Is Fat Tax the Panacea for Fast Food Consumption and Related Health Issues in Urban India?

** Arunima Singh*
*** Parvati Pyarelal*
**** Vineeth Mohandas*

Abstract

In an attempt to reduce the growing fast food consumption, widely believed to be the prime reason for the rising obesity in the state, the Kerala Finance Minister in his 2016 budget speech made a proposal for introducing a 14.5% Pigouvian - type *fat tax* on the proliferating 'branded' fast food chains in Kerala, the first of its kind in India. In this context, the present study analyzed the rationale behind this policy and its effectiveness. The study was conducted during the period of October - December 2017 using primary data collected from a sample comprising of customers from five major fast food chains as well as patients from three prominent hospitals in Bengaluru city, selected using the random sampling technique. The study found out that there has been a major shift in the food habits among the people of urban India, especially among the youth. Students and professionals have increasingly become consumers of fast foods and through appropriate statistical techniques, it was found that the fast food consumption pattern has been acting as a major determinant of food consumption - related health issues. Based on the empirical analysis, the study concluded that levying of fat tax on the 'branded' fast food chains alone will not make any significant impact in reducing the consumption rate of these food items. However, it can provide an adequate source of revenue that can be channelized towards providing better health care facilities and campaigns for better food habits. The study also outlined some policy suggestions.

Keywords : **fat tax, Pigouvian tax, public health, regulation, branded fast food chains, obesity, nutrition**

JEL Classification : H23, I12, I18

Paper Submission Date : November 12, 2019 ; Paper sent back for Revision : May 5, 2019 ; Paper Acceptance Date : August 1, 2019

In his first budget speech on July 6, 2016, the Finance Minister of the newly elected LDF Government in Kerala, Dr T. M. Thomas Isaac made a proposal for introducing a 14.5% *fat tax* exclusively on burgers, pizza, tacos, donuts, sandwiches, burger-pattys, pasta, bread fillings, and other cooked food items sold by branded restaurants (Isaac, 2016, para. 251, p.114). Though the definition of a 'branded' restaurant remained ambiguous in the budget speech, it was clear that the move directly aimed at controlling the proliferation of 'branded' fast food chains in Kerala, which includes major international chains such as McDonald's, KFC, Pizza Hut, Dominos, and allies. It is in this context that the present study is carried out to analyze the rationale behind this first of its kind policy proposal and its effectiveness.

* *BA Economics Honours Student,* School of Business Studies and Social Sciences, CHRIST (Deemed to be University), Bengaluru - 560 076, Karnataka. (E-mail : arunima.singh@ arts.christuniversity.in)
** *BA Economics Honours Student,* School of Business Studies and Social Sciences, CHRIST (Deemed to be University), Bengaluru - 560 076, Karnataka. (E-mail : parvati.pyarelal@ arts.christuniversity.in)
*** *Assistant Professor of Economics (Corresponding Author),* School of Business Studies and Social Sciences, CHRIST (Deemed to be University), Bengaluru - 560 076, Karnataka. (E-mail : vineeth.m@christuniversity.in)

DOI : 10.17010/aijer/2019/v8i4/148070

The main motive behind the introduction of the fat tax is to try and slash the fast - rising obesity rates in the state where currently, 28.1% of women and 17.8% of men are either overweight or obese, putting Kerala second in the country's list of "most obese states" after Punjab (Ansari & Babu, 2016). In the words of the Finance Minister of Kerala, Dr. Thomas Isaac, "this is more of a preventive measure as Kerala's food habits are changing dramatically. People are eating a lot of junk food and rejecting traditional food" (Menon, 2016). The Southern state is a rather new stop for global fast food chains. The state has only around 60 branded fast food chain outlets compared to the 2600 outlets throughout India, which is only around 2% of the total number of outlets in the country. Though Kerala is the first state in India to impose a fat tax, it has made way to India through Denmark, Hungary, and Japan (Smed & Robertson, 2012). In 2011, Denmark introduced the same on dairy products, oil and processed foods with more than 2.3% saturated fat, but repealed it in 2013 when it found consumers shopping across the border for high-fat foods (Narayanan, 2016). In a similar case, initially dubbed as the 'Hamburger tax,' Hungary levied a 10 forint (0.05 dollar) on products that contained too much salt, sugar or fat while increasing the tax on liquor and soft drinks by 10 percent (Cain, 2011). However, it did not cover traditional Hungarian cuisine.

Fat tax finds its roots in the Pigouvian taxation system [1] wherein a tax is levied on any market activity that generates a negative externality. To internalize the external costs, the government needs to intervene by way of imposing taxes. Pigouvian tax can be applied to all spheres of production, a good or a service. It enhances the welfare of the society, restricting over-consumption, and also generating additional revenue for the government. The simple proponent is to impose a per-unit tax on goods generating negative externalities equal to the marginal externality at the socially efficient quantity.

There have been various studies that have brought out the fact that fast foods have serious health consequences. Alter and Eny (2005) brought out the positive relationship between food supply and cardiovascular diseases. The study showed that an increase in one unit of fast-food chain per 100,000 citizens leads to one death per 100,000 people in the region. The proximity of fast food chains was also found to have a significant impact on the risk of obesity (Currie, Della Vigna, Moretti, & Pathania, 2009). Relative lower price of food at fast food chains can also cause an increase in obesity due to increase in the fast food consumption (Lin, Liu, & Chou, 2007). A study by Lakdawalla and Philipson (2009) found that a relative reduction in the prices of fast foods resulted in a 40% increase in the Body Mass Index (BMI). Research also suggests that there is a positive significant peer effect in fast food consumption among adolescents in general (Fortin & Yazbeck, 2015).

Thus, research studies make it clear that fast food consumption does have a positive relationship with obesity. The growth of obesity into a major global epidemic over the past several decades has posed to be a major concern for policymakers. Although obesity may seem like an insignificant phenomenon for a country as a whole, it does have a severe economic impact. Like education, the health of citizens also has a significant relationship with labour productivity and thereby economic growth of a country (Gill, 2012). Countries suffering from high levels of the obesity epidemic like USA identified four major categories of economic impact such as direct medical costs (on account of spending on diagnostics and treatment), productivity costs (which include absenteeism, disability, and premature mortality, etc.), transportation cost (on account of higher fuel consumption by the obese population), and human capital costs (in the form of reduced enrollment in education institutions, etc.) (Hammond & Levine, 2010). However, what needs to be investigated is whether a policy such as fat tax will be effective in reducing the consumption of fast food and thereby, cases of obesity. Thus, the present study investigates into the trends in fast food consumption and related health issues in urban India and thereby analyzes the rationale behind this policy proposal and its effectiveness.

---

[1] The idea of Pigouvian tax was conceptualized by Arthur Cecil Pigou, an English economist, in the year 1920, in his book, *The Economics of Welfare.* In his work, he argued that industrialists seek only their marginal private benefit at the cost of social benefit. According to Pigou, a pigouvian tax is the difference between marginal social costs and the marginal private costs, which is in turn equal to the marginal costs.

Methodology

For the study, both primary and secondary data were collected. While the secondary data is used to understand the calorie level and the content of various food items supplied at the different fast food chains, the primary data were collected during the period of October - December 2017 by administering a questionnaire among the target groups, that is, the customers at fast food chains and patients with food consumption - related health issues. Since the composition of the customers at a fast food chain varies with respect to time and day, the study was conducted during the peak hours to have a comprehensive cross-sectional representation in the sample. Target group discussions and interviews with medical practitioners were also conducted to supplement and complement the inferences drawn from the survey.

Bengaluru city was chosen as the study area because of the presence of almost all popular fast food chains in large numbers and also the availability of a complete cross section of a modern Indian society. The questionnaire-interview method was administered among the customers of five major fast food chains, that is, KFC, McDonald's, Dominos, Pizza Hut, and Taco Bell, and also among the patients from three prominent hospitals in Bengaluru city. The respondents were selected through the random sampling method. Peak business hours were chosen for conducting the survey so as to ensure the presence of various cross sections of the society in the sample. The sample consisted of 100 customers from five food chains and 28 patients from three hospitals.

Analysis and Results

(1) Socioeconomic Profile of the Customers at Fast Food Chains : The socioeconomic profile of the customers and patients were studied in terms of age, gender, marital status, education, occupation, and income, and is provided in the Table 1.

(i) Age Composition : The age - wise distribution of the sample respondents shows that majority of the customers (58%) at the fast food chain outlets belonged to the age group of 15 - 25 years ; 30% of the customers in the sample belonged to the age group of 26 - 40 years. This distribution shows that the lion's share among the customers that visit fast food chains are the young population between 15 - 40 years.

Table 1. Socioeconomic Profile of the Respondents

Attributes	%	Attributes	%	Attributes	%
Age		**Education**		**Income (per annum)**	
<15 years	2	Below High School	1	< 2.5 lakhs	52
15-25 years	58	High School and PU	16	2.5 lakhs - 5 lakhs	6
26-40 years	30	UG	43	5 lakhs - 10 lakhs	35
>40 years	10	PG and above	40	>10 lakhs	7
Marital Status		**Occupation**		**Background of Upbringing**	
Single	72	Housewives	8	Rural	12
Married	28	Students	44	Semi Urban	21
		IT and Private Sector	30	Urban	67
		Other Professionals	12		
		Government Officials	6		
Gender				**Food Preference**	
Male	44			Vegetarians	32
Female	56			Non - Vegetarians	68

(ii) Education : The education distribution of the sample respondents reveals that all the customers at the fast food chains were educated, in fact, majority of them were well educated. While 83% of the respondents were under graduates and above, 15% had school level education. A crosstab analysis shows that all the 15% of the sample respondents with school level education were school students, which means that the customers of these fast food chains in the sample other than school students possessed education above the school-level.

(iii) Income and Occupation : The income distribution of the sample respondents shows that 52% of the sample belonged to the income group of less than INR 2.5 lakhs per annum. It was found that 6% of the respondents belonged to the income group of INR 2.5 lakhs - 5 lakhs per annum, while 35% belonged to the income group of INR 5 lakhs - 10 lakhs per annum. Also, 7% respondents in the sample belonged to the above INR 10 lakhs per annum income category. Occupation - wise distribution of the respondents shows that the main customers at the fast food chains were students (44%) and IT - private sector professionals (30%), while 12% of the respondents were other professionals such as doctors, lawyers, bankers, etc., 6% were government officials. The distribution also shows that 8% of the respondents were housewives. A cross tab analysis between income and occupation shows that the 52% of the respondents who belonged to less than INR 2.5 lakhs income category were students (44%) and housewives (8%). This means that leaving out students and housewives, the majority of the customers at the fast food chains belonged to the income group of INR 5 lakhs and above. Another striking result is that we did not find people belonging to the less than INR 2.5 lakhs income category among the customers of these fast food chains. Thus, based on these results, it will not be wrong to state that the branded fast food chains in India woo only the upper middle class and rich, and have not tried to reach out to the poor or lower middle-class people.

(iv) Background of Upbringing : The results of this distribution show that the individuals who are born and brought up in urban areas are more attracted to the fast food chains than others. Nearly 67% of the respondents were those who were born and brought up in urban regions. The sample also consisted of people born and brought up in the semi-urban (21%) and rural (12%) areas, but who had migrated to Bengaluru city.

(v) Food Preferences : The study finds that 68% of the respondents at the fast food chains were non-vegetarians and only 32% were vegetarians. This proves that though the fast food chains do provide vegetarian food, the major sales happening at these food chains are non - vegetarian food items.

(vi) Gender and Marital Status : The gender distribution of the sample shows that there is not much of a difference that exists in the gender composition of the customers at the fast food chains. While 56% of the respondents in this study were women, 44% were men. However, the marital status shows a more interesting result. It is found that majority of the respondents (72%) were unmarried, while only 28% were married.

Thus, reading together the findings from the analysis on the socioeconomic profile of the respondents provided in Table 1, we can conclude that the majority of the customers visiting the branded fast food chains in India are the young, urban-born, educated, financially well-off, non vegetarians, who are either students or professionals leading a single independent life.

(2) Trends in Fast Food Consumption : This section discusses some of the visible trends related to fast food consumption in India that were revealed during the study. It is a known fact that McDonald's entered the Indian market in 1996 at a time when majority of Indians were hesitant to consume fast foods. But today, India has a $1.12 billion worth fast food industry, with close to 2600 branded fast food outlets (Gaube, 2015). The details regarding the number of outlets for various brands of fast food chains in India as of 2017 are provided in the Table 2.

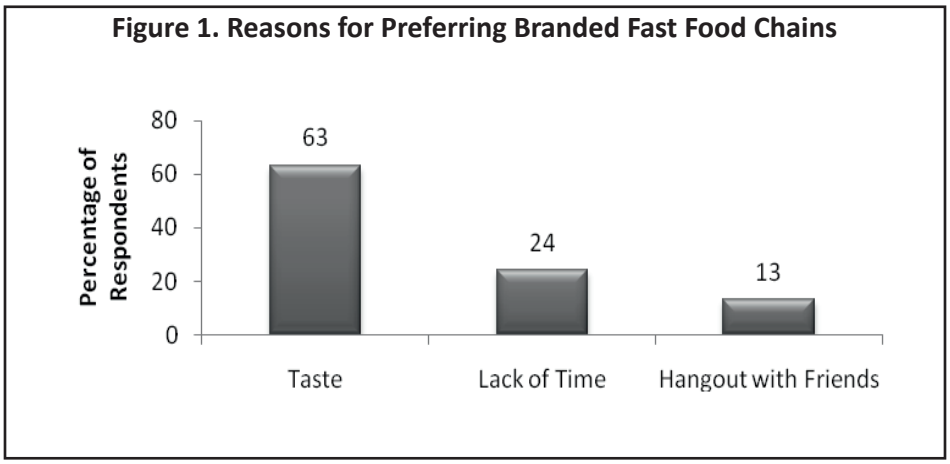
Table 2. Total Number of Fast Food Outlets in India in 2017

Fast Food Brand	India	Kerala	Bengaluru
McDonald's	219	8(3.65)	24(10.95)
KFC	372	16(4.30)	39(10.48)
Subway	584	12(2.05)	28(4.79)
Dominos	1004	19(1.89)	88(8.76)
Taco Bell	9	0(0.00)	3(33.3)
Pizza Hut	385	4(1.03)	53(13.76)

Source : The online store locator of various brands.

Note. Figures in parentheses are percentage share of the total outlets.

Figure 1. Reasons for Preferring Branded Fast Food Chains



As the socioeconomic profile has revealed, the majority of the customers at the fast food chains are the young, independent, single, and financially well-off students or professionals belonging to both the genders. The major reason for this young population to increasingly prefer these fast food chains are associated with the modern Indian urban lifestyle and work culture. The respondents mentioned three major reasons for preferring branded fast food chains, which are depicted in Figure 1.

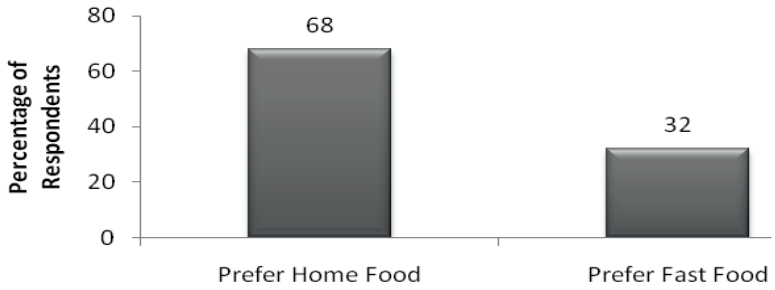
The results show that while 63% of the respondents preferred fast food chains because of the taste of the food they serve, 24% reported lack of time to prepare own food as the major reason. There were also 13% respondents (out of the total respondents) who went to such fast food chains only to enjoy some leisure time with friends. The results reflect the changing taste preferences of urban Indians. It shows that with their existence in the Indian urban space in the last two decades, branded fast food chains have been able to make a significant change in the taste and preferences of urban Indian consumers. A cross tab analysis shows that among 24% of the total respondents who cited lack of time as the reason for preferring fast food chains, a majority (63%) were those who were employed in IT and private sectors. This shows that the busy work life of average urban Indian professionals is forcing them to prefer branded fast food chains as these offer them a quick take away meal option. Among young students who are the major customers (44% of the respondents) at branded fast food chains, 66% preferred these due to the 'taste of the food' available at these outlets, and 22% revealed they went there to just spend time with their friends.

Along with their reasons for preferring branded fast food chains, the respondents also revealed their rating for these food chains. The result of the rating, which was done on a 5 - point scale, is provided in the Figure 2.

It is interesting to find that while none of the respondents rated the branded fast food chains as *poor*, the

Figure 2. Rating of Branded Fast Food Chains by the Respondents of the Study

Figure 3. Food Preference - Fast Food vs. Home Food



median suggests a *'very good'* rating for the food and service at these food chains, which again shows the popularity of these fast food chains among urban Indians. When asked to the respondents if they would prefer food at these branded fast food chains over their home food, a whopping 32% said 'yes' (see Figure 3).

The cross tab analysis shows that out of the 32% who preferred fast food over home food, a majority where those who belonged to the age group of 15 - 25 years (66%), single (82%), urban-born (63%), students (47%), and professionals from the IT - private sectors (34%). These results confirm our earlier findings that branded fast food chains are successful in altering the taste, preferences, and food habits of the urban Indian youth.

(3) Fast Food Consumption and Related Health Issues : To understand the impact of consumption of fast foods

Table 3. Food Preference and Frequency of Intake at Fast Food Chains by Respondents with Health Issues

		% of Total Respondents	% Within the Group
Food Preference	Veg	5	25
	Non - Veg	15	75
Frequency of Intake	NA (Veg)	5	25
	Monthly (Non - Veg)	1	5
	Weekly (Non - Veg)	10	50
	Daily (Non - Veg)	4	20

provided by fast food chains on the health of the individuals, the present study conducted surveys among customers at various fast food chains and also among 28 patients suffering from food consumption related health issues such as cholesterol, obesity, diabetes, cardiac issues, etc. The results suggest that among the customers at fast food chains, 20% of the respondents had either one or more of food consumption related health issues. Among the 20% respondents who revealed to have food consumption related health issues, 75% were those who preferred only non - vegetarian food and consumed fast food either once in a week (50%) or daily (20%), showing a strong correlation between frequent non - vegetarian food intake with food consumption related health issues (see Table 3).

Along with this result, it is also interesting to notice that the non - vegetarian respondents who had food consumption related health issues consumed food not only from the branded fast food chains, but also from other non - vegetarian restaurants. The cross-tabulation results of this are provided in the Table 4.

The results show that non - vegetarian consumers with food consumption related health issues not only

Table 4. Frequency of Intake at Other Non-Vegetarian Restaurants by the Respondents with Health Issues

		% of Total Respondents	% Within the Group
Frequency of Intake	NA (Veg)	5	25
	Monthly (Non-Veg)	4	20
	Weekly (Non-Veg)	9	45
	Daily (Non-Veg)	2	10

Table 5. Popular Food Items at Branded Fast Food Chains and Their Nutritive Properties

Brand	Item	Serving Size (G)	Fat (G)	Sugar (G)	Cholesterol (Mg)
McDonald's	Veg Burger	144. 58	18	8	29
	Chicken Burger	144.58	20	5	31
	French Fries	71	17	1	0.1
KFC	Veg Burger	196	29.71	7	45
	Chicken Burger	195.8	21	6	50
	French Fries	73.5	22	1	0.1
Subway	Veg Sub	162	3	6	44
	Chicken Sub	288	28	8	47
	Tuna Salad	396	30	5	12
Taco Bell	Veg Burrito	198	10	3	40
	Chicken Burrito	177	18	3	35
Pizza Hut	Margherita Pizza	104	13	6	25
	Veg Pizza	119	12	7	15
	Chicken Pizza	124	12	7	25
	Dessert	100	35	14.68	0
Dominos	Veg Pizza	113	9	4	15
	Pork Pizza	113	13	4	20
	Dessert	85	17	31	65

Source : Data taken from the websites of the respective fast food chains.

Table 6. Popular Food Items at Local Non-Vegetarian Restaurants and Their Nutritive Properties

Food Items	Serving (G)	Fat (G)	Sugar (G)	Cholesterol (Mg)
Porotta	40	1.4	0.12	0
Butter Naan	40	2	0.35	5.2
Chicken Biryani	250	10	2.5	28
Chicken Fry	150	18	1.5	130.5
Butter Chicken	150	21.8	2.1	78
Tandoori Chicken	150	17.8	1.5	108
Chicken Kebab	200	14	7	86
Paneer Butter	150	39.4	30.9	22.5
Egg Noodles	250	5	1.25	72.5
Mutton Keema	150	9	4.5	12

Source : Srilakshmi (2006)

consumed from branded fast food chains, but also from other non - vegetarian restaurants at almost similar frequency, and hence, it will not be appropriate to conclude that branded fast food chains alone are responsible for proliferating the food consumption related health issues. Some of the food items served at the local non - vegetarian restaurants contain more cholesterol and fat than the fast foods served at branded fast food chains. A comparison of this is provided in Table 5 and Table 6.

The results point fingers at a serious policy issue, that is, if a fat tax has to be levied, will it be appropriate to levy it only on branded fast food chains or should it be levied across all non - vegetarian food serving restaurants and eateries ? These findings provide more justification for the criticism against the Government of Kerala that the imposition of fat tax solely on the branded fast food chains is a biased policy. Another important finding of this study is that among the respondents who had food consumption related health issues, the highest number (45%) belonged to the age group of 15 - 25 years (see Table 7), which is really alarming.

To get a holistic view on the issue, the study also included 28 patients from three prominent hospitals in Bengaluru who had food consumption related health issues. Their socioeconomic profile is provided in the Table 8.

The socioeconomic profile of the respondent patients shows that majority of the patients suffering from food consumption related health issues such as cholesterol, obesity, diabetes, and cardiac issues belonged to the age group of above 40 years (60%), were married (86%), and were women (54%). Again, strikingly, majority of them were non-vegetarians (61%) born and brought up in an urban background (58%). Majority of the women patients were housewives. Students (14%) and IT - private sector professionals (18%) again noticeably became a significant part of the sample. This points a finger at the food eating habits and the lifestyle of housewives, students, and professionals in urban India and their role in leading to food consumption related health issues.

The Table 9 shows that the individuals who had a higher frequency of non - vegetarian food consumption

Table 7. Health Issues vis-à-vis Age of the Respondents

		% of Total Respondents	% Within the Group
Age Group	<15	0	0
	15 to 25	9	45
	26 to 40	7	35
	>40	4	20

Table 8. Socioeconomic Profile of the Respondent Patients

Attributes	%	Attributes	%	Attributes	%
Age (in Years)		**Education**		**Income (per annum)**	
<15	0	Below High School	3	< 2.5 lakhs	50
15 - 25	11	High School and PU	11	2.5 lakhs - 5 lakhs	14
26 - 40	29	UG	68	5 lakhs - 10 lakhs	28
>40	60	PG and above	18	>10 lakhs	8
Marital Status		**Occupation**		**Background of Upbringing**	
Single	14	Housewives	36	Rural	10
Married	86	Students	14	Semi Urban	32
		IT and Private Sectors	18	Urban	58
		Other Professionals	28		
		Government Officials	4		
Gender				**Food Preference**	
Male	46			Vegetarians	39
Female	54			Non-Vegetarians	61

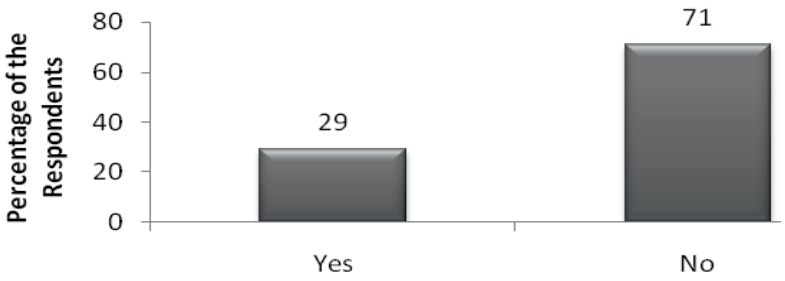
Table 9. Frequency of Intake of Non-Vegetarian Foods by Respondent Patients

		% of Total Respondents
Frequency of Intake	NA (Veg)	39
	Monthly	8
	Weekly	32
	Daily	21

suffered from food consumption related health issues. The result goes in hand with the earlier findings with respect to the customers of fast food, which confirms that people who consume non - vegetarian food at a higher frequency, whether from fast food chains or otherwise, are more prone towards food consumption related health issues.

Finally, the study also put forward to all the respondents a hypothetical question that whether they will reduce their consumption of fast food if a fat tax of 14.5% is imposed by the government. The result of this is provided in the Figure 4.

Figure 4. Will the Fat Tax Lead to a Reduction in the Consumption of Fast Food ?



The results show that levying a fat tax will not lead to a significant reduction in the fast food consumption as a huge majority of the respondents (71%) revealed that they will not be reducing the fast food consumption upon an implementation of a 14.5% fat tax. Hence, the only benefit that we can expect to have because of the tax is to accumulate enough of revenue, which can be channelized towards providing better health care facilities and campaigns for better food habits.

Summary and Conclusion

The study, which is conducted to analyze the rationale behind a policy proposal of imposing a fat tax on branded fast food chains, brings out several important, interesting, and insightful findings. The study is conducted using primary data collected through the questionnaire - interview method administered among 100 customers from five major fast food chains and among 28 patients from three prominent hospitals in Bengaluru city, selected using random sampling technique. The study finds that there has been a major shift in the food habits among the people of urban India, especially among the youth. Majority of the customers at branded fast food chains were either students or professionals working in private and IT sectors. While quality of food, taste, and ambience have been attracting the young students towards these fast food chains, the lack of time has been a major reason for professionals in urban India for preferring the same. This finding is consistent with the findings of the study by Santhosh (2018), who pointed at a growing brand preference in food among the Indian youth. The study also finds that high frequency non - vegetarian food consumption has been acting as a major determinant of food consumption - related health issues. Based on the empirical analysis, the study concludes that the levying of fat tax on the 'branded' fast food chains alone will not make any significant impact in reducing the food consumption related health issues. However, it can provide an adequate source of revenue that can be channelized towards providing better health care facilities and campaigns for better food habits.

Policy Recommendations

Based on the findings, the present study makes the following policy recommendations to the Government of India as well as the various State Governments :

(1) It is evident from the study that the issue of food consumption related health problems has a significant relationship with frequent non - vegetarian food consumption and not just fast food consumption. Hence, the fat tax should be imposed uniformly on all non - vegetarian eateries, whether they are branded fast food chains, restaurants, star hotels, or resorts.

(2) The government should make it mandatory for all eateries to publish nutrition information regarding all the food items they serve in their menu.

(3) Since majority of the customers at branded food chains are students, initiatives should be taken up at the school level to educate students about good food habits and health issues related with over consumption of junk foods and non - vegetarian foods.

Limitations of the Study and Scope for Future Research

The study being first of its kind has a few unavoidable limitations. The major limitations of the study are as follows:

(1) No considerable literature is available in the Indian context related to the research problem to base the research methodology or verify the results.

(2) The limitation of the sample size applies to this study, especially that of patients due to the practical difficulty of obtaining respondents from hospitals as well as time constraints.

(3) Since the study was conducted immediately after the tax proposal was made, the real time impact post imposition of tax could not be captured.

Based on these limitations, the following directives can be given as scope for future research :

(1) The study can be extended to other places of the country, with a larger sample size of fast food customers and patients with food consumption-related health issues.

(2) A study can be conducted after implementation of the tax policy to understand the impact of it on fast food consumption and its effectiveness in reducing obesity related health issues.

Acknowledgment

We wish to thank the Chairman and the participants at 'Synthesize - Inter-disciplinary Conference on Management and Social Science - 2017' organized by School of Business Studies and Social Sciences, CHRIST (Deemed to be University), Bengaluru for their valuable feedbacks given when the paper was presented.

References

Alter, D., & Eny, K. (2005). Relationship between supply of fast-food chains and cardiovascular outcomes. *Canadian Journal of Public Health, 96*(3), 173 - 177. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/15913078

Ansari, H., & Babu, R. (2016, July 17). Kerala's fat tax : What will it take to win the fight against obesity ? *Hindustan Times.* Retrieved from https://www.hindustantimes.com/health-and-fitness/kerala-s-fat-tax-can-it-work-what-will-it-take-to-win-the-fight-against-obesity/story-CpW20p4c5hfeVd3VdxFEmI.html

Cain, P. (2011, June 21). Hungary for a "fat tax". *GlobalPost.* Retrieved from https://www.pri.org/stories/2011-06-21/hungary-fat-tax

Currie, J., Della Vigna, S., Moretti, E., & Pathania, V. (2010). The effect of fast food restaurants on obesity and weight gain. *American Economic Journal: Economic Policy, 2*(3), 32 - 63. doi:10.3386/w14721

Fortin, B., & Yazbeck, M. (2015). *Peer effects, fast food consumption and adolescent weight gain* (IZA Discussion Papers, No. 9087). Retrieved from https://www.econstor.eu/bitstream/10419/111538/1/dp9087.pdf

Gaube, V. (2015, April 2). India's fast food industry is becoming a major market. *CNBC.* Retrieved from http://www.cnbc.com/2015/04/02/indias-fast-food-industry.html

Gill, H. S. (2012). Health status, labour productivity and economic growth: A production function approach. *Arthshastra Indian Journal of Economics & Research, 1*(1 - 2), 25 - 31. doi:10.17010/aijer/2012/v1i1-2/54514

Hammond, R. A., & Levine, R. (2010). The economic impact of obesity in the United States. *Diabetes, Metabolic Syndrome and Obesity: Targets and Therapy, 3,* 285 - 295. doi:10.2147/DMSOTT.S7384

Isaac, T. M. T. (2016). *Revised budget speech 2016-17*. Retrieved from https://kerala.gov.in/documents/10180/5b6cb7dd-d019-42f6-b9a5-836abada51f0

Lakdawalla, D., & Philipson, T. (2009). The growth of obesity and technological change. *Economics and Human Biology, 7*(3), 283 - 293. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/19748839

Lin, M. - J., Liu, J. - T., & Chou, S. (2007). As low birth weight babies grow, can well - educated parents buffer this adverse factor ? A research note. *Demography, 44*(2), 335 - 343. doi: 10.1353/dem.2007.0013

Menon, S. (2016, July 13). Why has an Indian state imposed a 'fat tax'? *BBC*. Retrieved from https://www.bbc.com/news/world-asia-india-36771843

Narayanan, C. (2016, July 8). The fat's in the fire in Kerala. *The Hindu Business Line.* Retrieved from http://www.thehindubusinessline.com/opinion/columns/chitra-narayanan/why-keralagovts-move-to-impose-a-hefty-tax-on-junk-food-has-fat-chance-of-success/article8824301.ece

Santhosh, R. (2018). Boom in brand preference for food and marketing avenues in Kerala. *Arthshastra Indian Journal of Economics & Research, 7*(6), 19 - 29. doi: 10.17010/aijer/2018/v7i6/141431

Smed, S., & Robertson, A. (2012). Are taxes on fatty food having their desired effects on health ? *BMJ,* 345. doi: 10.1136/bmj.e6885

Srilakshmi B. (2006). *Nutrition science.* New Delhi, India : New Age International.

About the Authors

Arunima Singh is a graduate in BA Economics Honours from CHRIST (Deemed to be University) Bengaluru. She is at present a Master's student at the University of Sussex.

Parvati Pyarelal is a graduate in BA Economics Honours from CHRIST (Deemed to be University) Bengaluru. She is at present working as an interior designer in London.

Vineeth Mohandas is a doctorate in Economics from Pondicherry Central University and his research interests include contemporary issues in the areas of macroeconomics, open economy, labour economics, agricultural economics, health economics, and environmental economics.