# Household Consumption Behaviour in Pakistan under the Shadow of Personal Insecurity

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## Abstract

Terrorism in Pakistan has become a main and highly critical phenomenon in last decade. It is affecting the economy significantly. This study aims to determine the effect of personal sense of insecurity on household consumption pattern both at provincial level (Punjab, Sindh, KPK and Balochistan) and for overall Pakistan. To serve this purpose his study estimates the Engle expenditure function, by incorporating personal sense of insecurity as an explanatory variable. Pakistan Panel Household Survey (PPHS) 2010, conducted by Pakistan Institute of Development Economics and World Bank are used for the analysis. The empirical results suggest that personal sense of insecurity alters the households' consumption expenditure significantly. Households adjust their consumption expenditure when they sense insecurity by increasing the expenditure on food items and cut their expenditure on non-food durable and non-food non-durable commodities.

*JEL classification*: B21; E2.

***Keywords*:** Terrorism, Personal sense of insecurity, Consumption Pattern.

## Introduction

Household consumption plays a significant role in the economic growth of a nation. Household consumption is very critical component of gross domestic product (GDP). Government stimulate spending to boost production and to prevent recession. Businesses would only increase production if there is a corresponding increase in demand. Therefore, a downturn in consumer spending slows down the economic growth and

contracts the economy. Consumers normally change their consumption patterns whenever there is change in consumer expectations. These expectations are linked to future income, inflation and more importantly any threat either in the form of pandemic disease or terrorist attacks alters the consumer preferences. Terrorism significantly shifts the spending from recreation and travel activities toward commodities that might help to handle with the consequences of terrorism materially or psychologically.

Terrorist attacks are unpredictable and beyond the control of economic agents. They damage the economy adversely both at the macro and the micro level. Economic theory holds that political instability, war and terrorism significantly damage the economies in which they take place[1]. Recent economic literature has probed the consequences of terrorism on different macroeconomic variables. For example, Drakos and Kutan (2003)[2] have established negative effects of terrorist attacks on tourism, Enders and Sandler (1996)[3] on foreign direct investment and Nitsch and Schumacher (2004)[4] on foreign trade. Becker and Rubinstein (2004)[5] have inspected the adverse effects of terrorism on Israeli's labour supply and wages. Eckstein and Tsiddon (2004) [6]found that terrorist activity has significant negative

[1] Persitz, Dotan. "The economic effects of terrorism: counterfactual analysis of the case of Israel." *Work. Pap., Dep. Econ., Tel Aviv Univ., Tel Aviv, Israel* (2007).
[2] Drakos, Konstantinos, and Ali M. Kutan. *Regional effects of terrorism on tourism: evidence from three Mediterranean countries*. No. B 26-2001. ZEI working paper, 2001.
[3] Enders, Walter, and Todd Sandler. "Terrorism and foreign direct investment in Spain and Greece." *Kyklos* 49, no. 3 (1996): 331-352.
[4] Nitsch, Volker, and Dieter Schumacher. "Terrorism and international trade: an empirical investigation." *European Journal of Political Economy* 20, no. 2 (2004): 423-433.
[5] Becker, Gary S., and Yona Rubinstein. "Fear and the response to terrorism: an economic analysis." *University of Chicago mimeo* 93, no. 1 (2004).
[6] Eckstein, Zvi, and Daniel Tsiddon. "Macroeconomic consequences of terror: theory and the case of Israel." *Journal of monetary economics* 51, no. 5 (2004): 971-1002.

impact on GDP, investment, consumption and exports. Mahmood (2014)[7] has studied the impact of terrorism on the macro economy of Pakistan and reported that terrorism has cost Pakistan around 33.02% of its real national income from 1973 to 2010.

Economic impact of terrorism at household level can have important implications at macro level. Household consumption expenditures plays a significant role in economic booms and recessions. It contributes more than 60 percent of aggregate demand[8]. It also plays an important role in formulating the macroeconomic indicators such as saving rate, investment and the level of economic well-being. The need for investigating the determinants of consumption pattern is, therefore, necessary. Consumer behaviour is very complex, it is not only determined by the self -related deterministic factors such as personal income, family size, education level, age etc., but also responsive to social influences i.e., what is happening in consumers' surroundings. Specially, when consumers are living in the community which is suffering from crime and terrorism, it prompts them to undertake measures to protect themselves. Therefore, personal insecurity is an important factor to determine the consumption patterns at individual level and alters the pattern of aggregate consumption, asset demands and asset pricing at macro level.

Christelis and Georgarakos (2009)[9] have investigated the effects of 9/11 terrorist attack on the household stock investment and spending patterns.

[7] Mehmood, Sultan. "Terrorism and the macroeconomy: Evidence from Pakistan." *Defence and Peace Economics* 25, no. 5 (2014): 509-534.
[8]Dornbusch, Rudiger, and Stanley Fischer. *Macroeconomics*. McGraw-Hill Education, 2005.
[9] Christelis, Dimitris, and Dimitris Georgarakos. *Household economic decisions under the shadow of terrorism*. No. 2008/56. CFS Working Paper, 2009.

The results of their analysis suggest that insecurity due to terrorism has significant negative effects on household stock investment and individuals have shifted their spending from recreation and travel activities toward commodities that might help to handle with the consequences of terrorism materially (car and house) or psychologically (personal care products). Haj-Yehia (2003)[10] has conducted a comprehensive study on the same subject. He segregates the effects of temporary and permanent terrorist casualties on the durables, nondurables and irreversible investment. He has considered a database on Israeli consumption and terror casualties for the period 1980-2002. The results suggest that temporary increase in the number of terror fatalities decreases the durables and irreversible investment due to hoarding of purchases in future periods, however, the consumption of non-durables remain the same. A permanent increase in the number of terror casualties causes a one-time drop in consumption.

The analysis of household's consumption pattern in Pakistan is not new. A lot of studies have analyzed the consumer behaviors both at micro as well as at macro level. They include studies such as Ali (1981, 1986)[11]; Siddiqui (1982)[12]; Malik (1982[13], 1985[14],1988[15]); Burney and Khan (1991)[16]; Begum

[10] Haj-Yehia, Samer. "Terrorizing the consumers and investors." *Unpublished paper, Massachusetts Institute of Technology* (2003).

[12] Ali, M. Shaukat. "Rural urban consumption patterns in Pakistan." *Pakistan Economic and social review* 19, no. 2 (1981): 85-94.

[13] Ali, M. Shaukat. "Household consumption and saving behaviour in Pakistan: an application of the extended linear expenditure system." *The Pakistan Development Review* 22, no.1 (1985): 23-37.

[14] Malik, Shahnawaz. "Analysis of consumption patterns in Pakistan." *Pakistan Economic and Social Review* 20, no. 2 (1982): 108-122.

[15] Malik, Shahnawaz, and R. Ahmad. "Analysis of household consumption in Pakistan." *Government College Economic Journal* 18, no. 1-2 (1985): 97-106.

[16] Malik, Sohail J., Naeem Sarwar, and Rehana Siddiqui. "Some Tests for Differences in Consumption Patterns: The Impact of Remittances Using Household Income and

*et al.* (2012)[17]; Amir and Bilal (2012)[18] and Safdar and Ahmed (2012) [19] among others. Most of these studies are based on the Household Income and Expenditure Survey (HIES) data. The main focus of these studies was to explore the validity of Engel's Law on different commodities across different regions in a single year. Engel's Law describes that with an increase in income the proportion of expenditure on food in total household expenditure tends to decrease, while that on clothing, fuel and lighting remains same and spending on luxury goods increases[20].

Unfortunately, Pakistan has been facing a high and volatile level of terrorism. However, no significant effort has been made to test the effects of personal sense of insecurity due to terrorism on household consumption patterns. This study will attempt to fill that gap in. For this, the study is undertaken with following specific objectives: Firstly, it develops an econometric model of the consumption function in Pakistan that includes the personal sense of insecurity variable along the conventional variables of consumption function determination. Secondly, it examines the impact of personal insecurity on food and non-food durable and non-food non-durable consumption expenditure for Pakistan and across its provinces.

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Expenditure Survey Data of Pakistan 1987-88 [with Comments]." *The Pakistan Development Review* 32, no. 4 (1993): 699-711.

[17] Burney, Nadeem A., and Ashfaque H. Khan. "Household consumption patterns in Pakistan: an urban-rural comparison using micro data." *The Pakistan Development Review* (1991): 145-171.

[18] Begum, Safia, Munir Khan, Muhammad Farooq, Nasiha Begum, and Irfan Ullah Shah. "Socio-economic factors affecting food consumption pattern in rural area of district Nowshera, Pakistan." *Sarhad J. Agric* 26, no. 4 (2010): 649-653

[19] Safdar, Shireen, Nisar Ahmad, and Falak Sher. "Estimation of Urban-Rural expenditure and size elasticities of food items in Pakistan: Evidence from PSLM Data." *Academic Research International* 3, no. 2 (2012): 474-481.

[20] Siddiqui, Rehana. "An analysis of consumption pattern in Pakistan." *The Pakistan Development Review* (1982): 275-296.

Following this introduction, the rest of the paper is organized as follows. Section 2 provides the economic framework. Section 3 and 4 are devoted to describe the data and construction of variable and present the scenario of personal sense of insecurity in Pakistan. Results and findings of the study are reported in section 5. A final section provides some concluding remarks.

## 2. Theoretical Framework

This study estimates the Engle expenditure function, which was first formulated by Engle in (1973) to analyse the relationship between household's expenditure on particular commodity and total household income. It is also known as Engle curve, which explains the household's behaviour when there is change in income level. Accordingly, household tends to fulfil their basic needs when they have a low income. They spend more on food items and gradually they change their consumption pattern with the increase in income. Therefore, it can be used to classify the commodities into luxuries, necessities and inferior goods. It is applicable to point out that there are better and more flexible demand systems available for analysing household consumption decisions such as, the Linear Expenditure System (LES) given by Samuelson (1949)[21] and the Almost Ideal Demand System (AIDS) given by Deaton and Muellbauer (1980) [22] The estimation of these systems needs data on commodities' prices which are not available in cross sectional data from household survey. Then it is reasonable to assume that in a region at a given time period all consumers

[21] Samuelson, Paul A. "Foundations of Economic Analysis, Harvard University Press." *Cambridge, Massachusetts* (1947).
[22] Deaton, Angus, and John Muellbauer. *Economics and consumer behaviour*. Cambridge university press, 1980.

pay same prices for same commodity, in this case LES reduce to Engle expenditure function. Engle expenditure function can be written as

$$E_{ih} = \alpha_i + \beta_i Y_h + \varepsilon_{ih} \qquad (1)$$

where, $i$ = 1, 2, …, n commodities, $h$ = 1, 2, …, H households, $E_{ih}$ is households' expenditure on commodity $i$, $Y_h$ is households' income and $\varepsilon_{ih}$ is the residual with usual classical properties. The $\beta i$ shows the effect of household income on the expenditure of $i^{th}$ commodity. If $\beta_i > 0$ then the commodity is considered as normal good otherwise inferior good.

In order to analyse the effect of personal sense of insecurity (***T***) on the expenditure of commodities which is the core of this study and to control the omitted variable bias in model (1), the important factors of households' expenditure on commodity $i$ are introduced from the literature these are wealth (***W***), family size (***S***) , age (***A***) and regional dummy (***DMU***) to capture the consumption differences across regions. Therefore, to capture the effect of these factors on commodity's expenditure the model (1) is modified as

$$E_{ih} = \beta_{oi} + \beta_{1i} Y_h + + \beta_{2i} Y_h + \beta_{2i} S_h + \beta_{3i} A_h + \beta_{4i} T_h + \beta_{5i} DMU_h + \varepsilon_{ih} \qquad (2)$$

Where $\beta_o$ is the intercept coefficient, $\beta_1$ to $\beta_5$ are the slope coefficient of the respective variables and $\varepsilon_{ih}$ are the residual of the model. It is expected that all variables are positively related to consumption except age and personal sense of insecurity. The negative relationship between the age and consumption explains the Life cycle hypothesis, in view of that, when age increases saving of individual raises more rapidly this will tend to decline the consumption. The construction of variables is presented in the following section.

## 3. Data and Construction of Variables

The data for this study is taken from Pakistan Panel Household Survey (PPHS) 2010 [23], conducted by Pakistan Institute of Development Economics and World Bank, consisting of 3243 households. To account the effect of personal sense of insecurity among other determinants on the consumption expenditure, two types of consumption expenditure i.e., consumption expenditure on food and non-food consumption expenditure which is further categorized into non-food expenditure on durables and non-food expenditure on nondurables items are taken. Items in each consumption expenditure group are provided in **Appendix 1**. Frequency of food items data in PPHS 2010 is varying from daily to annual purchases. In order to get the annual data on household total food consumption, all available frequencies of consumption (daily, twice a week, three times a week, weekly, every two weeks, monthly, every two months, quarterly, twice a year) are first converted into annual information and then all these groups are aggregated. Therefore, the dependent variables are the natural log of annual expenditure on food items, non-food durable, non-food non-durable items.

Household annual income is computed by aggregating annual income and annual rental income (bonus, rental income from urban properties, and rental income from fish/poultry). Household annual wealth is calculated by combining present value of inherited land, present value of the residential house, present value of urban property, present value of household savings (deposit with any bank, gold/silver jewellery, national saving schemes, prize bond, others), present value of livestock ownership and present value of

[23] Pakistan Panel Household Survey 2010

farm assets. Household size is taken as the numbers of individuals living in the single house. "Age" is the age of head of household.

### 3.1 Construction of Personal Sense of Insecurity

The key variable of this study is personal sense of insecurity. It is measured by constructing an index by employing principal component analysis.[24] This method allows to express the different dimensions of personal sense of insecurity in term of a single index which is able to capture most of the information from the original data set. The different dimensions (Q3) how much do you feel unsafe with regards to your person or property (Q4) how unsafe do you feel in your community? (3) how secure did you feel in terms of security from terrorism, (Q5) decreased the amount of time spent outside, cancelled or delayed participating in investment opportunities, cancelled or postponed participating in school activities, cancelled or postponed participating in employment/training opportunities (Q6) In terms of security from terrorism, how secure did you feel while driving your personal vehicle, using public transit, going to public offices/government buildings, going to the market place] which have been considered for the construction of index are presented in Appendix 2 and lets call them Q3., Q4., Q5. and Q6. The composition of the overall personal sense of insecurity index can be expressed as

$$T_i = w_1 Q3_i + w_2 Q4_i + w_3 Q5_i + w_4 Q6_i \qquad (3)$$

Where $w_i$ '*s* represents the weight of each component given by respective eigenvector of selected principal component. The eigenvalues and

[24] Child, Dennis. *The essentials of factor analysis*. Cassell Educational, 1990.

eigenvectors of the correlation matrix of the overall personal sense of insecurity are given in Table 1.

**Table 1: Eigenvalues and Eigenvectors of Correlation Matrix of *T* Variables**

| **Variables** | **Eigen Vector ( $\lambda_k$ )** | | | |
|---|---|---|---|---|
| | $u_1$ | $u_2$ | $u_3$ | $u_4$ |
| $Q3_i$ | 0.76 | -0.06 | -0.64 | 0.15 |
| $Q4_i$ | 0.47 | 0.87 | 0.12 | 0.03 |
| $Q5_i$ | 0.83 | -0.18 | 0.13 | -0.51 |
| $Q6_i$ | 0.78 | -0.28 | 0.41 | 0.38 |
| Eigen values( $\lambda_k$ ) | 2.09 | 0.88 | 0.60 | 0.43 |
| Variability % | 52.21 | 21.95 | 15.05 | 10.80 |
| Cumulative % | 52.21 | 74.15 | 89.20 | 100 |

Table 1 shows that the first principal component captures almost 52.21 percent variation of the data set as [$\sum \lambda_k$ =2.09+0.88+0.60+0.43=4, $\lambda_1$ = (2.08/4)*100 = 52.21]. It captures the highest correlation as compared to the remaining eigenvectors. Now substitute the normalized components of first Eigen vector for $w_i s$ in Eq. (3) and calculate the overall personal sense of insecurity of head of household index as

$$T_i = 0.27\ Q3_i + 0.17\ Q4_i + 0.29\ Q5_i + 0.27\ Q6_i \qquad (4)$$

The calculated vales of overall personal sense of insecurity index varying between 1.65 and 4.50. Based on the results, overall personal sense of insecurity is scale as

0 – 1 completely secure

1 – 2 very secure

2 – 3 somewhat secure

3 – 4 somewhat insecure

4 – 5 very insecure and

>5 completely insecure

Note for caution, the first and the last scales are deliberately included to show that no one in the society is completely secure when society is at the risk of terrorism. Similarly, no household occur in the last group as if someone is completely insecure, he is in the state of indecision and hesitate to respond to the survey in the approved manner.

## 4. Overall personal sense of insecurity (OPSIS) across provinces and region of Pakistan

Overall personal sense of insecurity (OPSIS) across provinces is compared by bar chart under Figure 1. Mostly numbers of households are occurring in somewhat secure (2 – 3) and somewhat insecure groups. Among these groups' majority of households in all provinces except KPK have fall into the category of somewhat insecure groups. In the urban rural comparison (see Figure 2), households in Pakistan urban are somewhat secure and household in Pakistan rural are somewhat insecure. In urban group,

households in Punjab urban are somewhat secure as compare to other provinces. Similarly, household in KPK rural is somewhat secure as compare to other provinces.

**Figure 1: OPSIS across Provinces**

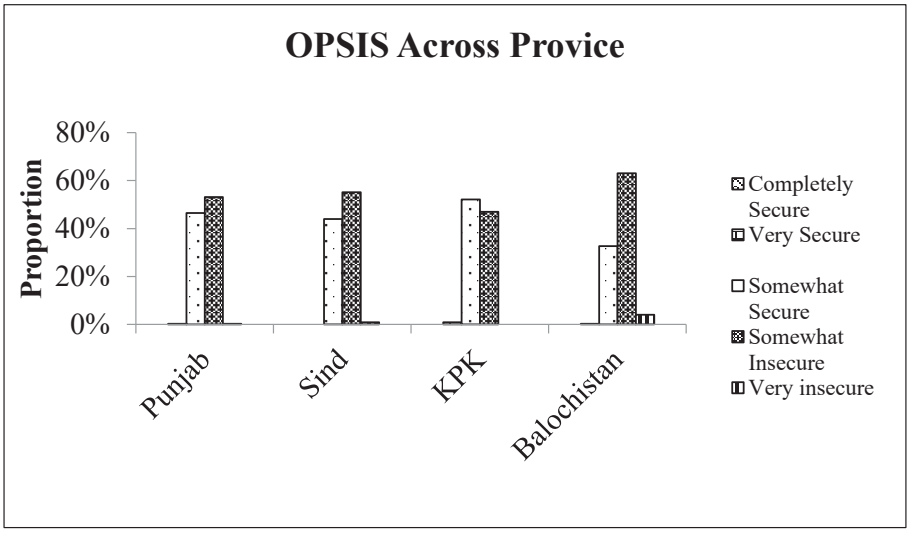
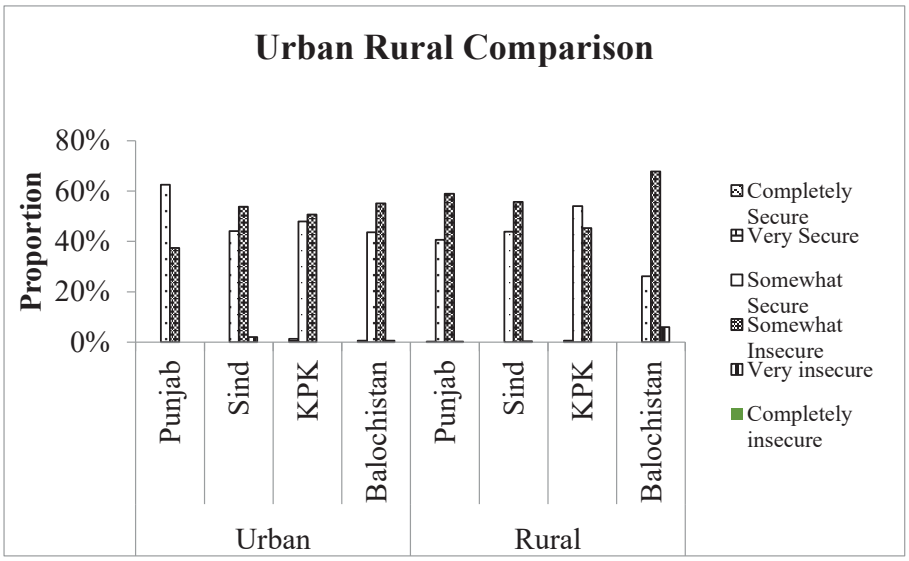



**Figure 2: OPSIS across Region**



## 5. Empirical Results and Findings

This section investigates whether or not personal sense of insecurity alters the households' consumption and which type of expenditure among food, non-food durable, non-food durable items are more resistant to personal sense of insecurity. To serve this purpose pooled regression model is estimated by using White heteroskedasticity-consistent standard errors and covariance in ordinary least square (OLS) regression. All variables are expressed in log form except the age variable. Reginal dummy variable ($D_{RU}$ with rural as base category) is also used as an explanatory variable. Results of the consumption expenditure for overall Pakistan, Punjab, Sindh, KPK and Balochistan province are presented in Table 2, 3, 4, 5and 6.

The positive and significant coefficient of household size variable is conveying the effect of economies of scale. Economies of scale effect may occur because some the consumption items can be shared within the household. Among the categories of consumption items non-food durable commodities depict higher size elasticities in overall and across the province (except Punjab). Therefore, economies of scale attain more from non-food durable commodities as compare to food commodities and non-food non-durable commodities. In short, we can say that, when the household size increases then expenditures on necessary food items group increases, while on luxury food items groups, it decreases. Farooq and Muhammad (1999)[25] and Hayat *et al.* (2016)[26] also reported similar findings.

[25] Farooq, Umar, Trevor Young, and Muhammad Iqbal. "An investigation into the farm household's consumption patterns in Punjab, Pakistan." *The Pakistan Development Review* (1999): 293-305.

[26] Hayat, Naveed, Anwar Hussain, and Hazrat Yousaf. "Food demand in Pakistan: Analysis and projections." *South Asia Economic Journal* 17, no. 1 (2016): 94-113

The results of age variable represent that as age of household increases, they are more inclined toward the consumption of non-food durable commodities and non-durable commodities against the food commodities (which is negative and insignificant). These results also confirm the life cycle hypothesis for overall Pakistan and across the province (except Balochistan). The similar results are found by Farooq and Muhammad (1999) and Etzaz and Arshad (2007).[27] They found the change is the age composition of head of households are the main determinate of household expenditure. The positive significant coefficient of dummy variable indicates that households belonging to urban region experiencing more consumption expenditure as compare to rural region. It may be due to higher cost of commodities in urban area. This result is consistent with Siddiqui (1982)[28] and Khan *et al.* (2015).[29] Accordingly, the comparative shares of various commodities in total expenditure in urban regions are not very distinct from rural ones. However, spending on urban housing exceeds that in rural regions significantly.

Results of income and wealth variables show that it is more responsive to increase the non-food expenditure. It confirms that Engle laws hold, which states that at the lower level of income consumer demand the necessities like food is high but later on spend large proportion of income on luxury

[27] Eatzaz, Ahmad, and Muhammad Arshad. *Household budget analysis for Pakistan under varying the parameter approach*. No. 2007: 41. Pakistan Institute of Development Economics, 2007

[28] Siddiqui, Rehana. "An analysis of consumption pattern in Pakistan." *The Pakistan Development Review* (1982): 275-296.

[29] Khan, Ashfaque Hasan, Umer Khalid, and Lubna Shahnaz. "Energy Demand Elasticity in Pakistan: An Inter-temporal Analysis from Household Survey Data of PIHS 2001-02 and PSLM 2010-11." *Energy* 1 (2015): 1-25.

commodities as income increases. Ahmad *et al.* (2012)[30] and Hayat *et al.* (2016)[31] concluded the same in their study.

The effect of overall personal sense of insecurity on consumption expenditure is come out negative. It confirms that household adjusts their consumption expenditure when they sense insecurity. Interestingly, results show that as personal sense of insecurity raises households induce to increase the expenditure on food items and cut their expenditure on non-food durable and non-food non-durable commodities significantly. The elasticity of food consumption is more or less unit elastic, indicates perfect responsiveness to changes in personal sense of insecurity. The negative and high (small) size elasticities of non-food durables (non- durable) commodities make them elastic (inelastic) with respect to personal sense of insecurity. In Balochistan province the consumption behaviour of households is slightly different as compare to other provinces. They increase the consumption expenditure on non-food non-durable commodities when personal sense of insecurity increases and expenditure on food commodities is irresponsive to insecurity.

[30] Ahmad, N., A. R. Cheema, and A. Saleem. "Food consumption analysis in Pakistan: expenditure elasticities approach using HIES data." *Interdisciplinary Journal of Contemporary Research in Business* 4, no. 4 (2012): 466-475.

[31] . Hayat, Naveed, Anwar Hussain, and Hazrat Yousaf. "Food demand in Pakistan: Analysis and projections." *South Asia Economic Journal* 17, no. 1 (2016

**Table 2: Consumption Expenditure of Overall Pakistan**

| Variables | **Total Consumption Expenditure (a+b+c)** | **Consumption Expenditure on** | | | |
|---|---|---|---|---|---|
| | | **Food and Non-Durables (b+c)** | **Durables (a)** | **Food (b)** | **Non-durables (c)** |
| *C* | 12.130*** (127.78) | 12.012*** (144.998) | 5.019*** (6.443) | 11.496*** (65.427) | 10.127*** (67.541) |
| *S* | 0.372*** (15.254) | 0.316*** (15.739) | 1.287*** (8.471) | 0.419*** (6.620) | 0.449*** (18.246) |
| *A* | 0.004*** (5.545) | 0.004*** (5.208) | 0.033*** (6.292) | -0.001 (-0.067) | 0.007*** (6.546) |
| *T* | -0.209** (-2.270) | -0.076 (-1.073) | -4.561*** (-6.287) | 0.337** (2.439) | -0.343*** (-3.369) |
| *Y* | 0.106*** (7.615) | 0.081*** (6.95) | 0.821*** (8.714) | 0.009 (0.310) | 0.238*** (11.010) |
| *W* | 0.001 (0.480) | 0.001 (0.282) | 0.032** (2.092) | -0.007* (-1.602) | 0.016*** (5.630) |
| *Adj-R*$^2$ | 0.10 | 0.093 | 0.055 | 0.016 | 0.161 |
| F-Stat | 71.172*** [0.000] | 69.269*** [0.000] | 39.487*** [0.000] | 12.036*** [0.000] | 128.469*** [0.000] |
| Sample | 3243 | 3243 | 3247 | 3243 | 3247 |

***, ** and * represents the significant at 1%, 5% and 10%. t-stat is reported in the round brackets and P-values in the square brackets.

## Table 3: Consumption Expenditure of Punjab

| Variables | **Total Consumption Expenditure (a+b+c)** | **Consumption Expenditure on** | | | |
|---|---|---|---|---|---|
| | | **Food and Non-Durables (b+c)** | **Durables (a)** | **Food (b)** | **Non-durables (c)** |
| *C* | 9.872*** (24.830) | 9.903*** (26.616) | 8.015*** (3.097) | 10.521*** (21.209) | 6.359*** (11.318) |
| *S* | 0.367*** (4.919) | 0.361*** (6.005) | 0.355 (1.451) | 0.622*** (4.257) | 0.419*** (6.103) |
| *A* | 0.003** (2.163) | 0.003*** (2.345) | 0.015** (1.953) | -0.004 (-1.414) | 0.005*** (2.494) |
| *T* | -0.219 (-1.239) | 0.060 (0.883) | -3.898*** (-2.990) | 0.994*** (3.109) | -0.807*** (-3.805) |
| *Y* | 0.118*** (4.816) | 0.096*** (4.534) | 0.088** (2.316) | 0.038 (0.686) | 0.225*** (5.982) |
| $D_{RU}$ | 0.428*** (6.927) | 0.349*** (8.221) | 1.847*** (5.669) | 0.544*** (11.238) | 0.296*** (3.863) |
| *W* | 0.058*** (4.387) | 0.043*** (3.639) | 0.128*** (5.748) | 0.015* (1.582) | 0.136*** (7.024) |
| *Adj-*$R^2$ | 0.174 | 0.160 | 0.019 | 0.06 | 0.323 |
| F-Stat | 29.811*** [0.000] | 27.025*** [0.000] | 19.927*** [0.000] | 10.410*** [0.000] | 66.04*** [0.000] |
| Sample | 1137 | 1137 | 532 | 1133 | 1137 |

***, ** and * represents the significant at 1%, 5% and 10%. t-stat is reported in the round brackets and P-values in the square brackets.

## Table 4: Consumption Expenditure of Sindh

| Variables | **Total Consumption Expenditure (a+b+c)** | **Consumption Expenditure on** | | | |
|---|---|---|---|---|---|
| | | **Food and Non-Durables (b+c)** | **Durables (a)** | **Food (b)** | **Non-durables (c)** |
| *C* | 11.298*** (53.232) | 11.324*** (58.635) | -1.071 (-0.684) | 10.247*** (28.794) | 9.789*** (36.395) |
| *S* | 0.390*** (10.227) | 0.385*** (10.041) | 0.908*** (4.56) | 0.428* (4.630) | 0.548* (15.114) |
| *A* | 0.003*** (2.644) | 0.003*** (2.489) | 0.018** (1.987) | 0.002 (0.913) | 0.003** (2.040) |
| *T* | 0.165 (0.839) | 0.267 (1.379) | 0.585 (0.386) | 0.937*** (2.485) | -0.511** (-2.105) |
| *Y* | 0.090*** (4.006) | 0.055*** (2.975) | 0.496*** (3.103) | -0.016 (-0.368) | 0.219*** (7.257) |
| $D_{RU}$ | 0.421*** (12.156) | 0.426*** (12.611) | 0.230 (0.696) | 0.599*** (7.520) | 0.401*** (7.051) |
| *W* | 0.007** (1.965) | 0.003 (0.959) | 0.130*** (4.635) | -0.007 (-0.885) | 0.033*** (6.163) |
| *Adj-*$R^2$ | 0.160 | 0.157 | 0.052 | 0.07 | 0.271 |
| F-Stat | 38.163*** [0.000] | 37.239*** [0.000] | 11.737*** [0.000] | 14.257*** [0.000] | 73.361*** [0.000] |
| Sample | 1176 | 1176 | 1178 | 1176 | 1177 |

***, ** and * represents the significant at 1%, 5% and 10%. t-stat is reported in the round brackets and P-values in the square brackets.

## Table 5: Consumption Expenditure of KPK

| Variables | **Total Consumption Expenditure (a+b+c)** | **Consumption Expenditure on** | | | |
|---|---|---|---|---|---|
| | | **Food and Non-Durables (b+c)** | **Durables (a)** | **Food (b)** | **Non-durables (c)** |
| *C* | 11.556*** (85.283) | 11.660*** (95.536) | 2.617** (1.967) | 11.996*** (41.166) | 8.540*** (41.207) |
| *S* | 0.416*** (8.681) | 0.413*** (8.847) | 1.021*** (4.243) | 0.461** (2.216) | 0.506*** (9.624) |
| *A* | 0.003** (2.204) | 0.003*** (2.483) | 0.022** (2.208) | -0.001 (-0.229) | 0.006*** (2.784) |
| *T* | -0.069 (-0.151) | 0.199 (0.454) | -0.296 (-0.102) | 1.344* (1.683) | -1.944*** (-1.89) |
| *Y* | 0.109*** (2.670) | 0.072** (1.904) | 0.637** (2.316) | -0.052 (-0.694) | 0.231*** (4.953) |
| $D_{RU}$ | 0.225*** (3.365) | 0.206*** (4.986) | 1.046* (1.688) | 0.427*** (5.500) | 0.114 (1.235) |
| *W* | 0.027** (2.236) | 0.023*** (1.907) | 0.021 (0.569) | 0.035 (1.533) | 0.056*** (4.319) |
| *Adj-*$R^2$ | 0.188 | 0.191 | 0.06 | 0.03 | 0.374 |
| F-Stat | 20.047*** [0.000] | 20.467*** [0.000] | 6.578*** [0.000] | 3.469*** [0.002] | 51.160*** [0.000] |
| Sample | 483 | 483 | 483 | 483 | 483 |

***, ** and * represents the significant at 1%, 5% and 10%. t-stat is reported in the round brackets and P-values in the square brackets.

## Table 6: Consumption Expenditure of Balochistan

| Variables | **Total Consumption Expenditure (a+b+c)** | **Consumption Expenditure on** | | | |
|---|---|---|---|---|---|
| | | **Food and Non-Durables (b+c)** | **Durables (a)** | **Food (b)** | **Non-durables (c)** |
| *C* | 11.951*** (71.151) | 11.929*** (71.310) | 2.438 (1.409) | 11.784*** (55.58) | 8.252*** (9.086) |
| *S* | 0.226*** (6.097) | 0.216*** (5.795) | 1.008*** (3.122) | 0.138* (1.625) | 0.337*** (4.196) |
| *A* | 0.004*** (3.954) | 0.004*** (3.934) | 0.010 (0.796) | 0.006*** (4.693) | 0.001 (0.284) |
| *T* | -0.044 (-0.315) | -0.010 (-0.072) | -2.707* (-1.633) | -0.029 (-0.161) | 0.825* (1.775) |
| *Y* | 0.010 (0.569) | 0.009 (0.528) | 0.028 (0.133) | -0.035* (-1.658) | 0.221*** (3.074) |
| $D_{RU}$ | 0.171*** (4.880) | 0.174*** (5.025) | -0.416 (-1.081) | 0.170*** (3.838) | 0.495*** (4.296) |
| *W* | 0.006** (2.06) | 0.006** (2.110) | -0.043 (-1.291) | 0.006 (1.585) | 0.014** (1.975) |
| *Adj-*$R^2$ | 0.206 | 0.196 | 0.030 | 0.07 | 0.133 |
| F-Stat | 20.536*** [0.000] | 19.354*** [0.000] | 3.337*** [0.003] | 7.021*** [0.000] | 12.525*** [0.000] |
| Sample | 447 | 447 | 447 | 447 | 447 |

***, ** and * represents the significant at 1%, 5% and 10%. t-stat is reported in the round brackets and P-values in the square brackets.

## 7. CONCLUDING REMARKS

This study estimates the effect of personal sense of insecurity among the other determinants of consumption on the consumption expenditure of the households of Pakistan. The data for this purpose is taken from Pakistan Panel Household Survey (2010). The analysis is performed for overall Pakistan and across province also. The consumption expenditure is divided into three categories that is consumption expenditure on food item, non-food durable and non-food non-durable items. The household size analysis confirms the presence of economies of scale for non- food durable commodities. Life cycle hypothesis stand true from the coefficient of age variable, as age increases households are disinclined toward the consumption of food items. Households are more responsive to increase the non-food expenditure when there is rise in their income and wealth. Urban households are doing more consumption expenditure as compare to rural; households. And Lastly personal sense of insecurity resulting from terrorism alters the consumer behaviour significantly. Increase in personal sense of insecurity due to terrorism induces the households to increase the expenditure on food items and cut their expenditure on non-food durable and non-food non-durable commodities.

**Appendix 1:**

**Items of food consumption expenditure:**

49 food items are considered under food consumption expenditure; these are:

Atta, Wheat grain (not used as Atta), Maida, Maize flour, Basmati Rice, Other Rice, Other Grains, Chick peas Dal, Masoor Dal, Mung dal, Mash dal, Other dal, Vegetable Oil, Dalda, Ghee, Fresh Milk, Yoghurt, Lassi,

Cheese, Butter, Milk Powder, Other Milk Products, Baby Formula, Sugar, Gur, Mutton, Beef/Buffalo, Chicken, Eggs, Other poultry birds (ducks, quail, etc.), Fish, Onion, Potatoes, Sag, Other Vegetables, Bananas, Other Fruits, Bottled & Canned Prod., Biscuits & Cakes, Spices, Tea, Bread, buns, Other baked products, Soft Drinks, Kerosene, Charcoal, Firewood, Dung Cakes, Match box.

**Items of Non-food consumption expenditure:**

**Non-food consumption expenditure on durables**

Items under this group are:

Urban Property/Urban investment, Household appliances, Purchase/repair of furniture, Construction/Repair of dwelling, Planting trees, Purchase/repair of Agriculture Tools and Implements.

**Non-food consumption expenditure on Non-durables**

Items under this group are:

Electricity, Gas/Cylinder, Telephone, Travelling, Can/Cigarettes/Tobacco, Cloths/ Shoes/ cloth material, Soap/ Laundry/ hygiene and cosmetics, Education/ Books/ Newspapers, Cinema/ Sports/ Entertainment, Medical care/ Medicines, cash wages (for staff/ servants), Taxes/ Water rates, Permit/ Visa travelling (abroad), Purchase of Fodder, Expenditure on other non-food items.

**Appendix 2:** The different dimensions of personal sense of insecurity.

Q3. Compared with the last 12 months, have you felt more unsafe with regards to your person or property?

1. More unsafe

2. Less unsafe

3. As safe as 12 months ago

Q4. On a scale from 1 to 10, with 1 being the least unsafe and 10 being the most, how unsafe do you feel in your community?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |

Q5.

| In the past 12 months have you … | 1 = Yes 2 = No<br>3 = Did not feel unsafe<br>4 = NA |
|---|---|
| 5.1) … decreased the amount of time spent outside of the household because you felt unsafe? | |
| 5.2)… cancelled or postponed travel outside of your community because you felt unsafe? | |
| 5.3)… cancelled or postponed participating in employment/training opportunities because you felt unsafe? | |
| 5.4)… cancelled or delayed participating in investment opportunities because you felt unsafe or worried about the safety of your investment? | |
| 5.5)… cancelled or postponed participating in school activities, on average day when school was open, because you felt unsafe? | |

Q6.

| In terms of security from crime or terrorism, how secure did you feel while… | 1 = Very insecure<br>2 = Somewhat insecure<br>3= Somewhat secure<br>4 = Very secure<br>5 = N/A |
|---|---|
| 6.1)… driving or riding in a personal vehicle/motorcycle/cycle in the last 12 months? | |
| 6.2)… using public transit (bus/wagon/rickshaw) in the last 12 months? | |
| 6.3)… going to the market place in the last 12 months? | |
| 6.4)… going to public offices/government buildings in the last 12 months? | |

In order to bring the coherence among the scale of above questions (except question 4), scales are redefined with the lower scale being the least unsafe and the higher scale being the most unsafe. The new scales for question 3 are 0 for as safe as 12 months ago, 1 for less unsafe and 2 for more unsafe. For question 5 rescaling is done as 1 for -no, did not feel unsafe and NA- and 2 for yes responses. Question 6 responses are rescaled as 0 for N/A, 1 for Very secure, 2 for somewhat secure, 3 for somewhat insecure and 4 for very insecure. Once rescaling is done then averages the responses for subparts of question 5 and question 6.

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