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## Effects of market price on socio-economic development of small-scale vegetable farmers- Southern region of Zanzibar

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### Abstract

The study examined the effects of market price on the socio-economic development of small-scale vegetable farmers in Southern Region of Zanzibar. Specifically, this study examined the effect of price movement on the socio-economic development of small-scale vegetable farmers in Southern Region of Zanzibar. The study used a cross-sectional study design and data was collected using questionnaire from small-scale vegetable farmers in Southern Region of Zanzibar. A simple random sampling method was used to pick up a sample size of 149 small-scale vegetable farmers from the target population. The findings from descriptive statistics showed that 116 respondents either agreed or disagreed that price fluctuations threatened Socio-economic development of small-scale vegetable farmers. The regression analysis showed market price would affect Socio-economic development of small-scale vegetable farmers with 59.2%. The study recommended the government to develop positive and proactive measures to make prices of vegetables stabled and in any case the prices of vegetables should raise instead of falling. This would guarantee that socio-economic development of small-scale vegetable farmers is not affected.

**Keywords:** small-scale farmers, vegetable farming, market price, socio-economic development

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### Introduction

The history and development of agriculture is intimately related to the development of human civilization. Agriculture is the main sector, which fulfils the demand of hunger of growing population (OECD/FAO 2019)<sup>[35]</sup>. Agriculture is an important source of income and the world's largest business; one-third of the economically active population obtains its livelihood from agriculture (GA, 2019). Agricultural produce from small-scale farmers is often lost after production due to so many marketing challenges which make it difficult for small-scale farmers to explore full market potentials and they also reduce incentives of participation in formal (commercial) or high-value markets. Surges in global food prices continue to be of serious concern to governments all over the world, especially in developing countries, because of the devastating effects it has on food security for the poor and on sustainable production of agricultural commodities (FAO, 2011)<sup>[13]</sup>.

Agriculture remains an important sector globally, since it contributes towards food security, poverty alleviation, and economic growth. Agriculture outlook 2016-2025 reports that, agriculture contributes to 15% of GDP (FAO, 2016)<sup>[14]</sup>. It is considered to be backbone of several African economies (Gunasekera & Newth, 2015)<sup>[17]</sup>. Several people rely much on agriculture for their livelihood, it has been noticed that about 86 percent of the rural people depends on agriculture as a livelihood option and it provides jobs for about 1.3 billion of small holder farmers and landless employees (Malherbe & Marais, 2015)<sup>[27]</sup>.

Instability in small holder farmers' income in developing countries due to unstable farm prices has been a challenge for farmers and agricultural policy makers over the years. Sustained price stabilization mechanisms are mostly lacking. In some countries, output price support has been initiated to stabilize incomes and as an incentive to enhance farmer investment and boost production (Emmanuel *et al.*, 2020)<sup>[12]</sup>. Farmers markets are regular or seasonal community gatherings where local farmers, ranchers, fishermen, harvesters, food vendors, and artisans can sell their local and sustainable products directly to community members (Brown and Miller, 2008)<sup>[8]</sup>.

Crucially, inelasticity of supply of agriculture produce may cause an imbalance in agricultural output markets, inducing output price volatility: the rise or fall of producer prices beyond the expectations of consumers and farmers in both international and domestic markets (Abokyi *et al.*, 2018)<sup>[1]</sup>. In most developing countries, output price volatility is made worse by market failures resulting from insecure property rights, inadequate access to the market, the lack of good roads and storage facilities and incomplete market information (Demeke and Balié, 2016)<sup>[11]</sup>.

Low prices for agricultural commodities and food price volatility can be periodical (FAO, 2011)<sup>[13]</sup>, and thus reduce farmer's household income during periods of glut or harvest time. This is especially for crops for which farmers have low or no storage capacity or lack the possibility to process into other products. In such situations, rural farmers often need to sell their farm produce at harvest time which results in the under-pricing of farm

produce and makes farmers poor (David *et al.*, 2016) <sup>[10]</sup>. Tanzania is focusing on agriculture as the main source of economic development. Agriculture is estimated to contribute to one third of GDP and is the backbone of Tanzania's economy as the largest single sector, contributing 29% to the country's GDP (Tanzania Economic Outlook, 2016) <sup>[37]</sup>. This sector provides employment to 75% of Tanzanian population (ASDS II, 2016) <sup>[6]</sup>. With the current industrialization as main driver of economy, agriculture plays a major role in fulfilling industrialization initiatives as it is the main input in the manufacturing sectors. Both the government and the private sector have joined hands to increase agricultural business investment (Mgaya, 2016) <sup>[29]</sup>. Tanzania recognizes the contribution made by small holder farmers in the whole sector. Small holder farmers contribute to 75% of the agricultural output and mainly for home consumption (Jamie & David, 2016) <sup>[21]</sup>.

Vegetable production has received considerable attention in recent times. Vegetables are of great importance in terms of nutrition improvement, income generation, food security, and improving resource use efficiency in agriculture (Ebert, 2014). Despite the importance of vegetables, their production is associated with high risk and uncertainty because it is highly perishable produce. The perishable nature of vegetables necessitates effective marketing channels (Xaba & Masuku, 2012) <sup>[41]</sup>. According to Antwi and Seahlodi (2011) <sup>[5]</sup>, the success of vegetable growers (operation and decision) depends on market availability, accessibility, and affordability. In most parts of Africa, farmers rely on the information from traders in the market despite the likelihood of such information being inaccurate compared to that obtained from other sources such as government, NGOs, and processing companies (Ochieng, *et al.*, 2014) <sup>[34]</sup>. Small holder farmers need better access to market information on prices, quality, quantities, where to sell, and production technologies which can be done through the establishment of MIS by government and development partners in agricultural development.

Zanzibar Agricultural Transformation Initiative (ZATI) emerged at about time that Zanzibar is getting prepared to launch its second phase of the ZSGRP (II), now to be referred to as MKUZA II. An overall viewpoint of the ZATI dwells on the creation of good environment for production, processing and marketing of agricultural products in the next ten years from which, a range of interventions will be required to make these aspirations possible. In this regard, a full commitment from all parties particularly the public and private sectors is essential. The Government is determined to undertake all necessary steps required to facilitate implementation process of this initiative as part of its obligation and realization of the ruling party manifesto. Agriculture, especially in small-scale farmers is also by far the most important source of employment in the isles. On average, 70 percent of the population depends directly or indirectly on the agriculture sector for their livelihood (OCGS, 2017). This implies that the sector has high potential for tackling socio-economic challenges including high levels of income, poverty and food insecurity. Given the importance of the sector as a source of livelihood for the large majority of the population, and a base for foreign exchange earnings; the sector deserves adequate public and private sector investment for attaining and maintaining the anticipated high growth rate. This remains a critical challenge for agricultural transformation in Zanzibar.

The "Zanzibar Agricultural Transformation Initiative" is based on prioritizing agricultural development as crucial means for socio-economic transformation of the isles. The necessity for adopting the Zanzibar Green Revolution is evidenced in the government overarching policy frameworks, as articulated in the Zanzibar Development Vision 2050 and the Zanzibar Agricultural Sector Strategic Plan (SP) which advocate for commercialization and food self-sufficiency that necessitates transformation and modernization of the agriculture sector through intensification and production diversification. Moreover, development of the agriculture sector has been identified as a priority for poverty reduction in Zanzibar's Strategy for Growth and Reduction of Poverty (ZSGRP II).

The Zanzibar vegetable production is made up of a large number of small producers that produce a limited range of indigenous vegetables. The common vegetables grown include tomatoes, egg plants, green peppers, okra, chilies, cabbages, cucumbers, spinach (Amaranth), Chinese cabbage, cassava leaves, cowpea leaves and onions. Total area under vegetable cultivation estimated at 4617 ha (Unguja 4057 ha and Pemba 560 ha). The average yield of vegetables is about 5–7 tonnes/ha for all common vegetables which is far below the potential yield levels that are obtained in neighbouring countries. The total annual production of vegetables in Zanzibar is around 10,500 tonnes, again far below the total annual requirements.

Consequently, most of the vegetables consumed are sourced outside Zanzibar. Recent value chain study (ZAFFIDE, 2016) <sup>[42]</sup> indicated that 80% of vegetables and 20% of fruits supplied to tourist hotels and restaurants are imported, mostly from mainland Tanzania, but also from Kenya and outside Africa. Experiences from recent development interventions such as ASSP, TASAF and PADEP have demonstrated that there is a considerable potential for increased local production of vegetables to meet domestic demands for vegetable products. The envisaged potential yield levels for most vegetables are in the range between 25 and 45 tonnes per ha. Like many other regional states of the sub-Saharan Africa, agriculture sector in the form of small-scale vegetable in Zanzibar is invariably devastated by a number of challenges, mainly associated with market price fluctuation, continuous application of inappropriate farming technologies, limited investment opportunities, and a slow pace towards commercializing agricultural production. Agricultural development is also defied by a poor marketing infrastructure and perpetuated by unpredictable impacts of climate changes. In order to address these challenges, this study is required and is paramount to uphold the national endeavours towards the attainment of green revolution.

Production of vegetables is a key factor in ensuring a continuous supply of raw materials for the development of agri-business in horticulture. It is often argued that vegetable production in Zanzibar has reasonable advantages

but the information regarding how it develops social economics of the farmers is limited (Mchenga and Abubakar, 2016) <sup>[28]</sup>. Therefore, the study investigated effects of market price on socio-economic development of small-scale vegetable farmer's southern region of Zanzibar.

### **Statement of The Problem**

Smallholder farmers in developing countries lack storage facility and often under pressure to sell their produce right after harvest and sometimes become buyers in the later part of the year. This situation especially applies to farmers of staple foods such as maize and rice. Small holder farmers are compelled to undertake such action due to household demand for cash to meet short term needs and the lack of storage facilities (Hossain, 1993) <sup>[20]</sup>. With high supply after harvest, farmers receive low prices for their produce. Similarly, during lean periods, prices are high due to slow adjustment on the supply side. As a result, the agri-food system, especially in sub-Saharan Africa, is characterized by significant seasonal price variations: low prices during harvest period and high price during lean (Gilbert *et al.*, 2017). Horticulture in Tanzania is dominated by small holder farmers who contribute about 70% of the whole vegetable production in Tanzania (Visser, 2015). Nonetheless, small holder farmers have no direct connection to regional and international markets thus, hindering their full participation in the market, which in turn affects the whole value chain of vegetables (Missama, 2010) <sup>[31]</sup>. The study focused on effects of market price on socio-economic development of small-scale vegetable farmers of Southern Region of Zanzibar.

### **Objectives of The Study**

To examine effects of price movement on the socio-economic development of small-scale vegetable farmers in southern Region of Zanzibar.

### **Literature Review**

Market price is the current price at which an asset or service can be bought or sold. The market price of an asset or service is determined by the forces of supply and demand. The price at which quantity supplied equals quantity demanded is the market price (Cory, 2020). Socio-Economic Development may refer to the transformation of a society with regard to social and economic dimensions. Socio-economic development, therefore, is the process of social and economic development in a society. It is measured with indicators, such as gross domestic product (GDP), life expectancy, literacy and levels of employment. For better understanding of socio-economic development (Munasib and Jordan, 2011) <sup>[33]</sup> Kishor and Basanta (2021) <sup>[23]</sup> did a research on Impact of vegetable farming on farmers' livelihood patterns in Dhankuta, Nepal and found that vegetable farming impacted the livelihood of patterns and that the socio-economic conditions of the vegetable farmers had improved. The Akinwale & Oyeyem (2021) <sup>[4]</sup> studied specifically described the socio-economic. Emmanuel (2020) <sup>[12]</sup> investigates the impacts of output price support on small holder farmers' income in Ghana, using a household and farm-level data from 252 beneficiaries and 268 non-beneficiaries of buffer stock operations in Ghana. The results affirm that buffer stock operations increase the incomes of participating small holder farming households by at least 12%, providing evidence that output price support via buffer stocks is a critical tool for improving incomes and alleviating poverty among farmers in Ghana. Salwa and Zakia (2016) assessed the situation of vegetable production and marketing in Zanzibar that about 59% of the farmer's population produces vegetables commercially, though only 30% to 35% of their yields are sold in market. Matsane & Oyekale (2014) the study was to identify and analyse factors affecting (constraints) marketing of vegetables among small-scale farmers. Data were collected with structured questionnaire and analyzed using descriptive and regression analysis. Results showed that prominent constraints of marketing vegetables among the small-scale farmers were: lack of access to credit, lack of access to storage facilities, lack of market information, lack of finance for farming, poorly developed village markets, poor producer prices, high perishability of produce, low patronage, inadequate access roads, small size of transport and high transportation costs.

### **Methodology**

The study was conducted in Southern Region of Zanzibar. The researcher selects this area because in this area, there are comparatively more vegetable farmers. Research design is the arrangement of conditions for collection and analysis of data in a manner that, aims to combine relevance to the research purpose with economy in procedure (Kothari, 2004) <sup>[24]</sup>. The study used a cross-sectional study design and data was collected from small-scale vegetable farmers. The population of this study included 218. The sample size 149 was determined by using the Solvin's (1960) formula. Simple random sampling technique was used to select the sample used in the study. Simple random sampling was chosen over other sampling methods to ensure that, any individual element in the population has an equal chance of participating in the study (Kothari 2004) <sup>[24]</sup>. Primary data was obtained by using a questionnaire. Data was analysed by frequency distribution, percentages and regression.

### **Findings**

#### **Demographic information**

Determining the characteristics of particular respondents is very significant, as the respondents helped the researcher to understand the quality of the information obtained from the field. This part provides basic

information about the respondents' characteristics such information included their gender, sex, education level and age. All these characteristics have been explained and presented below.

### Gender

Gender is an important variable in a given area which is variably affected by any social or economic phenomenon. Hence the genders of the respondents were investigated for this study. Data related to genders of the respondents is presented in Table 1.1 below.

**Table 1:** Gender of the respondents

| Gender | Distribution of Respondents |         |
|--------|-----------------------------|---------|
|        | Frequency                   | Percent |
| Male   | 53                          | 35.6    |
| Female | 96                          | 64.4    |
| Total  | 149                         | 100     |

**Source:** Survey data, (2022)

The Table 1.1 shows that 64.4% of the respondents were female and 35.6% of the respondents were male. The findings showed that the majority of respondents engaged in the small-scale vegetable farming were female compared to male. Also, the findings revealed that both male and female were involved in the study and therefore avoiding bias based on gender to enrich the findings by including both genders.

### Age

Age of the respondents is another important characteristic which has been examined in order to check whether it could have an influence towards the response collected about small-scale vegetable farmers. Since age indicates the level of maturity of individuals in views and responses of small-scale vegetable farming, in that sense, ages of the respondents were examined in this study.

**Table 2:** Age of the respondents

| Age          | Age of Respondents |         |
|--------------|--------------------|---------|
|              | Frequency          | Percent |
| 18-35        | 39                 | 26.2    |
| 36-45        | 62                 | 41.6    |
| 45 and above | 48                 | 32.2    |
| Total        | 149                | 100.0   |

**Source:** Survey data, (2022)

From the Table 1.2 above, it can be seen that on the basis of age criteria 41.6% of all respondents were between 36 and 45 years old, 23.7% of them were above 45 years of age, where 32.2% of respondents were between 18 and 35 years old. These findings show that most of the respondents were young people which indicate that, the area of study provides an agricultural opportunity mostly to the young people.

### Education

Person's education background is directly linked to the study since education has more impact on analyzing the impact of government grant on financing students of higher education. In that way, the kind of response of an individual is likely to be determined by his/her educational status and therefore it becomes imperative to know the educational background of the respondents. Hence the various 'Educational levels' were investigated by the researcher and the data pertaining to education is presented in Table 1.3 below.

**Table 3:** Education level of the respondents

| Education         | Education level of Respondents |         |
|-------------------|--------------------------------|---------|
|                   | Frequency                      | Percent |
| Primary           | 83                             | 55.7    |
| Secondary         | 54                             | 36.2    |
| Diploma and above | 12                             | 8.1     |
| Total             | 149                            | 100.0   |

**Source:** Survey data, (2022)

The table 4.3 above shows that majority of research respondents were 55.7% who were having primary level of education, followed by 36.2% of the respondents with secondary education level and lastly only 8.1% of the respondents who were having diploma and above in their education. Table 4.3 indicates that education level of

the majority of the respondents (55.7%) was primary level of education. This implies that the majority of the respondents in the area of study understood at least to read and write

### Work Experience

The study went further to analyze another variable which is concerned with work experience of the respondents. It was a very important characteristic to understand in the sense that it has the great influence on the responses collected. The work experience of the respondents in the agricultural activities is shown in table 1.4 below:

**Table 4:** Work experience of the respondents

| Years | Work experience |         |
|-------|-----------------|---------|
|       | Frequency       | Percent |
| 1-4   | 11              | 7.4     |
| 5-9   | 57              | 38.3    |
| 10-14 | 81              | 54.4    |
| Total | 149             | 100.0   |

**Source:** Survey data, (2022)

The findings show that 54.4% of the respondents have work experience of between 10 and 14 years; whereas 38.3% have work experience of between 5 and 9 years and 7.4% have shown to have been in the field for a period of between 1 and 4 years. These results indicate that the majority of the respondents have longer experience working in small-scale vegetable farming.

### Effect of price movement on the socio-economic development of small-scale vegetable farmers

The researcher wanted to know if price movement affected the socio-economic development of small-scale vegetable farmers. The respondents were to indicate how they agreed or disagreed with Price fluctuations threatened socio-economic development of small-scale vegetable farmers. The results are shown in Table 1.5.

**Table 5:** Response on price fluctuations

|       |                 | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-----------------|-----------|---------|---------------|--------------------|
| Valid | Strong Disagree | 15        | 10.1    | 10.1          | 10.1               |
|       | Disagree        | 10        | 6.7     | 6.7           | 16.8               |
|       | Neutral         | 8         | 5.4     | 5.4           | 22.1               |
|       | Agree           | 52        | 34.9    | 34.9          | 57.0               |
|       | Strongly Agree  | 64        | 43.0    | 43.0          | 100.0              |
|       | Total           | 149       | 100.0   | 100.0         |                    |

**Source:** Survey data, (2022)

The findings on Table 1.5 above show the respondents responses on whether price fluctuations threatened Socio-economic development of small-scale vegetable farmers.

The results indicated that 43% of the respondents strongly agreed, 34.9% of them agreed, 5.4% of them remained neutral. On the other hand, 10.1% strongly disagreed while the remaining 6.7% disagreed. These findings implied that price fluctuations threatened Socio-economic development of small-scale vegetable farmers. The findings agreed to the results of Gneiting (2018) <sup>[18]</sup>.

The researcher also conducted regression analysis in order to determine the effect of the predictor variable to the dependent variable. The results are shown in Table 1.6.

**Table 6:** Coefficientsa

| Model | Unstandardized Coefficients |            | Standardized Coefficients | t    | Sig.  |      |
|-------|-----------------------------|------------|---------------------------|------|-------|------|
|       | B                           | Std. Error | Beta                      |      |       |      |
| 1     | (Constant)                  | .104       | .143                      |      | .726  | .469 |
|       | Market Price                | .592       | .086                      | .575 | 6.894 | .000 |

a) Dependent Variable: Socio-economic development of small-scale vegetable farmers

**Source:** Researcher (2022)

The positive (+) results from Beta indicates positive relationship between variables.

Results on Table 1.6 show that taking all other independent variables at zero, a unit increase in market price would lead to a 0.592 increase in the scores of Socio-economic development of small-scale vegetable farmers. The variables was significant ( $p < 0.05$ ). Therefore summarizing that market price would affect Socio-economic development of small-scale vegetable farmers with 59.2%.

### Conclusion

The study concluded that price movement affected the socio-economic development of small-scale vegetable farmers.

### Recommendations

The study recommended the government to developed nuanced and proactive measures to make prices of vegetables is stabilized and in any case the prices of vegetables should be raise upwards. This would guarantee that socio-economic development of small-scale vegetable farmers is not affected.

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