

Handbook on Wildlife Crime

Chapter:

A framework for conducting research on consumer demand for high-value wildlife products in Asia

Dang Vu Hoai Nam^{1,2}

¹Department of Economics, University of Iceland; Email: dangvuhoainam@gmail.com; nam@hi.is ; Tel. +354 7904226; Address: Sæmundargata 2, 101 Reykjavík, Iceland

²The Global Initiative Network of Experts, Global Initiative against Transnational Organized Crime (GI-TOC); Address: Avenue de France 23 – Geneva, CH-1202, Switzerland

Abstract

Managing demand for wildlife products is essential to address the illegal and unsustainable wildlife trade. In certain Asian countries, traditions underpin demand, and the usage of exotic wildlife products, particularly among wealthy consumers, carries minimal societal stigma. To develop effective demand management strategies, research is required to generate insights into consumers and consumption contexts. Yet, collecting reliable data on high-value wildlife consumption remains challenging, as wealthy consumers often lack motivation to participate in such studies. This chapter delves into factors influencing demand, discusses demand reduction approaches, and outlines a framework for conducting research to inform demand management interventions. Drawing from research on consumers of rhino horn and tiger bone in Vietnam, I explore the applicability of this framework to understand demand for other high-value wildlife products in Asia.

Introduction

The consumption of high-value wildlife products, including those illegally harvested from endangered species, is deeply rooted in Asian culture and traditions and often involves little or no stigma (Cheung et al., 2021a; Truong, Dang, and Hall, 2015; Swan and Conrad, 2014). Consumer demand for these products has increased significantly over the past two decades due to economic development leading to the emergence of a new affluent class in some Asian countries (Dang et al., 2022). Asian consumers use exotic wildlife products for different purposes, notably traditional medicine, food, decoration, cultural or spiritual purposes (Knight, 2004). For instance, tiger bone has been used in traditional medicine in many Asian countries (e.g., China, Japan, South Korea, Vietnam) for centuries to treat bone-related diseases such as arthritis and rheumatism (Dinerstein et al., 2007). Rhino horn is used to treat a number of diseases and health conditions, such as high fever, body detoxification (Dang and Nielsen, 2018), and it is considered one of the collectible items in the Chinese art and antiques market (Gao et al., 2016). Chinese consumers also collect decorative items from ivory, mila amber, agarwood, and rosewood (Zhu, 2020; Gao et al., 2016). Pangolin is served as a delicacy food in wildmeat restaurants, while pangolin scales are used in traditional medicine with perceived benefits in stimulating human milk secretion, treating infertility, liver diseases, and tumours (Wang, Turvey, and Leader-Williams, 2020). Besides utilitarian purposes, high-value wildlife products are also used for hedonic purposes, for instance showing wealth and social status or sharing within social networks and clubs to search for pleasures among wealthy males (Dang and Nielsen, 2018; Truong, Dang, and Hall, 2015). Despite the expansion of wildlife farms to meet demand, wealthy consumers have a strong preference for wild-sourced products, including those from illegal supplies (Dang et al., 2022; Dang, Nielsen, and Jacobsen, 2022). The escalating demand and evolving consumer

preferences have exacerbated the poaching crisis in both Asia and Africa, posing a significant threat to species conservation (Moorhouse et al., 2020; 't Sas-Rolfes et al., 2019).

Managing demand has therefore been identified as an urgent conservation priority, yet it requires a thorough understanding of consumers and the context in which wildlife consumption is embedded (Thomas-Walters et al., 2021). Various approaches have been employed to influence demand, but evidence of success is limited (Veríssimo et al., 2020). Demand reduction interventions have been criticized for being based on delusion rather than evidence, and campaign designs often do not enable rigorous impact assessments (Dang and Nielsen, 2021; Greenfield and Veríssimo, 2019; Olmedo, 2018). Understanding consumer demand for high-value wildlife products represents a significant challenge. Despite numerous studies aimed at gaining insights into demand, each study typically relies on a specific theoretical framework and data collection method, such as qualitative or quantitative approaches. There is a lack of a cohesive methodological approach to conducting research on wealthy consumers and their demand.

Drawing from my extensive experience conducting interviews with over 1,000 wealthy consumers of rhino horn and tiger bone in Vietnam (Dang, 2021), this chapter is dedicated to developing a framework for studying consumer demand for high-value wildlife products in Asia. It proceeds as follows: The next section sets the scene by providing insights into the complex and multifaceted concept of demand for high-value wildlife products. Then, I discuss demand reduction approaches and challenges in understanding high-income wildlife consumers. The chapter is followed by a framework for generating insights into demand, which includes both qualitative and quantitative techniques. I conclude the chapter with some thoughts about potential applications and further development of the framework.

Demand for high-value wildlife products

Consumer demand is an integral part of wildlife markets. Addressing the illegal and unsustainable wildlife trade (henceforth IUWT) requires an in-depth understanding of demand and the context in which wildlife consumption occurs (Veríssimo et al., 2020; Veríssimo, 't Sas-Rolfes, and Glikman, 2020). The markets for high-value wildlife products are often characterized by a lack of information about supply, demand, and prices (Nadal and Aguayo, 2014). Demand is a complex and multi-faceted concept, which is defined with variations across disciplines and over time. In classical economics, demand is defined as the amount of a product that consumers are willing and able to purchase over a price range in a given time period, which is often referred to as the 'law of demand' (Hildenbrand, 1983). This definition regards demand as a sequence of rational choices, rather than encapsulating the entire decision-making process (Veríssimo et al., 2020). Besides price, demand is influenced by an array of factors that are internal or external to consumers, as well as irrational choices driven by status symbol, social pressure, misinformation, superstition and beliefs (Hübschle, 2016). For instance, the demand for tiger bone in Vietnam is driven by the health condition of consumers and their relatives, as well as the influence of peer users (Dang et al., 2022). Demand for agarwood and rosewood in China is driven by traditions and cultural factors (Zhu, 2020). In Yemen, the jambiya, a traditional ceremonial dagger, carved out of rhino horn has historically been used as a status symbol and cultural emblem among Yemeni men of high social status (Hübschle, 2016).

Fischer (2004) identified two demand externalities – stigma and outrage. The former arises from the illegal and inhumane nature of the wildlife trade, while the latter originates in altruism and depends on the size of the illegal activity (Fischer, 2004). Other factors that may affect high-value wildlife demand include the product's rarity, i.e., the anthropogenic Allee effect (Hausmann, Cortés-Capano, and Di Minin, 2023; Hall, Milner-Gulland, and Courchamp, 2008), product availability and its substitutes (Chen and 't Sas-Rolfes, 2021),

consumer preferences related to legality, quality, and harvesting methods (Dang et al., 2022; Dang, Nielsen, and Jacobsen, 2022; Wyatt et al., 2021; Hanley et al., 2018), alongside income levels and perceived benefits associated with a particular product (Cheung et al., 2021b, c; Hinsley and 't Sas-Rolfes, 2020; Dang and Nielsen, 2018).

The distinction between high-value and regular or low-value wildlife products can be fluid, as the luxury status and pricing of a product often fluctuate over time, with bear bile as an example (Davis et al., 2022). Once highly coveted as a precious traditional medicine, bear bile has seen a drastic decline in value owing to the proliferation of bear farms in Vietnam. Currently, farmed bear bile is considered a normal product, whilst wealthy consumers still pay a premium for bile extracted from Siberian or polar bears. The primary distinction between high-value and low-value products lies in the fact that high-value items are not essential for subsistence purposes, such as food or other necessities, while low-value products lack the status-conferring function (Ayling, 2016).

Determining the demand of a specific product can become intricate when the product serves different purposes and caters to consumers of different income groups. To exemplify this complexity, I consider rhino horn and tiger product as two examples. The rhino horn market comprises multiple products with varying prices, and it can be segmented into three categories – top price, middle price, and low price (Patton and Ammann, 2016). Very wealthy consumers often acquire whole rhino horns, rhino horn antiques and crafts, or horns from Asian rhinos, whereas those of considerable means opt for smaller portions or several hundred grams of African rhino horns to share with others in special events to confer status and search for pleasure (Truong, Dang, and Hall, 2015). Rhino horn powder and off-cuts are supplied at reduced prices to the traditional medicine market, catering to regular consumers seeking personal use or aiding relatives who are suffering from terminal illnesses (Dang and Nielsen, 2018). In the case of tigers, every part and derivative of the animal can be traded

within the black market. Tiger skin is used for home decoration, while tiger bone is processed into glue, a traditional medicine to treat bone-related ailments (Dang et al., 2022). Hence, it becomes imperative to comprehend the distinct consumer groups, their demand, and the socio-economic and cultural contexts that underpin this demand.

An essential aspect of high-value wildlife markets is that demand is not solely driven by consumers (Ayling, 2016). Traders may play a significant role in shaping demand. For instance, the spread of a rumour exemplifies the tactics employed by traders to stimulate demand. Traders always want to sell their products at higher prices, but this is not an easy task. To bolster demand, they frequently embellish the product's advantages, constructing narratives highlighting its scarcity or endorsement by influential figures. Demand is also different between law-abiding and law-ignoring consumers. Law-abiding consumers only buy wildlife products from legal sources, whereas law-ignoring consumers buy from both legal and illegal sources (Fischer, 2004).

Approaches to reducing demand

Demand-side strategies are increasingly recognized as indispensable to tackle the IUWT. Previous studies have categorized approaches to reducing demand for illegal and unsustainable wildlife products ('t Sas-Rolfes et al., 2019; Veríssimo and Wan, 2019; Wallen and Daut, 2018). Here, I do not aim to conduct a systematic review of demand reduction approaches. I discuss main approaches that have been employed to influence demand for high-value wildlife products, which comprise legal measures and behaviour change interventions. Legal measures include bans and restrictions on the purchase, consumption, or possession of wildlife products ('t Sas-Rolfes et al., 2019). For instance, Vietnam has increased legal sanctions on the consumption or possession of rhino horn, ivory, and tiger products since 2018 (Vietnam's Penal Code 2018, amended in 2017). China banned the

auction of rhino horn and ivory products in 2011. Following a national crackdown on corruption and extravagance in late 2012, government officials in China were not allowed to receive luxury gifts (Smith, 2016). Shark fin soup, bird's nest soup, and other high-value wild animal products were banned from official events of the Chinese government (Gao, 2013). Nevertheless, the effectiveness of legal measures and regulations in curbing the demand for high-value wildlife products has faced scepticism due to limited evidence demonstrating their impact. Critics often label these measures as “eye watering” or “window dressing,” suggesting they are more for show than practical implementation or substantial change (Ammann, 2012).

In addition to legal measures, efforts have been made to change consumer behaviour voluntarily to manage demand. These behaviour change interventions draw from social and behavioural sciences, employing diverse approaches, methods, and tools. They encompass various labels, including awareness raising activities, outreach initiatives, social influence strategies, environmental education programs, behavioural economics interventions, and social marketing campaigns (Thomas-Walters et al., 2020; Wallen and Daut, 2018). However, evidence of success is scant given that these activities often do not follow rigorous impact assessment methods (Dang, Nielsen, and Jacobsen, 2020; Veríssimo and Wan, 2019). Amongst the very few examples of behaviour change interventions with certain success is the Rare Pride campaign on the island of Bonaire to reduce the local demand for pet Lora (*Amazona barbadensis*), a threatened parrot (Salazar, Mills, and Veríssimo, 2018). Whereas, campaigns targeting high-value wildlife consumers have been criticized for being based on unreliable insights into consumers, not using behavioural theories, and using messages and message-deliverers that are not evidence-based (Dang and Nielsen, 2021; Olmedo et al., 2018; Duthie et al., 2017). Therefore, success is often questionable (Vu, 2023; MacFarlane et al., 2021; Margulies, Wong, and Duffy, 2019; Robertson, 2014), and interventions sometime

involve unintended consequences (Thomas-Walters et al., 2020). For instance, the framing of rhino horn as fingernail in demand reduction campaigns has infuriated the Vietnamese government and consumers because they see it untrue and consider it an oversimplification of the science (Smith, 2018).

An alternative approach to reducing wildlife demand involves addressing the supply side of the wildlife trade chain. This strategy focuses on creating synthetic products, such as synthetic rhino horn, that mimic the biological or chemical properties of those derived from wild fauna and flora (Chen and 't Sas-Rolfes, 2021). It aims to offer consumers comparable substitutes without relying on products sourced from endangered or threatened species. Despite its potential, the strategy of creating synthetic alternatives is contentious. Proponents argue that flooding the market with affordable synthetic products could meet consumer demand, reducing reliance on wild-sourced products and deterring poaching (Mi, Shao, and Vollrath, 2019). Conversely, opponents express concern that introducing synthetic alternatives would reduce the stigma and amplify demand for wild-sourced products. A legal supply of synthetic alternatives could also facilitate the laundering of products illegally harvested from the wild, exacerbating poaching (Chen, 2017).

Studies investigating the impact of synthetic products on wildlife demand mostly draw data from the general public or university students rather than actual consumers (e.g., Rock and MacMillan, 2021; Davis et al., 2016). These studies provide inconsistent results, and limited implications can be developed to inform policies or behaviour change interventions. It is also assumed that synthetic products and genuine ones are perfect substitutes (Mi, Shao, and Vollrath, 2019). This assumption lacks empirical evidence. For instance, if consumers try a synthetic rhino horn but find it lacks medicinal effects, the initiative might not succeed. Further research is essential to understand the potential impact

of synthetic alternatives on demand, employing robust methods and collecting data directly from real consumers to gauge their preferences and behaviour more accurately.

Other market-based interventions including the introduction of a legally controlled trade for sustainably farmed products, the sale of large stockpiles of confiscated products or dead plants or animals, incremental releases of small batches, or episodic auctions are based on the same argument that these would devalue wildlife products and reduce poachers' incentives (Moorhouse et al., 2020; 't Sas-Rolfes et al., 2019). Again, evidence supporting these initiatives are very limited. Dang, Nielsen, and Jacobsen (2022) and Dang et al. (2022) conducted choice experiments with high-income consumers of rhino horn and tiger bone in Vietnam and found a large heterogeneity in consumer preferences. While consumers generally showed support for a legal trade, higher-income consumers strongly preferred wild-sourced products, including from illegal supplies. Behaviour change interventions and market-based initiatives should rely on empirical evidence, which has not been adequately collected thus far.

Understanding consumers of high-value wildlife products

Designing effective demand management strategies necessitates a profound comprehension of consumers, their attitudes, behaviours, beliefs, preferences, trade-offs, as well as the socio-economic, cultural, and historical contexts that influence the consumption of high-value wildlife products (Veríssimo et al., 2020). Demand for high-value wildlife products mainly comes from a specific group of wealthy consumers, who are often averse to investigations of their sensitive behaviours (Dang, 2021). Numerous surveys coordinated by conservation organizations have contributed to informing demand reduction campaigns, yet a predominant portion of the data originates from the general public. A minute fraction of respondents in these surveys actually comprises buyers or consumers (e.g., Cheung et al., 2021a, b, c; Davis

et al., 2019, 2016; Olmedo et al., 2021; USAID Vietnam, 2018; USAID Wildlife Asia, 2018; TRAFFIC, 2017). Consequently, these surveys mostly target individuals without a demand for high-value wildlife products. Insights from these surveys are often perceived as speculative rather than evidential (Dang and Nielsen, 2021).

Collecting data from wealthy consumers represents a significant challenge to researchers. Although specialized questioning techniques and bias-mitigation tools have been developed and empirically tested (Arias et al., 2020; Nuno and St. John, 2015), they prove to be less effective in interviewing wealthy consumers (Dang, 2021). Data collection requires, in the first instance, identifying potential respondents who match the profile of current or future consumers and persuading them to participate in interviews. Yet, wealthy consumers are unlikely to spend time filling out online questionnaires or talking to enumerators over the phone. Neither are they motivated by small gifts or abstract benefits such as species conservation. Making an appointment with them is usually the only way to collect data via face-to-face interviews. In Confucian societies such as China or Vietnam, seniors and high-income individuals often do not want to keep company with younger people or those of lower income groups. And staging such interviews requires a certain level of trust (Dang, 2021; Wong, 2019; Hübschle, 2016).

A framework for conducting research to inform demand management interventions

Changing consumer behaviours to manage demand is the focus of many conservation organizations and projects (Wallen and Daut, 2018). Several behaviour change methods and frameworks have been established to guide these efforts, such as the Wildlife Consumer Behaviour Change Toolkit developed by TRAFFIC. While these frameworks draw from various disciplines and encompass illicit wildlife products broadly, none specifically targets high-value wildlife products. The challenge in understanding wealthy consumers of these

products remains unresolved. This section proposes a framework for researching high-value wildlife consumers in Asia to inform demand management strategies. My research on over 1,000 wealthy consumers of rhino horn and tiger bone in Vietnam (Dang, 2021) serves as practical illustrations showcasing the application of this framework. The framework comprises three main stages: (i) literature review and key informants; (ii) qualitative interviews; and (iii) surveys (Figure 1).



Figure 1. A framework for conducting research on high-value wildlife consumers.

The initial stage entails conducting a comprehensive literature review to establish the foundational understanding of the trade and consumption related to a particular species. This involves delving into existing studies exploring socio-economic, cultural, and historical aspects, aiming to comprehend consumer behaviours and demand while pinpointing research gaps. For instance, reviewing the literature about the rhino horn trade and consumption, we found that motivations for this product are different between China and Vietnam. Additionally, multiple clinical studies investigating rhino horn’s medicinal benefits as a traditional medicine have been documented (Dang and Nielsen, 2021). To supplement

preliminary insights garnered from the literature review, conducting semi-structured or in-depth interviews with key informants, including experts and actual consumers who have engaged with the product, offers valuable perspectives and insights into consumer motivations, behaviours, beliefs, preferences, and the context factors influencing consumption. The research conducted by Rebecca Wong or Annette Hübschle serves as a prime illustration (Wong, 2019; Hübschle, 2016). The first stage lays the groundwork for designing consumer research, shaping research inquiries, establishing theoretical frameworks, determining methods, and selecting sampling approaches. Qualitative insights from this stage also serve as potent resources for informing targeted demand management interventions and serve as foundational material for designing subsequent quantitative studies with larger sample sizes (Dang, Nielsen, and Jacobsen, 2020).

During the second stage, collaborating with researchers or research assistants entrenched within the same networks as the consumers becomes essential. This facilitates the identification of potential respondents and the establishment of an initial cohort for interviews. However, recruiting suitable research assistants presents challenges, particularly for researchers situated in different countries and unfamiliar with the local language. My own efforts led to the recruitment of 10 research assistants, each with diverse levels of research experience, to conduct interviews with wealthy consumers in Vietnam, but only three displayed strong performance (Dang, 2021). Here, elicitation studies can be conducted to explore the underlying factors shaping demand and to construct a relevant theoretical framework alongside quantitative methods. I have conducted two elicitation studies which include in-depth interviews and focus groups with 10-15 consumers and former traders of rhino horn and tiger bone. Participants were asked open-ended questions about what factors affect, facilitate, and influence their intention to buy these products, and prominent factors were recorded (Dang et al., 2023; Dang and Nielsen, 2022).

The third stage centres on broadening the initial sample size through methods like convenience sampling or snowballing, enabling the collection of statistically inferable results. Random sampling might prove impractical or less effective given the challenges highlighted earlier in engaging wealthy consumers as mentioned above. Outsourcing data collection to a local research institute or company could pose challenges in ensuring data quality control. Moreover, panel samples sourced from market research firms might not be applicable (e.g., Cheung et al., 2021b, c), as wealthy consumers are unlikely to participate in these panels for nominal fees or benefits. Past surveys organized by conservation organizations, through contracted market research firms, have predominantly captured data from the general public rather than specifically targeting wealthy consumers of high-value wildlife products (e.g., USAID Vietnam, 2018; USAID Wildlife Asia, 2018; TRAFFIC, 2017). Reaching a large-enough sample requires time, and the initial cohort holds significance in directing strategies aimed at engaging more consumers for survey participation. This sample could potentially contribute to shaping demand management strategies, developing campaign messages, and determining effective dissemination channels. Key insights to gather in this stage encompass a wide array of consumer aspects: attitudes, motivations, beliefs, behaviours, preferences, trade-offs, influential individuals or organizations, preferred communications channels, as well as price and income elasticities. Importantly, this three-stage framework for conducting consumer research should be based on relevant behavioural theories or models. The following section discusses how to develop a theoretical framework for such studies.

Developing a theoretical framework

To comprehensively explore the primary factors influencing consumer intention and behaviour toward purchasing high-value wildlife products, behavioural theories and models offer valuable frameworks. Prominent among these are the Theory of Planned Behaviour

(TPB), the Theory of Interpersonal Behaviour (TIB), the Social Cognitive Theory (SCT), and the Health Belief Model (HBM) (Doughty et al., 2021). Yet, many applications are isolated in disjunct disciplines, and each theory involves its own assumptions and limitations (Eyster, Satterfield, and Chan, 2022). The TPB, for instance, has been widely used to study wildlife-related behaviours (Miller, 2017), but it is criticised for not including non-cognitive factors such as emotions or habits (Russell et al., 2017). The TPB may be useful for predicting individual behaviour in the short term and constrained decision spaces. But it is unlikely to predict long-term behaviour in broader contexts (Sniehotta et al., 2014; McEachan et al., 2011). Many other theories are relevant for certain behaviours and contexts but may not apply to others. Fragmentation of theories poses a further critical challenge to developing an overarching solution to a problem (Eyster, Satterfield, and Chan, 2022). Also, socioeconomic aspects interact in complex ways with the specific context, in which the consumption is embedded (Olmedo et al., 2021).

To better predict human behaviours, scholars have started combining theories and models that complement each other (e.g., Klöckner, 2013; Pee, Woon, and Kankanhalli, 2008). These combinations can yield a more comprehensive theoretical framework, providing a nuanced understanding of demand determinants, albeit demanding extensive theoretical groundwork. I have merged the TPB and the TIB to examine determinants of the intention to buy rhino horn among wealthy consumers in Vietnam (Dang and Nielsen, 2022). I have also employed and compared the TPB and the SCT in a survey involving tiger bone consumers (Dang et al., 2023). The selection of theories should be guided by insights collected from Stage 1 and Stage 2 of the three-stage framework described above, particularly results of the literature review and qualitative interviews with consumers and other key informants. Despite potential benefits in combining theories, this requires intensive theoretical legwork.

Understanding consumer preferences and trade-offs

In addition to behavioural theories and models, stated preference methods such as contingent valuation and choice modelling serve as valuable tools to glean insights into consumer preferences, trade-offs, and elasticities (Mariel et al., 2021). These methods, employing hypothetical scenarios, facilitate the exploration of policy impacts and behaviour interventions on consumer decision-making. For instance, our research investigated the effects of legally controlled trade and peer influence on the preferences and trade-offs of rhino horn consumers (Dang, Nielsen, and Jacobsen, 2022). Stated preference methods can also examine consumer preferences for substitutes such as biosynthetic horns (Coals et al., 2020) or herbal substitutes to tiger bone wine, bear bile, and pangolin scale (Moorhouse et al., 2020). Choice experiments furthermore provide information about price and income elasticities. For instance, we found that the demand for a small piece of rhino horn (100 grams), which is often used to reduce hangover, fever, and to share with others in the same social network or club, is elastic to price changes (Dang, Nielsen, and Jacobsen, 2022). This contradicts the long-standing assumption of price-inelastic demand for rhino horn (Milner-Gulland et al., 1993). In another choice experiment, Davis et al. (2022) has investigated consumer preference for synthetic bear bile product. Including behavioural tools as attributes in choice sets allows testing the effectiveness of those tools in the design of demand management strategies. I have used peer reference, i.e., experience using rhino horn of people influential to respondents, as a fixed attribute in choice experiments and observed its effect on consumer choices (Dang, Nielsen, and Jacobsen, 2022). Also, surveys should include questions about consumer activities, key interests, networks, communication channels, internet platforms, etc. so that most effective channels to disseminate messages and to influence demand can be identified for interventions. In a recent study, I have added a construct to the SCT investigating the perceived influence of mass media channels, i.e., the

extent to which specific messages disseminated in each media channel influence the intention to buy tiger bone (Dang et al., 2023).

Although my studies on rhino horn and tiger bone consumers provide concrete examples, each wildlife product has a specific consumer group with distinct characteristics, motivations, beliefs, and preferences. Demand, therefore, is intricate and idiosyncratic. The consumption context also differs from product to product and across geographical areas, which requires a nuanced approach to research and demand management interventions (Thomas-Walters et al., 2020). The proposed framework allows generating sufficient insights into consumer motivations and demand, whilst collecting baseline data to measure the impact of demand management interventions and facilitating the design of field experiments using treatment and control groups.

Concluding

Understanding demand for high-value wildlife products represents a major research challenge. I discuss the intricacy of demand and approaches to influencing demand. I propose a framework for conducting consumer research building upon our experience studying the consumption of rhino horn and tiger bone in Vietnam. Collecting reliable insights into consumers and the consumption context is critical to design effective demand management interventions, yet conventional data collection methods may not work. The proposed framework is built upon a mixed-methods approach, in which recruiting the right researchers plays an important role. Qualitative interviews with experts and consumers could be helpful providing initial and contextual insights into consumer attitudes, motivations, beliefs, and behaviours, which feed into the design of surveys on larger samples to understand their preferences, trade-offs, determinants of demand, and demand elasticities. I propose stated-preference methods and the application of broader theoretical frameworks to generate

detailed insights into demand. There are opportunities to test policy options, alternative products, and behavioural tools in managing demand. As demand is idiosyncratic and contextual, there is unlikely a one-size-fits-all approach to designing demand management interventions. Thus, an effective framework for consumer research would provide reliable insights to develop workable strategies.

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