



Analyzing Fast Food Consumption among Iranian Urban Households

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ABSTRACT

Fast foods are of different effects on households' health and budget. This research aims to explain fast food consumption pattern among the Iranian urban households. It uses a consumer utility function and constrained optimization method to describe factors affecting fast food consumption with emphasis on social classes. The expenditure on fast food, incomes, and price indexes were extracted from Households Income and Expenditure Survey by the Statistical Center of Iran over the 2008-2013 period. Using panel data models, we indicate that the relative expenditure on fast foods and snacks is significantly linked with non-wage incomes, total income, and relative food prices. One percent increase in per capita income increases the per capita fast foods expenditure by 1.14%. This study may direct food industry planners and governmental policy-makers to account for health and economic consequences of fast foods. The socialization and imitation effects of fast foods consumption are considered.

Keywords: Fast Food, Consumption, Urban Households

JEL Classifications: C51, D11, J32, Q18

1. INTRODUCTION

Globalization has led to the dominant patterns of consumption of goods in the world. Currently, there are many similarities in global dressing, eating, and recreational patterns. The modifications in standard of living, the enormous number of young people and the growing urbanization caused fame of fast food (Yahya et al., 2013). As a result, homemade foods are losing their place and importance, and the affluent urban households are usually eating out.

The parents' increasing opportunity cost due to employment has contributed to the increasing demand for ready and fast foods (Darian and Klein, 1989; Kim, 1989). While in most developing countries, women are traditionally responsible for preparing the food, and catering is assumed a main maternal task, but economic development and increasing participation of women in economic activities render limited hours for mothers to prepare homemade food.

In the context of consumer behavior, apart from the price and income as the main determinants of demand, the effects of tastes, consumer habits, and expectations are included in "shift

parameters" of the demand curve. For example, the orientation towards fast foods such as cheeseburger, hamburger and pizza shifts out the demand for food as a whole. This demonstrates the effect of taste on consumption. The tastes display the social hierarchy, too. Preference for given consumer goods reflect the lifestyle of high-class groups (Slater, 1997).

In social and modernized life, the individual food consumption pattern is strongly influenced by the behavior of neighbors, friends and family, which Ekelund and Hébert (2007) call it "the emulation effect." It affects young people more rapidly than other groups. In other words, rivalry among modern and young families, emulation and demonstration effects boost the demand for eating out.

Some habits such as eating, wearing, traveling, sporting and so forth are subject to socioeconomic developments and technological innovations. The evolution and progress of human habits in repeated form is called "habit formation" (Pollak, 1970; Janssen and Jager, 2001; Bourdieu, 1986; Guariglia and Rossi, 2002). Eating habits reflect personal choices and cultural preferences in sociological context.

Advertising and marketing strategies reshape the tastes and habits of consumers. As Leibenstein (1950) argues, the “bandwagon effect” increases preference for a good and propensity to purchase it as the number of buyers increases. With regard to higher population density and more purchasing power in the urban areas, this effect leads to higher fast food intake among urban households.

Following global developments, the desire of young people and families to consume fast foods and snacks has intensified in Iran. Nowadays fast food restaurants serve their customers in Tehran (the capital of Iran) and metropolitan areas. According to the latest data, the number of fast food centers has increased from 22000 to 48000 during 2002-2013, which demonstrates a growth rate of 7.3% per annum (SCI, 2013).

Although fast foods meet quickly the dietary needs, however they result in harmful health effects because of saturated oils used to prepare them. The outcome may be huge health expenditure imposed on households and government budget.

This study centers on fast food consumption patterns among different income groups in urban regions in Iran. It tries to find the effects of socio-economic variables on eating out habits. To do this, the main hypothesis of this research is as follows:

“The higher income groups spend more on fast food and snacks than lower income groups.” The remainder of paper is outlined as follows. Section 2 presents a review of literature. Section 3 introduces the theoretical basics. After providing methodology in section 4, we discuss results in section 5. Finally, we conclude in section 6.

2. LITERATURE REVIEW

The numerous empirical researches have examined the changes in food consumption patterns globally.

In a questionnaire-based study on fat consumption in United Kingdom, Shepherd and Stockley (1987) adopt personal attitudes as good predictors of consumption. They find that women and high classes have more negative attitude toward consumption of fat foods.

Using nationwide Canadian survey data, and after controlling for household income, family life cycle, and other covariates, Kim (1989) concluded that wife’s working status increased the frequency of purchasing meals away from home, but working wives were not heavier users of convenience foods than nonworking wives.

Wu et al. (1995) examined consumption patterns of urban households in China using aggregated household consumption data. They estimated an almost ideal demand system comprising six commodities (rice, pork, vegetables, fish, eggs and fruits). Elasticity estimates were consistent with theoretical basics. The results confirmed the evidence of the emergence of a large Chinese market for non-stable food.

Gould and Villarreal (2006) evaluated the structure of food demand in urban China by using household expenditure survey

data from five provinces. Through an aggregate analysis based on a fractional Logit model, they examined how households allocate food expenditures across the homemade and out-of-home foods. They found evidence of significant food purchase substitution and complementarity.

Seubsman et al. (2009) explored the socio-cultural influences on fast-food intake for non-metropolitan adolescents in Isan (Thailand). In a sample of 634 persons aged 15-19 years, three quarters of youth saw fast food as a cause for obesity. Half of sampled youth consumed fast food regularly, and nearly two-thirds thought that local foods should be more popular. Local foods constituted a cultural resistance to fast-food uptake.

Von Normann (2009) analyzed food patterns of seventh grade pupils in relation to their lifestyles in Germany. The results imply that there is a phase of unhealthy food patterns at the beginning of the second life decade, which may be resulted from the detachment from the parents and the gained independency.

Neulinger and Simon (2011) focused on eating patterns and healthy eating in various stages of the household life cycle. Based on 518 questionnaires of Hungarian households, they suggested that the construct of the household life-cycle model is a valid tool to understand the food intake and healthy eating within different family forms.

de Rezende and de Avelar (2012) described the eating habits of consumers in the town of Lavras (Brazil) using 413 questionnaires distributed by convenience sampling. They concluded that consumption is more intensive and younger people, people with higher incomes, high educated and no children tend often to eat out.

Alonso et al. (2012) investigated consumers’ attitudes towards their eating out experience. These may be different based on their gender, educational achievement level and type of restaurant.

Büyükkaragö et al. (2014) studied consumers’ attitudes towards functional foods in Turkey. In a sample of 808 people aged between 20 and 80 years, they indicated that socio-demographic characteristics such as age, education level and income level are important indicators of consumption of functional food.

Senia et al. (2014) investigated factors affecting the duration of eating and food preparation among American adults in single decision-maker households and concluded that higher fast food prices are associated with more time in food preparation and less time in primary eating at home. In their views, low-income adults spend more time in food preparation and are less likely to eat away from home than those with more income.

In an investigation on the effect of supermarkets on food consumption patterns in urban Kenya, Rischke et al. (2015), using cross-sectional household survey data in 2012., found that supermarket purchases increase the consumption of processed foods at the expense of unprocessed foods. Therefore, supermarkets contribute to dietary changes associated with the nutrition transition.

As above-mentioned literature indicates, the majority of studies lack of theoretical underpinnings in dealing with eating out and rely on field research to answer their questions. The current research attempts to fill this gap by designing a theoretical model.

3. THEORETICAL BASICS

It is assumed that a rational individual consumes both food and non-food goods and wants to maximize utility from consumption, and finances his/her purchases through his work incomes. The non-food goods consist of various goods and services such as clothing, housing, traveling, education, health care, sporting and religious services. If we symbolize foods, non-foods and utility with F , NF and U , respectively, then the optimization problem of consumer subject to budget constraint will be in the following form:

$$\text{Max } U = U(F, NF) \quad (1)$$

$$s.t \ p_F F + p_{NF} NF = w t^w \quad (2)$$

In which p_F and p_{NF} indicate prices of food and non-food goods, respectively. The variable w is hourly wage rate and t^w is working hours. The budget constraint in equality form refers to no-lending and no-borrowing by consumer. It means that total consumption expenditure is equal to total income obtained by consumer. If the total time available for consumer in a given period (day, week, month,...) is T , the time spent on food and non-food consumption are t^f and t^{nf} , then the time allocation will be as follows¹:

$$T = t^w + t^f + t^{nf} \quad (3)$$

By replacing for t^w from equation (3) and rewriting budget constraint, the Lagrangian function is written as:

$$L = U(F, NF) + \lambda (w[T - t^f - t^{nf}] - p_F F - p_{NF} NF) \quad (4)$$

Where, λ denotes Lagrangian multiplier. Solving this problem gives the following first order conditions (FOC):

$$L_{F} = U_{F} - \lambda p_{F} = 0 \quad (5)$$

$$L_{NF} = U_{NF} - \lambda p_{NF} = 0 \quad (6)$$

$$L_{\lambda} = w(T - t^f - t^{nf}) - p_F F - p_{NF} NF = 0 \quad (7)$$

L_i is partial derivative of Lagrangian function with respect to i ($i = F, NF$ and λ), and U_F and U_{NF} are partial derivatives of utility function to F and NF , respectively. The FOC results in ordinary demand functions for food and non-food goods. For the sake of research aims, first the ordinary demand function for non-food goods is derived as follows.

$$NF = \phi(p_F, p_{NF}, w[T - t^f - t^{nf}]) \quad (8)$$

1 This approach to time allocation has been extracted from Becker's "theory of allocation of time"(Becker, 1965), however the remainder of the model is ours.

This function shows that demand for non-food will depend on goods bundle available, their prices, and relevant goods (substitute or complementary goods).

By inserting equation (8) in the budget constraint and simplifying the expressions, the following equation is obtained:

$$p_F F = w(T - t^f - t^{nf}) - p_{NF} \phi(p_F, p_{NF}, w[T - t^f - t^{nf}]) \quad (9)$$

The share of expenditure on foods (S_F) is given by equation (10):

$$S_F = 1 - \frac{p_{NF} \phi(p_F, p_{NF}, w[T - t^f - t^{nf}])}{w(T - t^f - t^{nf})} \quad (10)$$

Regarding our main hypothesis, equation (10) is used to extract theoretical predictions. Taking the partial derivative of S_F with respect to p_F , $y = w(T - t^f - t^{nf})$ and t^f entails to the following relationships:

$$\frac{\partial S_F}{\partial p_F} = - \frac{p_{NF} (\partial \phi / \partial p_F)}{w(T - t^f - t^{nf})} \quad (11)$$

$$\frac{\partial S_F}{\partial y} = - \frac{p_{NF} ([\partial \phi / \partial y] y - \phi[...])}{y^2} \quad (12)$$

$$\frac{\partial S_F}{\partial t^f} = - \frac{p_{NF} (-w[\partial \phi / \partial y] y + w\phi[...])}{y^2} \quad (13)$$

The sign of $\partial S_F / \partial p_F$ depends on the sign of $\partial \phi / \partial p_F$. If foods (F) and non-foods (NF) are substitutes, then term $\partial S_F / \partial p_F$ will be negative. It will be positive if F and NF are complementary goods.

The sign of $\partial S_F / \partial y$ is subject to the sign of the bracketed term in equation (12). If this term is negative, then $\partial S_F / \partial y$ will be positive, which means that share of expenditure on food increases with income. The negativity of bracketed term implies that non-food goods are necessary. This prediction is correct, if high-income groups are the core of analysis. For example, they may regard traveling and sporting as necessities.

The final equation is more relevant to current study. The sign of $\partial S_F / \partial t^f$ is determined by the sign of bracketed term in equation (13). If the non-foods are assumed as necessities, then the bracketed term in equation (13) will be positive, and $\partial S_F / \partial t^f$ will have negative sign, otherwise, contrary conclusions will be obtained. When fast foods are considered, the time spent for eating them will be smaller than that of habitual foods, so it is expected that consumers spend more money on them. This is a realistic case, when individuals or households account for their opportunity costs.

4. METHODOLOGY

4.1. Data and Variables

In order to determine the factors affecting fast food and snacks consumption within Iranian urban households, first some statistical facts should be cited. The Statistical Center of Iran (SCI) has

reported the data on Households Income and Expenditure Survey in detail since 2008. In the Iranian economy context, it seems that expenditure data are more reliable than income data, because, Iranian citizens often understate their incomes to avoid paying tax and other duties, and everyday life expenses are more sensible for them. In addition, to report high incomes may reduce the chance of getting public subsidies.

This study is based on data during 2008-2013 for the Iranian urban households across expenditure deciles. The official data are extracted from SCI. The response of changes in quantity purchased by consumers with respect to changes in income is known as Engle curve. However, due to lack of reliable data, the expenditure on fast food and snacks is used as proxy variable for physical quantity of them.

The share of food expenditure by urban households as of total food expenditure is the main variable under study, which is denoted by *sfood*. In addition, *foodex* gives the total household expenditure on fast foods. For the covariates, we define the following variables:

hsize = household size, *fpi* = food price index, *nfpi* = non-food price index, *wage* = wage income; *nonwage* = non-wage income, *income* = total income.

We collected the other socio-economic variables for urban households such as the head of family head employment status, access to home facilities and appliances, literacy rates, however we decide to exclude them because of high correlations. For example, high income and employment status were strongly correlated.

Table 1 summarizes the descriptive statistics. On common average, the relative food expenditure, *sfood*, accounts for 3.1% of total urban households' expenditure, with maximum 9.7% and minimum 1.1%, respectively. The mean of nonwage to wage ratio indicates that totally nonwage incomes are less than wage incomes. This variable is of normal distribution according to Jarque-Bera statistic. The *foodex/hsize* ratio gives the per capita expenditure on fast foods. Its mean shows that each urban people has spent nearly 321 thousands Rials² on fast food across our sample. The maximum of this variable is considerable. The other variables and ratios are also easily interpretable. The average of the last ratio, *fpi/nfpi*, indicates relative fast growth in food prices with respect to non-food prices.

Figure 1 shows the urban household orientation toward consumption of fast foods and snacks. Evidently, it indicates fast foods' increasing expenditure share in moving from lower to higher expenditure deciles. This diagram confirms intuitively the main hypothesis. It means that relative importance and value of fast foods and snacks are greater for high-classes than low-incomes.

The SCI reports annual data on income and expenditure of the Iranian households. Figure 2 shows the total income and work income (wage and salary) received by urban households in

Figure 1: The 6 years mean of urban household expenditure on of fast foods and snacks consumption as percentage of total expenditure

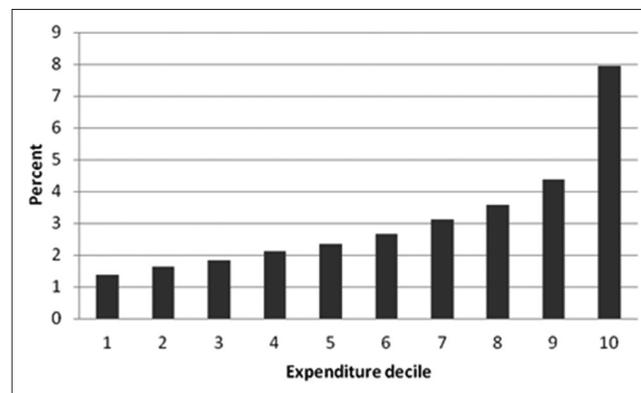
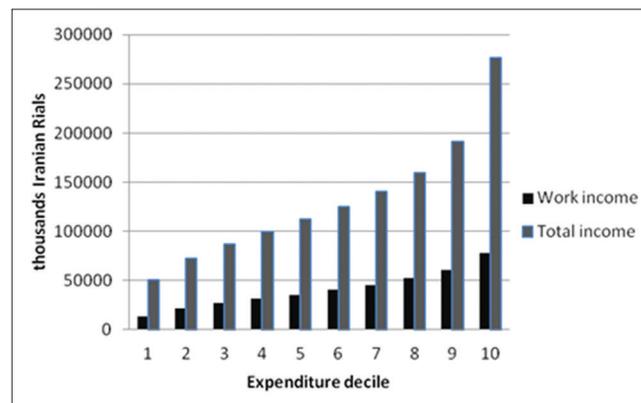


Figure 2: The 6 years mean of urban household incomes



terms of 6 years mean. Both incomes are increasing in the higher expenditure deciles, and their differences are also widening (as depicted by difference in histograms' heights), since higher income groups are mainly get incomes from business activities in the form of rents of homes, investment in stock market, and trading durable goods such as real estate, gold, and handmade carpets. If non-wage incomes grow, then more spending on various goods such as fast foods and snacks will expectedly occur.

As mentioned in theoretical basics, the price of foodstuff is a key factor influencing household expenditure on demand for food. It is expected that food expenditure and demand for food will increase by decrease in its price, other things being equal. In this study, *there was no access to food prices' data*; consequently, the food price index was used. In addition, this study analyzes the links among foods and non-foods, thus the non-food price index is taken into account.

Figure 3 depicts the food and non-food price indexes as 6 years means. At the first glance, both averages may be meaningless; however, they are deliberately computed to demonstrate general movements in prices and refrain from complicated graph. At least three points are explicable from this shape. First, food prices move thoroughly higher than non-food prices. Second, both of them are declining in shifting from lower to higher deciles. The main reason is that absolute prices are normally high for upper deciles and there is no room for more jumps in prices. Third, it indicates

2 1 USD=23881 Iranian Rials (IRR) in terms of interbank exchange rates during 2013-2014.

that food and non-food prices have recorded more than two times increase across expenditure deciles on 6 years average, compared with base year.

4.2. Econometric Analysis

In time-series data, the stationary variables are of great importance. They often result in correct statistical inference in multivariate regressions. In this case, the spurious regression does not mean.

A time series is stationary, if its mean and variance are constant over time and covariances between two periods is merely dependent on the period interval (Gujarati, 2011). Generally, the Dickey-Fuller and Phillips-Perron unit root tests are applied to examine the stationary of a time series, although these are low power tests, and are biased toward the acceptance null hypothesis, i.e., lack of unit root. This problem is more applicable, when the sample size is small.

By combining a time-series with cross-section data, a panel or pooled data is created depending on how to arrange them. This combination gives higher degree of freedom and large number of observations, and enables researchers to infer more exactly from them.

The general panel data model is as follows:

$$Y_{it} = \alpha + X'_{it}\beta_{it} + \gamma_i + \lambda_t + \epsilon_{it} \quad i = 1, 2, \dots, N; t = 1, 2, \dots, T \quad (14)$$

Where Y is the dependent variable, and X is a K -vector of explanatory variables, ϵ_{it} are i.i.d (independent and identically distributed) in which i and t denote cross-sections and time periods, respectively. The parameter α represents the intercept term of the model, while γ_i and λ_t represent cross-section or period specific effects (random or fixed). The restrictions on the coefficients, β_{it} , may be made as common (across cross-section and periods), cross-section specific, and period specific parameters.

Prior to estimate the model, the main question is which model fits data: pooled data or panel data? Therefore, in the first stage, the F - test is used to determine the difference or similarity among group effects (β_{it}). If β_{it} coefficients are the same, the model (14) yields a restricted form. To choose “pooled” or “panel data” specification, first the residual sum of squares is obtained for each regression, and then the F -statistic is computed (Baltagi, 2013):

$$F = \frac{(RSS_R - RSS_{UR}) / (N - 1)}{RSS_{UR} / NT - N - K} \quad (15)$$

For a given significance level (usually 5%), if the calculated F -statistic is greater than critical F -statistic with degrees of freedom $N-1$ in the nominator and $NT-N-K$ in the denominator, then the null hypothesis will be rejected.

Of course, the fixed effects do not merely belong to cross-sections, but they may be related to time. The presence of cross-section and period specific effects are examined by terms γ_i and λ_t . Model (14) may be specified with restrictions on cross-section or period

dimensions. In the two-way fixed effects model, the equalities, $\gamma_i = \gamma$ and $\lambda_t = \lambda$ hold. As well, the random effects model assumes that the corresponding effects γ_i and λ_t are distributed randomly with mean zero and finite variance, so they are uncorrelated with the error term, ϵ_{it} . The presence of fixed or random effects is tested by restricted forms of model (14) using F -statistic, proposed by Hausman (1978), however restrictions are imposed on γ_i and λ_t not β_{it} . Here, the null hypothesis is presence of random fixed effects. If null hypothesis is rejected, then the model will be estimated in fixed effects format.

Most applied econometric studies indicate that panel-based unit root tests have higher power than unit root tests based on individual time series (Levin et al., 2002; Breitung, 2000; Im et al., 2003; Hadri, 2000). The Eviews and Stata econometric softwares do these tests easily.

5. RESULTS AND DISCUSSION

The research models are specified following theoretical underpinnings and econometric issues discussed earlier. Based on definitions of variables under study in section 4.1., we intend to estimate the following models:

Model 1: $sfood = f(nonwage/income, fpi/nfpi)$

Model 2: $sfood = f(nonwage/wage, fpi/nfpi)$

Model 3: $Log(foodex/hsize) = f(Log[income/hsize], Log[fpi/nfpi])$

Model 4: $Log(foodex/hsize) = f(Log[nonwage/hsize], Log[fpi/nfpi])$

These models take different specifications such as linear, semi-logarithmic, and double-logarithmic forms. Before estimating, all models are tested for pooled or panel data forms, and fixed or random effects. Table 2 reports the specification tests.

Table 2 shows that all models should be estimated using panel data, since the null hypotheses implying redundant fixed effects are strongly rejected at 1% level of significance. In addition, the Hausman test indicates the rejection of random effects and acceptance of fixed effects for all models. The results of estimation are presented in Table 3.

Figure 3: The 6 years mean of food and non-food price indexes (2002=100)

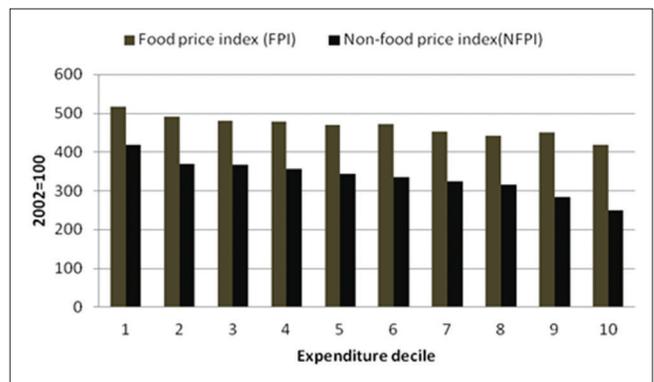


Table 1: Descriptive statistics of variables

Variable	<i>sfood</i>	<i>nonwage/wage</i>	<i>foodex/hsize</i>	<i>income/hsize</i>	<i>nonwage/hsize</i>	<i>fpi/nfpi</i>
Mean	3.10	0.68	320.66	35145.69	24335.52	1.36
Median	2.60	0.68	206.96	31177.37	21528.97	1.37
Max	9.74	0.78	1914.32	115819.90	85014.06	1.95
Min	1.09	0.61	39.07	10616.96	6899.65	0.94
SD	1.95	0.04	354.94	19613.29	14409.48	0.23
Jarque-Bera	53.12	1.22	168.81	67.24	87.83	1.64
P	0.00	0.54	0.00	0.00	0.00	0.44
No. of Obs.	60	60	60	60	60	60
Cross sections	10	10	10	10	10	10

SD: Standard deviation

Table 2: The results of the specification tests

Model no.	Test	Statistic	df	P
1	Redundant fixed effects test	F-statistic=109.37	(9.48)	0.000
	Correlated random effects - Hausman test	Chi-square statistic=123.68	2	0.000
2	Redundant fixed effects tests	F-statistic=104.38	(9.48)	0.000
	Correlated random effects - Hausman test	Chi-square statistic=126.67	2	0.000
3	Redundant fixed effects tests	F-statistic=53.03	(9.48)	0.000
	Correlated random effects - Hausman test	Chi-square statistic=472.084	2	0.000
4	Redundant fixed effects tests	F-statistic=73.66	(9.48)	0.000
	Correlated random effects - Hausman test	Chi-square statistic=260.435	2	0.000

Table 3: The estimation results

Model no.	1	2	3	4
Dependent var. Regressors	<i>sfood</i>	<i>sfood</i>	<i>Log (foodex/hsize)</i>	<i>Log (foodex/hsize)</i>
<i>nonwage/income</i>	7.968 (2.76)*			
<i>nonwage/wage</i>		0.579 (2.29)**		
<i>Log (income/hsize)</i>			1.136 (9.82)*	
<i>Log (nonwage/hsize)</i>				1.105 (9.573)*
<i>fpi/nfpi</i>	-3.397 (-6.89)*	-3.113 (-6.47)*		
<i>Log (fpi/nfpi)</i>			-0.958 (-3.3)*	-1.206 (-3.75)*
Adjusted R ²	0.953	0.951	0.986	0.986
F-statistic	111.46	105.17	385.97	373.27
P (F-statistic)	0.000	0.000	0.000	0.000

Note: the numbers in the parentheses are t-statistic, *significant at 1% level, **significant at 5% level

As shown in Table 3, all variables are included as relative forms in models 1 and 2. Generally, the adjusted R² and F-statistic in the lower rows in Table 3 reveal that covariates under study explain the behavior of dependent variables with considerable level of confidence.

Model 1 indicates that ratio of nonwage income to total income positively affects significantly fast foods' relative expenditure. In other words, by one unit increase in relative non-wage income, the relative expenditure on fast food and snacks is nearly increased by 8 units. In model 2, one unit increase in the ratio of non-wage to wage income raises the relative expenditure on fast foods about 0.58 units. The Iranian households in upper income deciles are of more diversity in their incomes. For them, consumption of fast foods and snacks has become a daily habit. This encourages lower income groups to consume fast foods through socialization effect, i.e. the change in own preferences as result of interpersonal contact. As Janssen and Jager (2001) noted, this effect occurs when personal preferences change in the direction of the product that is consumed the most by one's friends, peers and family. Scholderer and Grunert (2005) point out that increasing trend towards convenience (food) depends not only on the future development

of demographics, but also on the structural relationships between objective and perceived resources.

The coefficients of relative food price, reflected in ratio of food price index to non-food price index, or *fpi/nfpi*, are significantly negative, and nearly equal in Models 1 and 2. These mean more expensive fast foods reduce the desires of households to consume further.

Models 3 and 4 are estimated in logarithmic form in order to obtain price and income semi-elasticities³. Since we entered household size into models, the variables *foodex/hsize*, *income/hsize*, and *nonwage/hsize* give per capita expenditure on fast foods, per capita income and per capita non-wage income, respectively. Accordingly, Model 3 implies that one percent increase in per capita income increases the per capita expenditure by 1.14%. This finding is very close to estimated coefficient for *log (nonwage/hsize)* in Model 4. These numerical values may indicate to luxury being of fast foods. Thus, high income causes increasing demand

3 Elasticities are usually defined for demand functions. Here, we replaced the per capita food consumption in physical terms with *foodex/hsize* (per capita expenditure on fast foods and snacks).

for fast foods. This is compatible with actual experiences the Iranian urban households, as described in data section. Some researchers believe that the poor consume fast foods often. For example, in a sample of 90 households in U.S., French et al. (2010) demonstrated that lower income households spent a larger proportion of their eating out dollars at carry out places, and a larger proportion of their home beverage purchases were sugar sweetened beverages.

The negative and significant coefficients of $\log (fpi/nfpi)$ in both models are not surprising, because expensive fast foods induce consumers to shift to substitutes. Among food groups, various substitutes may found including dairy products, homemade foods, cereals, and fruits and vegetables.

6. CONCLUSIONS

Our analysis indicates fast food consumption among the Iranian urban households is explained with main economic factors, i.e. relative price and income. The results support the main hypothesis of the study, which means higher income groups spend more money on fast foods than lower income classes. This relationship also holds when non-wage incomes are included in the model. The higher income groups endow with different income sources, and have various consumption desires. They usually eat out at restaurants and fast food centers. Recently, the fast food consumption has been socialized through imitative behavior by other classes in urban areas.

The relative price of fast foods is another factor affecting relative and per capita expenditure on fast food. The substitution occurs among different kinds of food depending on relative price, food availability, consumer taste, purchasing power, and advertising. It is evident that higher income households can substitute within foods without difficulty. Certainly, the shift away from prevailing pattern of food consumption is mainly due to urbanization, employment of women and mothers who were traditionally responsible for caring family and managing household affairs, time-saving in preparation and consumption of fast foods and rivalry effects. This finding is reaffirms Becker predictions, as he states “an increase in the value of a mother’s time may induce her to enter the labor force and spend less time cooking by using pre-cooked foods...” (Becker, 1965, 514).

This increasing trend of fast food intake is not unique to Iran. Generally, fast foods affect adversely health, environment and work conditions (WHO, 2003). In a study on Jeddah, Washi and Ageib (2010) showed that fast food habits are related to the increase of overweight and obesity among adolescents in Saudi Arabia. In Iran, Rouhani *et al.* (2012) associate fast food consumption with poor diet quality and high prevalence of overweight and obesity among Isfahanian adolescents. In study on the role of fast-food consumption on body weight in the United Kingdom, Pieroni and Salmasi (2014) found a negative and significant correlation between the price of take-away meals and snacks and weight, regardless of gender. In their views, an increase in fast food prices or a decrease in the unhealthy food supply may reduce obesity, with positive effects on welfare and health care costs.

The booms in fast foods market, which stems from growing demand for fast food, would encourage businesses to invest on fast and ready food. These investments can create more jobs in services sector, boost supply chain of foods and save more time for the employed people. In addition, these will be socially more beneficial if health, nutritional and environmental standards are to be considered in preparing ready foods.

By adding the supply side of fast food industry to the analysis, the employment and investment dimensions may be noticeable. Thus, the marketing and industrial linkages to fast foods can be examined separately. These are out of purposes of this study. Hence, the further research is proposed to analyze the supply chain in general, and economic effects of fast food industry in particular for the Iranian economy.

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