

Article

# Who is More Food Secure Among Rural, Peri-Urban and Urban Households in Pakistan? Results from a Field Survey in Punjab Province

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**Abstract:** This study aims to assess food security status of rural, peri-urban and urban households and role of socio-economic factors in ensuring food security. A survey was conducted to collect primary (quantitative) data from 630 respondents using proportionate sampling technique from Punjab, Pakistan. Cronbach's Alpha reveals stability (>0.75) of data scale items. Using Dietary Intake Assessment (DIA), findings reveal urban households as highly food-secure whereas rural household as most vulnerable to food security at 2450kcal/day per person. Study indicates food price increase as the leading factor in preventing food security among households. Contrary, study identifies risk factors associated to food quality under the abundant availability and access as the new dimension to household food insecurity. Further, results of binary logit model show that socio-economic factors such as monthly income, total number of earners, education of household head and access to market are positively related with food security status whereas, social isolation, volatility in food prices and risk factors in food quality are negatively related with household food security. Therefore, study proposes educational orientation and entrepreneurial development as sustainable solution to ensure food security among masses. Besides, further country level researches are advised to deep delve the mounting menace of food security.

**Keywords:** sustainable; livelihood; policy; vulnerability; choice; quality

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## 1. Introduction

Food security has been recognized as a central pillar in human development [1]. During past many decades, food security has remained a priority in the research agenda, policy debate and academic pursuits, globally. Although remarkable progress has been made during last three decades in addressing the nutritional needs of world's most vulnerable and poor, yet food insecurity and nutritional deficiency still continue to cause menace to hundreds of millions of people around the world [2]. Furthermore, fast growing population coupled with climate change has put increased pressure on production systems and threatened the current food security situation among developing countries [3, 4]. Likewise, farmers' relatively poor entrepreneurial skills in many developing countries including Pakistan have also contributed to low levels of farm earnings and the stagnation of crop productivity; ultimately causing reduced food supply, narrow range of nutritious foods, higher food prices that are negatively associated with quality food consumption and lower access to food among lower income households [5-7]. Hence, insufficient food production is not only the cause of food insecurity problem, but also lack of purchasing power and access at household level [8].

A few decades ago, poverty, food insecurity and malnutrition were regarded as the most intense rural phenomena with many households falling prey to them [9]. However, by the start of 21<sup>st</sup> century, rapid urbanization among developing countries has jeopardized the living standards, food

utilization and situation of food security. Nowadays, food insecurity is not merely a rural problem but the ramifications of this menace have affected peri-urban and urban areas in an unprecedented and gradual way [10-12]. Currently over 50 percent of the world population lives in urban areas and continually increasing with every passing day [13, 14]. Therefore, achieving sustainability in food security and resilience among rural and urban areas has become more evident and challenging due to huge shift in resources structure [15]. In a global network, cities are interconnected and linked to rural areas to manage and provide resource chains and ensure resource mobility [16]. On the other hand, food consumption in urban areas highly depends on food production in distant rural areas that are linked to urban markets via different marketing channels, whereas rural households are generally protected off these marketing channels and costs which are incurred during the mobility to city centered markets in most developing countries [17, 18].

However, poverty still remains a global challenge confronting people in ensuring food security [19]. Ending poverty “in its all forms everywhere” while not putting a colossal pressure on ecological resources and food production systems [20, 21] has been a long-standing and mounting challenge, recently, rearticulated as first United Nations Development Goal. Poverty is the leading cause of food insecurity among many nations [22-24]; therefore a synthetic conceptualization and understanding of poverty traps and interrelations between food insecurity and persistent poverty can help to trace out potential ways to get out of this mounting menace while ensuring food security among masses. Conceptualizing persistent poverty versus transient poverty [25-27] while purposing poverty alleviation policies, commonly relies on poverty traps concept [28-33]. Concept of persistent poverty originated in development economics and explains the threshold of persistent poverty with one or multiple equilibria [34-37]. Hence, poverty traps are characterized by self-reinforcing poverty mechanism to keep communities and individuals below a certain threshold level with little asset ownership thus ultimately causing food insecurity to soar.

Like other developing countries, Pakistan is listed among highly affected by food insecurity and malnutrition [38]. About two-third of the country’s total population lives in rural areas and relies on agriculture and food production directly or indirectly for their livelihood [3]. However, agriculture sector in the country has been unprivileged, under-utilized and deprived off friendly policies and reforms, this sector mainly consists of small farmers (owning less than 2 hectare) with poor access to services and resources [39]. Additionally, low entrepreneurial status of farmers, least access to markets, infrastructural constraints, credit problems in input purchase and technological adoption are leading factors in lowering crop productivity and yield [17, 40]. Consequently, lower food production causes shortage and prevents access among households leading to increase food and nutritional insecurity [17, 41].

To date, prior studies [17, 40, 42, 43] have been conducted on various dimensions of rural and urban food security in Pakistan. Therefore, filling the research gap, this study explores the food security status among rural, peri-urban and urban households and tries to compare various dynamics of food security among these groups. Particularly, study measures the food security status among household while focusing the role of socio-economic factors in ensuring food security among selected households in Punjab, Pakistan.

## **2. Materials and Methods**

### *2.1. Study area description*

This study was conducted in province of Punjab, Pakistan. Punjab is the most populous province contributing 51 percent in agricultural GDP of the country and a leading producer of food grains and cereals [3, 44]. Geographically, Punjab is located at 31°00' N, 72°00' E, mostly consisting of semiarid and low-land zone in the country [45]. By having the fertile lands and best canal irrigation system, it is producing abundant crops and playing a leading role in country's development [46]. The average annual temperature in Punjab (minimum-maximum) ranges from -2 to 45°, therefore, according to variation in temperature it can be divided into five agro-climatic zones: wheat-cotton zone, wheat-rice zone, barani (arid), mixed zone and low intensity zone [47, 48].

## 2.2. Survey, sampling and data collection

A survey was conducted using quantitative research design during June and September of 2017. Multi-stage stratified sampling technique was used for the selection of study area and 630 respondents from three agro-climatic zones of Punjab, Pakistan. Firstly, total number of districts were distributed among five various agro-climatic zones (Table 1). Secondly, nine districts from a total of thirty-six districts from three different agro-climatic zones in Punjab were selected using stratified random sampling technique. Therefore, equal representative proportional strata's (210 respondents from each zone) were taken to furnish a sample of 630 respondents.

$$n_i = \left(\frac{N_i}{N}\right) \quad (1)$$

Where:

$i = 1-5$  strata

$n_i$  = Number of districts in  $i^{th}$  stratum

$n$  = Total number of selected districts (9)

$N$  = Number of districts in  $i^{th}$  stratum

$N_i$  = Total number of districts (36)

**Table 1.** Agro-climatic zones and study districts

Agro-climatic zones in Punjab, Pakistan					
	Wheat-cotton	Wheat-rice	Barani (arid)	Mixed	Low intensity
Districts	Bahawalpur	Sialkot*	Attock	Sargodha*	D. G. Khan
	Bahawalnagar	Gujranwala	Chakwal	Khushab	Rajanpur
	Multan	Gujrat	Jhelum	Jhang	Muzaffargarh
	Sahiwal*	Mandi Bahaudin	Rawalpindi	Faisalabad*	Layyah
	R.Y. Khan	Sheikhupura*		Okara*	Mianwali
	Khanewal	Lahore		Toba Tek Singh	Bhakkar
	Vehari*	Kasur		Chiniot	
	Pakpatan*	Nankana Sahib*			
	Lodharan	Narowal			
	Hafizabad				

Source: Pinckney (1989). \*districts where study was actually conducted

While selecting the districts, three agro-climatic zones; wheat-cotton, wheat-rice and mixed zone were selected. The districts were selected according to the homogeneity in production of five major crops (wheat, rice, maize, sugarcane and cotton). At the third stage, from each district, four villages

(for rural areas), four towns (for peri-urban) and four housing societies (for urban areas) were randomly selected. A pre-tested questionnaire was used for data collection from households (both male and female) members. Cronbach's Alpha test was used to examine the validity of data tool items using the following expression [49].

$$\alpha = \left(\frac{k}{k-1}\right) \left(1 - \sum_{i=1}^k (\sigma_{yi}^2) / \sigma_x^2\right) \quad (2)$$

Where:

k refers the number of items in the scale

$\sigma_{yi}^2$  refers to the variance associated with  $i^{\text{th}}$  item in the scale

$\sigma_x^2$  refers to variance associated with total observed score

### 1.1. Analytical framework

Determinants of food security and role of various socio-economic factors in ensuring food security were estimated taking insights from various studies on the subject for other locations of the world [17, 40, 42, 47, 50-55].

#### 1.1.1. Mathematical computations

Dietary Intake Assessment (DIA) was used for measuring per capita calorie intakes, a proxy variable of food security status and its indicators among respondents. Seven day recal method was exercised for collecting information about food consumption. Study measured food security at 2450kcal/day among households [3, 52, 53, 56]. According to DIA, food security status of household (HFS<sub>i</sub>) is taken as;

$$HFS_i = \sum_{i=1}^n FSi - Thi \geq 0 \quad (3)$$

Where, HFS<sub>i</sub> security status for the  $i^{\text{th}}$  household in the study. If it takes value 1 then household is considered as food secure otherwise food insecure. Thi stands for threshold (2450kcal/day) level of food security among households. This study used two levels of protein intake, i.e. 50 grams and 70 grams for ensuring protein security [3, 17, 42, 50, 57, 58]. According to household's information, value 1 was used for protein secure households while otherwise 0 for rest. Similarly, protein intake was mathematically measured as;

$$\text{Protein}_{ij} = \sum \text{Protein}_{ij} - L \geq 0 \quad (4)$$

Protein<sub>ij</sub> is the consumption of protein security of  $j^{\text{th}}$  household and represents the threshold level of protein intake. Iron intake is mathematically measured as;

$$\text{Iron}_{ij} = \sum \text{Iron}_{ij} - L \geq 0 \quad (5)$$

Iron<sub>ij</sub> is the consumption of iron security of  $j^{\text{th}}$  household and represents the threshold level of iron intake which was taken at 15 mg [17, 40, 50]. Food security index (FSI) is mathematically measured as;

$$FSI_i = (FSI + Protein_{ij} + Iron_{ij})/3 \quad (6)$$

Where,  $FSI_i$  is the food security of  $i^{th}$  household. Household with index value of 1 were taken food secure while those with index value 0 were taken as food insecure [17, 40, 50, 57, 58]. Role of socio-economic factors in ensuring food security status among households was measured by using binary logistic regression model. This model can be written as;

$$Logit(\delta_i) = \beta_0 + \beta_i X_i + \omega_i \quad (6)$$

Where:  $\beta_0$  = intercept term;  $\beta_1$  = shows slopes of explanatory variables;  $X_i$  = explanatory variables and  $\omega_i$  is error term in the model. To compute the results by binary logit model, Hosmer and Lemeshow (H-L) test, Model Prediction Success (MPS) and Pseudo  $R^2$  were calculated to test overall goodness of fit of the model [59-61].

**Table 2.** Description of study variables

Variable name	Description	Variable type
Dependent variable		
Food security status	Food security status of households. 1 for food secure and 0 otherwise	Binary
Independent variables		
1. Monthly income	Household total monthly income	Continuous
2. Food expenditure	Household total monthly food expenditure	Continuous
3. Total earners	Number of household earning hands	Continuous
4. Education of household head	Number of year of schooling of household head	Continuous
5. Education of wife/mother	Number of year of schooling of wife/mother	Continuous
6. Access to market	If access to market is easy then 1 otherwise 0	Binary
7. Food intake Awareness	If household has sufficient awareness about food intake, then 1 otherwise 0	Binary
8. Income sources	If income sources more than one then 1 otherwise 0	Binary
9. Risks in food quality	If risks in food quality prevail then 1 otherwise 0	Binary
10. Volatility in prices	It vitality in food prices prevails then 1 otherwise 0	Binary
11. Social isolation	If households are socially isolated then 1 otherwise 0	Binary

### 3. Results

#### 3.1. Reliability analysis

Reliability analysis was done using Cronbach's Alpha test. Test reveals the reliability (greater than 0.750) of dataset items used in the analysis which suggests that we can pursue further statistical approaches and analysis for formulation of unbiased results. The estimated value of Cronbach's Alpha was 0.821 while considering 12 variables used in the analysis as given by Table 2 above.

### 3.2. Food security status

Food security status of households measured at 2450 Kcal/day per person (Table 3), as recommended for the Pakistan [3]. Results reveal that highest number of households as food insecure in strata 1, whereas strata 3 exhibit the antagonistic effect and represents lowest households as food insecure. Therefore, comparatively urban households are shown to be highly food secure among rest of other two groups. Therefore peri-urban households are identified to be generally better in food security status from rural households. Similarly, findings reveal that urban households are more food-secure among rest of others while rural households are found to be the most vulnerable to food insecurity at 2450 Kcal/day per person. Findings are quite similar to the studies of Bashir et al. [17, 40].

Per capita calorie intake of respondents was measured in minimum, maximum and average (Table 4). Results depict that households in strata 1 are taking minimum calorie intake which was even too low from the recommended (2450kcal/day), whereas average shows a better scenario with a relatively higher intake of calories approaching the threshold intake. Results for strata 2 and 3 exhibit a different situation and shows average calorie intake equivalent to 3335.33 and 4786.80kcal/day per person, respectively.

Protein calorie intake is assessed at 70gm/day per person intake (Table 5). Results depict that most of the households are protein insecure in strata 1, a similar pattern is observed in strata 2 with higher number of protein insecure households, while strata 3 exhibits a different situation with higher protein secure households. As a whole, results indicate those 60 percent households are found to be protein insecure at 70gm leaving highest percent from rural households.

As shown in Table 6, protein food security is also measured at 50gm/day per person intake. Results for strata 1 exhibit that majority of respondents are protein insecure at 50gm/day per person, strata 2 illustrates antagonistic scenario with higher number of protein secure households, while same trend prevails in strata 3 with higher percentage of respondents are found to be protein secure at 50gm/day per person. Therefore, urban centered households are generally observed highly protein secure.

Food security index (Table 7) depicts the categorization of respondents based on food security status of households into absolute<sup>1</sup>, highly food secure<sup>2</sup> and food insecure categories as well. Results show that most of the households in strata 1 lie in absolute food insecurity, while a few households fall under highly food secure group. Findings reveal that lower percent of households are absolute food insecure while higher numbers are highly food secure households in strata 2. Results depict that

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<sup>1</sup> Absolute food insecure mean respondents at high risks of food insecurity.

<sup>2</sup> Highly food secure stands for respondents with balanced dietary intake.

a few respondents in strata 3 are absolute food insecure category, while higher households are absolute food secure. Therefore, overall finding shows higher percent of respondents are absolute food insecure and lower respondents as highly food secure. Hence, highest percent of household falls in highly food secure category belongs to urban areas.

**Table 3.** Food security status of households at 2450 Kcal.

<b>L = 2450 Kcal</b>	<b>Food secure %</b>	<b>Food insecure %</b>
S1, n=210	11.42	21.90
S2, n=210	19.04	14.28
S3, n=210	29.52	3.80
Total	60.00	40.00

**Table 4.** Distribution of respondents according to per capita calorie intake.

<b>Strata's</b>	<b>Minimum</b>	<b>Average</b>	<b>Maximum</b>
S1, n=210	633.86	2246.10	16036.22
S2, n=210	1121.85	3335.33	11189.84
S3, n=210	1592.80	4786.80	19895.87

**Table 5.** Protein food security at 70gm.

<b>L = 70Gm</b>	<b>Protein secure %</b>	<b>Protein insecure %</b>
S1, n=210	4.77	28.56
S2, n=210	12.37	20.96
S3, n=210	24.85	10.47
Total	40.00	60.00

**Table 6.** Protein food security at 50gm.

<b>L = 50Gm</b>	<b>Protein secure %</b>	<b>Protein insecure %</b>
S1, n=210	12.38	20.95
S2, n=210	19.05	14.29
S3, n=210	38.48	2.86
Total	61.90	38.10

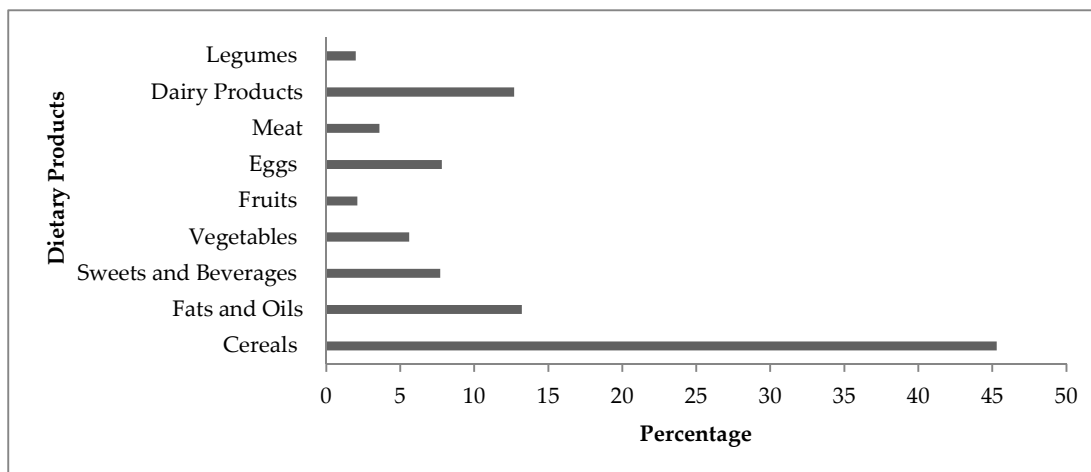
**Table 7.** Respondents' food security index.

<b>Strata's</b>	<b>Absolute food insecure %</b>	<b>Highly food insecure %</b>	<b>Highly food secure %</b>	<b>Absolute food secure %</b>
S1, n=210	19.05	2.00	8.56	3.81
S2, n=210	13.32	1.00	11.42	7.60
S3, n=210	2.84	0.00	14.43	19.03
Total	35.00	3.00	31.00	31.00

### 3.3. Consumption of food products

Results related to the consumption of food products are shown in Figure 1. Households' dietary intake constitutes cereals as leading products (45.3 percent). Being a cheap source of food, cereals play key role in food security. Fats and oils are contributing as second major component in food products among households, whereas dairy products are third major constituent among households in their food intake. In addition, eggs, sweets and beverages, vegetable, meat and legumes constitute

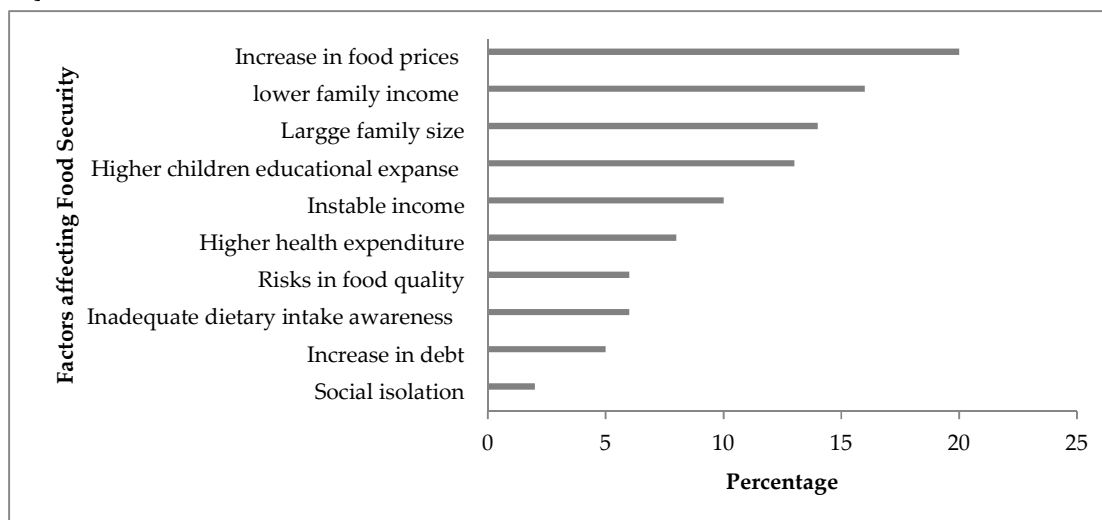
other food items among households. However, higher prices of fruits, meat and legumes are the casual factor for their marginal use among households.



**Figure 1.** Percent consumption of dietary products.

#### 3.4. Factors affecting food security

Result in Figure 2, represents factors affecting food security among households. Result show that increase in food prices plays a leading role in affecting food security among households. Subsequently, lower family income, large family size and expenditure on children's education result in the deterioration of food security among masses, respectively. However, instable household income and higher healthcare expenditure also contribute to soar food insecurity. Contrary, study introduces risk factors associated with food quality under the abundant availability and access as the new research dimension as it is becoming serious factor. Likewise, inadequate dietary intake information also is found to be a causal factor in affecting food security status among households [62, 63].



**Figure 2.** Factors affecting food security.

#### 3.5. Awareness concerning safe water and food



Results in Table 8, represent households' awareness about the significance of safe and hygienic food and water. Results reveal that 68.7 percent households are well aware about the importance of safe and hygienic food, whereas as 31.3 percent are not aware of significance of safe and hygienic food.

Water borne diseases are common in Pakistan and unavailability of safe drinking water is facilitating spread such diseases [3, 64]. Result in Table 9, depict that 64.74 percent households are not aware of significance using safe drinking water and to escape from water borne diseases<sup>3</sup> whereas lower number of households are aware about use of safe drinking water.

Fitness test of drinking water is pre-requisite to use water for drinking purpose [65]. Result in Table 10, show that most of households are not conducting fitness test of their drinking water from laboratory to draw conclusions whether is it fit for drinking purpose or not, while fewer households are conducting water quality test before use.

**Table 8.** Awareness about significance of safe food.

Awareness regarding safe food	Percentage
Yes, I do have	68.7
No, I don't know	31.3
Total	100

**Table 9.** Knowledge about water borne diseases.

Knowledge regarding water borne diseases	Percentage
Yes, I do have	35.24
No, I don't know	64.76
Total	100

**Table 10.** Fitness test of drinking water

Fitness test for drinking water	Percentage
Yes, I have conducted	23.33
No, I do not conducted	76.67
Total	100

### 3.6. Role of socio-economic factors in household food security

Role of socio-economic factors in ensuring food security among households is measured using binary logit model (Table 11). Finding of the study reveal that model has excellent goodness of fit (82.2 percent) and significant Hosmer and Lemeshow values. Results depict that among socio-economic factors; monthly income, total number of earners, education of household head and access to market are positively and significantly related with household food security whereas, social isolation, volatility in food prices and risk factors in food quality are negatively and significantly related with households' food security in Punjab, Pakistan. Findings are also similar to the studies of

<sup>3</sup> Water borne diseases are the leading cause of death among children. Water borne diseases i.e. cholera, typhoid, hepatitis A & E and diarrhea are highly common in the country.

Bashir et. [17, 40], Azeem et al. [63], Lee and Frongillo [66], Khan and Gill [67], Braha and Qineti [68], and De-Muro and Burchi [69].

**Table 11.** Socio-economic factors of household food security

Variables	B	SE	Exp. B
Monthly income	0.192***	0.054	1.212
Food expenditure	0.214	0.293	1.239
Total number of earners	0.064***	0.020	1.066
Education of household head	0.096***	0.167	1.103
Education of wife/mother	0.257	0.261	1.293
Access to market	0.638***	0.235	1.528
Social isolation	-0.414***	0.307	0.650
Volatility in food prices	-0.007**	0.301	0.993
Risks in food quality	-0.099*	0.140	0.906
Food intake Awareness	0.197	0.149	1.218
Income sources	0.134	0.489	1.143
Constant	6.518***	1.430	1.853
Number of respondents		630	
Number of variables		11	
Model precision success		82.2 %	
Log-likelihood ratio test statistics		556.48	
H-L model significance test results		4.632(p value=0.01)	
Cox & Snell R <sup>2</sup>		0.379	
Nagelkerke R <sup>2</sup>		0.510	

Note: \*\*\* and \*\* are statistically significant at  $p \leq 0.1$ ,  $p \leq 0.05$  and  $p \leq 0.01$

#### 4. Discussion

In developing world, achieving food security is a significant challenge and crucial for alleviating poverty. People's education and health and ability to work, asserts their basic rights, and to achieve equality are all compromised due to not having food security [4]. The right to safe and hygienic food is a critical livelihood outcome, and it is a fundamental pre-condition to achieve other basic rights [70]. Among developing countries, rural areas are most susceptible and exposed to the higher impacts of food insecurity due to lower infrastructure, access to markets and resources [9, 71]. Whereas, several studies acknowledged that farmers and rural households are the key players in production of food crops consumed in peri-urban and urban areas. Although, these rural households are still primary investors and stakeholder in agriculture but these households are most vulnerable to food insecurity [72, 73]. Agriculture development and food security are interlinked, so therefore, without agriculture development it is not merely possible to ensure food security [74].

Our first purpose while conducted this study was to get a realistic (general) estimate of the household food security status in rural, peri-urban and urban areas and draw conclusions about who is more food secure among them. In this part we conclude that urban households had better food security status among others whereas rural households are most vulnerable to food insecurity. Therefore, food security status of rural households is mainly dependent on in rural areas on

agriculture directly or indirectly being their basic source of livelihood. Over last two decades, agriculture sector in the country has been unprivileged on policy front while lower entrepreneurial level among farmers has led to stagnant growth marred by market instability and continuous recession [3, 7, 75-77]. Hence, concluding impartially to ensure food security while relying solely on agriculture has become challenging among rural households. Contrary, among developing countries role of political economy and city bias exhibits cantered resource allocation in cities and urban development leads to higher provision of security, education, health, business and job opportunities which guarantees better food security situation among urban households [78, 79]. Additionally, as cities are engine of economic growth [80-82] providing higher income and livelihoods opportunities, globally. Likewise, we conclude that urban development and colossal resource allocation causing stable income, higher job opportunities and enhancing access and availability to food among urban households and ensuring better food security status.

Households consumption of food products in dietary intake constitutes mostly on cereals, as cereals are abundantly being produced, cheap source of food and readily available throughout the year [83-87]. In addition, household dietary intake largely constitutes in fats and oils, dairy products, eggs, sweets and beverages and vegetables. On the other hand, higher price of fruits, meat and legumes is key reason for their marginal use among households. Study explores that increase in food prices plays a colossal role in affecting food security among households; subsequently, lower family income, large family size and higher children educational expenditures are leading factors confronted to food security among masses, respectively. Population is increasing at a faster rate by adding millions of people in the country which already suffering from unfriendly agriculture policies, stagnant agriculture and industrial growth as well. Hence, it has created a colossal pressure on ecological resources by severe mis-utilizations and causing huge losses to the country by declining natural resources at faster rate [4, 88]. On the other hand, study introduces risk factors associated to food quality under the abundant availability and access as the new dimension which has gained enough pace and calls for serious attentions while ensuring food security. Likewise, inadequate dietary intake information also acting as casual factor in preventing food security status among households. Furthermore, households had inadequate awareness regarding the significance of safe and hygienic food and drinking water.

Further, results for binary logit model reveal that monthly income, total number of earners, education of household head and access to market are positively related to household food security whereas, social isolation, volatility in food prices and risk factors in food quality are negatively related to household food security in Punjab, Pakistan. As agriculture is the sole occupation among most of the households in rural areas, small land holding coupled lower technological adoption and marginalized entrepreneurial skills are the primary reasons to stagnation in agricultural growth and food insecurity and among rural masses [3, 89]. This situation could get worse and may become a menace as rural households (farmers) in coming days not take agriculture as entrepreneurship. Therefore, increasing rural household income via enhancing farmers entrepreneurial level through short courses, increasing market access, facilitating mobility and educational orientation can upshot a sustainable food security situation among rural masses. Besides, study recommends further studies at larger scale to deep delve the mounting menace of food security in the country.

#### 4. Conclusions

Food insecurity is major concern of many developing nations who are faced with numerous challenges that lead to intensification of the former. Pakistan being a developing country has lagged far behind in ensuring food security of their masses. Although the Government has pursued a reactive approach in general in the past but the percentage of food insecure individuals continued to grow both in rural and urban areas. Even the rural masses have been facing tough challenges in ensuring their food security status in the current era of global warming, climate change, natural hazards and above all erroneous market infrastructure and institutional support. We find a strong evidence of little variation in terms of households living background and the food security status. The Punjab province of the country is famous for its agricultural productivity but it too is highly vulnerable in terms of food insecurity compounded by climatic changes in recent past. Many of the social, institutional and environmental stimuli have a strong bearing in ensuring food security of the individuals. For ensuring this feature, an integrated approach is needed to secure people from famine, malnutrition and healthy lifestyle on sustainable basis. Government has tried its best to achieve this goal but there seem high policy distortions and its implementation on the cost of compromising other vital sectors of social and economic uplift. The approach to fighting food insecurity and malnutrition must be multipronged and all inclusive – ranging from environmental sustainability, social sector development, institutional harmony and effective marketing – which then would lead to eradication of many interlinked issues in the country and provide valuable insights for others in the region to imitate.

#### 5.

**Author Contributions:** Ali Sher and Azhar Abbas conceived and designed the study; Saman Mazhar and Muhammad Amjed Iqbal collected the data; Ali Sher and Li Xiangmei analyzed the data; Ali Sher and Saman Mazhar wrote the paper; Azhar Abbas and Li Xiangmei contributed to give final shape to the paper.

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