

Analyzing Factors Affecting Wheat Production Risk

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ABSTRACT

One of the most important challenges facing the world is how to feed expected population by 2050. Despite trying to increase food production over the past half-century, food security has been a strategic issue and an important goal of agricultural policies in many countries by challenges including population grow, increasing demand, natural resources erosion, etc. One of the critical dimensions in achieving food security is expanding food supply chain. A food supply chain can be defined as a set of interdependent components include of input supply, production, storage, processing, marketing, distribution and consumption or as the activities from “farm to fork”.

Keywords: Food security, Supply chain and Risk, Wheat production

INTRODUCTION

Bread supply chain in Iran, is one of the most important food supply chain because bread is considered as the most important food source and is staple food of choice, so it has a special place in household’s nutrition pattern that supply 46.2% and 59.3% of energy for urban and rural people. Also, wheat is the raw material of bread and one of the strategic and critical crops in Iran agriculture. More than 80% of wheat consumption in Iran is predominantly used for bread. Wheat is the staple food of the national diet of Iranian households, who draw, on average, 47% of their daily calorie from wheat products. Although the population of Iran is nearly 1% of world population, it consumes roughly 2.5% of wheat produced worldwide.

But, wheat is exposed to different kinds of risks such as natural disasters, including environmental concerns and climate change, pests and diseases, market vacillations and government policy that affect bread supply chain performance. So, the objective of this study is to explore factors affecting wheat production risk in bread supply chain.



MATERIALS and METHODS

In this study regression analysis was used to determine the effects of variables on wheat production risk. The used data was time series for wheat production, wheat guarantee price, harvested area, rainfall, temperature, wheat axial plan, seed consumption, wheat import and export variables during 1982-2014.

In order to explore factors affecting wheat production risk, at first wheat production variance as the risk criterion was estimated by ARCH (2) Model. The used data in the study was time series and therefore applying Ordinary Least Squares method in estimating regression equation would lead to pseudo regression.

Since based on Augmented Dicky-Fuller method, variables were combination of I (0) and I (1), therefore Autoregressive Distributed Lag Model has been used to determine short run and long run relationship.

RESULTS and DISCUSSION

Results revealed that wheat production risk was affected by population, wheat imports, rainfall, wheat guaranteed prices, harvested area and wheat axial plan variables which population, import, rainfall, harvested area had a positive effect and guaranteed price and wheat axle plan had a negative effect on wheat production risk. Therefore increasing population growth, import, rainfall and harvested area would lead to risk increase while increasing price and the implementation of wheat axis plan would reduce wheat production risk.

So, increasing population and consumption, have also increased wheat import in recent years. While wheat import have reduced domestic production and farmers' incentives that would lead to increased wheat production risk. The tools used by governments for increasing domestic production against wheat import and increasing producer's incentives are guaranteed price and wheat axial plan. Another effective cause of wheat production risk was climate changes and extreme weather events. Farmers' economic profit was influenced severely and even determined by climate changes and weather events. Also, during this period, wheat harvested area had nearly doubled. This growing trend has also increased the risk of wheat production.



Conclusion

wheat is a strategic crops in Iran. So, it is necessary to reduce its production risk. Wheat production risk was reduced by applying weather-based crop insurance scheme, sustaining the guaranteed price of wheat, supporting plans such as wheat axial plan, improving policies such as wheat imports and optimizing harvested area.

REFERENCES

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