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Article

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Impact of excise tax on consumption, brand loyalty and health awareness: Evidence from the United Arab Emirates

Atia Hussain^{1*}, Walaa Wahid Elkelish¹ and Muhammad Al Mahameed¹

Abstract: The main purpose of this paper is to empirically analyze the impact of excise tax on excisable goods consumption, brand loyalty and health awareness in the United Arab Emirates (UAE) market. The research is conducted based on the self-administered questionnaire collected from the residents of the UAE. The snow-ball sampling technique is used to collect the data set during 2022. A total of 559 usable questionnaires were analyzed. This paper uses the multiple regression analysis model (OLS) to test the study hypothesis. The findings of the research show that implementation of excise tax has no significant impact on the consumption of excisable goods. The findings show a positive relation between implementation of excise tax and customers' brand loyalty. Likewise, the excise tax implementation has a positive impact on the health awareness among the residents of the UAE for the consumption of excisable goods. The findings of this paper would provide insights to the policymakers for formulating the future excise tax policies and extending the scope of excise tax to the other unhealthy products in the emerging market (UAE). This paper provides evidence supporting the impact of implementation of excise tax on the consumption, brand loyalty and health awareness of the individual consumers in the emerging economy. To the best of the authors' knowledge, this is the first study to research and test the consumption behavior of individuals through the collection of primary data set since the excise tax is implemented in the Gulf Cooperation Council specially in the UAE economy which includes the excisable products, i.e., tobacco, carbonated drinks, energy drinks, sweetened beverages and electronic smoking devices.

Subjects: Business, Management and Accounting; Brand Management; Consumer Behaviour

Keywords: Excise tax; Consumption of unhealthy products; Indirect tax; Health conscious society; brand loyalty; tax revenue; UAE

Subjects: H22; M30; M37; M38

1. Introduction

Excise tax is one form of the indirect tax¹ which is levied on diverse products from one country to the other. The application of excise tax is determined by the government of any country. The main purpose of levying excise tax is to reduce the consumption or sale of a specific product in a given

country (Abdel-Kader and Mooij (2020); Hines (2007)) and generate the revenue source. For example, excise tax can be levied on tobacco, carbonated drinks, cars, coffee, etc. In the Gulf Cooperation Council (GCC) countries, the excise tax is levied at different rates within the framework of Common Excise Tax Agreement of the States of the GCC (Federal Tax Authority, 2017). In the UAE, Saudi Arabia, Bahrain, Oman and Qatar, the excise tax is levied on energy drinks (100%), carbonated drinks (50%), and tobacco products (100%) (FTA UAE, 2019; General Authority of Zakat and Tax Saudi Arabia, 2019; General Authority Qatar, 2021; Ministry of Finance and National Economy Bahrain, 2022; Sultanate of Oman Tax Authority, 2022). In the UAE and Saudi Arabia, the sweetened beverages (50%), electronic smoking devices and liquid therein (100%) are also excisable. In Oman, there are some additional products which are excisable, i.e., pork (100%), alcohol (100%) and sweetened beverages (50%). In Kuwait, there is currently no excise tax implemented (KPMG, 2022). As the excise tax is regulated under Common Excise Tax Agreement in the GCC, therefore, the generally applicable rules and regulations are similar in nature.

Considering the long history of excise tax in other countries, excise tax can be deemed as relatively new tax in the UAE. In the developed countries, e.g., the United States of America (USA), first federal excise tax was imposed in 1791 which was used as source for the repayment of country's debts (Simon, 2012). Subsequently it was followed by the imposition of excise tax (sin tax²) on other categories including snuff tobacco, sugar and carriages in 1794 (Tax Foundation, 1956). During the last two centuries, excise tax is repealed and re-implemented in the USA (Tax Foundation, 1956). Currently, federal excise tax is applied on a variety of goods and economic activities, such as alcohol, tobacco, firearms and ammunition, gasoline, airline passenger tickets and indoor tanning services (Congressional Research Services, 2021). In the European Union (EU), the first Directive European Union Council Directive (1972) on harmonization of tobacco products was adopted in 1972 (Rapp-Jung, 1996). Later excise tax was harmonized under Directive 92/12/EEC which was repealed and currently the excise tax is harmonized at EU level by Council Directive 2008 (European Union Council Directive 2008/118/EC, 2008). It is levied on alcohol and alcoholic beverages, manufactured tobacco, mineral oils, energy products and electricity by agreeing on common rules to ensure the uniform application procedure of excise tax, e.g., by applying a minimum rate of excise tax (European Union Council Directive 2008/118/EC, 2008). However, the maximum rate of excise duty on diverse products varies from one EU state to other (Locher, 2021). In England and Wales, the excise tax was first implemented on alcohol in 1643 in the Excise Ordinance levied by Parliament (Yeomans, 2018). Currently, excise tax is imposed on a range of products including wine, and made-wine, beer, spirits, cider and perry, low alcoholic beverages, imported composite goods containing alcohol, tobacco products, hydrocarbon oil, climate change levy, biofuels (UK Trade Tariff, 2021). Before Brexit, the excise tax was harmonized under the EU; however, currently the United Kingdom (UK) government is in the process of reforming its excise tax law (HM Revenue & Customs (HMRC) & HM Treasury, 2021).

In developing countries, e.g., China, the excise tax is levied on a diverse set of consumer products including tobacco, alcohol, cars, refined oil, etc. There have been continuous reforms in the excise tax since it was first implemented in 1994. The rate of excise tax on tobacco products in China is about 40% at the retail sale price (Hu et al., 2008). One of the common aspects in the developed (e.g., UK, USA, EU) and developing (e.g., China, GCC) countries pertaining to excise tax is that the governments of these countries want to achieve multi-purpose objectives with the implementation of excise tax, i.e., collection of revenues, and reduction of excisable products consumption (e.g., tobacco, alcohol) which are deemed unhealthy for the society.

In the UAE, excise tax has been implemented effective from 1 October 2017 by the Federal Decree-Law No. (7) of 2017 on Excise Tax³. Under the umbrella of indirect taxes, excise tax was initially levied on specific commodities including tobacco and tobacco products, electronic smoking devices, energy drinks and carbonated drinks in the UAE. The main objectives of the UAE government levying excise tax on these products are: generating a source of revenue to contribute into the economy for beneficial public services, creating awareness among the society about the

harmful use of the excisable products and promoting a health conscious society (Federal Tax Authority, 2017). In 2019, the scope of excise tax was extended by levying the excise tax on other product categories, i.e., any products with added sugar or other sweeteners, electronic smoking devices and liquids used in such devices and tools (Federal Tax Authority UAE, 2019). In the UAE, the rate of excise tax on the excisable products varies depending on the nature of product. According to the Cabinet Decision No. 52 on excise goods, excise tax rates and the methods of calculating the excise tax price, the rate of excise tax for tobacco and tobacco products is 100%, energy drinks 100%, electronic smoking devices 100%, electronic smoking devices 100%, carbonated drinks 50% and any products with added sugar or other sweeteners is 50% (Federal Tax Authority, 2017).

In the previous research, the impact of excise tax has been analyzed specifically on the tobacco products in other countries (e.g., the USA) by collecting data from retail stores and in some cases from individual households in a specific US State (Barzel, 1976; Evans & Farrelly, 1998; Evans et al., 1999; Keeler et al., 1996; Lesley & Muehlegger, 2010). These studies have not focused on the other excisable products, i.e., carbonated drinks, energy drink, sweetened beverages, etc. Keeping in view the significance of excise tax implemented in the UAE,⁴ the present research extends the previous research to a wide range of excisable products (e.g., tobacco; carbonated drinks like Coca Cola, Pepsi, Sprite, Fanta, 7 up; energy drinks like Red Bull, Monster Energy, Power Horse, Pokka Power up; sweetened beverages like Tang and electronic smoking devices). This paper takes into account the data collection from the individual consumer perspective of the UAE residents as currently there are no studies available which can estimate the demand or supply side of the consumer vis-à-vis supplier in the UAE (Delipalla1 et al., 2022). The research contributes to the previous literature in several ways. To the best of our knowledge, no research has been conducted which empirically analyzes the impact of excise tax on the consumption of (aforementioned) excisable products, brand loyalty of individual consumers and health awareness created through the implementation of excise tax among the residents of the UAE emerging market since the excise tax has been implemented in 2017. This indicates an area where research work is required by considering the tax revenues playing significant role in the revenue contribution of the UAE economy. Also, this paper helps the excise tax policymakers whilst they will be considering any potential increase in the rate of excise tax on excisable products as it finds out the impact of currently applicable excise tax rates on the consumption of excisable products. This paper addresses three questions: First, what is the impact of excise tax implementation on the consumption of excisable products in the UAE? Second, what is the impact of excise tax implementation on the brand loyalty of the individual consumers? Third, whether the excise tax implementation has created health awareness for the consumption of the excisable products among the UAE residents?

The remainder of this paper is structured as follows: the next section refers to the earlier theoretical and empirical research conducted by various authors in the field of excise tax along with the hypothesis development. Subsequently, the methodology used for the data analysis is presented. The final sections present results, discussion, conclusion and suggestions.

2. Literature review and hypothesis development

2.1. UAE excise tax

In the UAE, excise tax is levied on specific products which are considered harmful for human health. As one of the objectives of the UAE government to develop a healthy society, the excise tax was implemented to reduce the consumption of such products, i.e., carbonated drinks, tobacco products, energy drinks, sweetened beverages and electronic smoking devices (Federal Tax Authority, 2019). The advantages of levying excise tax can be manifold. With the levy of excise tax not only a health society can be created; rather, also the implementation of excise tax may contribute in generating a source of revenue for the government.⁵ This can facilitate the government to invest in the public goods and services in the UAE including but not limited to infrastructure, roads, dams, health facilities, etc. The excise tax is levied on the importer, producer,

manufacturer and stockpile of excisable products in the UAE at varying rates of tax ranging from 50% to 100% depending on the nature of product (FTA UAE, 2017).⁶ This burden is ultimately shifted to the end consumers (individuals) who pay the excise tax whilst buying the products from the retailers. Currently no data for the demand and supply behavior of consumers is available in the UAE; therefore, it can be assumed that there is no change in the brand loyalty of the consumers for switching to the less costly or expensive brands (Delipalla1 et al., 2022). As the excise tax is relatively newly introduced in the UAE, therefore, there are no extensive studies conducted in this area which can be referred to as the UAE specific literature. Nevertheless, like many other developed countries (Barzel (1976), Lesley and Muehlegger (2010), Keeler et al. (1996), and Evans and Farrelly (1998), and Evans et al. (1999)) and developing countries (Ho et al. (2018), Gallet and List (2003), Mushtaq et al. (2011)) the benefits and objectives of implementing excise tax are similar, i.e., reducing the consumption of unhealthy products and generating a source of revenue for the government. As the UAE government has applied the excise tax only on a range of products, therefore, there is a possibility that the scope of excise tax may be enhanced in future and unhealthy products may be included in the excisable goods category, e.g., chocolates, other sweetened beverages, alcohol etc.

2.2. Theoretical framework

The doctrine of tax incidence is discussed by various authors; however, this is not possible to explicitly distinguish between different school of thoughts (Seligman, 1892; Mun, 1620; Petty, 1677, as cited in Seligman, 1892, p. 14). Fundamentally, the theory of tax incidence investigates on whom does the tax ultimately fall, how does the implementation of a tax impact various classes of individuals and how are the taxes shifted from one individual to the other. The impact of implementing an indirect tax can be manifold. In case the consumers are less responsive to the increase in price of goods due to tax levy, the relative burden of tax would be absorbed by the end consumers (Delipalla1 et al., 2022; Slemrod & Yitzhaki, (2002)). However, if the consumers would show responsiveness to the price increase, the burden of tax may be absorbed by the producers (Slemrod & Yitzhaki, (2002)). Within the context of this paper and keeping in view the nature of excise tax, this work takes into account the doctrine of tax incidence presented by Smith (1776), a British economist and philosopher who has many contributions in the field of taxation and economics. The theory of tax incidence studied the impact of tax policies on prices of commodities and the associated distribution of utilities. Also, it presumes that how would the introduction of a new tax impact the prices and consumption of the products. In an ideal world, this theory illustrates the effect of a tax change on the effectiveness of all agents (e.g., consumers, producers, suppliers, government) in the economy (Chetty & Bruich, 2012). The theory predicts that with the introduction of new taxes, prices of target products would change which may also affect the consumption and demand of such products. For example, in case of excise tax in the UAE, the retail sales prices of excisable products (energy drinks, carbonated drinks, tobacco products, sweetened beverages, electronic smoking devices) increased approximately 50% to 100% depending on the nature of product compared to the original pre-tax retail sale prices (FTA UAE, 2017). The tax incidence can be investigated at various levels such as producer, consumer, source of income, income level, region or country and across generations (Chetty & Bruich, 2012). Within the context of this paper, the theory of tax incidence is used for setting the hypothesis on the potential impact of levying the excise tax in the UAE on the consumption and consumer behavior in terms of continuing buying the excisable products. Also, this theory provides useful background on the impact of excise tax on the individuals pertaining to the health awareness (Chetty & Bruich, 2012).

2.3. Empirical studies

2.3.1. Excise tax implementation and consumption of excisable goods

Several researchers have contributed to the field of excise tax whilst identifying and analyzing the impact of excise tax in different themes. The first theme focuses on the impact of excise tax on public consumption and product quality. For example, Barzel (1976) investigated the impact and extent of one cent increase in excise tax on the retail price of cigarettes and its relationship with

the quality of products in the US. His work suggested that per unit taxes and taxes based on the value of goods lead towards decrease in the sale (consumption) of cigarettes; however, per unit taxes will have a positive relationship with the average product quality. In another study, Wang et al. (2021) analyzed the effects of excise tax on public consumption of cigarette in the US. The study was conducted based on the data set including consumer panel of cigarette purchases from 2005 to 2010, retail scanner data from 2006 to 2010 and a comprehensive data set on state-level cigarette taxes, state-level smoke-free restrictions and national antismoking advertising campaigns. The outcome of this study concluded that although cigarette excise tax has a negative impact on the consumption of tobacco nevertheless market leaders of these products may face less changes in consumption due to strong brand and customer loyalty. Some studies focused on the impact of excise tax on other products. Teng et al. (2019) literature review showed that sugar-sweetened beverage (SSB) taxes implemented around the world appear to have been effective in reducing the consumption of such products. Whilst analyzing the impact of excise tax on the consumption and revenue, Papageorgiou et al. (2021) concluded that there is direct relation between consumer income and consumption of cigarettes; however, there is inverse relation between the cigarettes prices and consumption in Greece. The study also found that anti-smoking campaign can also reduce the consumption of cigarettes which eventually has a negative impact on the revenue generated from the excise taxes. In developing countries, Ho et al. (2018) identified the impact of excise tax on the consumption of excisable products mainly tobacco across low- and middle-income countries by using the panel data. They concluded that cigarette consumption would reduce in China with the application of excise tax and the revenue collection would increase. The other low- to middle-income group countries including Indonesia, Maldives, Sri Lanka, Mongolia and Malaysia would also be affected by excise tax policies in terms of consumption of tobacco products. In Asia Pacific countries with low-income to middle-income group, the response of individuals for cigarettes price elasticity is high which implies that the consumption of tobacco products shows a high change in response to the excise tax levy. However, they found that the response of individuals for the consumption of excisable products (tobacco) in high-income countries shows a low level of price elasticity (Ho et al., 2018).

The second research theme dealt with the relationship between excise tax, smoking patterns and consumer behavior. Evans and Farrelly (1998) studied the effect of excise tax on the smoking pattern of the smokers during 1979 and 1987 in the US. Their results illustrated that per day consumption of cigarettes is negatively affected due to the hike in excise tax; however, total daily tar and nicotine intake remained unaffected. Also, they found that mostly the age group of 18–24 reduced their consumption due to excise tax hike. Lesley and Muehlegger (2010) analyzed the scanner data from a single chain of supermarkets in the US to examine the price impact of higher taxes on cigarettes from three manufacturers.⁷ Their work investigated how did the consumers of these brands change their behavior either by reduction in consumption, shifting to a lower-cost brand, travelling to low-price jurisdictions/states, or by stockpiling. They concluded that there was a short run shift of consumers to the lower-cost brands after the excise tax was levied. They found that consumers residing far from the lower tax jurisdictions stockpiled the discounted cigarettes before the excise tax was levied, while consumers living near to lower tax jurisdiction travelled to these areas for purchasing cigarettes. Harding et al. (2012) found that the buying behavior of individual consumers is also affected by the tax avoidance opportunities in the US. Also, they found the frequency of these taxes varies by household income and education. Other studies showed the impact of excise tax on the price of diverse excisable products such as gasoline (Alm et al., 2009; Chouinard and Perloff, 2004), alcohol (Kenkel, (2005); Yeomans, 2018), imported televisions (Karp and Perloff, 1989.) and sugar-sweetened beverages (Chaloupka et al., 2019; Teng et al., 2019).

Within the context of GCC, a stream of literature in the excise tax has unpacked the effects of this tax category on other sensitive products with proven direct health consequences (see, for example, (Alsukait et al., 2020b, 2020a; Charfeddine, 2020)). These studies and others highlight some potential improvement areas for the excise tax in the region while emphasizing how the excise tax can signal out the cost of negative externalities caused by consuming the excisable

goods (Alsukait et al., 2020a). Thus, the excise tax did not only shed light on human health aspects but rather raises the awareness of social (e.g., gambling) and environmental (e.g., greenhouse gases) issues (Elamonovich, 2022). The excise tax contributes to non-oil tax revenue as applied normally on imported excisable goods. Therefore, and to a lesser extent, the literature has shown the effects of applying excise taxes on petroleum products, which contribute to the primary revenue of the GCC countries (i.e., oil revenue; Alsukait et al., 2020b). What becomes really interesting here is the political and economic debates to determine what falls in the excisable goods and what does not and to what extent should it be taxed or eliminated.

The common aspect in the aforementioned empirical literature within the developed countries is the excisable product, i.e., tobacco vis-à-vis cigarettes for analyzing the impact of excise tax on the consumption, demand, price, and quality of the products. The literature shows that the increase or implementation of excise tax helps the countries to reduce the consumption of cigarettes up to some extent, and it has been seen a shift in the demand of these products such as in the USA (Barzel, 1976; Teng et al., 2019; Wang et al., 2021). The demand and consumption of cigarettes are also linked with the income of individual consumers and the level of price increase in these products (Evans & Farrelly, 1998; Lesley & Muehlegger, 2010). The consumption of cigarettes is directly proportional with the increase in the income of individuals such as in Greece; nevertheless, a similar increase in price of cigarettes less significantly affects the consumption of these products (Papageorgiou et al., 2021). Furthermore, the common aspect of researchers in the developed and developing countries is that both categories predominantly focused on the excisable product tobacco vis-à-vis cigarettes in their empirical studies. The reasons can be attributed to the availability, access, a range of variety and affordability of these products around the globe. The individual's income played a significant role whilst determining the demand of tobacco/cigarettes as the price elasticity for these products is high in response to the excise tax. Most of the empirical literature analyzed the impact of excise tax on tobacco/cigarettes by using the panel data or scanner retailer data. Our research work encompasses a wide scope of excisable goods tobacco/cigarettes, energy drinks, carbonated drinks, sweetened beverages and electronic smoking devices by relying on the primary data source through collecting the data directly from the individual consumers residing in the UAE.

In the light of existing theoretical and empirical literature, we, therefore, expect that implementation of excise tax in the UAE emerging market would have reduced the consumption of excisable products. The reduction in consumption of excisable products may be due to the additional cost of excise tax borne by the end consumer and health awareness created by the excise tax implementation. Thus, hypothesis H1 is as follows:

Hypothesis H1: There is a negative relationship between excise tax implementation and the consumption of excisable goods among the UAE residents.

2.3.2. *Excise tax and brand loyalty for excisable goods*

One of the objectives of this paper is to examine whether the consumers of excisable products in the UAE have continued utilizing the same brands after the excise tax is levied or did they switch to the lower price brands. Brand constitutes name, design, symbol or any other product feature which distinguishes it with the other identical or similar products sold by other sellers in the market (Aaker, 1996). Strong brands may have more customer loyalty and less price sensitivity (ibid.). A number of researchers have studied the aspects of brand loyalty and its reasons. For example, Fournier (1998) shed light on the psychological association of the end customers with the brands which they have created due to the role of media in creating and capturing market share in the US. Also, this association and commitment of consumers disregard the other less costly brands due to a specific development of taste with the brands (e.g., sports drinks). More recently, Wang et al. (2021) studied how brand loyalty is affected by the excise taxes, usage restrictions and

educational advertising campaigns by using panel data in the US. The findings concluded that excise tax reduced the smoking rates; however, market leaders are relatively less affected because the strong brands absorb the tax policies rather than passing it to the end consumers. Also, they found minimal effects of excise tax on the brand choices. Similarly, the recent contribution of DeCicca et al. (2021) found that consumers of tobacco products in the US exhibit a high level of brand loyalty and most consumers did not switch to other (lower) price brands despite the sharp increase in the premium brands of tobacco products due to excise tax.

Whilst conducting empirical study on brand loyalty for tobacco in Pakistan, Saeed et al. (2013) found that brand image and customer satisfaction play a significant role in determining the brand loyalty. The consumers of specific cigarettes brands⁸ are less price sensitive which implies that changes in the prices of these brands did not affect the consumption. Overall, previous empirical studies were conducted predominantly for tobacco/cigarettes. It can be concluded that the consumers are less price sensitive and they remain brand loyal even the price of tobacco products was increased due to excise tax. Therefore, it is expected that there is a relationship between excise tax implementation and brand loyalty of end consumers with the excisable products. Like previous studies, the implementation of excise tax in the UAE may not have negatively affected the brand loyalty of consumers with the excisable products. Thus, hypothesis H2 is as follows:

Hypothesis H2: There is a positive relationship between excise tax implementation and brand loyalty for the excisable products among the UAE residents.

2.3.3. *Excise tax and health awareness*

In addition to analyze the impact of excise tax on the consumption and brand loyalty of consumers, this paper also aims to examine the impact of excise tax implementation for creating the health awareness among the consumers of the excisable products in the UAE. One of the most important factors affecting the health of people is obesity (Kelley, 2006). In recent years, the prevalence of obesity has increased and is epidemic in the UAE (Baxter, 2009). According to the World Obesity Federation ranking, the UAE has an obesity rate of 28.44% and currently stands at number 26 (World Obesity, 2022). Whilst in the USA the obesity rate is 36.47% with standing at number 14 which is worse than the UAE. In the UK, this rate is 27.88% with ranking of number 29 which is relatively closer to the UAE. In China, the rate of obesity is much better, i.e., 6.11, with a standing at number 145. A few of the many causes of obesity are dietary pattern, food choices (sweetened beverages, soft drinks, fast food, etc.) and lifestyle (Wigglesworth, 2008; World Bank Group, 2019). One of the main objectives of the UAE government levying excise tax on the excisable products is creating awareness among the society about the harmful use of the excisable products, and promoting a health conscious society (Federal Tax Authority, 2017).

Snowdon (2014) highlighted the health problems caused by the sugar-sweetened beverage (SSB) consumption in Pacific Island countries. To combat these issues, many countries have imposed excise taxes on SSBs to increase price to the consumer (Snowdon, 2014). The findings showed that diverse kind of efforts to create awareness and educate people have indicated mixed success in terms of the changing behavior for the consumption of SSB products (Snowdon, 2014). Miguel et al. (2019) assessed the impact of the tax on the consumption of SSB in Spain and concluded that the implementation of the excise tax on SSB has reduced the consumption of such beverages. They showed that the leading cause cited by the respondents for reducing their consumption of SSB was the increase in price, and increased awareness of their health. Horáková et al. (2020) concluded that the implementation of taxes certainly supports the field of population health and prevention of excisable product in the EU Member States.

In the light of existing literature, it is expected that there is a relationship between excise tax and health awareness creation among the people. Thus, hypothesis H3 is as follows:

Hypothesis H3: There is a positive relationship between excise tax implementation and health awareness among the UAE residents.

3. Methodology

3.1. Data collection

Unlike other studies in the literature which used the governmental source data, this paper relied on the data collected from the primary source directly from the individual consumers residing in the UAE. Because, there is no reliable secondary data source on the consumption (demand and/or supply) of excisable goods, brand loyalty with the excisable products and the level of health awareness created as a result of the implementation of excise tax in the UAE (Delipalla1 et al., 2022). Therefore, the data was collected through the Self-Administered Questionnaire (SAQ) method. This paper follows the quantitative explanatory approach and used primary data collected through SAQ from the residents of the UAE during 2022 to test the study hypotheses. The SAQ is a common approach dealing with the issue under discussion (Balcells et al., 2010; Miguel et al., 2019). The snowball sampling technique was used to obtain questionnaire responses. The snowball sampling method entails contacting and requesting the research participants who are initially approached by the researcher to engage further subjects among their connections (Naderifar et al., 2017). This method is very effective in contacting a vast range of respondents to whom researcher cannot directly contact (Khalil & Sidani, 2020; Polit & Beck, 2006).

The participants were informed about the purpose of the survey and were assured that their responses will be completely anonymous and confidential, and that the information collected will only be used for research purposes. Before completing the questionnaire, consent regarding data collection and publication was required. The total number of participants reached 572, out of which 5 surveys were not valid and 8 people did not respond completely. Therefore, the final number of completed valid survey responses was 559. The sample was diverse in terms of age, gender, education, employment and income level. The diversity of the sample, particularly in terms of age, income group and health consciousness, allowed researchers to assess the impact of excise tax on the consumption, brand loyalty and health awareness of the consumers. Out of the 559 respondents, 67 % of respondents were women, 54.9% respondents were living in Sharjah and 47.5% were in the age group of 21–30 years. Participants from various sectors were involved in the survey, including private, public, students and housewives. Table 1 presents the profile of the participants.

3.2. Variables measurements and study model

The SAQ consisted of five sections. The first section collected the data about the demographics of the respondents, the second section referred to the excise tax information, the third section referred to the goods consumption in relation to the excise tax information, the fourth section consisted of brand loyalty and consumers switch to the lower price brands, and the fifth section collected data about the health awareness in relation to the excise tax. The demographics part of the questionnaire collected data about gender, age, marital status, Emirates and income group of the participants. The demographics data was used as controlled variables in this study. The previous literature is based on the governmental data obtained from official data sources; however, currently in the UAE there is no governmental data source for the excise tax (Delipalla1 et al., 2022). Therefore, the SAQ was drafted based on the nature of the dependent and independent variables. Nonetheless, the nature of questions is influenced by Khalil and Sidani (2020); DeCicca et al. (2021). The general multiple regression analysis model used to test the study hypotheses in this paper is as follows:

Table 1. Profile of the participants

Number of surveys delivered: 572					
Total number of respondents: 559 (97%)					
Demographics	Number of Participants	Percentage	Demographics	Number of Participants	Percentage
Age			Income per month		
Below 20 years	99	18.0	No personal income (student)	170	30.1
Between 21-30 years	252	45.0	Less than AED 10,000	132	23.4
Between 31-40 years	114	20.0	Between AED 10,000 and 25,000	126	22.3
Between 41-50 years	66	11.8	Between AED 26,000 and 35,000	91	16.1
Did not mention age	28	5.0	Between AED 36,000 and 50,000	29	5.1
			Above AED 50,000	17	3.0
Gender			Sector		
Male	184	32.9	Students	244	43.0
Female	375	67.1	Public	152	26.8
			Private	85	15.0
			Business	28	4.9
			Housewives	58	10.2
Emirate			Working experience		
Sharjah	310	54.9	Not applicable	161	28.4
Dubai	103	18.2	(students/ housewives)		
Abu Dhabi	55	9.7	0-3 years	180	31.8
Fujairah	15	2.7	4-6 years	62	11.0
Ajman	45	8.0	7-10 years	54	9.5
Ras-ul-Khaimah	23	4.1	Over 10 years	109	19.3
Um-ul-Quwain	14	2.5			
Marital Status					
Married	345	61.1			
Single	210	37.2			
Separated	8	1.4			
Widow	2	0.4			

$$DVi = \alpha + \beta_1(ETI)_i + \beta_2(GEN)_i + \beta_3(AGE)_i + \beta_4(MS)_i + \beta_5(EMI)_i + \beta_6(IG)_i + \varepsilon_i \quad (1)$$

Where

DVi = Dependent variable for questionnaire respondent which includes three variables:

- (i) *CEP* = consumption of excisable products (*PC* = product category; *FEP* = frequency of excisable products consumption; *UEP* = use of excisable products; *PIC* = price increase and consumption)
- (ii) *BL* = brand loyalty (*PCB* = price, consumption and brand loyalty; *SOB* = shift to other brands possibility; *RBL* = reasons of brand loyalty)
- (iii) *HA* = health awareness (*IUH* = information about unhealthy excisable products; *IEPH* = impact of excisable products on health; *AEPH* = awareness about excisable products and health; *FUE* = future use of excisable products)

ETI = Excise tax implementation as independent variable (*ETIA* = excise tax implementation awareness; *ETIP* = excise tax implementation and price)

Respondents' demographic characteristics include five variables:

- (i) *GEN* = gender
- (ii) *AGE* = age
- (iii) *MS* = marital status
- (iv) *EMI* = Emirates
- (v) *IG* = income group

ε_i = Residual error term

The measure of excise tax implementation information in relation to brand loyalty and health awareness was done on a 5-point Likert scale (0 = neutral, 1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree) and by using a 3-point nominal scale (1 = Yes, 0 = No, and 2 = May be) depending on the type of question. Based on the nature of measure, the relationship of excise tax with the consumption of excisable products was assessed by using a 3-point nominal scale (1 = Yes, 0 = No, and 2 = May be) and a 5-point Likert scale (0 = neutral, 1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree). Also keeping in view the type of question for this measure, a 3-point interval scale was used (0 = once or twice daily, 1 = twice, thrice or four times in a week, 2 = more than four times in a week). The nature of questionnaire components including demographics characteristics in the survey was chosen on the basis of previous studies (DeCicca et al., 2021; Khalil & Sidani, 2020). The surveys were administered in English on no name basis.

4. Results and discussion

4.1. Validation and reliability

This paper uses the Cronbach Alpha statistics to assess the internal consistency of the survey instrument. Table 2 shows that the value of Cronbach Alpha for independent variable *ETIA* (excise tax implementation awareness) and *ETIP* (excise tax implementation and effect on price) is 0.62. For the dependent variables, *CEP* (consumption of excisable products) the Cronbach Alpha value is 0.64, for brand loyalty (*BL*) this value is 0.71 and for health awareness (*HA*) it resulted in 0.74. Overall, the values of Cronbach Alpha for each construct is in the range of 0.62 to 0.74 which is above the minimum acceptable benchmark of 0.50 (Khalil & Sidani, 2020; Shantz et al., 2018; , Al-Mekhlafi, 2011) which confirms the reliability and consistency of construct. The factor analysis was

performed to ensure the validity of each measurement. The cumulative explained variance for each measurement is also in the acceptable range (Table 2).

4.2. Descriptive statistics and correlations matrix

Table 3 presents the descriptive statistics of the all study variables. From the dependent variables construct, frequency of excisable products consumption (FEP) has the minimum standard deviation of 0.58 compared to the other factors. The standard deviation of brand loyalty (BL) and health awareness (HA) within the associated constructs is similar and within the range of 1.36 and 1.59. Brand loyalty (BL) and health awareness (HA) show a mean of 1.80 and 2.63 with the minimum value of 0 and max. value of 4. The standard deviation of independent variable construct excise tax implementation and effect on price (ETIP) is low compared to the excise tax implementation awareness (ETIA) as well as with the dependent variables, i.e., consumption of excisable products (CEP), brand loyalty (BL) and health awareness (HA). All study variables are normally distributed with acceptable range of five degrees of skewness and kurtosis.

Furthermore, correlations among the study variables were computed using Spearman's rank statistics (Table 4). There is a significant correlation between various factors of dependent and independent variables. The dependent variables (from the brand loyalty (BL) category) price, consumption and brand loyalty (PCB) and reasons of brand loyalty (RBL) are significantly correlated with independent variable of excise tax implementation awareness (ETIA) and excise tax implementation and effect on price (ETIP). Shift to other brands possibility (SOB) is significantly correlated with excise tax implementation awareness (ETIA); however, it does not show a correlation with excise tax implementation and effect on price (ETIP). The other dependent variable (from the health awareness (HA) category) information about unhealthy excisable products (IUH), impact of excisable products on health (IEPH), awareness about excisable products and health (AEPH) and future use of excisable products (FUE) are significantly correlated with the excise tax implementation awareness (ETIA).

Unlike these two dependent variables (brand loyalty (BL) and health awareness (HA)), the other variables (from the consumption of excisable products (CEP) category) product category (PC), use of excisable products (UEP) and price increase and consumption (PIC) did not show at all a relationship with excise tax implementation awareness (ETIA) and excise tax implementation and effect on price (ETIP) with the exception of frequency of excisable products consumption (FEP) which only shows a weak correlation with the independent variable. The lack of correlation between consumption of excisable products and excise tax implementation awareness shows that the levy of excise tax has not affected the consumption pattern of individuals. The potential associated reasons of these results are further supported and elaborated in the following section on regression analysis.

4.4. The regression analysis model (OLS)

The excise tax implementation dimensions were incorporated into the multiple regression analysis (ordinary least squares) separately to avoid multicollinearity and to detect the dominant internal environment. The results in Table 5 (Panel A) show that excise tax implementation awareness (ETIA) has no significant influence on the dependent variable dimensions of product category (PC), frequency of excisable products consumption (FEP), use of excisable products (UEP) and price increase and consumption (PIC). The attributes of models 1 to 4 have low adjusted R of 0.001, 0.021, 0.015 and 0.014, respectively, with no significant F-statistic. This result implies that the implementation of excise tax implementation has not influenced the consumption level of carbonated drinks, tobacco products, energy drinks, sweetened beverages and electronic smoking devices in the UAE. Also, the results show no significant impact of excise tax implementation frequency and use of excisable goods consumption, even though the prices have increased due to the levy of excise tax. Therefore, hypothesis H1, which states that there is a negative relationship between excise tax implementation and the consumption of excisable goods among the UAE residents, is rejected.

Table 2. Measures of survey reliability and factor analysis

Variables	Cronbach's alpha	Cumulative explained variance (%)
<i>Independent variable Excise Tax Information (ETI)</i>		
ETIA	0.62	34.42
ETIP	0.62	48.04
<i>Dependent variable (1) Consumption of Excisable Products (CEP)</i>		
PC	0.64	100.00
FEP	0.64	29.41
UEP	0.64	57.29
PIC	0.64	78.90
<i>Dependent variable (2) Brand Loyalty (BL)</i>		
PCB	0.71	63.87
SOB	0.71	85.04
RBL	0.71	100.00
<i>Dependent variable (3) Health Awareness (HA)</i>		
IUH	0.74	57.61
IEPH	0.74	76.51
AEPH	0.74	92.71
FUE	0.74	100.00

Note: ETI = Excise tax implementation; ETIA = excise tax implementation awareness; ETIP = excise tax implementation and effect on price; CEP = consumption of excisable products; PC = product category; FEP = frequency of excisable products consumption; UEP = use of excisable products; PIC = price increase and consumption; BL = brand loyalty; PCB = price, consumption and brand loyalty; SOB = shift to other brands possibility; RBL = reasons of brand loyalty; HA = health awareness; IUH = information about unhealthy excisable products; IEPH = impact of excisable products on health; AEPH = awareness about excisable products and health; FUE = future use of excisable products; *Extraction method: principal component analysis using Varimax rotation.

One of the reasons of these results can be attributed to the fact that the UAE Gross National Income (GNI) of residents is higher (World Bank, 2020) predominantly due to the tax-free personal income and it is classified by the World Bank as one of the higher-income countries in the world. Therefore, it can be argued that excise tax levy does not have any significant impact on the consumption of excisable products and consumers kept on consuming the excisable products even though the prices were increased. This also implies that excise tax as a financial instrument cannot be alone sufficient in controlling and reducing the consumption of unhealthy products in a society where the monetary spending on such products play a less significant role. Therefore, the government can increase the rate of excise taxes on unhealthy products to significantly impact the consumers for the price change of associated excisable products. However, more emphasis should be focused on the social awareness about the consumption of these harmful products. This ultimately will also create awareness among the residents about the Sustainable Development Goals (SDGs), specifically “good health and well-being.” Another cause of these findings can be attributed to the hot weather conditions of the UAE which ultimately incline the individuals to consume carbonated, energy and sweetened beverages in the UAE. These aspects of research outcome can be linked to the theory of tax incidence pertaining to the consumption pattern of the individuals and are the reasons of the rejection of our hypothesis as opposed to the earlier studies which show the negative impact of excise tax on the consumption of excisable products (Barzel, 1976; Evans & Farrelly, 1998; Lesley & Muehlegger, 2010; Wang et al., 2021).

Table 3. Descriptive statistics

Variables	N	Minimum	Maximum	Mean	Standard deviation
<i>Independent variable Excise Tax Information (ETI)</i>					
ETIA	559	0	4	2.18	1.50
ETIP	559	0	1	0.85	0.35
<i>Dependent variable (1) Consumption of Excisable Products (CEP)</i>					
PC	559	0	2	1.52	0.59
FEP	559	0	2	0.79	0.58
UEP	559	0	2	0.95	0.82
PIC	559	0	2	1.03	0.69
<i>Dependent variable (2) Brand Loyalty (BL)</i>					
PCB	559	0	4	1.76	1.49
SOB	559	0	4	1.85	1.45
RBL	559	0	4	1.79	1.50
<i>Dependent variable (3) Health Awareness (HA)</i>					
IUH	559	0	4	2.91	1.36
IEPH	559	0	4	2.86	1.38
AEPH	559	0	4	2.14	1.59
FUE	559	0	4	2.63	1.51
<i>Demographics</i>					
GEN	559	1	2	1.67	0.47
AGE	559	0	3	1.28	0.90
MS	559	0	3	0.41	0.54
EMI	559	1	7	2.17	1.72
IG	559	0	5	1.52	1.35

All variables' abbreviations are explained under Table 2.

In contrast to the consumption variable results, Table 5 (Panel B) shows that excise tax implementation awareness (ETIA) has a significant positive impact on the brand loyalty dimensions of price, consumption and brand loyalty (PCB), shift to other brands possibility (SOB), reasons of brand loyalty (RBL) at the 5% level. The attributes of models 5 to 7 have adjusted Rof 0.078, 0.046 and 0.059 respectively, with significant F-statistic at the 1% level. This result implies that the excise tax implementation has strengthened the brand loyalty of consumers of excisable products. Also, the results show a positive significant impact of excise tax implementation on the brand loyalty, though the prices have increased. The reason can be attributed to the association and brand loyalty of consumers with the specific brands on the basis of diverse characteristics of the excisable product, e.g., color, taste, smell, packing, image. These results can be linked to our aforementioned discussion as the excise tax implementation has not affected the consumption

**Table 4. Correlation matrix
Correlation matrix**

	ETIA	ETIP	PC	FEP	UEP	PIC	PCB	SOB	RBL	IUH	IEPH	AEPH	FUE	GEN	AGE	MS	EMI	INC
ETIA	1																	
ETIP	.106*	1																
PC	0.071	0.028	1															
FEP	.116*	-.136*	.126*	1														
UEP	-0.057	-0.055	-0.047	-0.048	1													
PIC	-0.007	-0.007	-.094*	-0.044	.197**	1												
PCB	.306**	.154**	-0.005	0.067	0.070	-0.024	1											
SOB	.227**	0.079	0.035	0.028	0.063	0.047	.431**	1										
RBL	.240**	.097*	-0.056	0.025	0.034	-0.008	.391**	.548**	1									
IUH	.205**	0.011	.167**	0.064	-.106*	-0.043	.087*	.136**	.115**	1								
IEPH	.205**	-0.035	.158**	0.039	-.146**	-0.080	0.077	.186**	.147**	.705**	1							
AEPH	.193**	0.008	0.061	0.013	-0.066	-.126**	0.061	.126**	.174**	.372**	.424**	1						
FUE	.204**	.101*	0.058	0.044	-0.070	0.035	.136**	.168**	.182**	.333**	.379**	.343**	1					
GEN	-.085*	0.005	0.070	0.105	-0.059	-0.034	-0.064	-0.011	0.036	0.038	0.058	0.015	0.057	1				
Age	.102*	-0.025	0.015	-0.100	-0.061	0.049	0.022	-0.001	0.016	0.017	-0.007	0.012	-0.050	0.009	1			
MS	.097*	-0.039	0.041	-0.049	0.018	-.100*	0.041	0.023	0.072	0.015	-0.002	0.068	-0.036	-0.014	.552**	1		
EMI	0.006	-0.018	-0.001	-0.007	.119**	0.042	-0.018	-0.021	0.015	-0.073	-0.005	0.021	0.002	-0.009	-0.020	0.004	1	
INC	.185**	0.042	-0.002	0.005	0.005	-0.019	0.074	0.077	0.081	-0.032	-0.022	-0.011	-0.046	-.190**	.534**	.494**	0.054	1

Note: All variables' definitions are listed below Table 2. Pearson correlation coefficients (two-tailed) are provided. * and ** indicate significance at 5% and 1% level respectively.

of excisable products which eventually shows strong brand loyalty of the consumers with specific brands producing and selling excisable products. Therefore, hypothesis H2, which states that there is a positive relationship between excise tax implementation and brand loyalty for the excisable products among the UAE residents, is supported. This aspect of research outcome can be linked to theory of tax incidence pertaining to the consumption behavior of excisable goods as there is no significant change in the consumption due to the implementation of excise tax. This implies that as the consumers have displayed brand loyalty with the excisable products which ultimately have shown no significant change in the consumption of excisable products. These findings are consistent with the previous studies (DeCicca et al., 2021; Wang et al., 2021).

Table 5 (Panel C) results show that excise tax implementation awareness (ETIA) has also significantly impacted the health awareness dimensions i.e., information about unhealthy excisable products (IUH), impact of excisable products on health (IEPH), awareness about excisable products and health (AEPH), future use of excisable products (FUE) at 5% level. The attributes of models IUH, IEPH, AEPH and FUE have adjusted R of 0.038, 0.038, 0.039 and 0.046 respectively, with significant F-statistic at the 1% level. This result implies that the implementation of excise tax implementation has created health awareness among the residents of the UAE that consumption of such products is harmful for the health and it can lead to diseases like diabetes and obesity. Therefore, hypothesis H3, which states that there is a positive relationship between excise tax implementation and health awareness among the UAE residents, is supported. Nevertheless, as the consumption of excisable goods has not been affected due to the excise tax implementation, therefore, the creation of health awareness can be deemed as a theoretical aspect which should be further addressed to bring the practical and effective changes to promote a healthy society. These findings are consistent with the earlier studies (Horáková et al., 2020; Snowdon, 2014). Multicollinearity was not a problem in any of the model variables because the Variance Inflation Factors (VIF) were within the acceptable limit of five degrees. The respondents' demographic characteristics, i.e., gender (GEN), age (AGE), marital status (MS), Emirates (EMI) and income group (IG), did not have a significant impact on dependent variables as shown in Table 5.

4.5. Additional diagnostics tests

To ensure the reliability of the results, several additional diagnostics tests were performed (results not shown for the reason of brevity). Two-stage least squares regression analysis was applied to ensure that there were no threats from endogeneity due to omitted variable bias. The beta coefficient and unstandardized predicted values show the similar results in both stages. The demographic characteristics, i.e., gender, age, marital status, Emirates and income group, were valid for excise tax implementation information. However, this result should be treated with caution, because the values for partial R and the partial F-statistic were low. These low values may indicate weak instrumental variables, a possibility that future research should address. To further check the heteroscedasticity, Breusch-Pagan test was performed. The chi-square test statistics and corresponding p-values show no sufficient evidence that heteroscedasticity was present. To test the autocorrelation, the Durbin-Watson test was performed. The results did not show the presence of autocorrelation in the model as the Durbin-Watson values (1.9) were close to 2 and within the acceptable range.

5. Conclusions

This paper empirically investigates the impact of excise tax implementation on the consumption of excisable goods (tobacco, energy drinks, carbonated drinks, sweetened beverages and electronic smoking devices), brand loyalty of the consumers and health awareness in the UAE emerging market. The results show that excise tax implementation does not significantly affect the consumption of excisable products. Despite levy of 100% excise tax rate on the tobacco, tobacco products, electronic smoking devices, and energy drinks, and 50% excise tax rate on carbonated drinks and sweetened beverages, the consumers have not effectively reduced the consumption of these items. The results also highlighted that individuals have continued consuming the same brands of excisable products which shows a high level of brand loyalty. Nevertheless, keeping in

**Table 5. Regression analysis model (OLS)
 Dependent variables properties**

	Panel A					Panel B					Panel C				
	PC	FEP	UEP	PIC	PCB	SOB	RBL	IUH	IEPH	AEPH	FUE				
	1	2	3	4	5	6	7	8	9	10	11				
ETIA	0.100 (2.198)	0.134(2.28)	-0.66(-1.43)	-0.20(-.434)	0.292(6.69) ***	0.223(5.04) ***	0.238(5.41) ***	.209(4.71) ***	.219(4.91) ***	.201(4.53) ***	.225(5.06) ***				
ETIP	.005(0.118)														
GEN	.053(1.18)	.085 (1.44)	-0.65(-1.45)	-0.38(-.843)	-0.30(-.682)	.010 (.232)	.056(1.289)	.029(.666)	.060(1.36)	.011(.257)	.077(1.74)				
Age	-.051(-.861)	-.129 (-1.68)	-1.07(-1.85)	.133(2.283)	-0.38 (-.672)	-0.079 (-1.364)	-0.099 (-1.735)	-0.10(-1.68)	-0.003(-.057)	-0.048(-.831)	-.034(-.587)				
MS	.035(.621)	-.059 (-.802)	.057(1.03)	-1.68(-3.02)	.019 (.360)	.022 (.403)	.078(1.433)	.032(.592)	-.008(-.142)	.131(2.382)	-.018(-.322)				
EMI	-.005(-.118)	-.011 (-.190)	.107(2.41)	.035(.776)	-.041(-.945)	-.034 (-.766)	.009(0.201)	-1.77(.076)	.001(.014)	.028(.630)	.008(.175)				
INC	.036(.641)	.109 (1.475)	.032(.590)	-0.11(-.194)	.013(.244)	.068 (1.234)	.071(1.314)	-.054(-.980)	-.055(-.997)	-.079 (-1.438)	-.062 (-1.134)				
Constant	1.35(10.39) ***	0.597(4.17) ***	1.093(6.80) ***	1.07(7.89) ***	1.17(11.06) ***	1.46(5.04) ***	1.01(3.38) ***	2.61 (9.6) ***	2.28(8.30) ***	1.69(5.28) ***	1.93(6.33) ***				
Radj.	0.001	0.021	0.015	0.014	0.078	0.046	0.059	0.038	0.038	0.039	0.046				
D-W	1.76	2.08	2.05	2.07	1.92	1.96	2.13	1.93	1.89	2.07	1.83				
F-Stat	1.08	2.04	2.54	2.39	8.05***	5.00***	6.28***	4.37***	4.31***	4.39***	4.99***				
VIF (Mx/Mn)	1.03/1.00	1.02/1.00	1.03/1.03	1.03/1.03	1.03/1.00	1.03/1.00	1.03/1.00	1.03/1.00	1.03/1.00	1.03/1.00	1.03/1.00				
Valid N	559	559	559	559	559	559	559	559	559	559	559				

Note: All variables' definition is listed below Table 2. Standardized beta coefficients are provided with t-values in parentheses. *, ** and *** indicate significance at 10%, 5% and 1% (two-tailed), respectively. Mx = maximum and Mn = number of observations.

view manifold objectives of the FTA, revenue generation through the collection of excise tax is achieved which can be contributed into the economy for beneficial public services. Furthermore, the implementation of excise tax has also significantly enhanced the health awareness among the residents. There is a possibility that merely theoretical awareness of the harmful impact of excisable products should be transformed into the concrete actions taken by the UAE residents through reducing the consumption of such excisable products. One, nonetheless, can argue that this excise tax can act as a gatekeeper to these products and make it less financially attractive to the new consumers. To sum up and provide insights to the policymakers for formulating future excise tax policies, we recommend the following:

- The UAE government can increase the rate of excise tax on tobacco products, energy drinks from 100% to 200% and from 50% to 100% on carbonated drinks, and sweetened beverages. On one side, this will increase the revenue contribution into the economy and on the other side it can instigate the consumers to reduce the consumption of unhealthy products because the current retail sale price will increase enormously (i.e., approx. 66% increase for energy drinks, tobacco and electronic smoking devices and approx. 75% for carbonated drinks and sweetened beverages) with the imposition of aforementioned suggested excise tax rates.
- An effective health awareness practically implemented by the government through multiple tools including media campaign, broadcasting public service message for the consumption of such unhealthy products is recommended. This will facilitate the consumers to shift from theoretical health awareness to practical actions by reducing the consumption of unhealthy excisable products.
- For the UAE, although the levy on these excisable goods appeared to be essential to manage the consumption of such products. Nonetheless, policymakers should be mindful that this levy has the potential to contribute in achieving the vision of the state while aligning with the local, regional and international commitments such as the SDGs and UNFCCC COP28, the Global Climate Summit in UAE.
- The policymakers can play a significant role as imposing excise tax on certain products signals the UAE's political and economic desires to shape a certain future by leading on health, social and environmental issues.
- As this study shows that the association between consumption and excise tax is vague, but a strong relationship between this excise tax and brand loyalty is present. It suggests that although the excise tax did not change the consumption level, it has the potential to change consumption behavior. Therefore, the policymakers can draw on this knowledge to set up excise tax rates within a multifaceted framework that (re)directs consumer behavior towards more rather sustainable choices within a free market space.
- In furthering the aim of excise tax, the UAE can make excise tax specific ingredients and/ or combinations of ingredients to not only encourage sustainable social consumption but also raise awareness of the cultural consumer developments. In another way, this study suggests that the financial constraints which are associated with the excisable goods have little or no relation to the consumption, suggesting the need to think of a wider range of constraints by engaging with the relevant stakeholders.

For extending the scope of excise tax to the other excisable products in future, policymakers should consider (among others) the determination of excise tax rate and effective execution of health awareness which will facilitate them beyond the successful achievement of merely monetary targets.

6. Limitations and future research

This study is limited to its context, scope and timeframe. On one hand, this study is limited to exploring the excise tax on goods with negative externalities, in particular, health. On another hand, the results of this research are limited to the excisable goods that contribute to non-oil tax revenue. Further research can be undertaken to depict the relationships between excise tax and consumer behavior within different political and socio-economic settings. The culture and excise tax can be fruitful avenues for future research as this study suggests that the financial constraints do not serve the purpose of the excise tax in places. Following Al Mahameed et al. (2021) the effects of excise tax can be unpacked and the corresponding consumer behavior further understood within the framing of sociology and culture. Furthermore, since this paper focused on the

impact of excise tax implementation on consumption, brand loyalty and health awareness within the residents of the UAE, therefore, in case the rate of excise tax is increased in future or the scope of excise tax is enhanced for the other harmful products in the UAE, we would suggest conducting a study focusing on the impact of excise tax implementation for the same factors, nonetheless considering the increased rate of excise tax. There is a possibility that findings and outcomes of such study can be contrasting than the current findings as the increased rate of tax may negatively impact the consumption of excisable products and brand loyalty of the consumers.

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Correction

This article has been corrected with minor changes. These changes do not impact the academic content of the article.

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Notes

1. The other two forms of indirect taxes applicable in the UAE are customs duty and Value Added Tax (VAT).
2. A sin tax is an excise tax levied on goods and services which are deemed harmful for the society, for example, tobacco, certain drinks, alcohol.
3. Federal Decree-Law No. (7) of 2017 on Excise Tax was issued on 21 August 2017 aided by the Cabinet Decision No. (37) of 2017 on the Executive Regulation and the Cabinet Decision No. (38) of 2017 made on 24 September 2017.
4. According to the Emirates News Agency, the UAE Ministry of Finance, the total amount of tax revenues since the implementation of the UAE-wide excise tax from Jan 2018 till October 2021 amounted to more than AED 8.6 billion (\$2.3 billion), UAE's VAT revenues reach \$26bn since implementation (arabnews.com), accessed 20 February 2022.
5. *Ibid.*
6. Federal Tax Authority (FTA) UAE 2017, Art. 6 Cabinet Decision No. (38) of 2017 on Excise Goods, Excise Tax Rates and the Method of Calculating the Excise Price, UAE.
7. These brands are Lorillard, Liggett, R.J.Reynolds.
8. These two brands are Pakistan Tobacco Company and Lakson Tobacco Company.

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