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**Research of Implications of Agricultural Land Use Policy for
Food Security in Pakistan**

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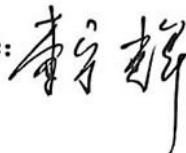
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摘要

巴基斯坦是一个拥有多种农业土地资源传统农业国家。由于国内人口增加、气候变化和农业政策制定不当，巴基斯坦的粮食安全问题已变得尤其突出。旁遮普省（Punjab province）在巴基斯坦的人口比重和耕地面积占比均达到 50% 以上，本文选取旁遮普省作为研究对象，探讨种植面积，农业基础设施、农户行为、农业产出与粮食安全问题之间的联系，最终目标是实现农民与贫困人口生活水平的提高。基于此目的，本文运用结构方程模型 (SEM)，将一些容易被忽略的影响因素纳入模型进行考察，以加深对该本文所研究问题的理解。模型结果表明，加强土地管理和发展土地租赁可以改善农业产出效率。适度的耕种规模、现代农业技术的运用和农业自然灾害保险三者对增加农民收入至关重要。农村人口的营养不良与农业盈利水平相关，农业盈利水平下降会导致农民生活水平下降。巴基斯坦的粮食安全问题直接受到农业产出的影响，间接受到种植面积影响。而耕种面积对生活水平有直接联系。政府应当改善土地管理，通过改善农业政策，提高农民盈利能力，改善营养和生活水平。将巴基斯坦农地利用政策与粮食安全研究结合在一起进行，在以往文献中鲜有见到，这也是本文的创新之处。

关键词：粮食安全; 土地使用; SEM 模型; 生活水平; 种植面积; 农业产出; 巴基斯坦

ABSTRACT

Pakistan is an agrarian country and has diverse resources of agricultural land. The issue of food insecurity in Pakistan has gained importance in view of its growing population, climate change challenges and poor agricultural policies. The current study has been conducted in Punjab province that has more than half of total population and total cultivated land. The main aim of the study is to explore the association among agricultural farm area, agriculture farm infrastructure, agricultural farming community, agricultural output and issues of food security with ultimate goal of improvement in the standard of living of farmers and the rural poor. For this purpose, structural equation modeling (SEM) was employed to incorporate the significant and special situations for improving the understanding of this issue. The results show that secure land administration and tenancy improve the farm production. Appropriate farm size, modern production technology and safeguards against natural disasters and crop failure are essential for increasing farmers' income. The poor nutritional level of rural community is associated with its agricultural profitability and subsequently results in compromised standard of living. Food security in Pakistan is directly affected by agricultural output and indirectly from appropriate farm area which is directly linked with standard of living. Government should improve land governance and implement such policies which increase farmers' profitability for their better nutrition and standard of living.

Key words: Food security; Land use; SEM; Standard of living; Farm area; Crop output; Pakistan

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ABBREVIATIONS

SEM	Structural Equation Modeling
MDER	Minimum Dietary Energy Requirement
HDI	Human Development Index
KPK	Khyber-Pakhtunkhwa
AMOS	Analysis of Moment Structure
GoP	Government of Pakistan
GoPb	Government of Punjab
GDP	Gross Domestic Product
FCS	Food Consumption Score
IBIS	Indus Basin Irrigation System
FAO	Food and Agriculture Organization
BOR	Board of Revenue
LRMIS	Land Record Management Information System
CFA	Confirmatory Factor Analysis
EFA	Exploratory Factor Analysis
ICESCR	International Covenant on Economics, Social and Cultural Rights
LB Coefficient	Labor Burden Coefficient
MDGs	Millennium Development Goals

CHAPTER 1 - INTRODUCTION

1.1 Introduction

Pakistan is a developing country with an estimated population of 195.4 million. It is the 6th most populous country with population growth rate of 1.89 which is higher as compared with its neighboring countries like Iran, Bangladesh and India. Agriculture sector has vital importance in Pakistan's economy as its share is 19.8% and 43.3% of total labor force is employed in the same sector. Within agriculture sector, 58.6% value addition is made by livestock sub-sector whereas the contribution of crop subsector stands at 37.2% (GoP, 2016). Total area under crops in Pakistan has increased nearly 40% over a period of 60 years but due to huge population growth rate, the arable land has diminishing from 0.16 to 0.12 hectares per person (FAOSTAT, 2017) and posing immediate threat to country's food security situation.

The agricultural production primarily depends upon prevailing climatic conditions and endowment of natural resources. Climate change is a serious issue for agriculture and food security in Pakistan. The geographic location, dense population and poverty have made Pakistan highly vulnerable to Climate Change. During last few years, the frequency and intensity of extreme weather events has increased and erratic changes in the patterns of monsoon rainfall has resulted in intense spells of draught and frequent floods in Pakistan.

Not only climatic conditions, the prevailing market conditions and implementation of suitable public policies in the production sector influence the agricultural production. The constraints of infrastructure, lacks of modern production technologies, non-availability of farm credit, poor planning and weak implementation of policies are common issues behind meagre agricultural production in the developing countries, and Pakistan is no exception. Current research has been conducted to explore the association among agricultural farm area, agriculture farm infrastructure, agricultural farming community, agricultural output and issues of food security with ultimate goal of improvement in the standard of living of farmers and the rural poor. For this purpose an integrated model has been developed to incorporate the significant situations in the analysis for improved understanding by employing advance statistical technique of structural equational modeling (SEM). Pakistan has four provinces i.e. Punjab, Sindh, Khyber-Pakhtunkhwa (KPK) and Baluchistan but for the sake of current study only Punjab has been focused. Punjab is the most important province as it contains 52% of total population, 57% of total cultivated area and 69% of total cropped area of the country. The Punjab province contributes a major share in agricultural economy of the country because nearly 97% of rice, 83% of cotton, 80% of wheat, 63%