

# An Analysis of Maize Marketing Anomaly in South Sulawesi, Indonesia

Nurman Ali Saiful<sup>1</sup>, Ahmad Ramadhan Siregar<sup>2</sup>, Didi Rukmana<sup>3</sup>, Jusni<sup>4</sup>

<sup>1</sup>Post Graduate, Hasanuddin University, Makassar, Indonesia

<sup>2,3</sup>Lecturer, Hasanuddin University, Makassar, Indonesia

<sup>4</sup>Lecturer of Economy and Business, Hasanuddin University, Indonesia

**Abstract**— *The aims of this study to analysis the direct and indirect effect of price instability, maize channel deviation, farmers' distrust, and income inequality to maize marketing anomaly. Path analysis was used to examine the variables effect. In-dept interview and semi-structured questionnaire was conducted for data collection. The result showed that the direct effect of price instability, maize channel deviation, and farmers' distrust have significant to maize marketing anomaly. However, the direct effect of income inequality was not significant to maize marketing anomaly. Meanwhile, indirect effect showed no variable has significant to maize marketing anomaly. Among 4 variables, maize channel deviation showed as the most influential variable which effect significantly to maize marketing anomaly.*

**Keywords**— *Maize, Marketing, Path analysis, and Anomaly.*

## I. INTRODUCTION

Maize is an important crop for achieving food security in Indonesia due to its strategic value both for human consumption as well as one of the main components of animal feed. Further, maize is the second most important cereal crop after rice, in terms of the percentage area planted to maize relative to the total area for all food crops (Freddy, 2018). Most maize (about 30.2%) during the last decade was grown in South Sulawesi and contributed to national maize production. Three cities in South Sulawesi having contribute to maize production namely Jenepono, Gowa, and Bantaeng with the maize production volume are 226.060 tons, 213.443 tons, and 154.574 tons respectively (Indikator Ekonomi Provinsi Sulawesi Selatan, 2018). Although it was high maize production volume, high demand, and high price, farmers income still low. The lowest income of farmers will affect farmers' motivation in maize farming. Therefore, farmers' income and well-being should be prioritized due to the important rules to increase and maintenance maize production. To solve this problem, it should be to identified the barriers or the gap between maize production and farmers' income. And it was identified as the factors that related with farmers income was the effect of anomaly in maize marketing (Geyskens, 1999).

The term of anomaly usually using in financial theory. Nevertheless, anomaly has been defined by George & Elton (2001) as irregularity or a deviation from common or natural order or an exceptional condition (Frankfurter, 2001). Anomaly is a term that is generic in nature and it applies to any fundamental novelty of fact, new and unexpected phenomenon or a surprise with regard to any theory, model or hypothesis (Latif, 2011). Regarding to anomaly in maize

marketing in South Sulawesi, it refers to the deviation and uncommon state during maize marketing activity among farmers, middlemen, and wholesalers. Several variables were affecting the maize marketing anomaly namely price instability, maize channels deviation, farmers trust, and income inequality.

Anomaly in Price instability related with price fluctuated. When the harvesting season comes, maize price suddenly dropped (Mills, 1927). Many factors were related with this issue, one of them was price knowledge in which if the maize price increased, farmers would gain price information slowly. Rather, if the maize price decreased, farmers would gain the price information faster than the consumer (Gouel, 2011). Another anomaly was maize channel deviation. Normally short marketing chain will more profitable for farmers than long. In fact, it goes against natural survival in which short marketing chain more disadvantages due to the transportation cost and the maize price which is same with middlemen (Turnovsky, 1980). Further, farmers' distrust also was identified as the factors that related with maize marketing anomaly. Farmers' trust was the important channel in farming production. Farmers' trust has economically negative effect on the transparency of maize quality control. Nevertheless, farmers more likely to choose middlemen as their channel than wholesalers, while farmers know that there was an agreement among middlemen and wholesalers which bring disadvantages to farmer (Fischer, 2018). Meanwhile, income inequality between farmers, middlemen, and wholesalers also has effect on maize marketing anomaly (Arumugam, 2015). Maize marketing anomaly being a sensitive issue which is need to prove and examine seriously. Having data in marketing anomaly would help decision maker to think and act based on the needs of farmers. Solving this issue will help farmers to describe their barriers and potentials in maize marketing which is contribute to income and well-being. Therefore, the objective of this study was to find a model in order to show the direct and indirect effect among 4 variables, and identified the most influence variable in maize marketing anomaly.

## II. METHODOLOGY

### A. Research Design

Sequential exploratory research design was used to reach the aims of this study (Creswell, 2017). Data collection was divided in two phases. The first phase was qualitative followed by quantitative for data confirmation (Denzin, 2011). The qualitative phase explored the indicators of maize

marketing anomaly in South Sulawesi. Furthermore, the quantitative phase examined the factors which found from the first phase, to explain the direct and indirect effect to maize marketing anomaly in South Sulawesi.

**B. Study Site**

This study was conducted in three districts in South Sulawesi including: Jeneponto, Bantaeng, and Gowa. This place was selected purposively and based on the maize production volume in this area. Time duration of data collection was 3 months started at January until April 2019.

**C. Sample Selection**

The Population in this study was farmers in the study districts. Qualitative data collection used purposive sampling method and conducted and conducted Focus Group Discussion (FGD) for 28 farmers in 3 groups by using FGD’s guidelines. Meanwhile, the quantitative phase choose respondent by using simple random sampling. The respondent was selected randomly by using farmers’ data of district agriculture department and involved 90 farmers (30 farmers from each districts).

**D. Data Analysis**

Qualitative phase used market structure, market conduct and market performance for thematic analysis. Nevertheless, the detail result of the qualitative data was published in another article. Therefore, this part only presents the quantitative part. Moreover, path analysis was used in quantitative data analysis. The quantitative data were entered in excel 2010 spreadsheet, later on input in AMOS software 26 version. The variable was measured by path analysis namely: price instability, farmer distrust, maize channel deviations, income inequality, and maize marketing anomaly.

**III. RESULT**

**A. The Indicators of Maize Marketing Anomaly in South Sulawesi**

The result on this article focusing on the quantitative result. However, before collecting quantitative data, researcher used the qualitative data to determine the factors that related with anomaly maize marketing in South Sulawesi. Therefore, the table below explains the indicators of maize marketing anomaly in South Sulawesi based on the market structure, market conduct, and market performance in qualitative phase.

Market structure refers to the number of agents in the market, both sellers and buyers; their relative negotiation strength, in terms of ability to set prices; the degree of concentration among them; the degree of differentiation and uniqueness of products; and the ease, or not, of entering. In addition, market conduct refers to pricing, ordering, and callusing practice. Moreover, market performance refers to the benefits and social welfare that will be received in a market as an effect of the formation of a structure, and behavior.

The table showed that among market structure indicator, there are one indicator indicated maize channel deviations and farmers distrust. Furthermore, 3 indicators indicated farmers distrust and one indicated price instability variable in market

conduct analysis. Moreover, three indicators in market performance anomaly indicated income inequality.

TABLE 1. SPC analysis which contributing to identify the variables which effect maize marketing anomaly in South Sulawesi

Result	Variables			
	Price instability	Farmer distrust	Channel deviations	Income inequality
<b>Market structure anomaly</b>				
1. There are many sales options (traders), but generally farmers sell only to one trader, although they believe there is a collusion in those transaction.			√	
2. Refusing Chinese for coming and doing market transaction in Jeneponto district. Contrary, they prefer to sell product to Chinese although they need to go to another districts.		√		
<b>Market conduct anomaly</b>				
1. The long marketing chains are more profitable than short			√	
2. Middleman is more famous than traders		√		
3. Farmers decide to selling their product in a dry condition whereas drying facilities are available		√		
4. Subsidized fertilizer is available while production costs are still high		√		
5. The government has a high price standard for maize, however the farmers 'income still low.	√			
<b>Market performance anomaly</b>				
1. Maize production and price are high while farmer’s income still low.				√
2. Although losing more time and effort, farmers still have low income.				√
3. Income inequality between farmers and traders.				√

**B. Factors Related to Maize Marketing Anomaly in South Sulawesi**

**B1. Price instability**

Price instability refers to fluctuating price of maize production which stayed in unstable condition in South Sulawesi. The details indicator of price instability explained in the table 2.

Table 2 showed that 45 respondents (50%) disagree and 5 respondents (5.6%) strongly disagree on the price of maize production which the farmers obtained is same with the price information from the government. This funding was supported by AS (47<sup>th</sup>) a farmer who has been spending time as a farmer about 15 years.

I don’t know how to explained their works (government). They entice as to plant maize, they said that the price will be up to IDR 4000, sadly when the time comes, the price less

than IDR 2,000. They never give as the real price. They just promise as always (AS,47th, Farmer)

TABLE 2. Distribution of price instability among respondents in South Sulawesi

Price instability	Strongly disagree		Disagree		Agree		Strongly agree	
	n	%	n	%	n	%	n	%
The price of maize production which the farmers obtained is same with the price information from the government	5	5.6	45	50.0	28	31.1	12	13.3
There is a significant difference between selling maize directly to the wholesalers compared to middlemen	24	26.7	21	23.3	23	25.6	22	24.4
Selling maize production though in cheap price	14	15.6	33	36.7	34	37.8	9	10.0
Selling maize product without considering the price instability	15	16.7	31	34.4	35	38.9	9	10.0
The price instability influences decision for selling maize	25	27.8	37	41.1	17	18.9	11	12.2
If the maize price is high, farmer will get high income	21	23.3	28	31.1	15	16.7	26	28.9

Meanwhile, on the indicator of there is a significant difference between selling maize directly to the wholesalers compared to middlemen among 24 respondents (26.7%) strongly disagree and 22 respondents (24.4%) strongly agree. In addition, 34 respondents (37.8%) respondents agree and 33 respondents (36.7%) strongly disagree on selling maize production though in cheap price. Moreover, selling maize product without considering the price instability was chosen agree by 35 respondents (38.9%) and 31 respondents (34.4%) disagree.

As a farmer, we dream to have high income, we hope our product has a good price, in reality we don't. So, it's better to stop dreaming. We sell all we have, because we need to eat, my family, my child, they cannot wait for hungry. The problem is we don't have a buyer who can buy our product with the good price. All we have just them, who said that IDR 2,000 is enough (MM, 58, farmer).

Furthermore, 37 respondents (41.1%) disagree and 11 respondents (12.2%) strongly disagree on the price instability influences decision for selling maize. In addition, 28 respondents (31.1%) disagree and 15 respondents (16.7%) agree if the maize price is high, farmer will get high income.

B2. Maize channel deviations

Maize channel deviation refers to the uncommon situation which is related to marketing activity from farmer to middlemen and wholesalers in South Sulawesi. The detail of maize channel deviation explained in the table 3.

TABLE 3. Distribution of maize channel deviations among respondents in South Sulawesi

Distribution of channel deviations	Strongly disagree		Disagree		Agree		Strongly agree	
	n	%	n	%	n	%	n	%
There is unhidden transaction /collaboration between wholesalers and middlemen to determine maize price without follow government price standard	7	7.8	22	24.4	49	54.4	12	13.3
Traders or wholesalers never dominate maize price	44	48.9	22	24.4	14	15.6	10	11.1
Having maize in good quality doesn't affect the high income	14	15.6	24	26.7	43	47.8	9	10.0
Selling maize to one trader continuously due to the agreement/ debt	11	12.2	25	27.8	46	51.1	8	8.9
It is easy to sell maize in a high price because there are many traders available	19	21.1	35	38.9	29	32.2	7	7.8
Middlemen offers high price than the wholesalers.	16	17.8	15	16.7	46	51.1	13	14.4

Table 3 showed that 49 respondents (54.5%) agree and 7 respondents (7.8%) strongly disagree if there is unhidden transaction/collaboration between wholesalers and middlemen to determine maize price without follow government price standard. In addition, according the state that Traders or wholesalers never dominate maize price, 44 respondents (48.9%) strongly disagree and 10 respondents (11.1%) strongly agree. Further, 43 respondents (47.8%) agree and 24 respondents (26.7%) disagree if having maize in good quality doesn't affect the high income. Moreover, the state of selling maize to one trader continuously due to the agreement/ debt, 46 respondents (51.1%) were agree and 11 respondents (12.2%) were strongly disagree. In addition, the easiness of selling maize in a high price due to the availability of the traders, 35 respondents (38.9%) disagree and 7 respondents (7.8%) strongly agree. Meanwhile, 46 respondents (51.1%) respondents agree and 15 respondents (16.7%) disagree if middlemen offer high price than the wholesalers.

Some people suggested me to bring my product to the wholesaler. I did. And then what? You know? I got the same price between selling my product directly to wholesalers and middleman. Sadly, I even get the high price from middlemen than wholesalers. Can you see? They were cheating behind me. So, it's like a strategy that they have. And the government know this situation but no response. So, if the government cannot do anything to solve this problem, how about us? Do

you think we can fight with this situation? No (SG,39, Farmer).

**B3. Farmers' distrust**

Farmers' distrust refers to the farmers' distrust refers to the state in which farmers lost their confidence to the traders or wholesalers while trust more to middlemen in South Sulawesi.

TABLE 4. Distribution of farmers' distrust among respondents in South Sulawesi

Farmers' distrust	Strongly disagree		Disagree		Agree		Strongly agree	
	n	%	n	%	n	%	n	%
Middlemen gives an update price information than the wholesalers	9	10.0	29	32.2	32	35.6	20	22.2
Middlemen offers high maize price than the wholesalers	6	6.7	14	15.6	44	48.9	26	28.9
I wouldn't sell my maize production if the price still low	10	11.1	32	35.6	27	30.0	21	23.3
I have debts with middlemen; therefore, I still sell my product even in a low price	7	7.8	12	13.3	51	56.7	20	22.2
It is very easy to borrow many from middlemen than wholesalers	5	5.6	51	56.7	28	31.1	6	6.7
In emergency case (need money), middlemen are more powerful for helping than wholesalers	26	28.9	23	25.6	20	22.2	21	23.3
I often feel disadvantaged / cheated when selling maize to traders	33	36.7	33	36.7	21	23.3	3	3.3

Table 4 showed that 32 respondents (35.6%) respondents agree and 9 respondents (10.0%) strongly disagree if middlemen gives an update price information than the wholesalers. Moreover, in the indicators of middlemen offer high maize price than the wholesalers 44 respondents (48.9%) agree and 6 respondents (6.7%) strongly disagree. In addition, there are 32 respondents (35.6%) disagree and 27 respondents (30.0%) agree if farmers s wouldn't sell their maize production if the price still low. However, 51 respondents (56.7%) respondents agree and 7 respondents (7.8%) strongly disagree in having debts with middlemen, therefore they still sell their product while in a low price. Furthermore, the easiness of borrow money from middlemen than wholesalers was answered by 51 respondents (56.7%) disagree and 6 respondents (6.7%) strongly agree. In addition, 26 respondents (28.9%) strongly disagree and 20 respondents (22.2%) agree in emergency case (need money), middlemen are more powerful for helping than wholesalers. Meanwhile, feeling of disadvantages/ cheats when selling maize to traders was gained by 33 respondents (36.7%) strongly disagree and 3 respondents (3.3%) strongly agree.

I don't know how to describe our relationship (with middlemen), sometimes I know that they used me. They buy

my product with the low price. But what can I do? I need money. Gratefully, I know where I can go if I need help (money). Just go the them (middlemen) and they will give me. I never try to go (wholesalers). I just felt that we are not in a close relationship as same as middlemen (YU, 48, Farmer).

**B4. Income inequality**

Income inequality refer to the farmers' perception on their income compared to middlemen and wholesalers in South Sulawesi. The details of the income inequality described in table 5.

TABLE 5. Distribution of income inequality among respondents in South Sulawesi

Income inequality	Strongly disagree		Disagree		Agree		Strongly agree	
	n	%	n	%	n	%	n	%
I never get failed as long as doing maize farming	26	28.9	37	41.1	27	30.0	0	0.0
It's difficult to get an update price information	17	18.9	24	26.7	49	54.4	0	0.0
Farmers get bigger profits compared to traders/middlemen/w wholesalers	38	42.2	43	47.8	9	10.0	0	0.0
I always sell maize with the low price due to financial concern	18	20.0	31	34.4	41	45.6	0	0.0
Government support farmers to sell maize product	24	26.7	42	46.7	24	26.7	0	0.0

Table 5 showed that 37 respondents (41.1%) disagree and no respondents (0%) strongly agree in the state of never get failed as long as doing maize farming. Furthermore, 49 respondents (54.4%) agree and 17 respondents (18.9%) strongly disagree in the state of difficult to get an update price information. In addition, the condition in which farmers get bigger profits compared to traders, 43 respondents (47.8%) disagree and 9 respondents (10.0%) agree. However, 41 respondents (45.6%) agree and 18 respondents (20.0%) strongly disagree in the state of always sell maize with the low price due to financial concern. Meanwhile, 42 respondents (46.7%) respondents disagree and no respondents (0%) strongly agree in the state of government support farmers to sell maize product.

My father said that if you want to get more money, don't be a farmer, because you will be failed. I thought its true. It's not equal as same as what we do and what we get. While middlemen or traders, or wholesaler, they just sit in the chair and then count how many kg, and get money (MM, 58, Farmer).

**B5. Maize marketing anomaly**

Maize marketing anomaly refers to the deviations in market structure, market conduct and market performance during marketing activities in South Sulawesi. The details of anomaly in maize marketing in South Sulawesi described in table 6.

Table 6 showed that 29 respondents (32.3%) strongly agree and 16 respondents (17.8%) in the state of Although

there are many traders, farmers cannot freely to sell their product.

TABLE 6. Distribution of maize marketing anomaly among respondents in South Sulawesi

Maize marketing anomaly	Strongly disagree		Disagree		Agree		Strongly agree	
	n	%	n	%	n	%	n	%
Although there are many traders, farmers cannot freely to sell their product	16	17.8	25	27.8	20	22.2	29	32.2
Although I know that there was a cheating behind me between traders and middlemen, I still sell my product to them.	16	17.8	21	23.3	22	24.4	31	34.4
Selling maize in wet condition is better than dry while drying facilities is available	21	23.3	10	11.1	19	21.1	40	44.4
There is a high maize production, High demand, High price, but farmers still have low income.	12	13.3	27	30.0	18	20.0	33	36.7
Long marketing chain is more profitable than short	1	1.1	30	33.3	38	42.2	21	23.3

Moreover, although farmers know that there was a cheating behind the transaction between traders and middlemen, they still sell their product around 34.4% (31 respondents) were strongly agree and 17.8% (16 respondents) were strongly disagree. In addition, 40 respondents (44.4%) respondents strongly agree and 10 respondents (11.1%) disagree in the state that Selling maize in wet condition is better than dry while drying facilities is available. Furthermore, the state of there is a high maize production, High demand, High price, but farmers still have low income around 36.7% (33 respondents) were strongly agree and 13.3% (12 respondents) strongly disagree. While 1 respondent (1.1%) strongly disagree and 38 respondents (42.2%) agree that long marketing chain is more profitable than short.

For me, it's better to just wait the middlemen come and buy my product. I have sold my product to the wholesalers directly. So, I rent car and I paid people who help me to bring my product. Unfortunately, the price was same with the middlemen. Even I paid the rent car but the price still same. So, it was the last time to me to go directly to wholesalers. Many reasons behind this, but as long as I know they have unhidden transaction or agreement between the middlemen and the wholesalers. That was what I believe (AS,47, Farmer).

**B6. Path analysis**

Path analysis as an analysis holds strength because it allows researchers to study direct and indirect effects

simultaneously with multiple independent and dependent variables A direct effect occurs when an independent variable affects a dependent variable. An indirect effect occurs when an independent variable affects a dependent variable through a mediating variable (Stage, 2004).

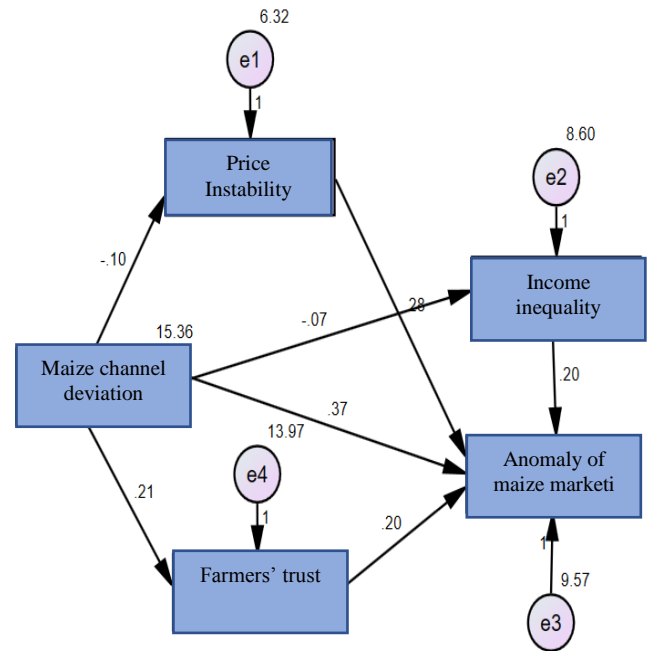


Figure 1. Path analysis on maize marketing anomaly in South Sulawesi

TABLE 7. Path analysis on maize marketing anomaly in South Sulawesi

Variables	Coefficient	p	Type	Note
Maize channel deviations → Price instability	0.028	0.792	Direct	Non-significant
Maize channel deviations → Farmers distrust	0.218	0.035	Direct	Significant
Maize channel deviations → Income inequality	0.155	0.139	Direct	Non-significant
Price instability → maize marketing anomaly	0.187	0.048	Direct	Significant
Maize channel deviations → maize marketing anomaly	0.246	0.012	Direct	Significant
Farmers distrust → maize marketing anomaly	0.218	0.025	Direct	Significant
Income inequality → maize marketing anomaly	0.134	0.163	Direct	Non-significant
Maize channel deviations → Price instability → maize marketing anomaly	0.005		Indirect	
Maize channel deviations → Farmers distrust → maize marketing anomaly	0.048		Indirect	
Maize channel deviations → Income inequality → maize marketing anomaly	0.021		Indirect	

Table 7 showed that Maize channel deviation has a significant effect directly to farmers distrust. Contrary, the direct effect of maize channel deviation to income quality and price instability were not significant. Meanwhile, there were 3 variables which has significant effect directly to anomaly maize marketing namely: price instability, maize channel deviation, and farmers distrust. However, income inequality has no significant effect to maize marketing anomaly. Based on the confession, the data explained that all variables have positive values. In addition, indirect effect of maize channel deviation by price instability, farmers distrust, and income inequality towards maize marketing anomaly were no significant effect. Furthermore, the variables that has more effect to maize marketing anomaly was identified by the high coefficient which was maize channel deviation with 0.246 point.

#### IV. DISCUSSION

This study showed the direct and indirect effect among 4 variables towards maize marketing anomaly. Further, this study also identified which variable has most effect to maize marketing anomaly. The variables in this study found from the qualitative data which published in another journal. In the qualitative data collection, we analysed based on 3 main themes namely market structure, market conduct, and market performance. Then we found there are 4 variables which influence maize marketing anomaly in south Sulawesi namely: price instability, maize channel deviation, farmers' distrust and income inequality between farmers and traders.

Anomaly was defined by George & Elton as irregularity or a deviation from common or natural order or an exceptional condition. Anomaly is a term that is generic in nature and it applies to any fundamental novelty of fact, new and unexpected phenomenon or a surprise with regard to any theory, model or hypothesis (Frankfurter, 2001). The terms of anomaly in this study refers to deviations in market structure, market conduct, and market performance during marketing activities.

Price instability refers to unstable situation in which prices fluctuate considerably over time. The term instability is preferred to variability or volatility as it explicitly refers to the concept of equilibrium and that is exactly what it entails: price instability reflects the disequilibria between supply and demand (Galtier, 2020). Meanwhile, Ge (2019) claimed that price fluctuate which effect the instability has affect more advantages for farmers than traders. This situation was caused by inability of farmers to manage their product in order to obtain profitable price. However, traders have powerful to manage when and where they can sell farmers' product to gain high price. In addition, price fluctuate also give a huge opportunity to the traders or wholesalers to manipulate farmers on maize price. Price information more likely has asymmetries system information, if there is an increasing price, farmers would get the information slowly and vice versa (Makeche, 2016). Furthermore, based on the path analysis in can be calculated that price instability has a significant effect to maize marketing anomaly with positive value. It means if the price instability increases 1 point it would be followed by

the increasing number of maize marketing anomaly with 0.048 point.

Moreover, another variable which has a significant effect to maize marketing anomaly is maize channel deviation. This variable also significantly effects the farmers' distrust directly. Both of variables having positive value. It means that when the maize channel deviation increases 1 point, the maize marketing anomaly will increase 0.246 point. It also happens to farmers distrust which has positive value 0.218 point. They key of maize channel deviation and farmers distrust was price knowledge. A study in Tanzania found that A wider knowledge of prices at different market channels can improve a farmer's bargaining position, reducing search costs and creating an opportunity to choose the 'best' options. It is commonly argued that the cost of accessing price information depends on the extent to which market information is readily available to farmers (Mmbando, 2016). In contrary researcher in this study found that anomaly in maize channel was even there are many trader or different market channel, farmer still cannot sell freely to them due to the agreement or satisfying feeling. Satisfying feeling in this study found that farmer more enjoy to sell their product to middlemen than wholesalers. The reason was the negotiation effect. Doing transaction with middlemen means that the farmer can ask and offering price to deal. Farmer said that the concept of the real of sales transaction "buyer, seller, negotiation" was happened with middlemen. However, transaction with the wholesaler lead to unilateral price domination.

Anomaly in farmers distrust refers to the state in which farmers lost their confidence to the traders or wholesalers. In contrary farmers pay more attention to deal with middlemen even they know that there is unhidden agreement between middlemen and wholesalers. This study found that the effect of farmers distrust towards maize marketing anomaly was significant with the positive value. If the farmers' distrust increases 1 point, it would be followed by the increasing of maize marketing anomaly with 0.218 point. This study described that farmers more likely to trust middlemen than wholesalers. The reason of farmers' trust were middlemen giving high price than wholesalers, the easiness of getting money from the middlemen in emergency case (need money). The degree of farmers trust may affect the farmers' sense of well-being. Therefore, it's very important to build and keep farmers trust so as not become to farmers distrust. Meanwhile, farmers trust to middlemen has a different reason in another study. The quantitative survey in Poland found that maize is a bulky product, therefore farmers usually need to sell it to middlemen because they cannot manage to sell it on their own within the given time (Zawojcka, 2010).

Furthermore, this study showed that the effect of income inequality was not significant to maize marketing anomaly. Nevertheless, the data showed that 42.2% respondent claimed that they were strongly disagree if farmers get bigger profits compared to traders/ middlemen/wholesalers. Although statistical data showed the effect was not significant, another result also explained that farmers suffered from the high cost in maize production, while getting low economic return for their produce when the other members in the channel got

higher profit. Farmers obtained the lowest margin and profit in all marketing channels whereas the consumers had to pay a higher price for their produce. Therefore, the anomaly was even the maize price is high and followed by the high demand, farmers still get low income (Arumugam, 2015).

#### V. CONCLUSION

Market channel deviation is the most influential factor in maize marketing anomaly. The short marketing chain was supposed to be profitable, in fact it was disadvantage to farmer. In addition, farmer distrust also has significant effect to maize marketing anomaly. Farmers distrust influence the decision for selling maize even in low price. Further, price instability effect significant to maize marketing anomaly. Maize price fluctuated bring more advantages to farmer than wholesalers due to the inability to manage profitable price. The last, the effect of income inequality was not significant to maize marketing anomaly. Nevertheless, income inequality influence farmer motivation to maintenance their maize volume product. Therefore, the funding's of this study implicated that government support should be based on the needs of farmers especially in locally aspect. The policy should consider the anomaly which caused the farmers ability to get high income and well-being. Furthermore, partnership program between farmers and industrial can solve the market channel deviation. The price instability and farmers distrust trust can be hold by bringing technology information tools more closely to farmer and accompanied by assistance to gain an update information.

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#### REFERENCES

- [1] I. M. Freddy and G. E. K. Gupta, "Strengthening Food Security Policy: Reforms on Hybrid Maize Seeds Delivery Mechanism," CIPS, Jakarta, 2018.
- [2] *Indikator Ekonomi Provinsi Sulawesi Selatan*, BPS-Sul Sel., Makassar, Katalog BPS: 9201001.7304, 2018.
- [3] Geyskens, J. B. E. Steenkamp and Kumar, "A meta-analysis of satisfaction in marketing channel relationships," *Journal of marketing Research*, Vol. 36, issue 2, pp. 223-238, 1999.
- [4] G. M. Frankfurter and E. G. McGoun, "Anomalies in finance: What are they and what are they good for," *International Review of Financial Analysis*, Vol. 10, issue 4, pp. 407-429, 2001
- [5] M. Latif, S. Arshad, M. Fatima and S. Farooq, "Market efficiency, market anomalies, causes, evidences, and some behavioral aspects of market anomalies," *Research journal of finance and accounting*, " Vol. 2, issue 9, pp. 1-13, 2011.
- [6] F. C. Mills, "Summary of Chapter III," *The Measurement of Price Instability: Price Relatives in Combination*, NBER., pp. 364-369, 1927.
- [7] C. Gouel, "Agricultural price instability and optimal stabilisation policies," Ph.D. dissertation, Ecole Polytechnique, Paris, 2011.
- [8] N. Arumugam, and R. Ibrahim, "An Exploration on Corn Industry Marketing Channels," *Journal of Agrobiotechnology*, Vol. 6, issue 1, pp 51-60, 2015.
- [9] S. J. Turnovsky, H. Shalit, and A. Schmitz, "Consumer's surplus, price instability, and consumer welfare", *Econometrica: Journal of the Econometric Society*, pp. 135-152, 1980.
- [10] S. Fischer, and M. Wollni, "The role of farmers' trust, risk and time preferences for contract choices: Experimental evidence from the Ghanaian pineapple sector," *Food policy*, Vol. 8, issue 1, pp. 67-81, 2018.
- [11] J. W. Creswell, and J. D. Creswell, *Research design: Qualitative, quantitative, and mixed methods approach*. Sage publications. 2017.
- [12] N. K. Denzin, and Y. S. Lincoln, Y. S. *The Sage handbook of qualitative research*. Sage, 2011.
- [13] F. K. Stage, H. C. Carter, and A. Nora, "Path analysis: An introduction and analysis of a decade of research," *The journal of educational research*, Vol. 98, issue 1, pp. 5-13, 2004.
- [14] F. Galtier, "How to manage food price instability in developing countries?," presented at the the seminar *How to Manage Agricultural Price Volatility?*, Paris, 2020.
- [15] Y. Ge, and H. Wu, "Prediction of corn price fluctuation based on multiple linear regression analysis model under big data," *Neural Computing and Applications*, pp1-13, 2019.
- [16] S. Makeche, "Analysing trader behaviour in the maize marketing system in Zambia" Ph.D. dissertation, University of Pretoria, Zambia, 2016.
- [17] F. E. Mmbando, E. Wale, L. J. S. Baiyegunhi, and M. A. G. Darroch, "The choice of marketing channel by maize and pigeonpea smallholder farmers: evidence from the northern and eastern zones of Tanzania". *Agrekon*, Vol. 55, issue 3, pp. 254-277, 2016.
- [18] A. Zawojnska, "Determinants of farmers' trust in government agricultural agencies in Poland," *Agricultural Economics*, Vol. 5, issue 6, pp. 266-283, 2010.