Determinants of Customer Satisfaction of Hospitality Industry

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Abstract

Hospitality industry is an important sector providing comfort to the customers in the form of shelter, food and refreshment. The better understanding of customer satisfaction will have a significant impact on the revenue of this industry. In this sector the role of different services offered by a hotel are considered very crucial. Further, different brands have established their brand equity and customers are willing to pay an extra amount for these brands. The aim of the present study is to understand the role of different services on customer satisfaction and how different brands are contributing in the customer satisfaction. For this purpose, primary data had been collected through structured questionnaire from Faisalabad, Lahore and Islamabad. The present study used convenience sampling technique for the data collection. The present study used logistic regression model to assess the impact of different services and brand name on the customer satisfaction. The results of the study showed that different services and brand name have a significant impact on customer satisfaction. In order to improve the revenue, hoteling industry need to focus on the services that have a significant impact on the customer satisfaction. Further, different brands need to create awareness about their services using different media to enhance their revenues.

Impact of Institutional Quality on Economic Growth

Umme Rubab

Abstract

Recent literature on institutions and economic development have been emphasized on the basis of a performance parameter on the institutions that increase the production factor's ability to contribute production, however, this study focuses on the proposal that the quality of the organization not only works as an increase in performance of Parameters, but also the role of the production factor in the determining the stock level. These results have analyzed to present in theoretical framework which include such a role of institutional framework in determining and specifying the various factors of income among countries.

Impact of quality Features and Brand on Customer Valuation of Automobile

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Abstract

Globalization results in fierce competition in the market among different automobile brands. In order to increase their market share, manufacturers use different marketing strategies such as product strategy, service strategy and promotional strategy. In product strategy, manufacturers are offering automobile with different features. The aim of the present study is to compute the impact of various features and brand on the price of automobile in Pakistan. For this purpose, primary data were collected from showrooms. The data contains the information of price of automobile and different features of automobile such as horse power, transmission, locking system, navigation system, remote locking,
sunroof, number of doors etc. and brand of automobile such as Honda, Toyota, Suzuki, Faw, Mercedes Benz, BMW, Range Rover, Audi, Porsche, Mitsubishi, Mazda etc. The hedonic price model was used to estimate the impact of various quality features on the price of automobile. The results of the study showed that brand name and different quality features have a significant impact on the price of automobile. For some brands customers are paying discounted price while for other consumers pay a premium price. The study showed that the manufacturers of discounted brands should promote a positive image and good quality features of their brand in order to charge a premium price.

The Impact of Packaging Strategies on Consumer Buying Behavior: A Case of Nestle Pakistan

Hughes Ahmed, Dr. M. Imran Khan, Zunaria Naveed
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Abstract

The research aims to know the role of packaging on consumer buying behavior regarding Nestle products in District Vehari Punjab Pakistan. Considering the impact of various elements of packaging on purchasing Nestle products, a conceptual framework was developed by extensive literature review and tested by using descriptive statistics, ANOVA, Correlation, sample size of this study is 365 and out of 365 questionnaires, 351 were useful for attaining the goals of good results. have got back 351 usable questionnaires in which using five point Likert scale. Moreover, statistical tools regression and correlation were used for analysis and done through SPSS. Descriptive statistics indicates 59.8% male and 40.2.4% female’s respondents respectively, 18-25 years’ age group respondents are 74.6%, 25-30 are 21.1% of the total sample, 30-35 age group people are 4.3% of the total sample. At the educational level 57.5% respondents are undergraduate and 42.5% are Graduate. In COMSATS University Islamabad, Vehari Campus 37.6% respondents taken of total sample, 13.7% in University of Agriculture Faisalabad, Burawala Campus, 14.5% in PMAS-Arid Agricultural University Rawalpindi, Burawala Campus, 34.2% respondents have taken in University of Education Lahore, Vehari Campus. The results show that all the packaging elements have a positive significant impact on consumer buying behavior except innovation which has a negative significant relationship with buying behaviors. Packaging elements like color, wrapper design, size and packaging material shows a high association with buying behaviors rather than other packaging elements.

Keywords: Consumer Buying Behavior, Packaging Elements, District Vehari, Punjab Pakistan.

The Impact of Capital Structure on Firm’s Performance; A Comparative Analysis of Pakistan International Airline Corporation and Emirates Airline.

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Qaiser Aman, Department of MS, CUI, Vehari Campus

Abstract

This research was conducted to know about the impact of capital structure on Firms. A comparative analysis of Pakistan International Airline Corporation and Emirates Airline has been conducted to find the impact of Capital structure on firm’s performance. Secondary data collected over the period 1990 to 2015. The dependent variable were Return on Assets, Return on Equity, Net Profit Margin and Gross Profit Margin while the Independent variable were Debt to Assets and Debt to Equity. This study has used Dickey Fuller test to check the Stationary of the data and the results of this research showed that all the data was in stationary form. To examine the impact of capital structure on firm performance data has been analyzed through regression and correlation analysis. From this research study it can be concluded that mixed results have been shown
between the capital structure and firm performance. According to the analysis of Pakistan International Airline there is a significant relationship between the Debt to Asset (DTA) and Debt to Equity (DTE) with the firm performance which supported our hypothesis of the study. On the other hand in case of Emirates airline study found that there is not any significant relationship between Debt to Asset (DTA) with performance of Emirates Airlines. However Debt to Equity (DTE) has significant relationship with the performance of Emirates Airline.

**Keywords:** Capital Structure, Firm Performance, Return on Asset, Return on Equity, Net Profit Margin, Gross profit Margin, Debt to Asset, Debt to Equity.

**The Impact of Celebrity Endorsement on the Buying Behaviour of Students: A Comparative Study of Pakistani and Indian Celebrities**

Anum Mahmood MS Scholar, Dr. M. Imran Khan, Ghulam Murtaza
HOD, Department of Management Sciences CUI, Vehari Campus

**Abstract**

Recently in the modern world of commercial marketing celebrity endorsement is the most common concept utilized by the advertisers. This research is designed to analyze the impact of celebrity’s endorsement on advertisement and also investigated the comparison in between Indian and Pakistani celebrities regarding to the mobile phone on the buying behaviour of students. The study suggests that some factors of celebrity endorsement such as celebrity physical attractiveness, trustworthiness, expertise and congruity have impact on buying behaviour of student. This study also examines the impact of demographic variables on the buying behaviour of students. This is an exploratory and comparative study that is being performed for the academic purpose. Data is collected through survey instrument in the form of questionnaire through distributing it physically and online to respondents. Respondents are selected from the higher educational institutes of Multan city. The researcher regulated the poll of 400 respondents and got the response of 94% respondents. For the purpose of analysis the techniques used are ANOVA, Correlation Analysis, Regression Analysis which are performed on SPSS (Statistical package for social sciences). The outcomes of this study suggest that overall celebrity endorsement has a positive impact on the students buying behaviour with reference to mobile phone ads. Regarding to the case of Pakistani celebrities the most affecting factor of celebrity endorsement is celebrity trustworthiness and celebrity expertise. In case of Pakistani celebrities 62.3% of variation in buying behaviour is explained by independent variables. While in case of Indian celebrities, Indian celebrity’s congruence with cell phones and their physical attractiveness is highly affecting buying behaviour of students as compare with other factors although in this case 95.3% of variation in buying behaviour is explained by independent variables.

**Determinants of Household Fuel Choice Behavior in Rural Areas of Pakistan**

Nazish Iftikhar, Dr. Muhammad Asim Yasin

**Abstract**

The present study used secondary data of PSLM to collect the information of household fuel choice for cooking and heating to analyze the factors that determine the fuel choice in rural Pakistan. Developing countries mostly rely on traditional fuels including charcoal, animal dung, woods, leaves and twigs for cooking purpose. In Pakistan, majority of the households use wood for cooking and heating purposes. Fuel-wood used for cooking purposes has many impacts on environment and human health. This study used multinomial logistic model to analyze and determine the factors that influence the household fuel choice. The results of this study indicate that the income, age and education of households affect
positively and significantly. The estimated coefficients of family size and time to reach main market have negative coefficients and statistically significant at 1 percent level of confidence. The results of the study indicate that gender of household head has positive coefficients and significant for adoption of LPG and kerosene oil. It indicates that female head prefer cleaner fuel because it saves time. The study also suggested important policy recommendations to improve the socioeconomic status of households for better fuel choice.

Key words: Fuel choice, Rural households, Multinomial logit model, Firewood.

Estimating Health Cost Of Diabetes in Vehari District
Maliha Abbas, Dr. Khuda Baksh

Abstract

Diabetes Mellitus is a chronic disease and is a major rising threat to worldwide public health. The main purpose of this study is to find out the knowledge of the respondents relating to diabetes and estimate the health cost of diabetic patients. Many socioeconomic characteristics and variables that affects directly and indirectly to the health cost of diabetic patients. Direct cost includes costs of hospitalization, daily medicine, doctor examination fee, insulin, syringe, strips test and any special diet for diabetic patients. Indirect costs are those that affect productivity loss and time waste during doctor examination for diabetic patients. Descriptive statistics indicates the annually Health cost of diabetes estimated productivity loss, travel, food, doctor examination fee, daily medicine and hospitalization cost as mean and standard deviation. The result shows that medicine cost of patients was increasing and exceedingly then other independent variables and means medicine cost is Rs.17806.2 per annum. Primary data and Log linear model are used for estimating the health cost. The outcomes indications that education, job businessmen, income level and exercise time are negatively and age positively related with health cost. Loss productivity estimated by the specific wage rate of per hour in Pakistan. Opinion, knowledge and sources of information about diabetes also included to know the overall awareness and consequences among diabetic and non-diabetic respondents. Non-diabetic patients have no properly information about diabetes and there are need to improve the health services and policies to attentive about diabetes or other diseases. Health facilities are limited in this region and there is a major reason to increasing the cost of diabetic patients to examined from other nearly cities. Close observing of diabetes is very important to long term care and in which include medication, regular self-monitoring blood glucose, proper diet, and daily exercise. To control the diabetes main emphasis are education level increase because most educated people are appropriately attentive about diabetes and should give knowledge about diseases and try to prevention from initial level to higher level. Educated people are mostly aware about diseases and illiterate people are not know its complication of diabetes. Diabetes increasing cost not only effect on patients but also the other family members and society. The increasing cost of diabetes have impacts on burden of economy in developing countries. The suggestions of this study are to make new policies and health institutions to control the health cost of diabetic patients.

Key words: Diabetes, health cost, direct and indirect cost, new policies, health institutions

The Impact of Globalization on quality of Life
NOREEN KOUSAR
Dr. Khalid Mushtaq

Abstract

The study is explored the impact of globalization on quality of life an investigation for Pakistan. The study is used time series analysis from the period of 1980 to 2016 of Pakistan. The main objective of this study is to investigate the impact of globalization on quality of life in developing country like Pakistan. This study conceptualized the globalization into three major components the first Economics globalization, second political
globalization and third social globalization and the one more step is taken to observe the overall globalization with use of KOF index of 2013. These show the strong positive and negation effect of globalization on quality of life. In order to measure the quality of life in this study three variables per capita income, life expectancy and school enrolment are used. To check the stationary level of the variables, augmented dickey fuller test is applied. In order to investigate the relationship among the variables, the study is used the long run co-integration.

Key words: Globalization, Quality of life, Pakistan, Time Series Analysis

Food Safety Practices and Perceptions: The Case of Fast Food Street Vendors and Consumers of Faisalabad

Zunera Ramzan†‡, Muhammad Khalid Bashir†‡, Sarfraz Hassan¹ and Sana Sehar¹
¹Institute of Agricultural and Resource Economics Faculty of Social Sciences, University of Agriculture, Faisalabad Pakistan.

Abstract

In developing countries, fast food street vendors are famous for convenience and low cost and are prefer by the lower-middle income consumers.

The study aims to improve the food safety practices by the vendors and consumers. The objectives were to compare food safety legislation of Pakistan with advanced country's (USA) legislation, identify the knowledge level of the venders and consumers about food safety and its legislation, and to suggest policy implications. Food safety legislation of USA from Food and Drug Administration and Punjab Food Safety Act was obtain from the websites respective departments. Primary data were collected from 100 fast food street vendors and 200 consumers using convenient sampling method. Unfortunately, overall knowledge about Food Safety Acts was very poor about the rules and regulations of national and international laws i.e. 89% of the vendors have no knowledge about the food safety laws of Punjab food authority while 4% have only knowledge about the national and international laws exist and only 7% had knowledge about the national food safety laws. As compare to it, the knowledge about food safety acts of fast food street consumers was good like 64 % heard about it and 10 % know about the (FDA) Food and Drug Administration while 26 % do not have any information about the legislations of food safety. Furthermore, it was noted that there was no significant difference (p > 0.05) between food safety knowledge levels of male and female consumers. However, significant differences (p < 0.05) were noted in terms of food preparation, education level, age, food safety training status and location. In contrast, the street vendors had poor food safety knowledge and attitude levels. No significant differences (p > 0.05) were observed in the food safety knowledge levels of the vendors based on gender and age. However, significant differences (p < 0.05) were found based on food safety training status and education level. Consequently, there is an extremely important requirement to organize recognized training in food and safety of food. There should be a food safety rules, regulations, implementers and the training should be start at very early stages like school, and colleges. Government should play an important role for awareness of vendors and consumers by making effective policies and through advertisements.

Keywords: food safety, perceptions, fast food, street venders, street Consumers, legislation of food safety, Faisalabad, Pakistan

Environmental and Economic Impacts of Better cotton: A panel Data Analysis

Sundas Zulfiquar
Department of Management Sciences

Abstract

Better cotton is introduced with the aim of a reduction in the use of environmentally detrimental farm inputs in order to attain sustainable cotton production. The present study is designed to assess the environmental and economic effects of better cotton in Pakistan using panel data
comprising of two cropping seasons 2015 and 2016. Panel methods were used in the present study. Findings show that better cotton increases the gross margin by 38%, yield by 9% whereas it results in decreasing seed and sowing cost by 4%, fertilizers by 7%, pesticides by 7% and irrigation by 14%. Since better cotton involves more labor use due to higher yield, cost of labor increases by 4%. The study concludes that better cotton is more economically and environmentally sustainable than conventional cotton.

**Keywords:** Better cotton; Panel modeling; Profitability; Farm inputs

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**Framework for Female Labor Participation and Gender Wage Gap Analysis in Agriculture**

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Abstract

Women comprise over 40 percent of the agricultural labor force in the developing world and in Pakistan more than 30 percent agricultural labor comprises female. Women participate in all activities including seeding, weeding, pesticide application, irrigation, harvesting and threshing etc. Despite this significant contribution, their participation is not properly recognized and prevent them from getting due share of their hard work due to different barriers. The barriers include male-female wage difference in general and in agriculture particular, low women empowerment negotiate wages themselves instead of practice of settling wages by their male family members and non-cash nature of family labor. The objective of this paper is to discuss female labor wage difference, wage decisions and possible ways to calculate monetary value of family and un-paid hired labor contribution for different agricultural operations, and to discuss possible impact of labor substitution technologies on gender labor relationships. The existing methodologies for age wise and activity wise wage for hired and family labor will be explored to propose a systematic framework for gender labor relation in agriculture. The findings of the study will have strong policy implications to understand possible effects of climate change induced labor demand changes on existing gender labor relationships in agriculture. The study will contribute to literature by providing analysis of changing gender roles in wake of labor substitution technologies wage negotiation, family labor wage calculation and contribution of female labor in different agricultural activities.

**Keywords:** Gender wage gap, agricultural labor, female labor, family labor wage, monetization of labor, labor wage negotiation.

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**The use of wastewater for irrigation purposes: Perceptions and willingness to pay for treated Wastewater**

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Abstract

Water scarcity is one of the main problems all over the world. Lack of available water resources force farmers to use wastewater for irrigation in peri-urban and rural areas of developing countries. Irrigation with wastewater is the most prevailing tradition in Pakistan from last forty years. Although wastewater provides necessary nutrients to crops but the accumulation of chemicals and heavy metals are harmful to human health, soil and groundwater resources. Vegetables grown in peri urban areas of many cities are irrigated with wastewater which has adverse effects on human health. The objective of the study is to check the prevailing patterns of irrigation in peri urban areas of Faisalabad district to identify the factors affecting willingness of farmers to pay for treated wastewater and their perceptions to use it. Face to face interviews, group discussions were used to collect data with the help of questionnaire with a sample size of total 200 farmers. This sample size was comprised of 100
wastewater users and 100 freshwater user. Binary logistic regression model was used to evaluate the farmers’ willingness to pay for treated wastewater. Results revealed that 66 percent users of the wastewater and 74 percent users of freshwater were willing to pay and to use treated wastewater as an alternative option for irrigation. Based on the findings of the present study, it was concluded that willingness to pay was positively affected by age, education, income, area of cultivation. Study recommended to abide food security and health standards while using untreated wastewater for irrigation.

Keywords: waste water, waste water treatment, irrigation, willingness to pay, choice modeling

Estimation of the Carbon Footprints of Wheat Crop in Faisalabad, Pakistan

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Abstract

Climate change is a global phenomenon, which refers to increase in the earth’s temperature due to anthropogenic activities. In Pakistan, agricultural sector is the most sensitive to climate change but at the same time this sector has huge contribution in CO$_2$ emission. It is very challenging to become a food secure nation as well as handle the rising climate risks. Pakistani government is taking some serious steps to reduce the CO$_2$ emission and govt. has passed “Pakistan Climate Change Act 2017” to achieve the phenomenon of LCS (low carbon society). This study aims estimate the carbon footprints (on-farm production-base emission of GHGs) of wheat crop in district Faisalabad, Pakistan. Primary data were collected through face to face interviews with 200 farmers. The emission factors of European Commission (2011) and previous studies were followed to estimate CO$_2$ emissions from wheat production. The wheat crop produced total 0.31 kg CO$_2$eq/ kg$^{-1}$, inorganic fertilizers are the huge contributor in total emission 0.18 kgCO2eq/kg$^{-1}$ of wheat which is 59% of total. Other operations like sowing, irrigation, plant protection harvesting and transportation add 19%, 7%, 10% 2% and 8% in total emission respectively. The consumption of diesel in farm operations contributes about 38% in total carbon footprints. To mitigate unfavorable impacts of crop cultivation recommended various policy choices including find out the less carbon emitted fertilizers (that control the emission but improve the production to meet food security), promote the use of green manure as organic fertilizers, agricultural and animal waste should be used to produce the biogas for farms operation which will reduce the diesel consumption. The above mentioned suggestions have the potential to reduce the carbon footprints.

Food Safety Practices and Perceptions: The Case of Fast Food Street Vendors and Consumers of Faisalabad

Zunera Ramzan, Muhammad Khalid Bashir, Sarfraz Hassan, Sana Sehar

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Abstract

In developing countries, fast food street vendors are famous for convenience and low cost and are prefer by the lower-middle income consumers. The study aims to improve the food safety practices by the venders and consumers. The objectives were to compare food safety legislation of Pakistan with advanced country's (USA) legislation, identify the knowledge level of the venders and consumers about food safety and its legislation, and to suggest policy implications. Food safety legislation of USA from Food and Drug Administration and Punjab Food Safety Act was obtain from the websites respective departments. Primary data were collected from 100 fast food street venders and 200 consumers using convenient sampling method. Unfortunately, overall knowledge about Food Safety Acts was very poor about the rules and regulations of national
and international laws i.e. 89% of the vendors have no knowledge about the food safety laws of Punjab food authority while 4% have only knowledge about the national and international laws exist and only 7% had knowledge about the national food safety laws. As compare to it, the knowledge about food safety acts of fast food street consumers was good like 64 % heard about it and 10 % know about the (FDA) Food and Drug Administration while 26 % do not have any information about the legislations of food safety. Furthermore, it was noted that there was no significant difference (p > 0.05) between food safety knowledge levels of male and female consumers. However, significant differences (p < 0.05) were noted in terms of food preparation, education level, age, food safety training status and location. In contrast, the street vendors had poor food safety knowledge and attitude levels. No significant differences (p > 0.05) were observed in the food safety knowledge levels of the vendors based on gender and age. However, significant differences (p < 0.05) were found based on food safety training status and education level. Consequently, there is an extremely important requirement to organize recognized training in food and safety of food. There should be a food safety rules, regulations, implementers and the training should be start at very early stages like school, and colleges. Government should play an important role for awareness of vendors and consumers by making effective policies and through advertisements.

**Keywords**: food safety, perceptions, fast food, street vendors, street Consumers, legislation of food safety, Faisalabad, Pakistan

**How agriculture Helps to Reduce the Poverty**

Awais Ahmad, Ahmed Raza, Pir Jameel Hussain

**Abstract**

This study addresses the role of agribusiness, its current situations and problems of those people who are connected and dependent on agriculture in Pakistan. Higher incomes are essential for sustained progress and it’s on the top of list of Millennium Development Goals (MDG), which states to eradicate of extreme poverty and zero hunger. So, this means that we have to increase the income level and better living standard of farmers to cope up with this situation. This case contains the historical background condition of Agriculture in Pakistan of 1947, Ayyub Era (Green Revolution) and current situation. Furthermore, it also includes current issues faced by farmers and the root cause of poverty and solutions/suggestions of those problems to make better living standard of people.

**Keyword**: agribusiness, MDG, poverty

**Youth and Agriculture Policy**

Anoshi, Bharti Kumari, Fatima Mughal and Bakhtawar Soomro

**Abstract**

Pakistan have had the crisis since, it got independence. When Pakistan was separated from India, it got around 20% of Resources. The leadership is another big problem faced by the nation of Pakistan. Due to lack of other resources, agriculture is the main sector on which Pakistan’s economy relies. Importance of agriculture could never be questionable, 2.5 billion population of world relies on agriculture. However, a very small portion of population in world, and in Pakistan joins agriculture sector. In USA, every 7th farmer is under the age of 35, rest of the 6 are over the age of 65. Specifically, In Pakistan 60% of population lives in rural areas with approximately 44% involved in rural economy. About only quarter of GDP is coming from agriculture sector, more than half of farming population is crossing 55 years age in Pakistan. The situation is quiet alarming, it shows that youth of Pakistan is quiet resistive to join in the agriculture sector. Agriculture sector is stereotyped as field of rural population.
2015-16 were the years of very low growth in agriculture of Pakistan. Other reasons is youth of today wants luxury and ease. Pakistan is not advanced in technology, and old methodologies are hectic to continue in this era. Agriculture sector of Pakistan is far behind in technological aspect.

Household Characteristics and Dietary Diversity Pattern in Southern Punjab, Pakistan

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Abstract
The present study was designed to examine the household characteristics that affect the household dietary diversity pattern in Southern Punjab, Pakistan. Household Dietary Diversity Pattern (HDDP) indicates the economic ability of a household to access a variety of foods. Apparently HDDP is a simple but it is affected by many collaborative factors. HDDP is multidimensional in nature. It depends upon four important components: availability, stability, accessibility and utilization. There is a very strong chain among HDDP and behaving standards. So, there are many socio-economic characteristics that can affect HDDP. Primary data was collected from 300 rural and urban households. A detailed questionnaire was developed by following the guidelines of FAO for seeking information from the respondents. The ordered logistic regression was used for data analysis. The results of this study indicate that in rural and urban regions estimated coefficients of education, income, land size and livestock affect positively household dietary diversity score, and statistically significant. The estimated coefficient of age of household head, family size of household and time to reach main market affect negatively household dietary diversity score. Based on the findings of this study, we can conclude that urban household dietary diversity score is better than the rural household dietary diversity score. The study also suggested important policy recommendations to improve the socioeconomic status of household to improve the dietary diversity score of rural and urban households.

Key words: Household dietary diversity score, household characteristics, Southern Punjab.

Cost of Hepatitis C in Vehari District

Rimsha Farooq, Dr. Khuda Baksh
COMSATS University Islamabad, Vehari Pakistan

Abstract
Hepatitis C is a chronic disease and is a major worldwide health problem. The main purpose of this study is to find out the knowledge of the respondents relating to hepatitis C and estimate the health cost of hepatitis C among the patients. Primary data collected from Vehari was used in the present study. Many socioeconomic characteristics and variables that affect directly and indirectly to the health cost of hepatitis C patients are considered. Direct cost includes costs of hospitalization, doctor examination fee, daily medicine, and any special diet for hepatitis C patients. Indirect costs are those that affect productivity loss and time waste during doctor examination for hepatitis C patients. Descriptive statistics indicates the 6 months health cost of hepatitis C estimated productivity loss, travel, food, doctor examination fee, daily medicine and hospitalization cost as mean and standard deviation. Results show that medicine cost of patients was increasing and means medicine cost is Rs.35644.9. The suggestions of this study are to make new policies and health institutions to control the health cost of hepatitis C patients.

Key words: Hepatitis C, Direct and Indirect cost, health cost
An Assessment of Carbon and Water Footprints of Cotton Production in Pakistan

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2Department of Irrigation & Drainage, Faculty of Agricultural Engineering & Technology, University of Agriculture, Faisalabad, Pakistan.

Abstract

Agriculture sector is contributing 19% towards national GDP of Pakistan. Pakistan is 4th biggest cotton producing country of the world after India, China and USA. The growth of agriculture sector is dependent on climate change, which is badly affected by disturbing the natural greenhouse gas (GHG) balance. The net effect of high level of CO2 in the atmosphere is significantly lower yields of staple crops such as wheat, rice and corn, especially in tropical areas where food yield is high. In the same way, increasing temperature, due to climate change, will likely an increased population of pests that causes 25% to 40% decrease in crop yields. So it is utmost requirement to control this emission so that the emission of CO2 can be reduced. To calculate the carbon emissions for a selected area, carbon footprints is used as a phenomenon adopted by modern world. It is used for the policy measurement and objective synchronization with the released amount of carbon emission. The main objective of this study is to estimate carbon and virtual water footprints of cotton production in Vehari, Punjab. For this purpose, primary data from 200 farmers were collected through a well structured questionnaire. A mixed method approach was adopted to analyze the data calculated by the farmers for different input factors. Results indicated that the carbon footprints of small, medium and large farmers of District Vehari were 554.56, 654.03 and 631.09 (kg CO2 eq acre−1). Electricity, diesel fuel and fertilizer had the highest contributions towards the emissions i.e. 283.15, 182.14 and 109.66 (kg CO2 eq acre−1), respectively. Also, the result indicated virtual water footprints of small, farmers and large farmers of District Vehari were 0.144, 0.154, 0.144 (m3/kg), respectively.

Solid Waste Management: Perceptions and Effectiveness

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Abstract

Lack of capacity, legislation and planning phase in the field of solid waste management is the critical problem in developing countries. Many metropolitan cities of the developing countries like Faisalabad in Punjab, Pakistan are facing solid waste management challenges, as a result of rapidly growing population. This study explored the perceptions about adverse health effects of the residents of surrounding areas of solid waste dumping sites and effectiveness of the solid waste management system in Faisalabad city. For this purpose, 150 residents and 50 solid waste management company officials were interviewed. It was observed that there was only one sanitary landfill (dumping) site in Faisalabad that can cause different health and environmental issues. It was found that about 41% of the respondents resided near to dumpsite suffered from malaria and 40% suffered from cough. Awareness about different dimensions of solid waste management of the residents was very poor i.e. about 57% of them drag their waste in open spaces. About 90% of them demanded garbage collection services in their area. About 87% of the respondents reported that the FWMC staffs dispose waste alongside the dumpsite despite the boundary marked. About 68.0% of the respondent reported that during the transportation of solid waste most of the spills over on to roads Almost all of them were aware of negative health impacts of solid waste dumping. A good majority considers that government is responsible for this dismal performance of FWMC. Nearly half of the residents demanded the closure of the dumpsite or shifting away from residential areas. On the other hand, the FWMC faced issues like shortage of
equipment, field staff training, lack of staff lack attention of public, and political interference. Due to lack of equipment, only 3 to 4 tons of waste is collected daily which is insufficient. To achieve target 100% collection, it is recommended that the equipment must be maintained, latest technology vehicles should be provided, and recycling process of the solid waste must be initiated, immediately.

**Keywords:** municipal solid waste management, effectiveness, perception, open dumpsite, Faisalabad

**Impact of Brick Kilns Child Labor Ordinance 2016: The Case of Faisalabad**

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**Abstract**

The sensitivity of the child labor issue has got great attention in all developing. This study aimed to identify the socio-economic factor effecting the decision for child labour and assess the effectiveness of Brick Kilns Child Labor Ordinance, 2016 of the Government of Punjab, Pakistan. Primary data were collected from 300 children (parent) - 150 working on the brick kilns and 150 not working but same income group. Descriptive statistics (averages, differences of means, t-statistics) were used to analyze the data. Opportunity costs were also calculated in order to compare the lost wages and total benefits from the ordinance (in monetary terms). It was found that the children working on the brick kilns were attracted towards education due to the implementation of the ordinance. Moreover, mean values decreased after getting the stipend because due to this financial support number of working children at brick kilns decreased. Before implementation of the ordinance children received the benefit ranged between PKR 1500 to PKR 10,500 with a mean of PKR 3690. After the implementation of the ordinance children received the stipend from the government in the rage of PKR 12,500 to 14,400 with a mean of PKR 7094. People preferred their children to enroll in schools rather bricks work. More than 80% of the working children were enrolled in different schools due to the implementation of the ordinance. Working hours, number of earning members, and monthly income (in term of labor) was also decreased, which represents the policy effectives regarding to the leaving brick kilns preferences of children. It was observed that many children showed interests for education but lack of financial resources compelled to sacrifice their desires for education. So, Government should take steps to support children financially at primary level so, they are not deprived to get education. Government should take serious action for the implementation of the ordinance.

**Keywords:** Child labour, brick kilns, ordinance, Punjab, Pakistan

**Effect of Socioeconomic Factors on Malnutrition among Children in Punjab, Pakistan**

Dilshad Ahmad,
Ayesha Tahreem

**Abstract**

**Background:** In developing countries, malnutrition effecting physical and academic growth of children is a major health issue. One of the major causes of mortality is malnutrition. The core objective of this study is to identify the impact of socioeconomic and demographic factors on malnutrition in District Multan.
Methods: Data for socioeconomic and demographic variables is derived from Multiple Indicator Cluster Survey (MICS) 2014, particularly for Multan. A sample of 849 children aged under five years was considered for nutritional evaluation through underweight, stunting, and wasting. Binary Logistic Regression was applied to relate basic factors to Odds of under nutrition.

Results: Empirical estimates of the study identified frequency of stunting, wasting and underweight was 17.1, 28.0 and 18.1 respectively. Boy child was more stunted as compared to the girl child, stunting was associated with lower age, wealth quintile index, odds of being stunted was minor in urban area as equated to rural area. Wasting and underweight were more common in boys as compared to girls.

Conclusion: A higher-level prevalence of malnutrition was calculated in the study area. Government should make nutrition intervention policies to assure that health information and education is easily available for parents to improve child health. The children from poor socio-economic group particularly from the rural areas are most effected. They require extraordinary care and during designing intervention plans mother education should be given attention.

Keywords: Children, Malnutrition, Stunting, Wasting, Underweight

Assessment of Groundwater Quality with Special Emphasis on Co-existence of Sodium, Boron and Magnesium from Southern Punjab

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Abstract

Under an arid and semi-arid environment, the source of irrigation water is an important approach to get reasonable crop yield. The tube well irrigation water quality in Punjab, Pakistan is changing gradually specially at shallow depth due to the human interferences and the changing environment. The irrigation water used by the farmers for crops is usually effected by the soluble salts, minerals and other ingredients in various concentrations. In Punjab, almost 75% of the ground water is considered unfit for irrigation as it contains high soluble salts and toxic heavy metals. Most common salts found in ground water are the sulfates, chlorides and carbonates of calcium, magnesium, sodium and potassium. The application of this saline water in the soil for crop production is causing severe problems of salinity and sodicity in the soil. Boron is an essential nutrient for plant body but is required in very minute quantity and its very little increase in plants causes severe damages in the plants. Sodium and magnesium toxicity also effect the reproductive and vegetative plant growth and also cause sodicity and dispersion of soil aggregates and colloids. Considering all above scenario, an assessment study was carried out for the fitness or unfitness of tube well water in the areas of district Vehari with special emphasis on boron, sodium and magnesium. Water samples were taken from given district and analysis was carried out in the laboratory of Institute of Soil and Environmental Sciences, University of Agriculture, Faisalabad. The data was analyzed statistically using an appropriate statistical software. Results showed that about 25 % water samples contained higher amounts of EC, TDS, calcium, magnesium chlorides and sodium. pH of all samples was found fit while SAR and RSC was also found satisfactory for most of the samples.
Climate Change Adaptation and Government Expenditures on Housing and Communal Amenities: An Assessment for the Provinces of Pakistan

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Abstract

Climate change threats to developing nations. Pakistan as developing country is more vulnerable to climate change and already faces economic damages due to climate variations. The objective of present study was to estimate the impact of climate on government expenditures and expenditures on housing and communal amenities in Pakistan. The Study used panel data of 27 years. For this purpose, data was collected from the development statistics of Punjab, Sindh, KPK and Balochistan. Climate change effect was assessed over the period of 1990-2016. The impacts of change in climate was estimated through short-run variations with fixed effect and random effect models. Our results indicated that temperature has significant positive impact on public expenditures and with rise in temperature government’s expenditures also increases. And rainfall has significant but negative impact on both public and expenditures on housing and communal amenities. Fixed effect does not capture potential adaptation in short-run. To estimate longer-run impacts of climate change we employ long-difference model. Results of LD model suggests that mean temperature has significant positive impact on government expenditures and have no impact on expenditures on housing and communal amenities. Rainfall has significant positive impact on total expenditures but negative on expenditures on housing and communal amenities.

Key words: Climate change, adaptations, temperature, rainfall, expenditures

Estimation of Household Carbon Footprints: The Case of Urban and Peri-urban Areas of Faisalabad City

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Abstract

Anthropogenic activities are causing climate changes and rise in average earth surface temperature as well. Developing countries are extra affected by climate changes. Pakistan is 3rd most exposed country to climate change. The day by day, increasing anthropogenic activities induced by increasing population, income and education levels are causing a rise in carbon emissions. The carbon footprints are causing hazardous effects on the environment and pushing agencies to pay attention to this issue and find ways for its reduction. The primary objective of this research was the estimation of the carbon footprints of households in Faisalabad, the third largest city of the country. Multistage sampling technique was used for sample selection of the 280 households of seven major roads of Faisalabad, which covered both urban and peri-urban areas. A well-structured and pre-tested questionnaire was used to collect the data. The collected information was then inserted into web’s leading carbon footprint calculator for carbon footprint estimation. It was found that urban households produce overall 3.98 tons carbon footprints per month and peri-urban produce 3.28 tons. Transportation was the major contributor towards the CO2 emissions i.e. 82% and 94% in urban and peri-urban households, respectively. The results of correlation matrix showed that there exists a positive association between CO2 emissions and family size, house size, monthly income and electricity bills of the households in both the urban and peri-urban areas. It is, therefore, suggested that local transportation system and awareness regarding CO2 emissions and its mitigation must be improved through effective campaigns.

Keywords: Carbon footprints, Low carbon society, Households, Faisalabad, Sustainable Development.
A Sociological Study about the Agriculture Challenges, Risks, and Opportunities in Rural Areas of Faisalabad

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Abstract

The little scale farmers in Pakistan are going up against a considerable measure of issues with respect to water structure water, insufficiency of pesticide, low access towards complex plant machines, low budgetary status, separation of credit and organized save reserves and so on. Pakistan is a developing nation. Agribusiness is the best part in the economy contributing 21 percent of the GDP and giving 70% of the aggregate estimation of confirmations. Foundations of acknowledge course of action when in doubt affirm advances to arrive business class and not to the little poor agriculturists. It has been watched that little ranchers don't have enough getting some answers concerning the front line strategies or gadgets to develop most absurd age with bound assets for broadening their remuneration. Little scale ranchers are confronting different inconveniences that have a tendency to undermine their advantage. These issues looked by little agriculturists request examination. Thusly, the present examination was facilitated to research the cash related issues looked by little agriculturists. It is battled that productive agribusiness is the fundamental vehicle for basic change and the country progress won't occur except for in case we see common more than ranchers. We have to see them as supporter of the work, administrator of country scene and trademark steward in ensuring and updating the earth and setting social and social request or more all provider of safe awe inspiring things to customers. Convincing common framework movement requires a joined and wide approach.

Keywords: Land, Risk opportunities and challenges and Small farmers.

STUDY REGARDING IMPACT OF DRIP IRRIGATION ON HORTICULTURAL AND VEGETABLE CROPS IN POTOHAR

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Abstract

Land and water are basic needs for agriculture and economic development of the country. According to International Water Management Institute, one-third of the world’s population will face absolute water scarcity by the year 2025. Agriculture consumes more than 80% of the country’s exploitable water resources. The overall development of the agriculture sector and the intended growth rate in GDP is largely dependent on the judicious use of the available water resources. This study aims to evaluate the impact of drip irrigation on horticultural and vegetable crops in potohar region of Punjab province, which is facing the problem of water scarcity due to climate change. For this purpose, Rawalpindi region was targeted with two sites from each district. The results reveal that due to the use of drip irrigation, the crop intensity has been increased up to 200%. Farmers per acre net annual income has been increased to the extent of Pkr.875,000. Increase in yield, efficient use of water, reduction in the cost of inputs like fertilizers, pesticides and weedicides are the outcomes of the use of drip irrigation.
Exploring the Relationship between Higher Education and Social Development: A Developing Country Perspective

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Abstract
This study puts light on the relationship between higher education and social development. Social development consists four dimensions like capacity building, civic participation, intergroup cohesion and gender equity. Social development plays important role in increasing the socioeconomic development of a community. Where a lot of factors influence social development, education is considered the most important one. It significantly contributes in structuring individual competency and speed up the economic and social growth through awareness, expertise, and inventive potency of the public. To examine the relationship between education and social development, current study is conducted in southern Punjab, Pakistan. The main objective of the study is to analyze how education is linked with the different dimensions of the social development. The target population of the study consisted of various experts/professionals from public as well as private sector including education sector, industry, health and NGOs. In order to collect the data, an interview guide based on the indicators of social development has been used and the data was analyzed using NVIVO 11. The results indicated that there is a positive relationship between the education and social development.

Key Words: Social Development, Capacity Building, Civic Activism, Intergroup Cohesion.

An Impact of Climate Change on Fruit and Vegetable Productivity and Export in Pakistan: A Time Series Analysis

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Abstract
Change in climatic conditions is a matter of serious concern all over the globe. Pakistan is considered among those countries, suffering with extreme variations in weather conditions. Anthropogenic activities are the major source of direct and indirect changes in climate situation. Most important factors which are changing climate are burning of fossil fuels (coal, oil and gas), deforestation, industrialization and transportation. This causes an addition of huge amount of carbon dioxide into the atmosphere. Climate change is also a critical issue for agriculture sector, adversely affecting food crops and reducing their yield through abrupt variation in rainfall, temperature, humidity etc. This also shakes the export industry by reducing the amount of food supply. Annual time series data from 1976-2015 were collected from various published sources. Augmented Dickey-Fuller test was employed to check the stationarity of time series variables. The present study investigated the impact of climate change on productivity and export of selected fruits and vegetables (onion and mango) and also analyzed the relationship between production and export volume, using Auto Regressive Distributed Lag (ARDL) model. Results showed that area, yield, export quantity, export value and temperature have positive effect on the production of mango while rainfall has negative effect on the production. Similarly, results also showed that area, yield, export quantity, export value and rainfall have positive effect on the production of onion while temperature has negative effect on the production. The findings of the study suggested that government should initiate awareness programs among farmers and strengthen research to evolve drought tolerant varieties to mitigate the adverse climatic effect on fruits and vegetables.

Keywords: Climate, Fruits, Vegetables, ARDL, Augmented Dickey-Fuller, Production, Export
Evaluation of Agricultural Credit Choices and their Determinants in Punjab, Pakistan

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Abstract

This study aims to suggest improvements in agricultural credit system of Pakistan. To achieve this, the objectives were to: identify agricultural credit choices of the farming community; identify socio-economic determinants of agricultural credit choices; and suggest policy implication. Primary data from 648 farmers were collected from three districts of Punjab (Vehari, Sargodha and Muzaffargarh) using random sampling technique. To identify the agricultural credit choices, rational choice theory was applied. It was found that 61% of the farmers were willing to opt credit. Out of these, 32% borrowed from Micro-finance Institutes / Non-government Organizations (MFIs/NGOs) followed by 24% who borrowed from specialized banks, 4% who borrowed from commercial banks and only 1% who borrowed from friends and relatives. Socio-economic characteristics (correlates) were identified using bivariate cross-tabulation Chi-square ($\chi^2$). Furthermore, Kruskal Gamma test was applied to identify the direction of relationship. It was found that educational level, farming experience and sources of income had significantly positive impact on farmers decision to opt agricultural credit, while age and family size had negative impact. Furthermore, the collateral negatively impacted the decision of farmers to get credit from commercial banks. It is recommended that the collateral requirement should be relaxed in case of commercial banks and the procedure for obtaining loan should be made easy and simple.

Key words: Agricultural Credit, Credit Choices, Farming Community, Chi-squared tests $\chi^2$, Punjab.

Impact of Agricultural Research on Economic Development in Punjab, Pakistan

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Abstract

In developing countries agricultural productivity from public investment in research is important especially when there are diminishing factor returns and the constraint of further expansion of cultivated land. The major objective of this study was to analyze the impact of rice varietal yield improvement research in Punjab. This study has employed Simple Economic Surplus Model for estimation of benefits attributable to rice varietal yield improvement research. The data on varietal distribution of rice in Punjab from 2004-05 to 2013-14 were used. The results of this study showed that share of rice varieties in total cultivation of rice in Punjab remained between 84 percent and 96 percent and Basmati Super remained the single largest rice variety during this period. Share of Basmati Super in total cultivation of rice in Punjab was 73 percent in 2004-05 while it was 51 percent in 2013-14. Economic benefits of Varietal Yield Improvement Research were averaged Rs.74 billion between 2004-05 and 2013-14. Basmati Sapper alone itself had been added annually Rs.57 billion as an additional gain during this period. The results suggested that in under developed countries investment in research could play a vital role in economic development through increasing productivity and maximizing exports.

Key Words: Economic impact, Rice Variety, Basmati Super, Additional Gain, Simple Economic Surplus Model
Factors Affecting the Malnutrition Deficiencies among Young Girls in District Faisalabad

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Abstract

Malnutrition insufficiency of one or more nutritional elements necessary for health and well-being. Primary malnutrition is caused by the lack of essential foodstuffs usually vitamins, minerals, or proteins in the diet. However, even when food is plentiful, malnutrition can result from poor eating habits or poverty. A symptom is something the patient feels and reports, while a sign is something other people, such as the doctor detect. For example, pain may be a symptom while a rash may be a sign. Malnutrition is the cellular imbalance between supply of nutrients, energy and the body's demands. Malnutrition has become one of the major problem in the world now a days especially in Pakistan due to its fatal effects on mothers and their children. Malnutrition has been a part of all societies and its all classes. Malnutrition is multifaceted and multi casual. Micronutrients refers to vitamins and minerals which are required in small quantities to ensure normal metabolism, growth and physical wellbeing. Therefore this study was designed for keeping national and international issue regarding malnutrition. The effects of malnutrition on the community are both direct and indirect. It is a disease of human societies. The main four factors of malnutrition which are affecting of mother's health, social factors, income, demographic factors and nutritional factors. The present study was conducted in district Faisalabad. Multistage sampling technique was used for data collection. For this purpose, tehsil Faisalabad was selected and six villages were selected through simple random sampling technique (three from each union councils). 25 respondents from each villages were selected by using convenient sampling technique and total sample size was 150. Data was collected with the help of well-designed interview schedule. Collected information was statistically analyzed through SPSS software. It was found that the majority 13.5% suffer in diarrhea, 46.7% respondents have changed behavior, 80.7% suffer dry skin, 26% shortness of breath in young girls and 69.5 %was suffered iron deficiencies due to malnutrition. Almost 27% females use ground water in house for drinking, 46.7% majority in gender base decision making prefer boys than girls in rural areas and also other field of life more prefer boys. 60% women have not proper awareness about diet in rural areas and 77.3% children suffered from malnutrition. WASA need to enhance the sterile framework in the rustic regions. Agribusiness offices need to orchestrate classes to give mindfulness about the profitability of unadulterated and clean vegetables and furthermore organic products. Wellbeing focuses ought to give mindfulness about the use of nutritious sustenance. Nearby Govt. ought to likewise give the filtration plants in provide rural areas and should media give knowledge through broad communications.

Key Words: Malnutrition, Health, Girls, eating habit and poverty.

IDENTIFYING THE DETTERMINANTS OF ACCESS TO AGRICULTURAL CREDIT BY FARMERS IN SOUTHERN PUNJAB OF PAKISTAN

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Abstract
In this paper, we analyzed various determinants of access to agricultural credit. For the study, we collected data from a survey in the region of Southern Punjab in Pakistan. We applied descriptive statistics as well probit and OLS regression equations in our analysis. The study found that factors such as farm size had a significantly positive relationship with credit availability. Similarly, farmers who own land and are more mechanized are more likely to avail credit. Farmer’s education is also an important factor in this regard. On the other hand, we find that household size, farming experience, and location are statistically insignificant factors. Furthermore, our study does not find any consistent relationship between geographic location and credit availability.

**Keywords:** Agricultural credit; Productivity; Mechanization; Farm Management; smallholders

**Reclamation of salt affected soils by electricity**

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**Abstract**

Salinity is among the most brutal and widespread environmental factors in limiting the crop productivity and promoting soil degradation processes. In Pakistan more than 6.3 million hectares of irrigated soils are salt affected, reducing markedly its agricultural potential and causing adverse socio-economic effects. The common practice for the reclamation of salt affected soils is to apply excess water for the leaching of salts from soil surface. However, the low permeability of alkali/sodic soils limits the leaching of salts. Moreover, in Pakistan about 70% of the pumped water from tube wells used for irrigation has high sodicity. Its continuous use for leaching purpose without proper management is making the soils even more sodic. Other conventional soil reclamation methods e.g. chemical amendment and bioremediation have other limitations such as need costly input, require long reclamation time, and have some environmental concerns.

In order to overcome these issues DC electric field was utilized for the reclamation purpose. An applied electric field induces both the flow of moisture (electro-osmosis) and movement of salt ions (electro-migration) in soils. For reclamation purposes usually an electric field is applied continuously across the salt affected soil, causing high reclamation costs. In order to save reclamation costs we have also used pulsed electric field in the form of equally spaced on/off cycles. The results show that both the continuous and pulsed electric field are equally efficient on accomplishing the removal of salts from the soil specimen. However, the total energy consumption in the case of utilizing pulsed electric field is 40% less than the continuous electric field for the reclamation purposes.

**Keywords:** soil salinity, electricity, reclamation, electro-osmosis, electro-migration

**An assessment of Agricultural Cooperatives in Faisalabad, Pakistan**

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**Abstract**

Agricultural cooperatives are essential to boost the growth and prosperity of agriculture in Pakistan. In Pakistan, agricultural cooperatives are facing many obstacles in achieving desired outcomes and development of cooperatives. That’s why they are unable to improve the efficiency of the farming community and resultanty unable to contribute in the development of agriculture sector of Pakistan. The objectives of this study
were to: evaluate the efficiency of agricultural cooperatives; determine the problems faced by farmers/members of agricultural cooperatives; and suggest policy recommendations to improve the current agricultural cooperative design. For this purpose, primary data were collected from 4 different cooperatives such as credit cooperative, producer cooperative, marketing cooperative and farming service society. A total of 174 members of these cooperative were interviewed. Qualitative analytical approach was applied to analyze the data. Average annual incomes were estimated to be PKR 361,426, PKR 873,243, PKR 324,112 and PKR 320,000 of credit, producer, marketing and farming service societies, respectively. A good majority of the respondents (70%) of credit society preferred to get loans from sources other than the credit cooperatives. In case of producer cooperatives no one sold the product through cooperative, neither anyone get any input facilities and subsidies through cooperatives. The members of marketing cooperatives sold their products through cooperatives as well as other sources. The members of farming service societies reported that they did not get any help through the society. Hence, it is concluded that the performance of the agricultural cooperatives is extremely poor. Choice modeling was used to identify the workable model of cooperatives. Based on the farmers choices, it is recommended that the cooperatives may be restructured on corporate style involving farmers' stakes in terms of investment and provide them dividend in addition to routine benefits.

Climate impacts of Sugarcane Production in District Faisalabad, Pakistan

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Abstract

In order to mitigate greenhouse gas emission there is a need to indentify virtual water and carbon footprints in agricultural sector. The point of this analysis is to evaluate the environmental effects of sugarcane production process in Pakistan. For this purpose primary data was collected from 150 farmers of Faisalabad district. A comprehensive questionnaire was designed to collect data. Life cycle assessment (LCA) was connected to assess the natural effects of sugar cane production. Factors which are used for evaluating the GHG emission are farm inputs, farm practices, water, fertilizer level sowing and harvesting pattern etc in sugarcane production process. It was found that on average 0.096327 kg CO₂eq kg⁻¹ sugarcane production were emitted as at international level (0.29 to 0.36 CO₂eq kg⁻¹ in Mexico - Carlos et al, 2015 and 0.04 kg CO₂e kg⁻¹y⁻¹ in Thailand, Jose-Luis et al). Carbon emitted by fertilizer on average is 0.084 kg CO₂eq kg⁻¹ sugarcane production in which P₂O₅, N and pesticides contribute 5%, 66% and 28% respectively. Whereas total emission emitted by Diesel used in all stages of sugarcane production on average is 0.011 kg CO₂eq kg⁻¹ of sugarcane production, in which almost 82% emitted by ploughing and 17 % by transportation. Total emission emitted by electricity on average is 0.00091 CO₂eq kg⁻¹ of sugarcane production. Results show that fertilizer contributes more toward the carbon emission almost 87.4%, diesel and electricity have contribution almost 11.5% and 0.94% respectively. Carbon emission can be controlled by maintaining the C/N ratio at an adequate level, by developing legume intercropping which is the source of organic nutrients that increase diversity of crop rotation. Emission from diesel can be reduced by no-till agricultural as an alternative.

The results of water footprints for sugarcane production show water footprints on average is 374.90 m³/ton (0.374 m³/kg) which is low as compare to international level [1285 m³/ton(1.28 m³/kg) in Brazil and 1570 m³/ton (1.57 m³/kg) in India, W.Scholten,2009].Global water footprints per ton of sugarcane crop is increase roughly 200 m³/ton, M. M. Mekonnen 2010). Water productivity can be enhanced by replacing no-till agricultural, drip irrigation, efficient use of water as an alternative.
The Contribution of Tourism for Sustainable Economic Growth: a Case Study of Lahore-Punjab, Pakistan
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Abstract
Tourism is an engine for sustainable economic growth and cultural heritage always considered as an asset for a country. Pakistan’s tourism sector has the potential to become an exporter to sale goods and services to the domestic tourists as well as to the international tourists. Tourism supports to labor market; it contributes differently to the economy; in different areas like, generates the employment opportunities, increases the government revenue, improves standard of livings, and eliminates the poverty and also a big source of foreign exchange. There are many studies that address tourism’s contribution in economic growth. Tourism impact can be analyzed through different prospective (economic, socio-cultural, life gratification, environmental, This study was based on the following objectives; (i) to study the socio-economic characteristics of the respondents (ii) to estimate the impact of tourism (iii) and to give policy recommendations. To meet the objectives; pre-testing was conducted before the finalization of questionnaire. Likert items open and close-ended questions were included in the questionnaire. Total 150 occupied people were selected randomly for the interviews at Imperial mosque and Royal fort (Lahore). MS excel and SPSS used for descriptive analysis and applied partial least square structural equation modeling (PLS-SEM) for the estimation of latent variables, for this purpose SmartPLS3 was used. The results of the study showed that majority of the respondents were male, matured in age, married, having low education level and they were belonged to low income group. The results of the data’s reliability and validity including composite reliability, convergent validity, discriminant validity and average variance extracted values were meeting to their criteria. The important criterion of structural model is \( R^2 \), which is also satisfying. The results of the structural model showed that occupied people perceived economic benefits and social cultural benefits of tourism development positively related with life gratification and co-creation and negatively related with cost of tourism; life gratification and co-creation both were positively related with each other. This paper also suggested valuable policies for the stakeholders.

Key words: Tourism, economic growth, poverty, PLS-SEM, Pakistan.

Improving Climate Robustness and Sustainability of Asian Rice Systems
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Abstract
Global food security will depend on the way we grow rice that is staple food for 50% world population. The demand for rice is estimated to double by 2050. How can we produce rice in a sustaiable way without using additional resources is a key question that requires combined interventions at different levels. Sustainable rice production is challenged by competing resources of land, water, and nitrogen along with climatic constraints. Required production increases have to come from Asia, a region that accounts for ~95% of current world rice production. Our international collaborative network of rice researchers funded by the Asia-Pacific Network (APN) focused on finding solutions to raise productivity, climate robustness and sustainability of Asian rice systems by generating knowledge for scientifically informed government policies. We used simulation modelling for integrating actionable disciplinary knowledge with evaluation of available technologies and proposed policies. Simulation modelling with APSIM-Oryza in combination with in-country R&D helped to design improved farming practices and
solutions for Asian rice systems. In order to improve climate robustness and sustainability of rice production throughout Asia, we propose: i) transition from anaerobic to aerobic rice systems with eco-efficient nitrogen management in target domains of Pakistan and India, ii) intensification of dryland cropping systems based on rain forecast in Myanmar, iii) improved crop modelling capabilities for effects of anticipated reductions in rainfall on rice productivity in Sri Lanka, iv) development of suitable heat and water stress tolerant rice varieties in Indonesia, and v) water-saving rice cultivation systems in South Asia. Through the APN project, we were able to establish and strengthen an international network of rice researchers, which will continue to work on goals of designing sustainable rice productions systems. We recommend a modelling approach for characterisation of climatic zones for rice systems, mapping specific constraints to sustainability, identifying yield gaps, and make scientific outcomes relevant for policy makers.

**Key Words**: Sustainability; rice systems; food security; Asia.

**Embedding Participatory Research through Community Based Systems Dynamics to Introduce Educational Reforms and Strengthening Inclusion in Learning – Study Protocol in Pakistan.**

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**Abstract**

Over the years, Pakistan, specifically in rural areas has failed miserably to introduce innovative measures and reforms to improve learning outcomes. This could be largely because of focus of government as well as development projects to increase enrolment in schools, hence failing to sufficiently address the issue of improving learning outcomes, more specifically in the rural communities leaving vulnerable and disadvantaged children at a higher risk of not being able to learn despite attending schools. This study will present the application of ‘Systems Dynamics’ through participatory Group Model Building (GMB) methods to address the complex challenges of inclusion and equity for all children. The paper will focus on the study trials of Community Based System Dynamics (CBSD) tested in rural schools of South Punjab, Pakistan. Strategic Development Goals (SDG 4) calls for operating through workshops with existing Village Education Committees (VECs), Parents of Children, Teachers and Children themselves and we will do so by conducting sessions with them to understand the issues currently faced at ground level. We will present the triangulation and synthesis of the system for an inclusive classroom prepared through Connection Circles and later transformed into Causal Loop Diagrams (CLDs) using Vensim Software, with teachers and VECs in two rural schools of South Punjab. The two CLDs will be an attempt at capturing possible factors influencing poor basic learning and psychosocial outcomes and at identifying leverage points that can lead to infusing Action Ideas proposed by Teachers & VEC members that can potentially enhance the quality of education in rural communities across Pakistan.

**Key Words**: Community Based Systems Dynamics (CBSD), Participatory Research, Group Model Building (GMB)
Exploring the Factors of Lecturers’ Job Satisfaction in COMSATS University Islamabad, Vehari Campus

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Abstract

This is an exploratory study which attempts to find the factors that contribute to the job satisfaction and dissatisfaction of lecturers and strategies to improve the level of job satisfaction. Semi structured interviews were conducted from ten lecturers working in different departments of COMSATS University Islamabad, Vehari campus. Overall, all lecturers expressed their job experience as satisfactory. The lecturers reported that better facilities, efficient systems, professional staff, competition and research opportunities enhance their job satisfaction. While, insufficient infrastructure, low salary, lack of flexibility in jobs and noisy environment reduce their satisfaction level. Overall, it can be concluded that environmental issues are most disturbing to lecturers. Strategies to improve the satisfaction level include, increase in salary, job security, separate office, flexible job timing and housing scheme for employees. This study contributes to policy makers of COMSATS University Islamabad, Vehari campus regarding framing the strategies to improve the performance of lecturers.

Key Words: Qualitative Study, Interviews, Faculty, Satisfaction, Environmental issues

Role of Brand on Customer’s Willingness to Pay for Different Airlines

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Abstract

Air travel has always been classified as one of the important service industry. This industry shows a rapid growing sector. It suggests that the growth of this sector not only offers business opportunities but also poses competitive threats for many service providers. Customer satisfaction in airline operations has become critically important for service providers. Airline companies also attempted to differentiate themselves through the brand name, use of different offers, services etc. Brand name gives an assurance of quality and service standards to the users. The aim of the present study is to identify the role of different brands and services on the customers’ willingness to pay. For this purpose, the present study used hedonic price model to assess the impact of different characteristics of airline on the price. The results of the study showed that brand name and different services have a significant impact on the price of the airline ticket. The study concluded that buyers are willing to pay an extra amount for some brands while for other brands, buyers are willing to pay a discounted price. It shows that the airlines where customers are willing to pay a discounted price, should focus on those services where customers are willing to pay an extra amount. It further shows that they need to promote their brands’ goodwill in order to improve its image in the customers’ mind.
Impact of Customers' Willingness to Pay a Price Premium on Stitched Clothing: Case of South Punjab Pakistan

Muhammad Tehmas Akram, Dr. Mazhar Abbas, Dr. Jamil Ahmad, Saad Munir, Nawaz Akram, Sami Ullah

Abstract

The aim of the present study is to better understand customer’s willingness to pay a price premium in the market for male’s stitched clothing and what kind of dimensions can be used by the brand in order to achieve price premium. This study is based on quantitative survey of different dimensions found in branding literature and their impact on customer’s willingness to pay a price premium for branded male’s stitched clothing. This study looks into other more branding related dimensions to check price premium rather than actual price premium determinants. The results help brand managers to recognize the importance of incorporating price premium and to develop a better understanding of which dimensions drives price premium.

Public Expenditure on Education and Its Effect On Labor Productivity

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Abstract

This study analyzes the role of education in the development of a country like Pakistan. This is a co relational study based on the Cobb Doulas function. The relationships between the dependent variable i.e. labor productivity and the independent variable education and training has been discussed. Time series data has been taken in which the population size is from 1999 to 2011 in which 13 samples were observed and the linear regression was run upon the data to get the results. Primary data has also been collected for training and its effect on labor productivity.

Factors Influencing Network Portability in Cellular Industry

Hafiz Muhammad Adnan Faisal, Madeeha Sadaf, Shanza Tabasum

Abstract

This research intended to explore the reasons behind customer behavior and preferences regarding Network portability in the context of cellular sector of Pakistan. To conduct this study sample was taken from District Vehari and Multan. A sample of 300 respondents was taken. All respondents were switched customers. A well designed questionnaire was constructed, comprising of 19 questions. Reliability analysis was conducted on sample of 25 respondents and results showed .706 value of cronbach’s alpha. Descriptive statistics and logistic regression analysis methods were used for analysis and interpretation of data through SPSS (A Software stands for Statistical Package for the Social Sciences) and STATA. Results showed that determinants such as customer satisfaction, price, service failure and Inconvenience (Independent Variables) have significant relationship with Network portability (Dependent variable). Customer satisfaction have negative but significant relationship with Network portability. In case of Price, Inconvenience and service failure, they have positive and significant relationship with Network portability. All respondents had switched their network due to dissatisfaction caused by determinants and due to that reason they had switched their cellular network. Customers have arbitrary behavior and preferences concerned to Network portability in spite of switching they have further intentions to switch to other network,.. reasons behind that some customers have existing services
dissonance, to prefer innovative VAS (Value added services) and new technological attractiveness (3G, 4G-LTE) etc. Arbitrary behavior is clear from analysis that 58% customers have intentions to switch networks maximum time and still they have further intentions to switch. It’s important for companies to have concentrate and focus on these determinants for long term relationships and creates loyalty for retention of customer. Customer will retain when their satisfaction level will resist them to sustain in the current network and it will possible when companies behave highly customer oriented or centered.

**Key Words:** Network portability, Customer Satisfaction, Service Failure, Price, Inconvenience, Customer Behavior, Preference
Is Going Concern Prediction Model Applicable for Pakistan?

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Purpose

The focus of the current study is to determine whether the original and the revised versions of the existing prediction models are the best tool for assessing the going concern assumption of a firm in the creditor-oriented regime.

Design/methodology/approach

The analysis begins from estimating the classification accuracy of the original versions of the bankruptcy, going concern and liquidation prediction models. At second step, the revised versions of the aforesaid existing prediction models are developed. At third step, the accounting based going concern prediction model is proposed by using multiple discriminant analysis for the creditor-oriented regime. The sample contains the financial ratios of manufacturing firms for the period 1997-2014.

Findings

The finding indicates that the five (5) discriminatory variables, which belong to “income statement” and “statement of financial position”, of the proposed model is not only useful for evaluating the going concern assumption of a firm, but also gives aid for evaluating the financial fraud risk of a firm as compared to the original and revised versions of the prediction models that are developed for the debtor oriented regime.

Research limitations

The external validity of the proposed prediction model can be tested on the large data sets of the countries where the liquidation provisions are a part of their local corporate law.

Practical implications

The proposed accounting prediction model will be helpful for the internal and external auditors in order to determine the going concern assumption at planning, performing and evaluation stages.

Originality

The proposed accounting based going concern prediction model based on liquidated firms.

Keywords: going concern, creditor-oriented regime, liquidation, accounting based prediction model, MDA.
Poverty and Inequality Amongst the Poorest. Is Microfinance a Solution?

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Abstract

The underlying paper examines the impact of microfinance on the socio-economic characteristics of the low-income agricultural households in Muzaffargarh District of Punjab Province, where more than half of the population lives below poverty line. The study employs Endogenous Switching Regression Model using Full Information Maximum Likelihood Estimator, keeping in view the model’s capability to account for observed and unobserved endogeneity and bias reduction. We analyzed cross-sectional data comprising information about 160 households. The results revealed that microfinance is an effective tool which helps increasing per head expenditure, reduces poverty gap and severity of poverty. In addition, the paper also identifies the key determinants of microfinance participation, which include personal characteristics like age and education, household characteristics like number of family members, school enrollment of kids and ownership of different assets and resources. Based on our findings we suggest that there is a need of Government’s intervention in rural credit markets and providing microfinance facilities in the rural areas.

Key words: Poverty, Inequality, Per Head Expenditure, Severity of Poverty, Switching Regression, Punjab, Pakistan.

A Systematic Mapping of South Asian Food Security Studies: Research Priorities and Gaps

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Abstract

Food security can be achieved by taking concurrent actions performed at macro (national) and micro (household and individual) levels. However, credibility of food security studies is dependent on the tools of identification and measurement of food security drivers which are useful for situation analysis and policy making. This study aims at systematic mapping of the available studies that intend to identify, interpret and evaluate the drivers, results, research priorities and gaps in South Asian region. The selected studies are reviewed under the following perspectives: (1) differences in national level food security drivers, results and research priorities, (2) differences in measurement of food security at household and individual level, (3) differences in the identification and extent to which results report the disparities in income and food distribution within the households. The study concludes that concept of food security is evolved from the traditional food measurement manifested by historical pathways of food security of South Asia. National food security should also be paid attention equal to household food security through building awareness among the policy makers and researchers. The recent South Asia food security challenges show that a new scientific approach is required to bridge the gap between scale and disciplines of analysis. In general, the study suggests that a mixed-methods approach is required to estimate food security as well as nutritional security by using the time series and spatial data over time. Farm and household panel data obtained over large-scale dataset, combined with simulations, can also provide very useful insights about the food security dynamics at household and individual level.

Keywords: Food Security, Systematic Mapping, South Asia, Priorities and Gaps
Health Cost of Women Cotton Pickers in Better Cotton VS Conventional Cotton Production in Punjab, Pakistan

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Abstract
Pakistan is a developing country in which modern innovations are not yet adopted in agriculture sector mainly due to lack of knowledge. People usually adopt conventional methods of farming including cotton picking without protective measures which cause destructive effects on human health due to wide-ranging use of pesticides in cotton growing areas. Better cotton standard system involves trainings of cotton pickers to use precautionary measures and avoid pesticides exposure. So, the current study has been conducted to explore the health cost of women cotton pickers in conventional verses better cotton in Punjab, Pakistan. Primary data was collected through an organized questionnaire from three districts (Layyah, Toba Tek Singh and Bahawalnagar). Ordinary Least Square method was used to find the pesticide exposure and socioeconomic factors affecting the health cost of women cotton pickers. Findings of the study show that better cotton is better than conventional cotton regarding health cost of women cotton pickers. Health cost is estimated in a season Rs. 28 per day and Rs. 36 per day for better cotton and conventional cotton, respectively. Moreover, age, education, distance from hospital and precautionary measures used are socioeconomic determinants that affect health cost of female cotton pickers. Results suggested that better cotton standard system should be promoted in Pakistan through education and other training programs and women cotton pickers should be encouraged to use protective measures.

Key words: Better cotton, OLS, Health cost

A Metric based Assessment of Climate and Tourism in Major Cities of Pakistan.
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Abstract
Tourism plays an essential role in the economy of any country and has become a growing phenomenon of global importance. It is in direct relation to climate change that can affect and degrade the environmental components and features of the destinations. This study emphasis on the significance of climate in tourism industry and determination of Tourism Climate Index for suitable regions and seasons. This index has been used worldwide to calculate the impacts of climate change on tourism and tourist destinations. This study calculates the Tourism Climate Index for four cities of Pakistan for a period 1997-2017. Seasonal distribution indicates that Autumn and Spring are good seasons for tourism. Climatic suitability in summer is not favorable for Lahore and Islamabad because of high rainfall and lower thermal comfort. Rapid change in the Annual TCI score is observed and investigated through the contribution of TCI components which happens to be the core reason of change. 75% of the study area shows Bi-modal shoulder peak and 25% shows winter peak. For Lahore, maximum number of months are observed as “Excellent” and “Good” for tourism due to high TCI score. However, future projection predicts that tourism in Lahore will be at threat because of climate change. Government and tourism stakeholders should conduct such relevant studies at large scale, the results will help in better understanding of favorable and unsuitable tourist destinations across Pakistan.

keywords: Climate Change, Tourism, Tourism Climate Index, Sustainable Tourism
Impact of Technical Vocational Education on Household Food Security: The Case of Faisalabad

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Abstract

Technical and Vocational Education (TVE) is viewed as a possibly capable device for advancing social incorporation. It is a basic requirement for sustenance and food security. This study aims to identify the impact of technical education on household food security. To achieve this aim, the objectives were to: check historical economic support of the government to technical education in Punjab; assess the level of utilization of technical education by the beneficiaries; assess the impact of technical education on household food security; and suggest policy implications. Primary data were collected from 150 trained respondents from TEVT institutions in Faisalabad. Secondary data were collected from the budget documents of the government for the last ten years (2007 to 2017). A gradual increase was observed in the government funding of the TEVT institutions. Similarly, an increasing trend was found in the enrolments, institutions and teachers growth. Food security was measured using dietary intake assessment method. Almost 23% of the respondents were measured to be food insecure. It was noted that employment opportunities increased after the training. Due to which their living standard improved. Monthly income was considered as the proxy for the training. Results of binary logistic regression revealed that income had a positive impact on food security, implying that technical training improves food security. It is suggested that technical training programs may be modified to cope with the latest market requirements.

Keywords: Technical education, TEVTA, food security, Pakistan

THE MEDIATING EFFECT OF PERCEIVED USEFULNESS IN THE RELATIONSHIP BETWEEN TECHNOLOGY READINESS AND INTENTION TO USE MOBILE BANKING; A CASE OF THE BANKING SECTOR OF DISTRICT VEHARI PAKISTAN

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Abstract

The purpose is to study the influences that effects the intention to use mobile banking in Vehari via using combined Technology Acceptance Readiness Model (TRAM). The proposed model of this research is the mixture of technology readiness model and technology acceptance model. The mediating variable Perceived usefulness will be used to intervene the influence of technology readiness (TR) towards dependent variable of intention to use mobile banking. This research will adapt the 16-item of technology readiness index by Parasuraman et al., (2014) to measure technology readiness dimensions (optimism, innovativeness, insecurity, and discomfort). This study will use cross sectional data at one point in time. Survey method will be used as it is less time consuming as compare to observation and interviewing (Sekaran, 2009). Sample size will be selected from population of customers doing banking with different banks in Vehari. This study will use a combination of both inferential and descriptive statistics method. Inferential method will be tested to research hypotheses of the model by using SmartPLS. Similarly descriptive test will be conducted to summarize the sample of the collected data by Statistical Package for the Social Sciences (SPSS-22.0). Limitations of the study, suggestions for the future study, and both theoretical and practical implications will also be deliberated in this research.

Keyword: Technology Acceptance readiness model, technology readiness, banks, Vehari.
Effect of Assurance Mechanisms and Consumer Concerns on Purchase Intention: A Mediating Role of Consumer Trust

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Abstract

Theory and evidence inform that consumer trust in website is important for increasing sale and profitability in online businesses. Existing literature identified several factors that influence consumer trust. Previous studies paid less attention on examining the impact of assurance mechanisms and consumer concerns on purchase intention through consumer trust. This study aims to examine the impact of assurance mechanisms and consumer concerns on purchase intention through mediating role of consumer trust. The study data from 304 online consumers via an online survey using snowball sampling technique. Smart PLS results indicated that assurance mechanisms and consumer concerns significantly influences consumer trust that subsequently affect purchase Intention. The study provides theoretical and practical implications as well as future research avenues.

Keywords: Assurance Mechanisms, Consumer Concerns, Consumer Trust, Purchase Intention

National Brand vs Store Brand: A Differential Impact on Consumer’s Brand Evaluation Beliefs and Purchase Intention in Super Stores Context of Central Punjab Pakistan

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Abstract

In recent years, the issue of how brands can be described and measured has become more and more important in both academic and practical debates. Previous researches separately examined the effect of store brand and National brand, but less attention paid on the differential impact of brand usage on consumer brand evaluation beliefs and purchase intention. This study aims to examine the distinct effects of store brand and national brand on brand association, brand awareness, price consciousness, and perceived brand quality (brand evaluation beliefs) and how these brand evaluation beliefs subsequently affect consumers’ purchase intentions. Results of survey with 250 shoppers show that users of national brand express significantly higher brand association, brand awareness and perceive higher brand quality than users of store brand, whereas users of store brand express higher price consciousness than the users of national brand resulting in different effect mechanism towards consumers’ purchase intention. The study provides significant implications to literature and practice.

Keywords: store brand, national brand, brand association, brand awareness, price consciousness, brand quality, and purchase intention.

Socio-Economic Impacts and Adaptations to Climate Change on Rain Fed Cropping System of Punjab

Dr. Syed Asif Ali Naqvi

Abstract

Climate change is one of the big threats to mankind. It is exacerbating the vulnerabilities of poor farming communities. Study was conducted for the rain fed cropping system of province Punjab (Pakistan). Three district i.e. Rawalpindi, Chakwal and Layyah were selected for study purpose. Assessment of climate variabilities for current and future production systems of wheat crop were quantified. Impact of climate variation on the per-capita income, farm return and poverty of the respondents of the study area were calculated for both scenarios - without climate change, and with climate change. Regional Representative Agricultural Pathways (RAPs) were employed for pathways analysis. Trade off Analysis Model for Multidimensional Impact Assessment (TOA-MD) model was used for economic analysis. Crop model simulations for the wheat by Decision Support System for Agro-technology Transfer (DSSAT) were used as input for the economic
modelling. Survey data containing socio-economic indicators and agronomic practices were also used for the study. Results of the study showed that climate changes were negatively impacting the per capita income, poverty levels and net farm returns of current as well as the future production system. According to climate sensitivity analysis, it was observed that the overall mean value of the net farm returns were decreasing. Farmers are vulnerable to climate change in future. Per capita incomes were decreasing and poverty rate of the farming community were increasing gradually. It is suggested in the light of investigated results that farmers will have to adopt new high yielding varieties of seed and adopt new technologies to raise the productivity.

**Key Words:** Climate change, adaptations, Punjab, RAPs, farmers

**Transformational Leadership and Job satisfaction; Moderating Role of Trust in Supervisor**

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**Abstract**

This study is conducted to show the impact of transformational leadership on the job satisfaction. Where for sustaining a satisfying association with the employees in any sector, transformational leadership is known as major privilege. There are various previous studies investigated the relationship among the transformational leadership and job satisfaction in distinctive sectors. Therefore, the current study particularly investigates the impact of transformational leadership on job satisfaction with moderating effect of trust in supervisor in hospitality sector of Pakistan with minimum ranking 2 stars. In order to achieve this objective, 11 items from modified MLQ, 17 items from MSQ and 9 items LTS from Mcallister utilized to collect data from hotel employees. PLS-SEM and multiple regression analysis was used to analyse the data. The findings showed that there is significant and positive association between transformational leader and job satisfaction where moderator has also positive effect on the association of transformational leadership and job satisfaction. Where personalized attention resulted in the more job satisfaction because of showing the caring behaviour of leader toward employees and in the same way rational encouragement also lead toward the increase in job satisfaction. Conclusion is that with the increasing quantity of trust in supervisor, there is increase in job satisfaction including the impact of transformational leadership among the employees working in hospitality sector of Pakistan.

**Keywords:** Transformational Leadership, Job satisfaction, Trust in Supervisor

**Data Mining with Internet of Things: A review**

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**Abstract**

Internet of Things (IOT) allow objects to be sensed or controlled. Most of the researcher’s review that by using Data Mining it is possible to find out appropriate patterns. This paper represents the Data Mining technique using Information Retrieval techniques, challenges and issues in IOT with Data Mining.