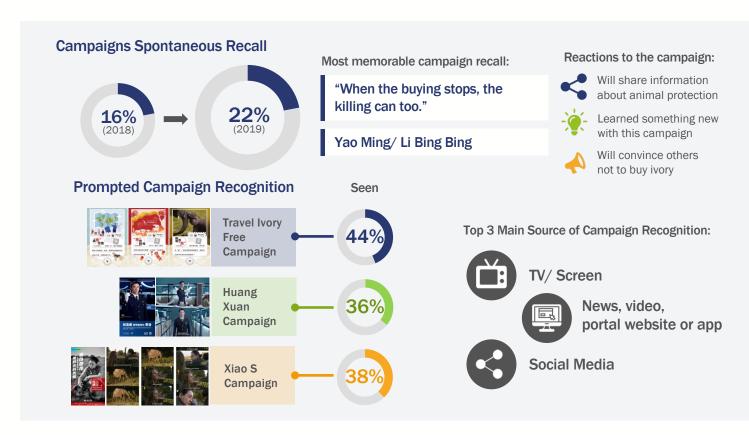




Awareness of and Attitude toward Campaigns

Spontaneous campaign awareness has risen significantly since 2018, especially in the target group of Regular Overseas Travelers, while prompted campaign recognition is highest for the Diehard Buyers, another important target group.

- Campaigns were remembered by a higher percentage of respondents in 2019 than in the previous year.
- The most common channels where the campaigns have been seen are broadly similar for the three campaigns, and are led by online sources.
- Diehard Buyers report that they learned something from the campaigns, while Ban Influenced Citizens were more likely to state that the campaigns convinced them not to buy ivory, and Rejectors were the most likely to share information about animal protection as a result.







3. Analysis

3.1 Segmentation of the Market









Segmenting the Market

Segments are derived using predictive modeling that takes ivory purchase, intention to purchase, attitudes, motives, and barriers toward ivory into account (See Slide 11). Segments tend to have broadly similar characteristics each year. Below are the characteristics for the 2019 segments:

Rejectors

Rejectors are those who are least likely to purchase ivory. They are more likely to be in the 51+ age bracket, tend to have a mid-level of education, have a lower income, and tend not to travel. Almost none have purchased ivory in

the past 12 months and none intend to

purchase it in the next 12 months.

- Rejectors are strongly concerned about the
 extinction of elephants and animal cruelty. They
 know more than other sub-groups about the
 ivory ban in China, they believe that the ban is
 important, and say they would report ivory trade
 to the authorities if they saw it. They do not
 believe that ivory makes a good gift or souvenir
 or that it builds business relationships.
- Rejectors have a lower rate of campaign awareness but a more positive response to the campaigns.

Ban Influenced Citizens



- Ban Influenced Citizens are those for whom the ivory trade ban in China plays a strong role in their decision making. They tend to be female, have a higher education, and have a medium income. They have lower ivory purchase rate than Diehard Buyers and their purchase in the past 12 months is decreasing over the three years.
- Before being prompted about the ivory ban, 60
 percent of this segments said they were likely to
 purchase ivory in the future. After being prompted
 about the ban, this percentage dropped to 0.
- Ban Influenced Citizens believe more strongly in the artistic value of ivory but report a high rate of concern about the illegality of purchase. They are unlikely to recommend others to purchase ivory.
- This segment self-reports that campaign messages about elephant conservation are effective at convincing them not to buy ivory.

Diehard Buyers



- Diehard buyers are those who are least likely to be swayed from purchasing ivory. They are statistically more likely to be male, have a high income, have a high education, and travel more regularly compared to the general population. They have the highest rates of past ivory purchase and their intention to purchase ivory in the future is increasing, despite the ivory ban.
- Their most strongly held opinions about ivory relate to its artistic value and unique nature, and they are less concerned with price. Half say they have heard of the ivory trade ban when prompted, but they have the lowest rates of knowledge that ivory is illegal to transport internationally.
- They have the highest rates of prompted campaign recognition and report positively about the campaigns, though less so than the other two groups.



Buyer Segments Distribution – Three-year Comparison

8 percent of firm rejectors from 2018 have become Ban Influenced Citizens in 2019, with uniform distribution among the segments.

Overall, we see a consolidation across segments and cities, with numbers reverting to the average, overall picture.

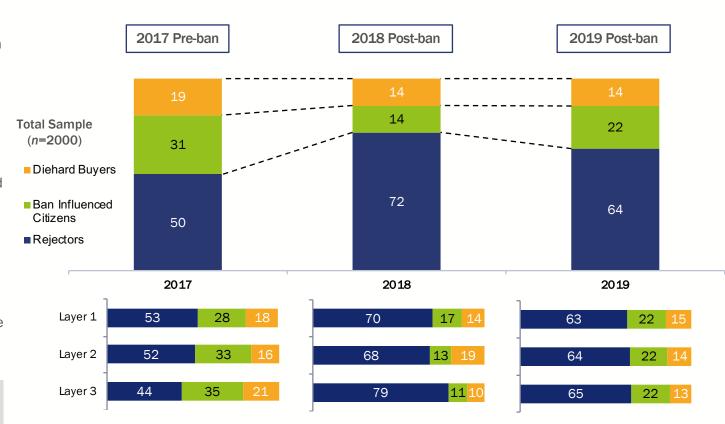
Die-hard buyers have remained at a reduced level since the Pre-ban Survey.

The segment of consumers who are influenced by the ivory ban has increased at the expense of hard rejectors of ivory.

Although the number of ivory rejectors has decreased, the number of people in this segment remains at a higher level than it was pre-ban.

Compared to previous years, 2019 saw a more uniform distribution of segments among the layers.

Note: The socio-economic data have been weighted to represent the national population, so we do not believe this to have primary influence on the segmentation.



Base: Total sample in 15 selected cities, 2017 Survey / 2018 Survey / 2019 Survey: n=2000



Buyer Segments Profile - Rejectors

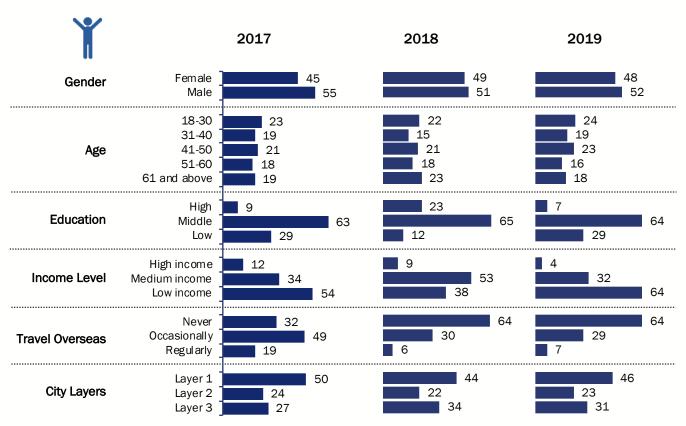
Rejectors of ivory purchase maintain a broadly-similar profile since before the ban, with a greater degree of similarity between 2018 and 2019.

Compared to a nationally-representative profile, Rejectors tend to be medium or low income, middle or low education, and are less likely to travel overseas.

The profile of Rejectors is similar between 2018 and 2019, but is skewed toward low education and low income as it was in 2017.

Ivory rejectors are less likely to travel outside China than the general population. Nontravelers comprise a greater proportion of rejectors since the ban has come into effect.

Note: With 6 socio-economic variables, there will invariably be some differences between the years in the composition of the sample. As the data have been weighted, we do not believe this to have primary influence on the segmentation.



S1. City of residence, S2. Age, S3. Gender, S4. Monthly Personal Income. S5. Education. Q39. Travel behavior – Weighted data Base: Total sample in 15 selected cities. n=2000



Buyer Segments Profile - Ban Influenced Citizens

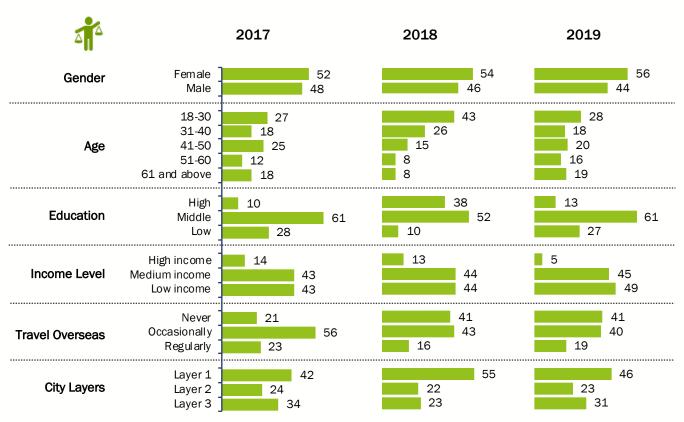
Ban Influenced citizens are skewed toward females and have retained many of the same characteristics over the three years.

Ban Influenced Citizens have a higher level of education and are more likely to travel overseas than the national average. These characteristics have remained consistently elevated over the three years.

After the ban, the higher rate of Ban Influenced Citizens in Layer 3 cities has been replaced by a higher level of this segment in Layer 1 cities.

The age profile of Ban Influenced Citizens appears skewed by the impact of the ban but has reverted to nationally representative.

This segment tends to have middle or low education





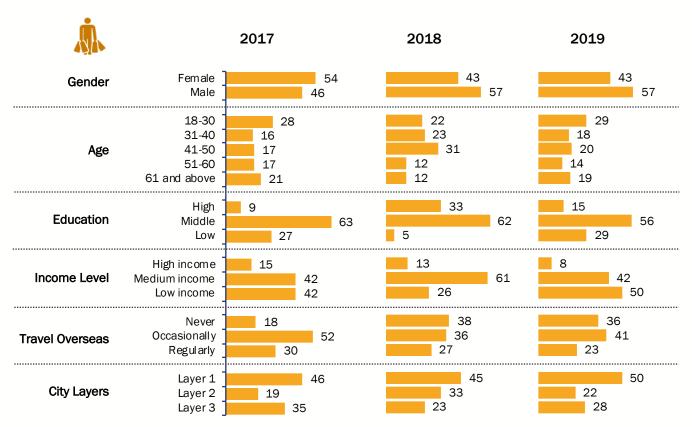
Buyer Segments Profile - Diehard Buyers

Diehard Buyers have moved from females to males after the ban was implemented and maintained this gender bias in the 2019 survey.

Since the ban was implemented, Diehard Buyers have been significantly skewed toward males with middle or high income, a high level of education, and who travel overseas.

This shows a marked difference with 2017, where Diehard Buyers tended to be female and travelers, but were otherwise representative of the general population. This can be attributed to females reacting more strongly to the ban, and moving out of the Diehard Buyer segment.

Diehard Buyers are particularly skewed toward travelers who leave Mainland China at least twice a year.







3.2 Ivory Purchase Behavior









Ivory Purchase Index – Three-year Comparison

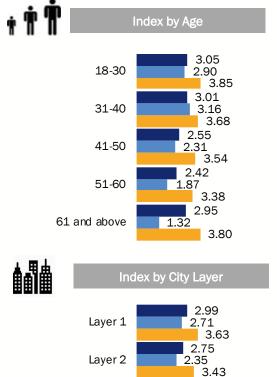
Overall, ivory remains less attractive to respondents after the ban compared to pre-ban levels. With the stated increase in ivory purchase between 2018 and 2019, the ivory purchase index has risen correspondingly.

The ivory purchase index (see Slide 12 for full explanation) represents how attractive ivory purchase is to the buyer on a 10-point scale.

The attractiveness of ivory has increased for most respondents, specifically for Regular Overseas Travelers – the only group whose score is consistently increasing compared to 2017 levels. Ban Influenced Citizens are finding ivory consistently less attractive to purchase.

Note: In 2018, we had relatively few respondents of 61 and above in our sample. In 2019, we were able to interview a larger number of this elderly category, similar to 2017 and therefore the specific +61 category for 2018 has to be reviewed with caution.



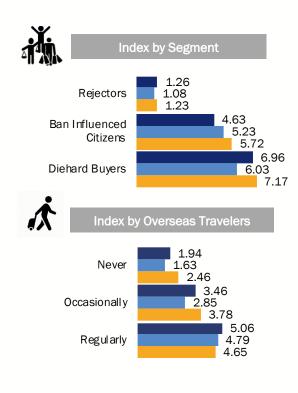


Layer 3

2.61

4.17

1.81





Purchase of Ivory in Past 12 Months

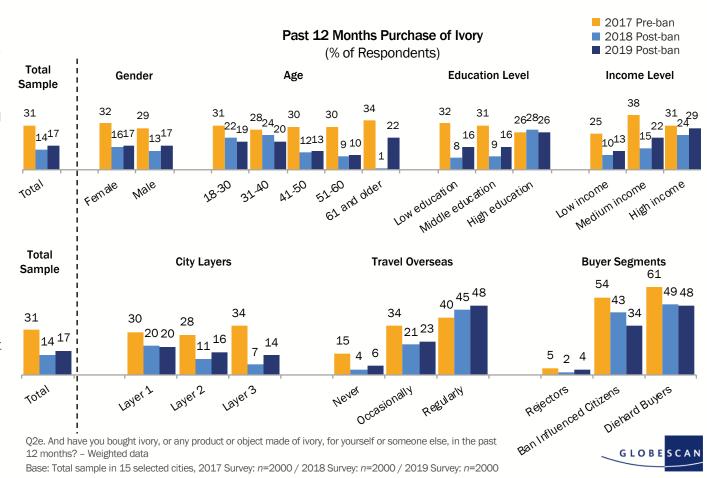
At 17 percent, the self-reported incidence rate of ivory purchase in the past 12 months (P12M) remains significantly lower than 2017 but is fluctuating.

An increase in reported incidence is reflected in most groups of consumers, but is driven by a large increase in incidence among respondents over the age of 61, from a reported very low numbers in 2018; for this elderly group, the numbers have 'normalized'.

There have been increases in the incidence rates in Layer 2 and 3 cities.

Millennials have dropped in their ivory purchasing habits and no longer stand out as a significantly higher age bracket than expected, though for these younger people, it is still quite a high number.

Overseas Travelers continue to increase in their ivory purchase habits, with Regular Overseas Travelers being the only group that has a higher reported rate of purchase than in 2017.



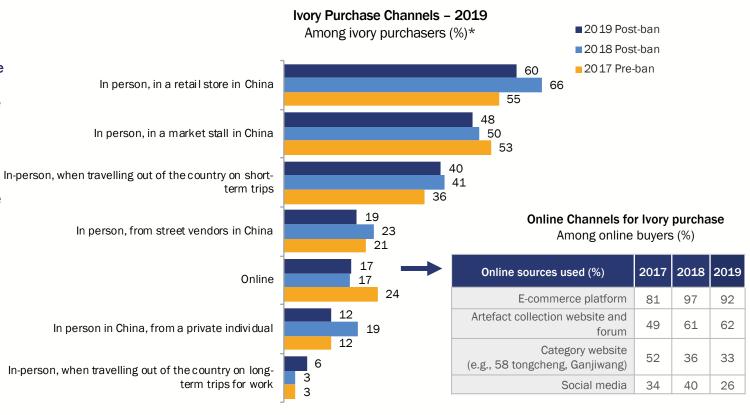
Ivory Purchase Channels

Three-year Comparison

The purchase of ivory in person from vendors in Mainland China has dropped in 2019. The purchase of ivory when traveling out of the country has increased overall since 2018.

The purchase of ivory online remains one of the lesser-utilized channels and sees a drop in people claiming to have bought ivory via social media.

Note: On this question, respondents could select multiple answers, leading to what appears to be a drop in all forms of ivory purchase despite an increase in reported ivory consumption.





^{*} Timeframe of question has changed over time to reflect the desired information to be gathered in each study

Ivory Purchase Channels in 2019 By Key Sub-groups

Retail stores are still the most commonly cited source of ivory purchase for the majority of groups. Regular Overseas Travelers report significantly higher rates of purchase abroad and, compared to non-travelers or occasional travelers, they report significantly lower rates of purchase from the combined other sources (in-person in China or online).

Note: Comparisons on individual city levels are not possible as the sample sizes are too small per city.

Purchase Channels of Ivory – 2019 Survey

Among past 12 months buyers (%)

nall per city.		Total	Layer 1	Layer 2	Layer 3	Regular Overseas Travelers	Rejectors	Ban Influenced Citizens	Diehard Buyers
		n=338	n=182	n=74	n=83	n=115	n=51	n=150	n=138
	In person, in a retail store in China (e.g., jewelry section in a mall)	60	61	51	63	51	42▼	62	63
	In person, in a market stall in China	48	48	42	55	50	55	45	50
	In-person, when traveling out of the country on short-term trips	40	39	42	41	58▲	37	37	45
	In person, from street vendors in China	19	19	20	18	18	37	13▼	18
	Online	17	17	18	17	15	8	17	21
	In person in China, from a private individual	12	11	18	9	14	13	7▼	17▲
	In-person, when traveling out of the country on long-term trips for work	6	5	9	5	10	0	5	9

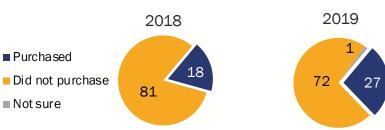


Ivory Purchase Outside Mainland China

Of those who travel outside of Mainland China at least once a year, 27 percent say they have purchased ivory abroad at some point in their lives, increasing from 18 percent in 2018.

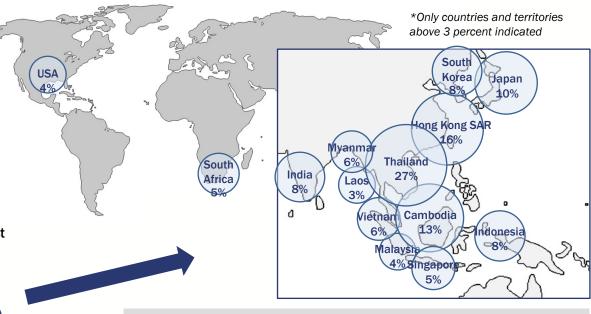
The most popular destinations that respondents say they have **ever purchased ivory** are Thailand, Hong Kong SAR, and Cambodia. Given that Cambodia receives only 11.5 percent as many travelers from Mainland China as Thailand, and only 2.5 percent as many travelers as Hong Kong SAR, the proportion of travelers buying ivory in Cambodia is relatively much higher than in any other destination.

% Who Bought Products Made from Ivory on Trips Outside Mainland China Ever in the Past



Countries and Territories* where Products Made from Ivory Were Bought on Trips Outside Mainland China

(% Among those who bought ivory outside Mainland China)



Note: The prominence of some destinations over others may reflect the popularity of these areas as holiday destinations. The format of travel question was refined between 2018 and 2019 and results are therefore not directly comparable.

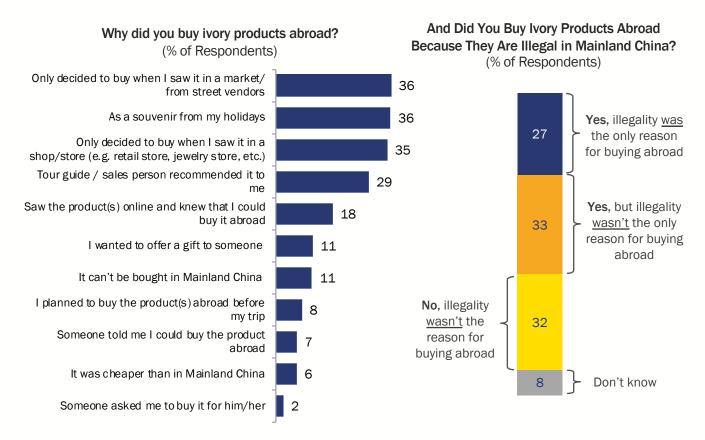


Reasons for Purchasing Ivory Outside Mainland China

Ivory buyers who purchased ivory outside of Mainland China ever in their lives tended to do so without having planned it prior to their trip; the majority of overseas ivory purchasers only decided to purchase ivory while abroad and many of these were prompted by a tour guide.

Of those who bought ivory as a souvenir, only 1 in 10 planned this in advance but 27 percent reported that illegality in China was the only reason they bought abroad.

Over 50 percent of respondents bought ivory abroad at least partly because it is illegal to purchase in Mainland China. Less than one-third of people bought ivory abroad exclusively for reasons other than its illegality in Mainland China.



Q43 [2019 new question]. Why did you buy ivory products abroad? (Respondents were presented with a list of options); Q44 [2019 new question]. And did you buy these ivory products abroad because they are illegal in Mainland China? - Weighted data



Bringing Ivory Products Back to China

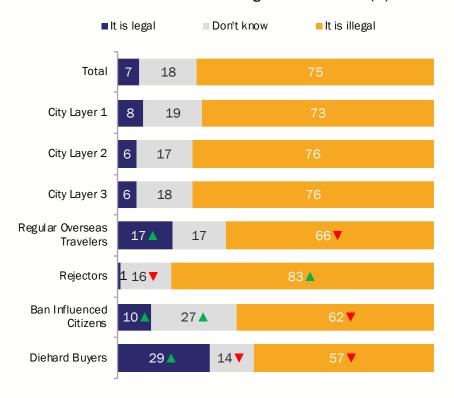
Do You Know Whether Taking Ivory Products Back to China Is Legal or Not? – 2019 (%)

A majority of respondents in all sub-groups are aware that it is illegal to transport ivory internationally, with three-quarters of total respondents correctly saying that it is illegal to transport ivory across borders.

Regular Overseas Travelers, Ban Influenced Citizens, and especially Diehard Buyers are comparatively not well-informed about the legality of bringing ivory back into China, with a lower-than-average number of responses indicating that they think it is illegal.

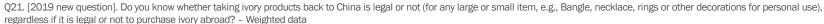
Rejectors have the highest percentage of people that correctly identify the illegality of taking ivory into China, with very few believing that it is legal.

Diehard Buyers are four times more likely than the national average to claim that it is legal to bring ivory back into China.





GLOBES



Identification of Real Ivory

Based on Ivory Ever Buyers

Real ivory was correctly identified more frequently than substitutes, but overall, real ivory (elephant or mammoth) was correctly identified less than 50 percent of the time.

Distinguishing elephant ivory from other ivory products (particularly mammoth ivory) requires a detailed knowledge of the product. Even plastics can resemble ivory to an untrained eye, especially for small pieces. Despite this, 40 percent of people believe they can distinguish fake ivory from real ivory, and 30 percent believe they can distinguish elephant ivory from that of other types of animals.

Only ~8.5 percent of respondents correctly identified all photos. This rate was ~10% among respondents who claim they could distinguish real ivory from fake ivory or from plastics.

Top Three Opinions on Fake Ivory on the Market (% among Ivory Ever Buyers)



I am not always sure whether the ivory on display is real or not.

46%



I can distinguish elephant ivory from fake ivory (made from plastics).

39%

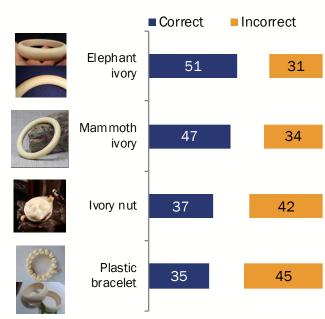


I can distinguish elephant ivory from ivory from other animals, like hippo or walrus.

30%

Can You Tell if the Object Is Made of Real Ivory or Not?

(% among Ivory Ever Buyers)



Note: On this question, both elephant and mammoth ivory are considered "real ivory," as the question did not specify ivory from a particular species.



Alternatives to Ivory

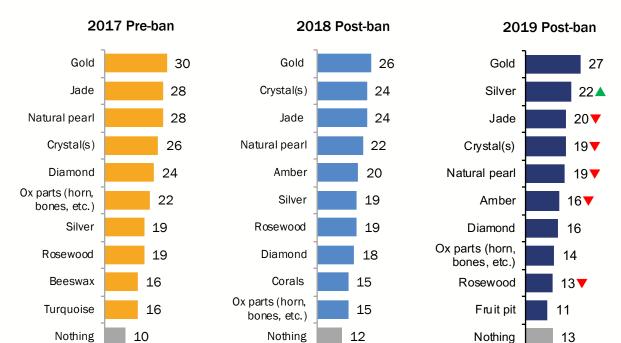
The differences in opinions surrounding the suitability of other materials as alternatives to ivory are not very pronounced.

Gold remains the most-chosen substitute for ivory, while preference for natural pearl and jade is steadily dropping.

Although mammoth ivory is legal to purchase and is the most physically similar material to elephant ivory, it does not feature as a suitable alternative according to respondents. This is mainly driven by Rejectors, who do not indicate that they consider it to be a suitable alternative.

Diehard Buyers tend to consider animal products to be more suitable substitutes compared with other segments.

Alternatives to Ivory (Top 10) (% of respondents)





Q8. Now please imagine that elephant ivory is no longer available for purchase, what do you think would be the next best thing to replace elephant ivory? – Weighted data Base: Total sample: n=2000

Intention to Purchase Ivory Ever in the Future

Asked before Mentioning the Ivory Ban, with 2017–2019 Comparison

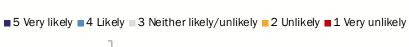
At 27 percent, intention to purchase ivory in the future has remained relatively stable since 2018.

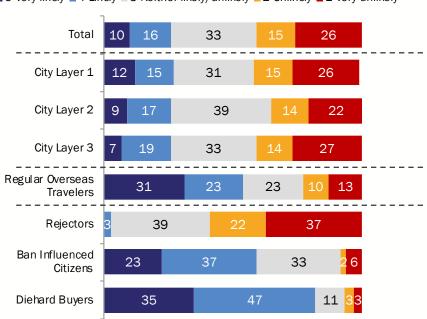
Intention to purchase ivory in the future (before the ban is mentioned) is driven primarily by Regular Overseas Travelers, Ban Influenced Citizens and Diehard Buyers.

Males reported themselves as being less likely to purchase at higher rates than females in 2019 (data not shown).

Ban Influenced Citizens have a lower intention to purchase ivory (before the ban is mentioned) in 2019 than they did in 2018 and 2017.

Intention to Purchase Ivory (before Mentioning the Ivory Ban) – 2019 (%)





"Very likely" + "Likely" to Purchase Ivory before Mentioning the Ivory Ban (%)

2017	2018	2019
43	26	27
39	29	27
40	27	25
49	18	26
49	58	53
4	5	3
82	86	59
81	70	82

Note: Green indicates the lowest point at which a "preferable" result was observed



Scatterplot Analysis Breakdown by Key Sub-groups

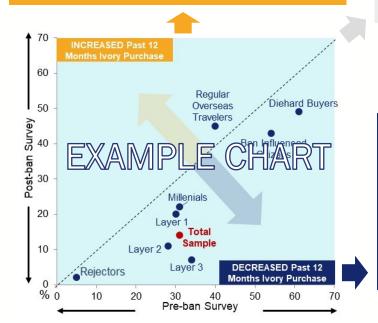
This scatterplot analysis is based on "stated" response: the percentage of respondents who claim to have purchased ivory in the past 12 months for each sub-group (% "Bought in Past 12 Months") and the percentage of respondents who claim they are likely to purchase ivory in the next 12 months.

This analysis provides a picture of the ivory purchase evolution in 2018 vs 2019 as well as 2017 vs 2019.

This chart is useful to identify which sub-groups have been most influenced by the ban (i.e., those furthest below the diagonal axis) and those who are the most persistent and for whom messages or actions are required as a priority (i.e., those who are furthest above the diagonal axis).

Groups close to the line may be experiencing minor fluctuations; groups farther from the line are exhibiting a larger change in their behavior or intentions.

- Sub-groups located significantly above the diagonal axis have increased their purchases or intend to purchase ivory in the stated time period.
- These groups may require further initiatives to alter their ivory purchases or intent.



The diagonal axis indicates the same % as the previous measured year (2018 or 2017). The closer sub-groups are to this diagonal, the less their purchase or intent to purchase has changed.

- Sub-groups located significantly below the diagonal axis have decreased their purchases or intent to purchase ivory in the stated time period.
- This may indicate the effect of the ban or behavior change initiatives.



Past and Future Purchase – Trends for Key Sub-groups, 2018 vs 2019

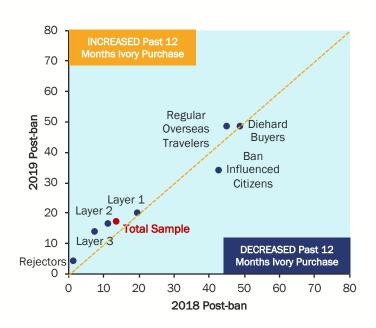
Diehard Buyers intend to purchase more ivory, while Ban Influenced Citizens are purchasing less ivory, with less intention to purchase in the next 12 months.

The largest decrease in past purchase and future intention to purchase ivory was among Ban Influenced Citizens.

Regular Overseas Travelers have a similar level of intention to purchase compared with 2018, with slightly elevated past purchase rates.

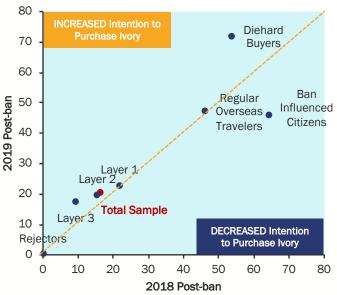
Diehard Buyers did not increase their purchase of ivory, but this group saw a large increase in their intention to purchase.

Past 12 Months Purchase of Ivory (% of respondents)



INTENTION to Purchase Ivory in the Next 12 Months (before prompting of the ban)

(% of respondents)





Past and Future Purchase – Trends for Key Sub-groups, 2017 vs 2019

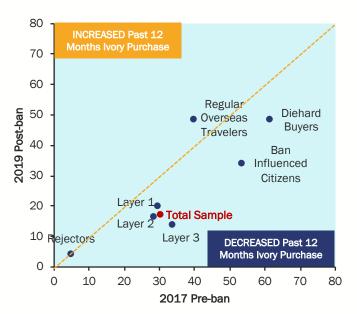
Although there was an increase of ivory purchase between 2018 and 2019 (previous slide), the overall rate of ivory purchase and intention to purchase from 2017 to 2019 is lower.

Regular Overseas Travelers are the only group purchasing more ivory than they did in 2017, with Diehard Buyers and Regular Travelers the only groups intending to purchase more ivory in the next 12 months.

Diehard Buyers decreased in their intention to purchase ivory between 2017 and 2018 (previous report), but have increased to higher-than-2017 levels in 2019.

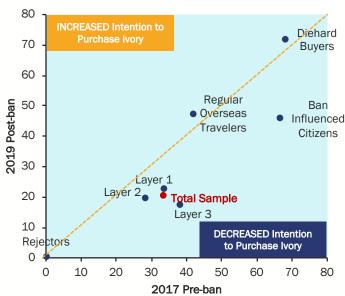
Ban Influenced Citizens have exhibited the largest decrease in past purchase and future intention to purchase.

Past 12 Months Purchase of Ivory (% of respondents)



INTENTION to Purchase Ivory in the Next 12 Months (before prompting of the ban)

(% of respondents)



Note: Intention to purchase ivory in the future is separate to the Ivory Purchase Index, which combines a number of factors to reflect a group's overall ivory purchase persistence. Although Diehard Buyer's intention to purchase ivory has risen since 2017, their Ivory Purchase Index has dropped.





3.3 Drivers and Deterrents of Ivory Purchase









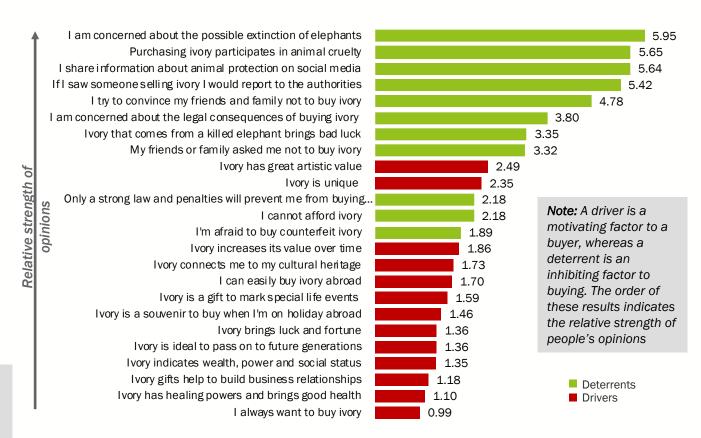
Attitudes toward Ivory Purchase

Although the statements of drivers and deterrents tested in 2017 were slightly different, extinction and animal cruelty remain the major deterrents and the perceived artistic value and uniqueness of ivory remain the most strongly held drivers.

In this analysis, concern about the extinction of elephants is found to be the strongest influencer of the general population's opinions on ivory purchase (here, it deters ivory purchase), followed by animal cruelty and the legal consequences of purchasing ivory. The desire to share information on illegal ivory purchase with family, friends, and the authorities are also strongly-held beliefs.

Beliefs surrounding the drivers of ivory purchase tend not to be as strong as deterrents.

Note: By this point in the survey, the purpose of the survey will be clear to respondents and they may bias their answers towards conservation concerns. Questions were prioritized with this in mind. Results obtained from this questions are compared to results obtained from a similar point in the survey in 2017. They should therefore be comparable.



Q9 [2019 new question; similar question asked in 2017]. Now we will focus on ivory and its purchase. On the following screens we will provide you lists of various statements. For each screen please select the statement which describes your opinion the most, and the statement which describes your opinion the least. – Weighted data. Results are scaled out of 10. Base:Total sample. n=2000 in 15 selected cities



Drivers and Deterrents of Ivory Purchase – by Key Segments

The factors most influencing Diehard Buyers' ivory purchase attitudes include ivory's perceived uniqueness and artistic merit, but these beliefs are not as strongly held as those of the Rejectors that ivory should not be sold.

Regular Overseas Travelers, Ban Influenced Citizens, and Diehard Buyers are not concerned about ivory being too expensive to purchase.

All groups score low on the statement that they "always" want to buy ivory and do not believe that ivory has healing powers, though Diehard Buyers rate this around as being three times more important than Rejectors. Building business relationships with ivory has dropped in importance since 2017.

For more detailed, see appendices all mean scores of sub-groups on Slide 100.

Note: The most strongly held beliefs and the least strongly held beliefs of the total population are reflected with relative uniformity by each of the city layers and are not shown here.

Beliefs About Ivory (Top 3 and Bottom 3 Most Strongly Held Beliefs)

	Total	Regular Overseas Travelers	Rejectors	Ban Influenced Citizens	Diehard Buyers
Top 3 opinions Bottom 3 opinions	n=2000	n=239	n=1274	n=441	n=285
I am concerned about the possible extinction of elephants	6.0	4.4	7.2	4.2	2.9
Purchasing ivory participates in animal cruelty	5.7	4.1	7.0	3.7	2.7
I share information about animal protection on social media	5.6	4.4	6.7	4.1	3.3
If I saw someone selling ivory I would report to the authorities	s 5.4	3.9	6.7	3.4	2.6
lvory has great artistic value	2.5	3.6	1.9	3.6	3.5
lvory is unique	2.4	3.1	1.9	3.2	3.3
I cannot afford ivory	2.2	1.5	2.6	1.5	1.4
I can easily buy ivory abroad	1.7	1.8	1.6	1.9	2.0
lvory gifts help to build business relationships	1.2	1.7	0.8	1.7	2.1
lvory has healing powers and brings good health	1.1	1.6	0.7	1.5	2.1
I always want to buy ivory	1.0	1.5	0.6	1.4	2.0





3.4 Awareness of and Attitudes toward the Ivory Ban









Necessity of Legal Control over the Trade of Ivory

85 percent of people believe that ivory is illegal to purchase in China. Public support of a complete ban on all forms of ivory trade increased across all segments in 2018 and dropped in all segments in 2019, however 2019 levels remain higher than those in 2017.

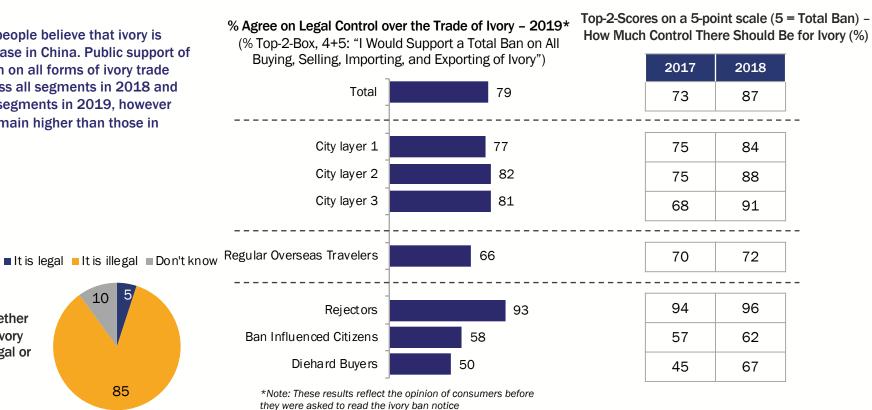
Do You Know Whether **Buying/Trading Ivory**

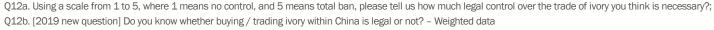
within China Is Legal or

Not?

10

85





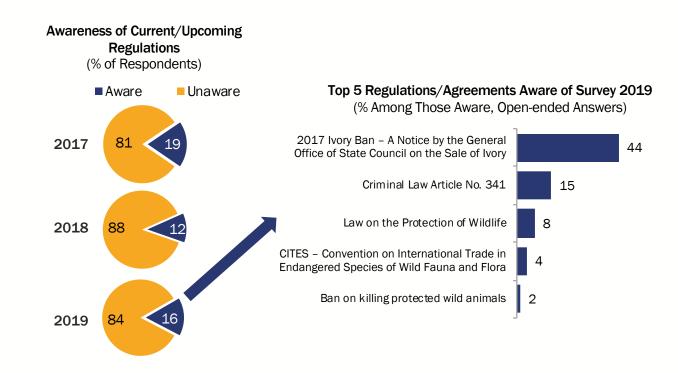


Awareness of Regulations (Spontaneous Answers)

A large majority of respondents believe that ivory is illegal to trade (see previous slide) and a significant number say that they are aware of the agreements and/or regulations controlling this trade.

Nearly 50 percent of respondents who claim to have knowledge of these regulations correctly identify the December 31, 2017 ban on the trade of ivory in China as the most relevant legislation.

15 percent of respondents identify China's general hunting law, Article 341, while the remaining respondents give more vague answers that do not specifically relate to a particular set of regulations or agreements.

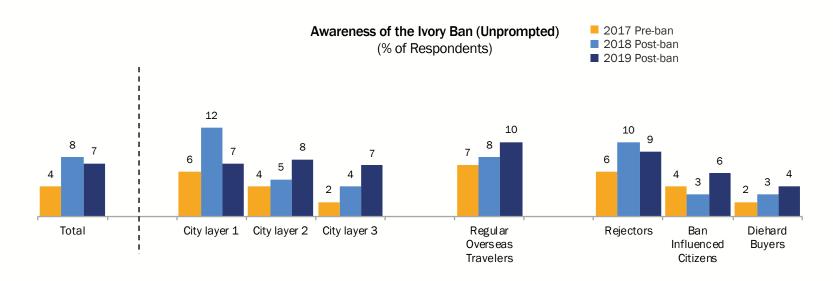




Awareness of the Ivory Ban (Spontaneous)

3-year Comparison

The unprompted awareness of the ivory trade ban in China has decreased slightly since 2018. This decrease is primarily driven by Layer 1 consumers. However, spontaneous mentions of the ban have increased in target groups of Regular Overseas Travelers, Ban Influenced Citizens, and Diehard Buyers.



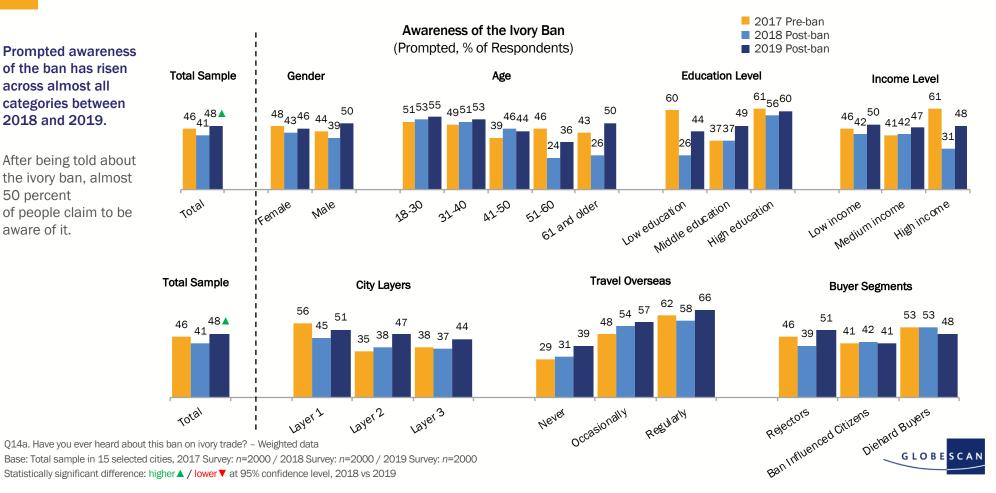


Awareness of the Ivory Ban (Prompted)

Comparative Year Analysis

Prompted awareness of the ban has risen across almost all categories between 2018 and 2019.

After being told about the ivory ban, almost 50 percent of people claim to be aware of it.



Sources of Awareness of the Ban

Post-ban Survey Only

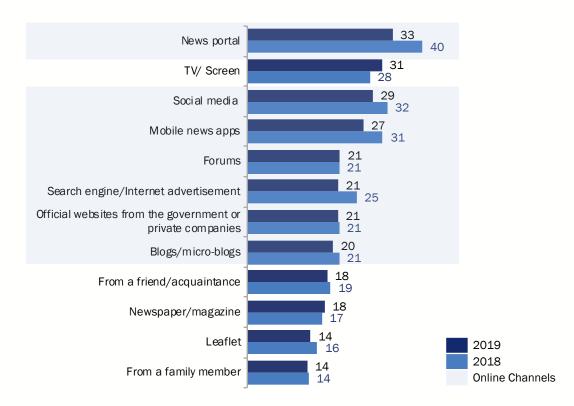
The primary methods through which respondents had heard about the ivory trade ban in China differ little between 2018 and 2019

Respondents primarily receive this information through online sources.

TV/ Screen has increased as a source of information since 2018, while mobile news apps and social media have decreased.

Official websites from NGOs, E-commerce websites, and billboards at transport hubs are not as highly ranked (see next slide).

Top 12 Sources of Awareness (%) – Post-ban Survey (2019): Pre-coded List in Questionnaire





Sources of Awareness of the Ban by Sub-groups

Post-ban Survey Only

Sources of Awareness of the Ban by Key Sub-groups (%) – Post-ban Survey (2019)

Top 3 channels

Regular Overseas Travelers and Diehard Buyers receive more information about the ban from almost every source, especially from online sources.

Physical posters or billboards viewed while traveling rank low among the general population, while Regular Overseas Travelers are more than twice as likely to have seen these messages at travel hubs.

Diehard Buyers receive more information from family members and newspapers than other groups.

	, , , , , ,		,					
Online channels Offline channels	Total	Layer 1	Layer 2	Layer 3	Regular Overseas Travelers	Rejectors	Ban Influenced Citizens	Diehard Buyers
In %	n=966	n=476	n=218	n=271	n=158	n=647	n=181	n=137
News portal	33	31	30	39	37	31	42	32
TV	31	30	25	37	35	32	29	28
Social media	29	29	28	29	41	27	31	33
Mobile news apps	27	28	21	29	35	25	28	30
Forums	21	22	17	23	30	18	27	28
Search engine/Internet advertisement	21	21	22	20	38	18	28	25
Official websites from the government or private companies	21	22	22	18	32	18	25	26
Blogs/Micro-blogs	20	21	18	20	26	18	25	21
From a friend/acquaintance	18	17	20	19	19	18	18	21
Newspaper/magazine	18	18	16	19	19	16	18	26
Leaflet	14	14	14	15	22	14	15	17
From a family member	14	14	12	14	10	13	11	22
Official websites from NGOs	13	14	10	13	28	10	15	23
E-commerce websites	11	12	10	11	17	10	11	17
From colleagues	11	8	10	16	13	10	14	9
Billboards at transportation hubs (in subway, train stations)	11	10	10	12	22	9	12	16
Billboards in the airport	9	10	9	9	19	8	9	14

Q14b. You said that you heard about the ban on ivory trade. Where did you hear about this ban? – Weighted data Base: Aware of the ban, n=966

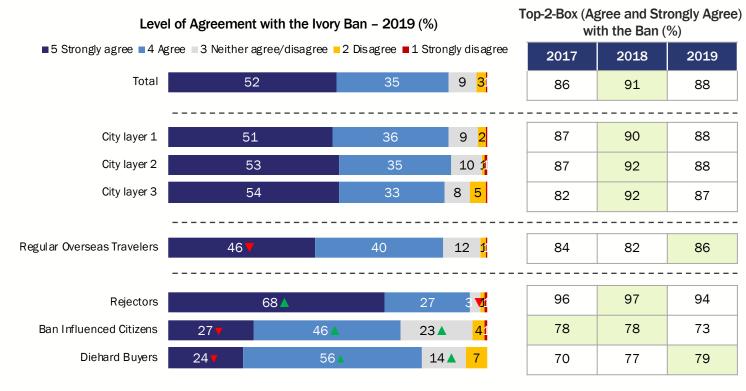


Level of Agreement and Support for the Ban

After peaking in 2018, the level of support for the ban has remained high but has returned to similar levels as in 2017.

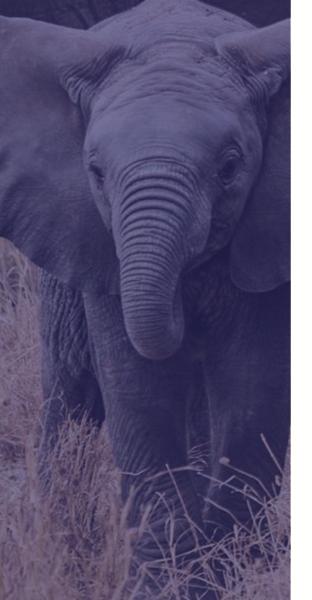
Stated agreement for the ivory trade ban remains high, even among Regular Overseas
Travelers and Diehard Buyers – two groups with elevated rates of ivory purchase and intention to purchase.

Disagreement with the ban remains highest for the Diehard Buyers, while uncertainty is highest among Ban Influenced Citizens.



Note: Green indicates the highest point at which a "preferable" result was observed





3.5 The Effect of the Ban on Ivory Purchase Behavior









Impact of the Ban

Asked after Reading the Notice of the Ban

Respondents' perceptions of the ivory ban as leading to ivory purchase via other channels has halved in 2019, in a continuing downward trend.

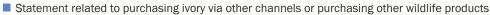
Respondents' perceptions of the ban on ivory trade has remained comparable to their perceptions in 2018.

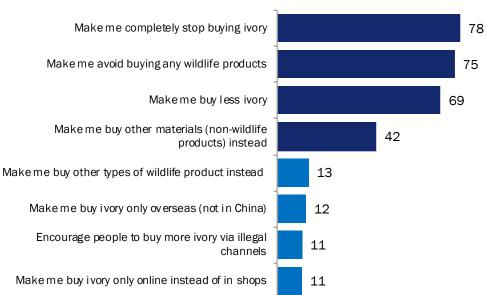
Low-income respondents and those with a low level of education who do not travel outside China report that the ban would make them avoid buying all wildlife products, and would stop them from buying ivory, even overseas; they do not believe that illegal trade will increase due to the ban (data not shown).

The small minority of respondents who believe the ban would not stop them from buying ivory completely, but instead would make them buy other types of wildlife and/or make them buy ivory overseas tended to be regular overseas travelers (data not shown).

Impact of the Ban – % Top-3-Box (7 "Strongly agree" + 5+6) (% of Respondents)

■ Statement related to stopping or decreasing the purchase of ivory





Top-3-Box by Year (%)

2017	2018
74	83
71	74
68	61
57	63
34	31
36	24
33	23
33	22





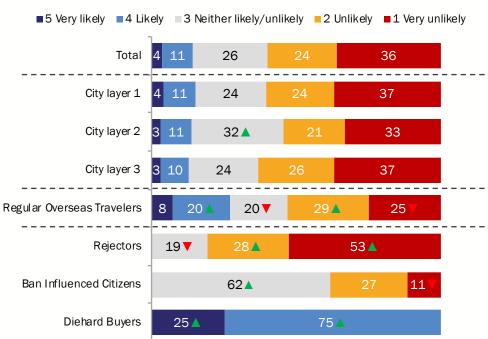
Intention to Purchase Ivory after Mentioning the Ivory Ban

Top-2-Box Comparison of Past Three Years

Respondents' intention to purchase ivory after having been prompted about the ban has declined since 2017 and has remained steady since 2018.

Despite respondents being aware of the illegality of purchasing ivory, 14 percent still intend to buy it at some point. This is driven by Regular Overseas Travelers and Diehard Buyers.

Ban Influenced Citizens show the highest rates of uncertainty about their future purchase of ivory. Intention to Purchase Ivory (After Mentioning the Ivory Ban) – 2019 (%)



"Very likely" + "Likely" to Purchase Ivory <u>after</u> Mentioning the Ivory Ban - Three-year Comparison (%)

2017	2018	2019			
18	14	14			
18	14	15			
15	19	14			
20	10	13			
25	37	27			
As per segments definition, there are no Rejectors and no Ban Influenced Citizens likely to purchase in the future. Please refer to Slide 97 for more details.					
98	100	100			

Note: Green indicates the lowest point at which a "preferable" result was observed



Future Intention to Purchase Ivory

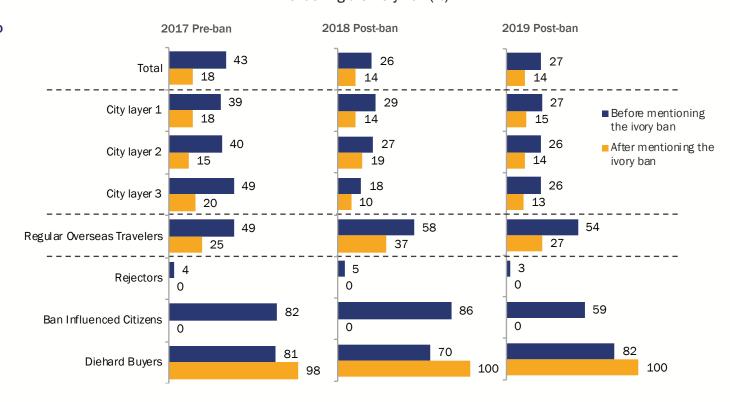
Before and After Mentioning the Ivory Ban Comparison

"Very likely" + "Likely" to Purchase Ivory <u>Before</u> and <u>After</u> Mentioning the Ivory Ban (%)

Half as many people say they intend to purchase ivory after hearing about the ivory ban compared to before the ban was mentioned.

Knowledge of the ban has the effect of deterring people from purchasing ivory in the future across all sub-groups except for Diehard Buyers. The lower rates of intention to purchase ivory after hearing about the ban is reflective of the rates in 2017 and 2018

As intention to purchase after hearing about the ban is a factor used to create the segments, an increase in the number of Diehard Buyers intending to purchase ivory is not significant.





Reasons Not to Purchase Ivory in the Future

Before and After Mentioning the Ivory Ban Comparison

The illegality of ivory purchase is the most significant reason why respondents do not intend to purchase ivory in the future after they had been prompted about the ban.

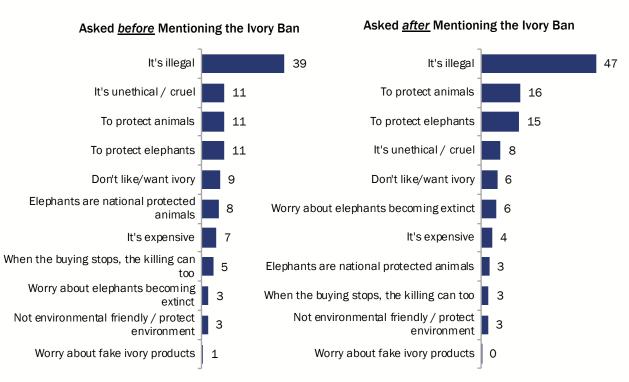
Respondents who indicate that they are unlikely to purchase ivory in the future were asked to provide a reason. This question was open-ended and was asked before and after respondents were prompted about the ivory trade ban.

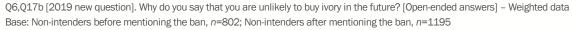
Among consumers who say they are unlikely to buy ivory in the future, the illegality of purchase is three times more influential than other factors in deterring future ivory purchase.

Among the other reasons given by respondents for not purchasing ivory in the future, most are related to environmental aspects such as extinction or animal protection/welfare. Other reasons for not purchasing ivory are related to the ivory itself, i.e., that respondents do not like ivory or cannot afford it.

Self-reported Reasons Why Unlikely to Buy Ivory in the Future (%)

(Open-ended Answers)







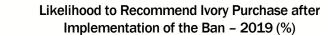
Likelihood to Recommend Ivory Purchase

Asked after Mentioning the Ivory Ban - with Year Comparison

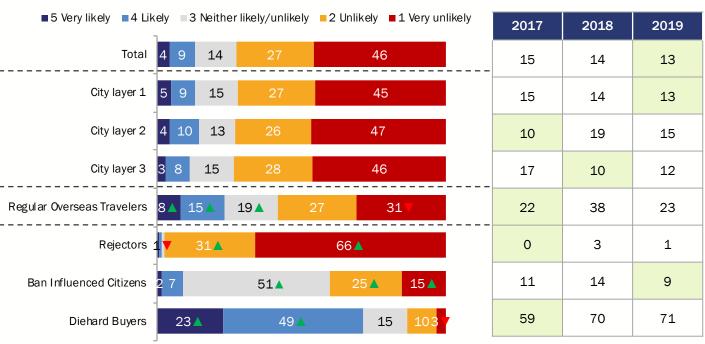
Respondents across almost all sub-groups are less likely to recommend ivory purchase than they were in 2018.

Rejectors are the least likely to recommend ivory purchase, while Diehard Buyers are the most likely to recommend it and Ban Influenced Citizens are the most uncertain.

All sub-groups except for the Ban Influenced Citizens are less likely to recommend purchasing ivory than they are to purchase ivory themselves in the future (Compared with Slide 52)



"Very likely" + "Likely" to Recommend Ivory Purchase after Implementation of the Ban – Three-year comparison (%)



Note: Green indicates the lowest point at which a "preferable" result was observed



Intention to Purchase Ivory – Regulated vs Unregulated

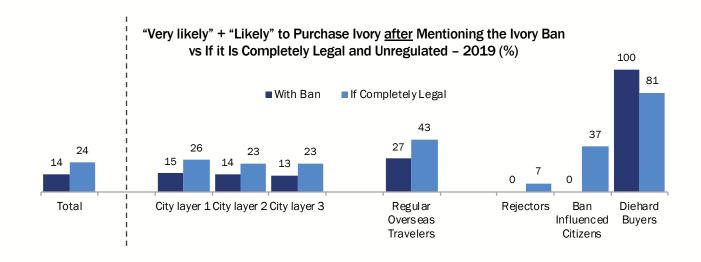
If ivory became legal to purchase, more respondents would be likely to buy it, but those who are currently unlikely to buy ivory would remain unlikely to buy it.

The number of respondents who say they would purchase ivory in the future if it was legal has increased compared to their intention to purchase while aware of the ban.

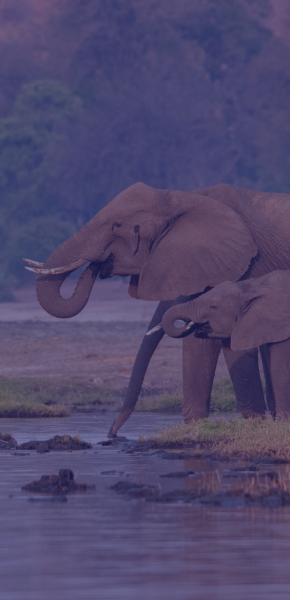
Ban Influenced Citizens and Regular Overseas Travelers have the largest increase in intention to purchase if ivory became legal.

Although the number of respondents who are likely to purchase ivory if it was legal has increased, the number who say they are unlikely to purchase if it was legal has remained stable on average.

The increase in the number of respondents who say they would buy ivory if it was legal is therefore coming from those who are unsure under the ban.







3.6 Campaign Recall, Recognition, and Effectiveness









Awareness of Any Ivory Campaigns (Spontaneous)

22 percent of respondents say they are aware of campaigns or advertisements against ivory trade and/or about elephant protection.

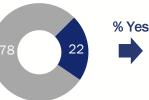
Regular Overseas Travelers and Rejectors have the highest rates of campaign exposure.

Offline media channels are most spontaneously-frequently mentioned when respondents were asked where they had seen the campaigns.

Open-ended results are similar to those in 2018, with "When the buying stops, the killing can too" and "Yao Ming" were the most frequently-given responses that referred to a specific campaign.

Have You Ever Seen and/or Heard Any Campaigns or Advertisements Against Ivory Trade and/or About Elephant Protection?

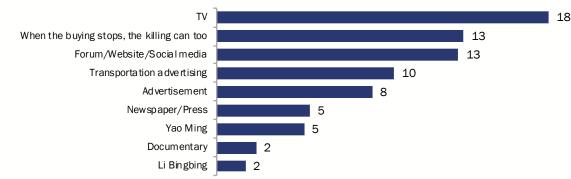
Total Sample





Layer 1	Layer 2	Layer 3	Regular Overseas Travelers	Rejectors	Ban Influenced Citizens	Diehard Buyers
n=927	n=459	n=614	n=239	n=1274	n=441	n=285
24%	18%▼	24%	36%▲	25%▲	16%▼	21%

Campaigns and/or Elements of Campaigns Recalled Spontaneously (% among Those Who Recall Campaigns, *n*=450, (Open-ended Answers)



Q22. Have you ever seen heard any campaigns or advertisements against ivory trade and/or about elephant protection? - Weighted data



Q22. Please describe the campaigns or advertisements that you have seen before, such as what you have seen and where you have seen them [Open-ended answers] – Weighted data Base: Total sample, n=2000 in 15 selected cities / Those who recall campaigns, n=450

Campaign Recognition – Travel Ivory Free Campaign

The Travel Ivory Free Campaign is the most-recognized of the elephant campaigns and has a higher recollection rate than the Yao Ming campaign did in 2018 (compared with 2018 ivory survey).

Online channels are the most popular sources on which the campaign has been seen but a large portion of respondents have also seen the campaign offline.

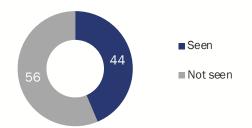
Responses to the campaign are positive, with respondents reporting that they learned something from the campaign, that it will make them share information about animal conservation, and that it will convince others not to purchase ivory.







Recall / Seen - Net Score across 3 Visuals (% of respondents)



Source of Awareness [Top 5 of 9]

(% Aware of Campaign)



Note: Transportation advertising includes airport/subway / bus stop / bus advertising.

Opinion/Behavior Change [Top 3 of 9]

(% Aware of Campaign)

<	Will share information about animal protection	49
	Learned something new with this campaign	47
A	Will convince others not to buy ivory	45

Note: Consumers may have interpreted all screens (other than computer or phone screens) with messages on them as "tv" e.g. digital screens in airports. Respondents are counted as having recognized the campaign if they have seen any of the three visuals.



Q25. Where did you see this campaign? - Weighted data



Campaign Recognition - Huang Xuan Campaign

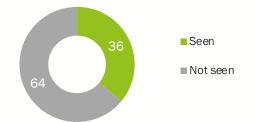
More than one-third of respondents recognize the campaign with Huang Xuan.

More respondents report having seen the Huang Xuan campaign on TV/ Screen compared to the Travel Ivory Free Campaign.

Respondents' have the same opinions and behavior in relation to the Huang Xuan campaign as the Travel Ivory Free Campaign but a higher percentage of people reported them, making them more pronounced.

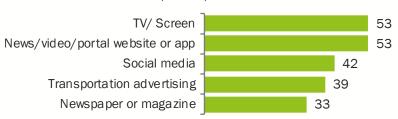


Recall / Seen
(Net Score across 3 Visuals) (n=2000)



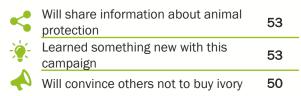
Source of Awareness [Top 5 of 9]

(n=713)



Note: Transportation advertising includes airport/subway / bus stop / bus advertising.

Opinion/Behavior Change [Top 3 of 9] (n=713)



Note: Consumers may have interpreted all screens (other than computer or phone screens) with messages on them as "tv" e.g. digital screens in airports. Respondents are counted as having recognized the campaign if they have seen any of the three visuals.



Q29. Where did you see this campaign? - Weighted data



Campaign Recognition – Xiao S Campaign

Nearly four in ten people have seen the Xiao S campaign.

The sources of awareness and opinions about the Xiao S campaign are similar to those of the other two campaigns.

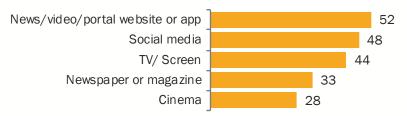
More people report having seen this campaign in the cinema compared to the other two campaigns.

More people also report that this campaign convinced them to not buy ivory than the other campaigns.

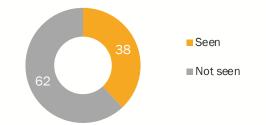


Source of Awareness [Top-5 of 9]

(% Aware of Campaign)

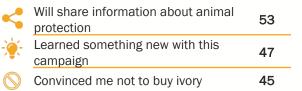


Recall / Seen - Net Score across 2 Visuals (% of respondents)



Opinion/Behavior Change [Top-3 of 9]

(% Aware of Campaign)



Note: Consumers may have interpreted all screens (other than computer or phone screens) with messages on them as "tv" e.g. digital screens in airports. Respondents are counted as having recognized the campaign if they have seen any of the three visuals.

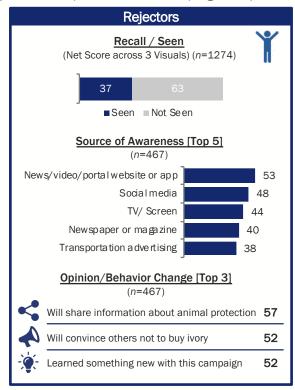


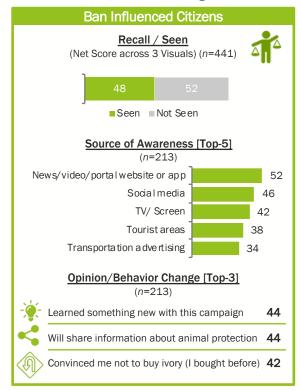
Q33. Where did you see this campaign? - Weighted data

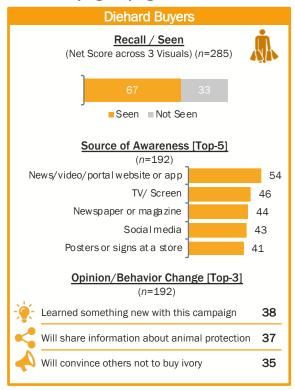


Campaign Recognition – Travel Ivory Free Campaign by Segment

Diehard Buyers have the highest rate of campaign recollection of the three segments. Their recognition of the Travel Ivory Free Campaign is almost twice as high as for Rejectors. Responses to the campaign are positive, with Ban Influenced Citizens stating that it would stop them from buying ivory again in the future.



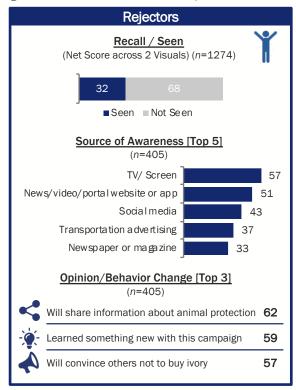


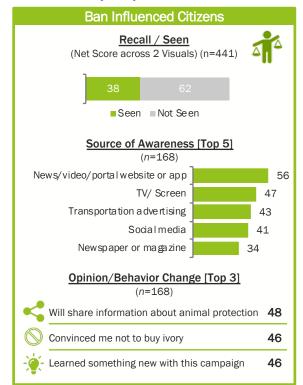


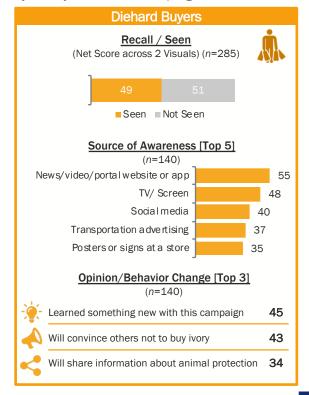


Campaign Recognition - Huang Xuan Campaign by Segment

The Huang Xuan campaign has a lower recall rate than the other campaigns across all three segments, however almost half of Diehard Buyers have seen this campaign. Ban Influenced Citizens report that it convinced them not to buy ivory but are not as convinced as they are by the Xiao S campaign.



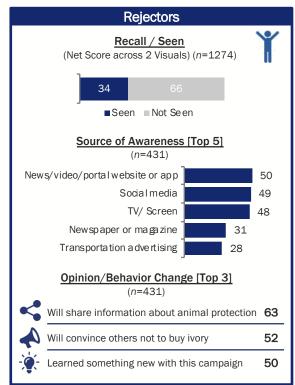


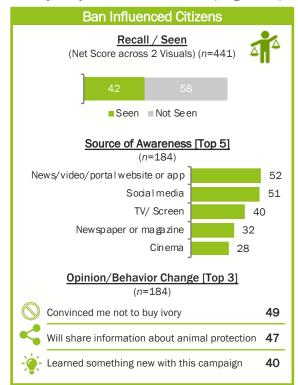


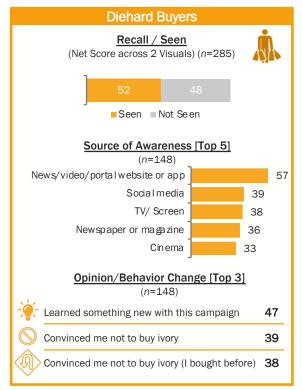


Campaign Recognition – Xiao S Campaign by Segment

Half of all Diehard Buyers recognize this campaign. It was most viewed online, with the cinema also playing a more prominent role than other campaigns. Diehard Buyers and Ban Influenced Citizens are more convinced not to buy ivory because of this campaign compared to the other two.









Q33. Where did you see this campaign? - Weighted data

Campaign Recognition – Regular Overseas Travelers

Regular overseas travelers recognized campaigns at similarly-high rates as Diehard Buyers. This may reflect their higher propensity to remember these campaigns because: the regular overseas travelers feel that the campaigns are relevant to them; they are more likely to have seen the campaigns; or they encounter the campaigns with a higher frequency, making them more memorable.

As with the general population, the Travel Ivory Free Campaign has the highest rate of recollection among regular overseas travelers.



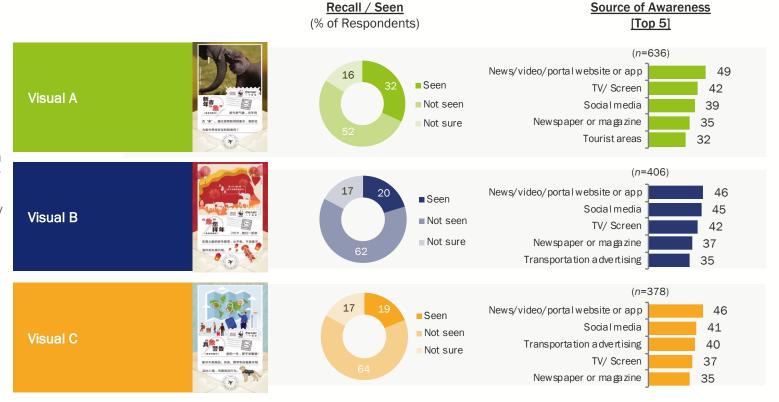


Campaign Recognition – Travel Ivory Free Campaign by Visual

Among the three different visuals tested for the Travel Ivory Free Campaign, Visual A is the most impactful.

Overall, respondents recall seeing this campaign mostly via news/ video/ portal websites or apps, social media, and TV/ Screen with relative consistency for the three visuals.

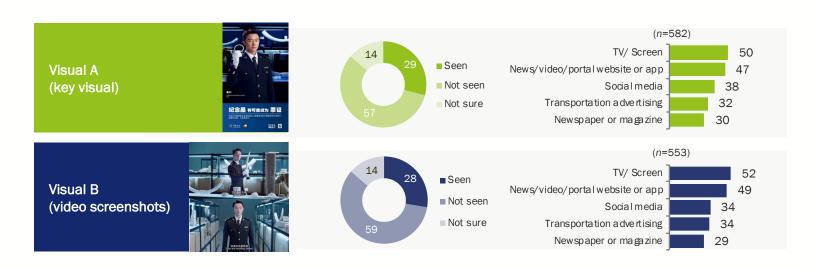
Visual C was seen more on transportation advertising, while visual A was seen more in tourist areas.





Campaign Recognition – Huang Xuan Campaign by Visual

There are no significant differences between the sources of recollection for Visual A or B in the Huang Xuan campaign.



Recall / Seen
(% of Respondents)

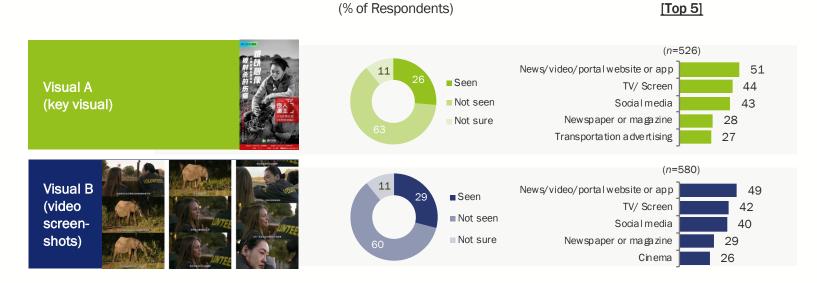


Source of Awareness

[Top 5]

Campaign Recognition – Xiao S Campaign by Visual

Visual B has been seen slightly more than visual A in the Xiao S campaign and was seen more frequently in the cinema.



Recall / Seen



Source of Awareness

Impressive Elements of Campaigns – Travel Ivory Free Campaign

In the Travel Ivory Free Campaign, the elephant family is reported as the element that "impressed" respondents the most, followed by the "no ivory gifting" message.

Ban Influenced Citizens and Diehard Buyers are more impressed than other subgroups by the Chinese New Year elements of the campaign.

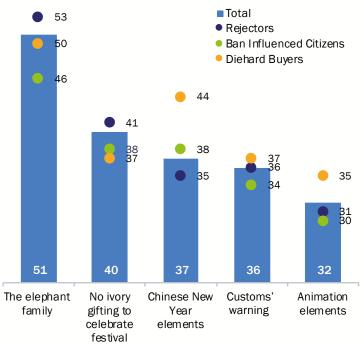
Diehard buyers are more impressed than other sub-groups by the customs' warning, though Ban Influenced Citizens do not find this impressive.

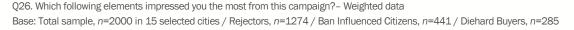






Most Impressive Elements in Travel Ivory Free Campaign (% of Respondents)







Impressive Elements of Campaigns – Campaign with Huang Xuan

In the campaign with Huang Xuan, respondents are impressed with many of the campaign elements, with Diehard Buyers more impressed than others by the celebrity.

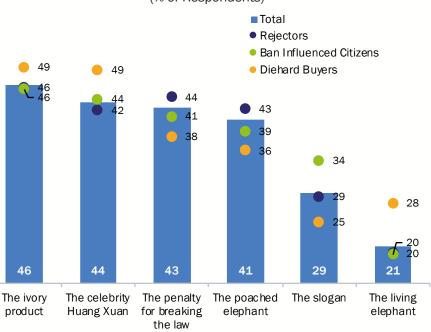
The ivory product is the most impressive element in this campaign, but **there is not** a lot of difference between the top four elements.

Ban Influenced Citizens are more impressed by the slogan, while Diehard Buyers find the living elephant to be more impressive than other sub-groups.





Most Impressive Elements in Campaign with Huang Xuan (% of Respondents)





Impressive Elements of Campaigns - Campaign with Xiao S

In the Xiao S campaign, opinions are more polarized than in the other campaigns.

Of the top three responses, Ban Influenced Citizens and Diehard Buyers have opposing views. Ban Influenced Citizens are more impressed by the poached elephant, but less so by the living elephant. Diehard Buyers have the opposite opinion and are most impressed by the living elephant.

Respondents report that they are impressed by the celebrity at a similar level to the Huang Xuan campaign.

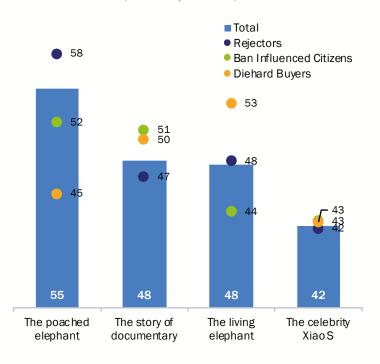


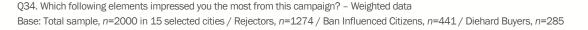






Most Impressive Elements in Campaign with Xiao S (% of Respondents)







Main Findings and Conclusions - Campaign Recall

The recognition of campaigns by Regular Overseas Travelers and Diehard Buyers indicate that these three campaigns are being targeted at the segments of society that are considered high-priority. The campaigns are received positively, even among the most persistent buyers of ivory and have a high self-reported ability to induce real-world behavior change in respondents, with a stated increase in sharing of animal protection messages and a lowering of ivory purchasing habits.

Spontaneous campaign awareness has risen significantly since 2018 (16% vs 22%). As with 2018, Regular Overseas Travelers (an important target group for campaigns) exhibit the highest rate of unprompted knowledge about campaigns.

Once prompted with the visuals of the campaigns, recognition rises to around 40 percent for each of the campaigns. The Travel Ivory Free Campaign is reportedly the most seen and the most memorable of the three campaigns tested.

The most common channels where the campaigns have been seen are broadly similar for the three campaigns, lead by news/video/portal websites or apps. TV/ Screen still plays a prominent role, as does print

media, but the campaigns are mostly recognized from online sources.

Respondents react positively to all of the campaigns, with the strongest positive reactions being reported about the Huang Xuan Campaign.

Diehard Buyers (another important target group for campaigns) have the highest levels of campaign recognition for all three campaigns. They rate all campaigns highly as having taught them something.

Ban Influenced Citizens report that all three campaigns convinced them not to buy ivory and reported that they would be likely to share information about animal protection as a result.

Respondents in Hangzhou were more likely to have seen campaigns relating to elephant conservation and were more likely to report that the campaigns made them stop buying ivory (Compare with Slide 85)





4. Conclusions and Recommendations









Conclusions – Starting Points for Recommendations (1)

Overall, the impacts of the ivory ban on the purchase of ivory have persisted into 2019: past purchase rates of ivory, desire to purchase ivory in the future, public perception of ivory purchase, public perception of the ivory ban, and the drivers and deterrents to ivory purchase have maintained many of the characteristics that were observed in the first post-ban survey in 2018, indicating that the effects of the ban and conservation campaigns are still being felt in 2019. However, there are some indicators that the (latent) demand for ivory is creeping up: Layer 2 and 3 cities have higher purchase rates than last year, several age groups have higher purchase rates and the percentage of consumers 'unlikely to buy' decreased, indicating that some of the immediate effects of the ban may be dissipating.

- After a large reduction in self-reported ivory purchase rates between 2017 and 2018, purchase rates have maintained a level that is significantly lower than 2017, but persist at relatively high levels, especially among specific target groups.
- The rate of Diehard Buyers has remained at a steady level, below the rate of 2017. We identified that a significant proportion of the public have shifted from firm rejectors of ivory back to consumers who feel that the illegality of ivory trade is the primary reason not to purchase it. This is reflected in a greater number of people who report that they are unsure if they will purchase ivory in the future, possibly indicating that they are open to purchasing ivory if given the opportunity.

- Diehard buyers are categorized by their persistent ivory-purchasing habits and opinions and are (naturally) the most difficult to influence.
- Some Ban Influenced citizens, who became Rejectors quickly following the ban have reverted to being primarily influenced by the ban.
- Likely, this shift occurred because, when the ban came into effect, people were very adamant about the fact that they would not purchase ivory in the future, causing them to be classified as firm rejectors. As the effects of the ban faded, these people still did not buy or intend strongly to buy ivory, but cited the ban as the reason for not purchasing, leading them to be classified as Ban Influenced citizens.
- The number of regular overseas travelers buying ivory outside of Mainland China continues to increase, with Thailand, Hong Kong SAR and Cambodia the most frequently-mentioned destinations for ivory purchase. The majority of people know that it is not legal to bring ivory back to China but this percentage is lower than those who know ivory is illegal to purchase within China.
- Overseas travelers show high awareness of the ban, but are also the
 most likely to buy ivory; this could be that they are more likely to
 remember these campaigns, or could reflect the efforts to target this
 group. They may, however be less likely to be influenced by them.

Conclusions – Starting Points for Recommendations (2)

- Deterrents to ivory purchase, such as concerns about elephant
 extinction and animal cruelty are the most strongly-held beliefs among
 the respondents in this survey, except for Diehard Buyers, who reported
 the same deterrents, but are more driven to purchase ivory for its
 artistic value and unique nature.
- A large majority of people believe that buying ivory in China is illegal, but
 do not specifically know about the ban. After having been presented
 with the ban, people's reaction was that it would be effective for
 themselves and others in reducing ivory purchase, and fewer people
 said they intended to purchase ivory in the future.
- Campaign awareness is increasing, and target groups such as Diehard Buyers and regular overseas travelers are the groups with the highest campaign recognition rates. All groups report positively on the campaigns and say that they are effective, though Diehard Buyers remain determined to buy ivory.

The research suggests that the people more intent on breaking the law
are more alert to messages about it, like a smoker/drug user might
notice anti-smoking or drug messages more than a non-user because of
the relevance to them. Whether this is based on an increased
propensity to remember the messages or another reason, we can
conclude that campaigns are being effective in reaching the target
audience if not always persuading the most persistent of them.



Recommendations (1)

RECOMMENDATIONS BY POPULATION SEGMENT

- Ban Influenced Citizens: Focus on the illegality of ivory purchase the number of Ban Influenced Citizens is increasing, having previously become rejectors in 2018 when the ban was recently implemented. The intention to purchase among this group drops dramatically when they are specifically informed of the ban, and this is therefore a good communication strategy to target them. Ban Influenced Citizens have a poor knowledge that bringing ivory into China is illegal.
- Regular overseas travelers: Continue targeting this group Regular overseas travelers are aware of more communications relating to elephant conservation than they were last year. Although these campaigns may be slowing the rate at which this group is increasing in its ivory purchase, regular overseas travelers are still increasing in their purchasing habits abroad and remain a priority for communications. This reinforces the need to work with the travel industry and involve them as much as possible in campaigns.
- Diehard Buyers: Watch in the future Although Diehard Buyers have not increased their purchasing habits, the size of this group has not diminished and they have increased in their intention to purchase ivory in the future. They have the highest rate of misconceptions that ivory is legal to bring into China.

Rejectors: Continue to aim for their participation in ivory campaigns –
Rejectors have the lowest rate of campaign awareness among the three
segments but the highest desire to share conservation materials.
Engaging with this segment will help disseminate the conservation
messages to groups that are more inclined to purchase ivory.

COMMUNICATIONS RECOMMENDATIONS

- Focus Communications on the Ivory Ban In the time period shortly after the ban came into force, respondents were more likely to consider themselves firm rejectors of ivory and more likely to describe themselves as unlikely to buy ivory in the future than they are in 2019. The effect of the ban appears to be lessening and a latent desire for ivory remains. Communications about the ban are reported as effective, even in high-ivory-purchasing groups of regular overseas travelers and Diehard Buyers and should therefore be prioritized.
- Target elephant extinction and cruelty as messages all segments considered these to be three of the main deterrents to purchasing ivory.



Recommendations (2)

- Promote ivory alternatives Diehard Buyers are unlikely to change their
 opinions about the artistic value of ivory but some (a higher rate than
 the general population) are willing to accept that high value goods such
 as diamonds can be alternatives to ivory. Local crafts or unique local
 experiences could also be promoted.
- Spread the message that ivory will not become more valuable This
 idea was relatively-strongly held among all segments. Campaigns should
 highlight the closure of almost all major legal ivory markets and promote
 the fact that the resale of ivory would be illegal. Messages such as
 these will help deter law-abiding citizens who consider ivory an
 investment.
- Continue the message that it's illegal to bring ivory back to China This
 message needs to be reinforced, as do the messages relating to
 successful prosecutions for wildlife crimes.
- Continue to use celebrities in campaigns Consumers, including
 Diehard Buyers, react positively to celebrities and find them memorable.

RECOMMENDATIONS FOR IVORY CHANNELS

- Target Cambodia as a market for Chinese travelers purchasing ivory outside of Mainland China – Ivory is still legal to sell in Hong Kong SAR and Thailand has a well-established (though decreasing) underground market for illegal wildlife. Cambodia, however, is emerging as a market for ivory purchase and has the potential to continue to grow. Conservation and enforcement efforts in Cambodia may therefore yield a greater return than elsewhere.
- Continue to put pressure on online trade Despite the closure of physical ivory shops, the online trade is not being reported as having increased. Collaborations with social media sites appear to be lessening the viability of purchasing ivory from this channel. Because of the potential for online channels to provide illegal goods, however, these efforts must be sustained.
- Tailor campaigns for online sharing and TV/ Screen With the majority
 of information about the ban, about wildlife campaigns, and with many
 respondents saying that they would like to 'share' elephant conservation
 campaign, these two channels should be targeted with messages above
 other forms.





5. Hangzhou Chapter







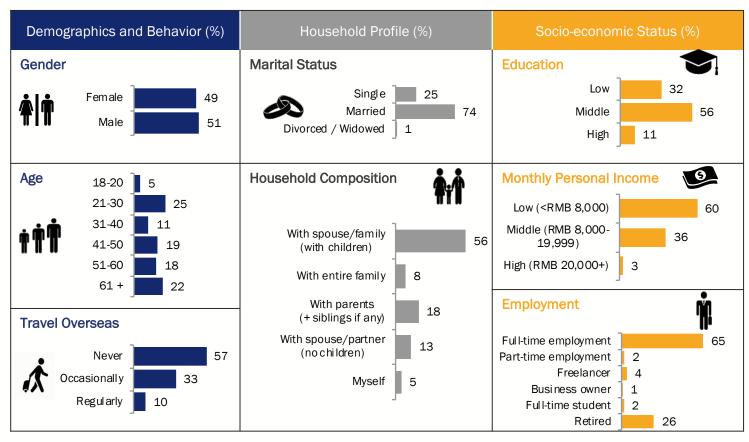


Introduction and Respondents' Profile - Hangzhou

With the reported rise in prominence of Hangzhou as a trade center for ivory, the decision was made to include this city in the 2019 ivory survey. In order to keep the results comparable with previous studies, however, data from Hangzhou were analyzed separately.

To compare Hangzhou with the general population of the 15 chosen cities, a sample of n=200 respondents were interviewed with the same questionnaire as the other n=2000.

The same quotas for age, gender, education and income were used to weight the data to ensure it was representative of the overall profile of respondents.



S2. Age; S3. Gender; S4. Monthly personal income; S5. Education; Q36. Current martial status; Q37. Household composition; Q38. Employment; Q39. Travel behavior - Weighted data Base: Hangzhou, n=200

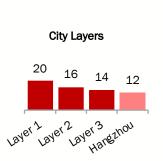


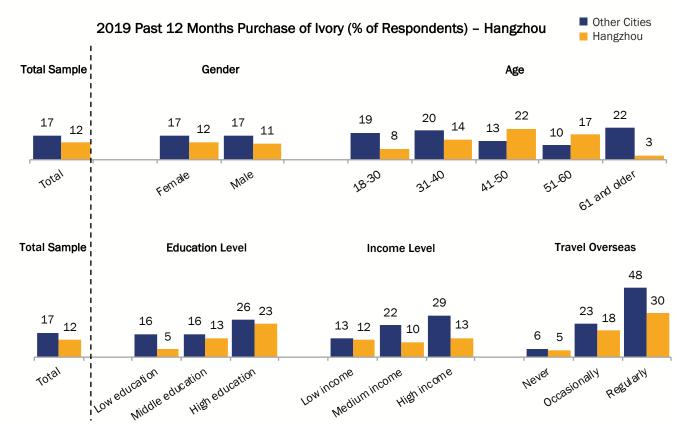
Purchase of Ivory in Past 12 Months - Hangzhou

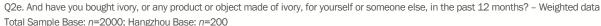
Overall, the purchase rates for ivory in the past 12 months were found to be lower in Hangzhou than the total sample, most closely reflecting the rates in Layer 3 cities.

As with the other cities, demand in Hangzhou is driven by people with high-education, who travel outside of Mainland China regularly.

Income in Hangzhou does not effect the rates of ivory purchase to the same extent that it does elsewhere.









Intention to Purchase Ivory – Hangzhou

Before and after Mentioning of Ivory Ban

Lower rates of ivory purchase in Hangzhou (previous slide) are not reflected in a lower desire to purchase ivory in the future.

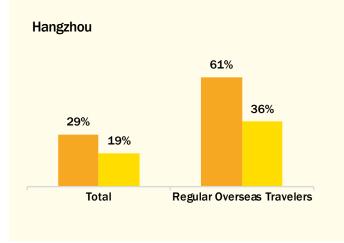
Intention to purchase is higher in Hangzhou than other cities, possibly indicating its emerging status as an ivory trade hub.

This difference is especially pronounced in regular overseas travelers, who are more likely than the same group in other cities to intend to purchase ivory.

"Very likely" + "Likely" to Purchase Ivory - 2019

Before mentioning the ivory ban
After mentioning the ivory ban





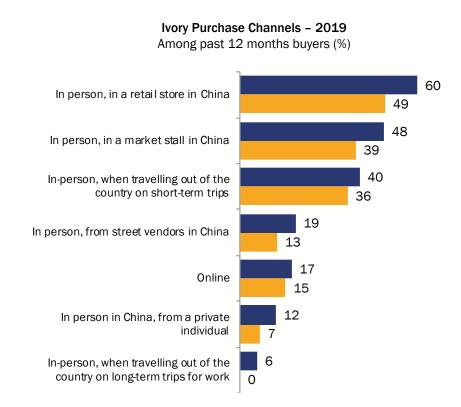


Purchase Channels – Hangzhou

The breakdown of purchase channels for respondents in Hangzhou closely mirrors that of the other cities.

When accounting for the overall lower rates of purchase of ivory in Hangzhou, the online trade is slightly relatively more popular.

No respondents in Hangzhou reported that they bought ivory while on longterm trips for work, only on short-term trips.





Other Cities

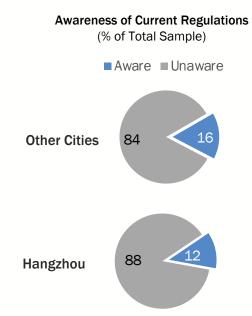
Hangzhou

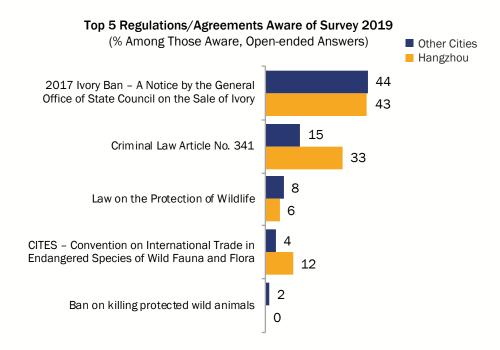
Awareness of Regulations (Spontaneous Answers) – Hangzhou

Respondents in Hangzhou are less-aware of the ban than in other cities.

Of the respondents in Hangzhou who are aware of regulations on the sale of ivory in China, the same proportion of respondents were correctly able to identify the 2017 ivory ban as the relevant legislation.

Twice as many respondents in Hangzhou incorrectly identified Article No. 341 as the legislation that controls ivory – this being an article relating to general wildlife conservation.





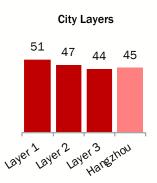


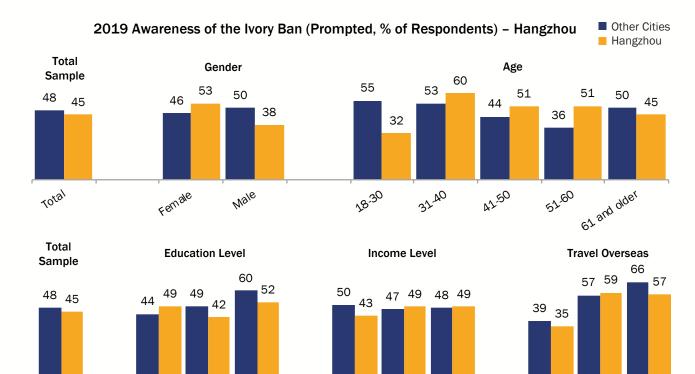
Awareness of the Ivory Ban (Prompted) – Hangzhou

Young people in Hangzhou are less likely than average to recognize the ban when prompted, but overall results remain comparable.

Respondents aged 18 - 30 are less aware of the ban in Hangzhou.

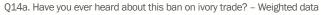
Hangzhou is comparable in its awareness rates across all other categories, and is most similar to Layer 3 cities.





Medium income

Low income





Middle education



Recall of Ivory Campaigns - Hangzhou

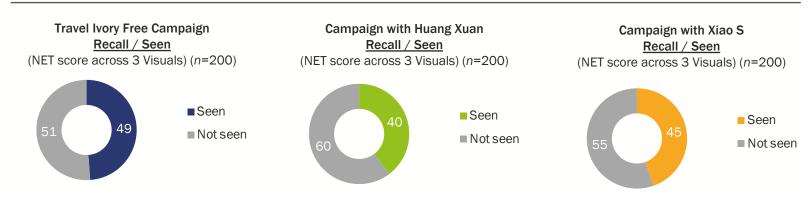
The spontaneous awareness of ivory campaigns in Hangzhou closely mirrors that for the other cities.

Respondents in Hangzhou have a higher recognition of all the three campaigns than other cities. They report that it convinced them not to buy ivory at a higher rate than the other cities.

Have you ever seen and/or heard any campaigns or advertisements against ivory trade and/or about elephant protection?



Recall/Seen Campaign Visuals - Hangzhou





Q22. Please describe the campaigns or advertisements that you have seen before, such as what you have seen and where you have seen them [Open-Ended Answers] – Weighted data Q24/28/32: Which of the following posters/visuals you have seen? – Weighted data



Hangzhou – Conclusions and Recommendations

The ivory purchase habits, beliefs and intentions of respondents in Hangzhou very closely mirror those of the general population, and are most similar to respondents in Layer 3.

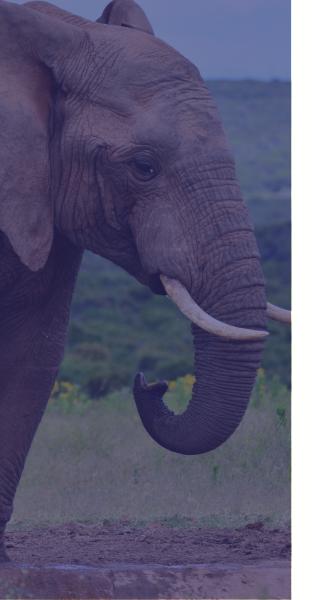
Ivory purchase in lower than the average for the other cities, but the future intention to purchase ivory is higher, indicating that Hangzhou may be emerging in its ivory trade.

Respondents in Hangzhou recognized campaigns better than respondents in other cities, and are more likely to report that the campaigns influenced their desire to purchase ivory than other cities.

As the original 15 cities were chosen to represent ivory trade hotspots in China, it is clear that Hangzhou fits the same profile.

We recommend that in future campaigns, Hangzhou be considered on par with Layer 3 or Layer 2 cities.





6. Appendices









Methodology Overview: Quantitative Research

Sample of Consumers and Other Sub-groups

Among the total representative sample, a specific sample of **Past 12 Months Consumers (P12M)** of ivory was identified for specific analysis. This sample allows the uncovering of the motivations, drivers, and inhibitors of consumers of ivory. "Ever Consumers" were defined as anyone who has bought ivory, even if only once. This includes the option "ivory" as an answer to the instruction: "please indicate if you have ever bought this material or anything made from this material," and those who answered "yes" to "Have you ever bought ivory, or any product or object made of ivory, for yourself or someone else?" P12M consumers were defined as Ever Consumers who said yes to the question "And have you bought ivory, or any product or object made of ivory, for yourself or someone else, in the past 12 months?" Analyses were also conducted among other sub-groups of respondents: for instance, the data were analyzed by gender, age, city, purchase intention, etc.

Nationally Representative Sample

The total sample size achieved was n=2,095 (unweighted), which we weighted toward n=2,000, for ease of comparison with the pre-ban and the 2018 survey, which each had a weighted total of n=2,000. This robust sample size has a margin of error of roughly 2 percent.

To ensure this sample was representative of the population of China, **quotas on gender, age, and income** were set from the start of fieldwork and were monitored regularly during the fieldwork.

Comparison with Other Surveys

This survey is based on a selected sample, with a choice of cities being considered active ivory markets and the key metrics cannot be compared one-on-one with other surveys (except for the Pre-ban 2017 Survey and first Post-ban 2018 Survey).

The 2019 Survey follows the Pre-ban baseline survey conducted in September – October 2017 and the first Post-ban survey conducted in May – July 2018. Relevant comparisons and trends can be observed as the three surveys are based on the same methodology and the same sampling plan.

While the data / key metrics are specific for the 15 cities, the underlying patterns on segmentation, purchase behavior, and communications are relevant for all ivory buyers, and the results can inform demand reduction campaigns throughout China.



Methodology Overview: Sampling and Quotas

Sampling Plan

- The fieldwork was monitored daily and detailed checks of interim data were performed during fieldwork (at 10%, 40%, 55%, and 80% of sample completion) to ensure data quality and consistency.
- The census data from the National Bureau of Statistics of China was used to set these quotas: http://www.stats.gov.cn/tjsj/ndsj/2016/indexeh.htm

Quotas on Age (out of age 18+)	%
18-20	4.5
21-30	20.8
31-40	18.3
41-50	21.7
51-60	16.0
61 and over	18.7

%
48.8
51.2

Quotas on Education	%
High	9.5
Middle	62.3
Low	28.2

The following quotas were used for all three studies (2017, 2018 and 2019):

Layers	Soft Quotas on City	%			
	Beijing	12.5			
Lover 1 sitios	Shanghai	12.5			
Layer 1 cities	Guangzhou	12.5			
	Chengdu	12.5			
	Xiamen				
	Kunming	0.5			
Lauran O aiti aa	Fuzhou	25 (Layer 2 cities			
Layer 2 cities	Xi'an				
	Shenyang	combined)			
	Tianjin				
	Nanning				
	Chongqing	25			
Layer 3 cities	Nanjing	(Layer 3 cities			
	Jinan				
	Shenzhen				



Analysis Deployed: The MaxDiff Question (1)

MaxDiff Description: Using the MaxDiff Question

MaxDiff (Maximum Differentiation Scaling) builds upon a long-established theory about how people make choices. It assumes that respondents' choices are more relative/comparative than absolute.

MaxDiff is an approach for capturing relative scores (e.g., importance, preference, agreement, attitude) for a set of items.

With MaxDiff, respondents are shown a set of items and are asked to indicate the item that best describes their opinion, and the item that least describes their opinion, for example:

	Please consider how important different features are when selecting a fast for restaurant.	bd
	Considering only the features below, which is the Most Important and which is the Least Impo	rtant?
ı		

Most Important		Least Important
0	Reasonable prices	
0	Healthy food choices	0
0	Has a play area	0
0	Clean bathrooms	0

The items are grouped using MaxDiff algorithm in order to ensure that each item and each pair of items is shown an equal number of times. Usually, respondents see each pair of items at least two or three times. A list of 20 attributes typically requires 10 to 16 sets/screens.

Item scores are then estimated on a respondent level using a Hierarchical Bayes (HB) method, and transformed to a numeric scale, e.g., a 5- or 10-point scale. The larger the score, the higher the importance of the item for that respondent.





Analysis Deployed: The MaxDiff Technique (2)

Reasons for Using MaxDiff in this Research

Using MaxDiff provides a better differentiation between the item importance compared to rating scales, mainly because:

- With rating scales, there can be many straight-line answers, such as giving ratings of 3 to all 20 items on a 5-point scale;
- Cultural biases in the use of the scale. For example, respondents in China tend to use the top portion of the scale, while respondents in Germany tend to use the middle or bottom portions of the scale;
- Research has shown that importance scores obtained with MaxDiff range from 0 to 10 compared to the range from 5 to 8 obtained with stated importance ratings (e.g., everything is important).

What Can We Do with MaxDiff Scores?

MaxDiff scores could be reported in a similar way to reporting rating scales (e.g., averages, percentages, crosstabs, bar charts). With MaxDiff, we can measure importance, preference, performance, and many other variables.

MaxDiff scores, if they result from "most important" vs "least important" scales, could replace other predictive modeling, e.g., regression and path analyses which we normally use to extract derived importance scores. This is due to the fact that this method, in this particular case, already indicates importance in driving the desired outcome. MaxDiff scores allow for any kind of statistical analysis we could consider doing with responses obtained using rating scales.



Methodology Overview: Weighting and Rounding

Weighting

- After fieldwork was closed and the final data quality checks were performed (e.g., removal of bad records with incomplete answers), a weighting by age, gender, and education has been applied on the total sample in order to fully match the quotas and correct (small) deviations in the sample completion compared to the quota set.
- This report presents only weighted results/data, and all the sample sizes indicated are weighted samples.
- The final sample achieved was n=2,000 or n=2,095 (target sample).
- The reason for weighting the data after fieldwork even if the quotas have been well monitored – is to fully align the demographic sub-groups with the quotas in order for the total sample to be representative of the target population by age, gender, and education. Income has been monitored in order to align with the average income, but was not used as a hard quota.

Rounding

- Numbers and percentages shown at first decimal in tables and graphs in this report are the result of rounding.
- Rounding to the nearest integer has been applied and may add up to more or less than 100%.

Questionnaire and Respondents' Quality

- To assure that respondents answer honestly and "neutral" when they are qualified for the survey, it is important that the survey topic is not mentioned in the invitation.
- The email received by the potential respondents only mentions the general topic of "lifestyle and shopping practices."



Margin of Error in Surveys

Margin of Error: Definition

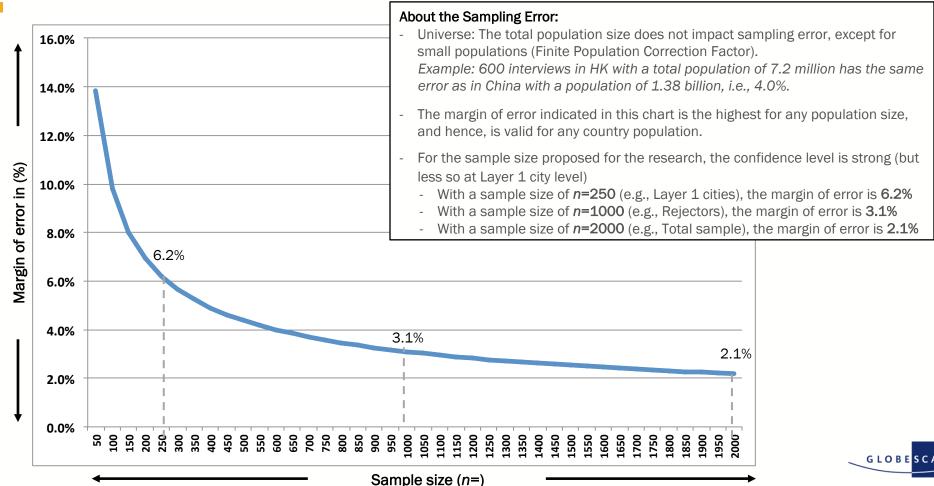
In reports on public opinion polls, a "margin of error" is often stated. The margin of error estimates the accuracy of the sample compared with the entire population. A margin of error of plus or minus 3 percent at a 95 percent confidence interval would mean that if we examined 100 truly random samples of a particular size, in 95 of such samples the figures would be within three percentage points of the "true" answer that would result from interviewing the entire population. Generally speaking, the larger the sample, the lower the margin of error (see illustration in the next slide).

However, calculated margin of error is valid only upon the assumption
that the sample is truly random, with every member of the population
having an equal chance of being included in the survey. This
assumption is not met in the majority of contemporary opinion polls,
because the samples are drawn using complex systems of stratification
and quotas or are obtained from panels of volunteers, as in the case of
this study.

- Even though margin of error is not applicable to nonrandom samples, it
 can be used as a rough tool to assess patterns in the collected data.
 For example, a 5 percentage point difference between males and
 females in a sample of 1,000 respondents may indicate a pattern, while
 a 10-point difference in opinion between smaller demographic groups
 may not.
- The sampling methodology for this study was tailored to the overall objective of understanding the awareness, knowledge, and perception of the consumption of ivory products. Industry standards and best practices suited to geographic realities have been applied throughout.



Margin of Error in Surveys



The Decision Tree - General

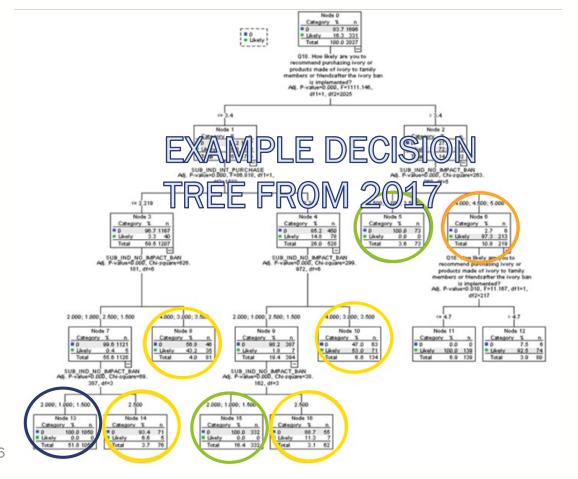
The Decision Tree methodology is a commonly used data mining method for establishing classification systems based on multiple covariates or for developing prediction algorithms for a target variable. This method classifies a population into branch-like segments. It follows the same approach as humans generally follow while making decisions. It is a map of the possible outcomes of a series of related choices. Interpretation of a complex Decision Tree model can be simplified by its visualizations (see example in the next slide).

A decision tree depicts rules for dividing data into groups. The first rule splits the entire data set into some number of pieces, and then another rule may be applied to a piece, different rules to different pieces, forming a second generation of pieces. In general, a piece may be either split or left alone to form a final group. The leaves of the tree are the final groups, the unsplit nodes (i.e. the circles in the tree in the next slide).

For a tree to be useful, the data in a leaf must be similar / homogeneous with respect to some target measure, so that the tree represents the segregation of a mixture of data into purified (or homogeneous) groups, as obtained in our segmentation, where the end groups are the 3 consumer segments Diehard Buyers, Ban Influenced Citizens and Rejectors. Each of these segments have a very distinct profile and behavior.



Example Decision Tree – Pre-ban Survey



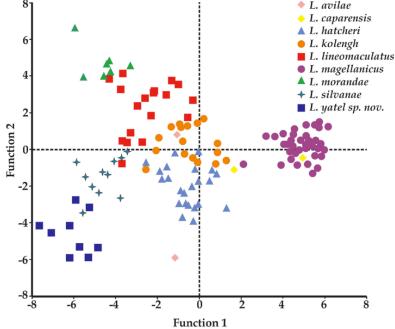
- Diehard Buyers (orange circle): 97.3 percent (100 percent in 2019) are likely to buy ivory in spite the ban and are very likely to recommend purchasing ivory.
- Ban Influenced Citizens (two green circles): 100 percent (also 100 percent in 2019) of them will stop buying ivory after the ban is imposed. The difference between the two is in the likelihood to recommend ivory to family members or friends.
- Rejectors (blue circle): Not buying and not intending to buy ivory independently of whether the ban is imposed or not.
- The four yellow circles are heterogeneous and include both intended buyers and those who would stop purchasing. Therefore, we re-allocated the former to Diehard Buyers and the latter to Ban Influenced Citizens.
- Eight segments in total (e.g., eight circles) could have been more descriptive of the population, though of much less practical value, so we opted for three segments.
- The Decision Tree explains over 90 percent of the purchasing intent after the ban is imposed. GLOBESCA

Segmentation Methodology: Discriminant Function Analysis

Discriminant Function Analysis

- In order to recreate the segments (e.g., Diehard Buyers, Ban Influenced Citizens and Rejectors) identified in the Pre-ban poll, we used a statistical algorithm extracted using a Discriminant Function Analysis (DFA).
- DFA is a statistical method that is used to understand the relationship between a "dependent variable" and one or more "independent variables." A dependent variable is the variable that a researcher is trying to explain or predict from the values of the independent variables. It is a statistical procedure that classifies unknown individuals and the probability of their classification into a certain group (such as sex, species, or ancestry group). For our studies, we use a DFA to classify respondents into their respective segments using inputs from a range of questions. By assigning values to certain responses and plotting data points on a graph, patterns start to emerge (see example).
- For detailed information, please check out: https://en.wikipedia.org/wiki/Linear_discriminant_analysis

An example of a DFA used to test how genetically distinct different species are from each other is shown below. Source: Abdala, et al. (2014). New Patagonian species of Liolaemus (Iguania: Liolaemidae) and novelty in the lepidosis of the southernmost lizard of the world: Liolaemus magellanicus. Zootaxa, 866(4)





Definitions

City Layers

- Layer 1: Beijing, Shanghai, Guangzhou, Chengdu
- Layer 2: Xiamen, Kunming, Fuzhou, Xi'an, Shenyang, Tianjin
- Layer 3: Nanning, Chongqing, Nanjing, Jinan, Shenzhen

Income*

- Low income: Monthly personal income (before taxes) under RMB8,000 (approx. USD1,200)
- Medium income: Monthly personal income (before taxes) between RMB8,000 and RMB20,000 (USD1,200-3,000)
- High income: Monthly personal income (before taxes) above RMB20,000 (>USD3,000)

Education Level

- Low education: No formal education / some elementary/primary school
- Middle education: Some high school or secondary school / completed high school or secondary school / completed technical or vocational school/training
- High education: College or university graduate / completed postgraduate degree

Travel Behavior outside China

- Never: Never travel outside China
- Occasional: Travel outside China once per year or less frequent
- Regular: Travel outside China twice per year or more often



^{*}Income brackets were set based on the average salary of the internet population in the 15 cities surveyed, i.e., higher than the China average salary (estimated to be approximately RMB8,000 per month; Source: China Daily article, 23 June 2017, http://www.chinadaily.com.cn/bizchina/2017top10/2017-06/23/content_29853826.htm

Ivory Ban as Seen by Respondents in the Link on Screen

Link

- Official text in Chinese (seen by respondents):

http://www.gov.cn/zhengce/content/2016-12/30/content_5155017.htm

- English non-official translation:

https://newsroom.wcs.org/News-Releases/articleType/ArticleView/articleId/9578/China-Announcement-of-Domestic-Ivory-Ban-in-2017--English-Translation.aspx 索 引 号: 000014349/2016-00266 主题分类: 市场监管、安全生产监管\其他

发文机关: 国务院办公厅 成文日期: 2016年12月29日 标 题: 国务院办公厅关于有序停止商业性加工销售象牙及制品活动的通知

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主题词:

国务院办公厅关于有序停止商业性 加工销售象牙及制品活动的通知

国办发[2016] 103号

各省、自治区、直辖市人民政府、国务院各部委、各直属机构;

为加强对象的保护,打击象牙非法贸易,经国务院同意,现就有序停止商业性加工销售 象牙及制品活动的有关事项通知如下:

一、分期分批停止商业性加工销售象牙及制品活动。2017年3月31日前先行停止一批象牙定点加工单位和定点销售场所的加工销售象牙及制品活动,2017年12月31日前全面停止。国家林业局要确定具体单位名录并及时发布公告。相关单位应在规定期限内停止加工销售象牙及制品活动,并到工商行政管理部门申请办理变更、注销登记手续。工商行政管理部门不再受理经营范围涉及商业性加工销售象牙及制品的企业设立或变更登记。二、积极引导象牙雕刻技艺转起。停止商业性加工销售象牙及制品活动后,文化部门要引导象牙雕刻技艺传承人和相关从业者转起。对象牙雕刻国家级、省级非物质文化遗产项目代表性传承人开展抢救性记录,留下其完整的工艺流程和核心技艺等详细资料;对象牙雕刻技艺名师,鼓励其到博物馆等机构从事相关艺术品修复工作;对象牙雕刻技艺传承人,引导其用替代材料发展其他牙雕、骨雕等技艺。非营利性社会文化团体、行业协会可整合现有资源组建象牙雕刻工作室,从事象牙雕刻技艺研究及传承工作,但不得开展相关商业性活动。

三、严格管理合法收蒇的象牙及制品。禁止在市场摆卖或通过网络等渠道交易象牙及制品。对来源合法的象牙及制品,可依法加载专用标识后在博物馆、美术馆等非销售性场所开展陈列、展览等活动,也可依法运输、赠与或继承;对来源合法、经专业鉴定机构确认的象牙文物,依法定程序获得行政许可后,可在严格监管下拍卖,发挥其文化价值。四、加强执法监管和宣传教育。公安、海关、工商、林业等部门要按照职责分工,加强执法监管,继续加大对违法加工销售、运输、类私象牙及制品等行为的打击力度,重点查缉、摧毁非法加工窝点,阻断市场、网络等非法交易渠道。要广泛开展保护宣传和公众教育,大力倡导生意文明理念,引导公众自觉抵制象牙及制品非法交易行为,营造有利于保护家等野生动植物的良好社会环境。

各省、自治区、直辖市人民政府和有关部门要高度重视, 加强组织领导, 明确责任分工, 确保停止商业性加工销售象牙及制品活动顺利进行, 并妥善做好相关单位和人员安置、 转产转型等工作, 切实维护好社会和谐稳定。

> 国务院办公厅 2016年12月29日



Drivers and Deterrents of Ivory Purchase – by Key Sub-groups

Top 3 opinions	Total	Layer 1	Layer 2	Layer 3	Regular Overseas Travelers	Rejectors	Ban Influenced Citizens	Diehard Buyers
Bottom 3 opinions	n=2000	n=927	n=459	n=614	n=239	n=1274	n=441	n=285
I am concerned about the possible extinction of elephants	5.95	5.92	5.82	6.11	4.40	7.24	4.20	2.93
Purchasing ivory participates in animal cruelty	5.65	5.57	5.64	5.80	4.11	6.99	3.68	2.72
I share information about animal protection on social media	5.64	5.66	5.51	5.69	4.41	6.70	4.11	3.27
If I saw someone selling ivory I would report to the authorities	5.42	5.32	5.49	5.52	3.87	6.74	3.40	2.63
I try to convince my friends and family not to buy ivory	4.78	4.69	4.90	4.82	3.44	5.92	3.04	2.39
I am concerned about the legal consequences of buying ivory	3.80	3.79	3.58	3.97	3.30	4.32	3.15	2.47
Ivory that comes from a killed elephant brings bad luck	3.35	3.28	3.19	3.59	2.35	4.10	2.07	2.03
My friends or family asked me not to buy ivory	3.32	3.23	3.46	3.37	2.66	3.87	2.46	2.21
Ivory has great artistic value	2.49	2.64	2.28	2.43	3.55	1.87	3.64	3.50
Ivory is unique	2.35	2.50	2.15	2.29	3.13	1.85	3.23	3.26
Only a strong law and penalties will prevent me from buying ivory	2.18	2.08	2.40	2.17	2.25	2.15	2.20	2.28
I cannot afford ivory	2.18	2.15	2.14	2.26	1.46	2.58	1.50	1.44
I'm afraid to buy counterfeit ivory	1.89	1.87	1.84	1.95	2.00	1.76	2.12	2.11
Ivory increases its value over time	1.86	1.92	1.82	1.78	2.40	1.44	2.50	2.74
Ivory connects me to my cultural heritage	1.73	1.81	1.65	1.66	2.48	1.23	2.52	2.72
I can easily buy ivory abroad	1.70	1.70	1.70	1.71	1.83	1.57	1.88	2.00
lvory is a gift to mark special life events	1.59	1.71	1.51	1.49	2.34	1.11	2.34	2.62
Ivory is a souvenir to buy when I'm on holiday abroad	1.46	1.54	1.47	1.33	2.24	0.99	2.12	2.52
Ivory brings luck and fortune	1.36	1.45	1.29	1.27	1.98	0.85	2.02	2.61
Ivory is ideal to pass on to future generations	1.36	1.42	1.32	1.29	1.93	0.94	1.93	2.34
lvory indicates wealth, power and social status	1.35	1.42	1.30	1.28	2.01	0.84	2.08	2.49
Ivory gifts help to build business relationships	1.18	1.23	1.15	1.12	1.65	0.78	1.72	2.10
lvory has healing powers and brings good health	1.10	1.16	1.08	1.02	1.58	0.74	1.51	2.07
I always want to buy ivory	0.99	1.02	1.00	0.92	1.46	0.61	1.40	2.02



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