

## Factors That Affect Wheat Import Demand in Indonesia in 2007 – 2017

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**ABSTRACT :** The increasing demand for wheat imports in Indonesia, encourages the importance of this to be studied and analyzed the factors that affect the demand for wheat imports in Indonesia. The purpose of conducting this research was to determine the effect of wheat flour consumption, wheat flour production, wheat prices, and corn prices on the demand for wheat imports in Indonesia in 2007 - 2017. This research was conducted in Indonesia using quantitative data in the form of secondary data. Data collection is done through non-behavioral observation methods, analyzed by multiple linear regression using time series data (quarterly). The results showed that the variable consumption of flour and flour production had a positive and significant effect on the demand for wheat imports. The price of wheat has a negative and significant effect on the demand for wheat imports. Corn prices have a positive and not significant effect on the demand for imported wheat.

**KEYWORDS:** *Imports, Consumption, Production, Wheat Prices, Corn Prices*

### I. INTRODUCTION AND LITERATURE REVIEW

Indonesia is a country that has abundant natural resources. These natural resources can be managed well and can produce something valuable for the people of Indonesia. The natural resource sector that can be developed from Indonesia is the agriculture sector because it is supported by a good soil structure for farming. Agriculture in Indonesia can be used to meet the needs of Indonesian citizens such as meeting food and shelter needs (Batubara & Saskara, 2015). The contribution of the agricultural sector directly in the form of community food supply and indirectly can create a multiplier effect, so that the agricultural sector is eligible to be a mainstay sector in the Indonesian economy (Prastyo, 2017). Food is a commodity that cannot be separated from a country's economic policies, because food is a vital need for human life. Food is not only related to economic policy, but also with other fields, namely social, security, and politics. Therefore, each country is trying to meet the food needs of its people to maintain the peace of their country.

Indonesia is the fourth most populous country in the world, after China, India and the United States. This has an impact on the high demand for food in Indonesia. Indonesia is an agricultural country, but Indonesia has not been able to carry out food self-sufficiency to meet domestic needs. The inability of Indonesia requires Indonesia to conduct international trade, namely the import of goods and services, especially food needs to meet domestic food needs (Hastuti, 2016). Until now Indonesia's dependence on other countries related to meeting food needs is still quite significant. Noted are the five largest food commodities imported by Indonesia in 2018 namely wheat, sugar, salt, soybeans, and rice (Rosner & Neil, 2018). In 2018, dependence on wheat imports in Indonesia tends to increase. The volume of Indonesia's wheat imports in 2017 rose by around 9 percent to 11.4 million tons from the previous year. Likewise, the value increased 9.9 percent to US \$ 2.65 billion from before, while in 2014-2015 the value of wheat imports decreased due to the exchange rate of the rupiah against the dollar (Hastuti, 2016). Increased wheat imports in Indonesia, making Indonesia the largest wheat importing country in the world that beat Algeria with a total import of 8.1 million in 2017

The importance of wheat imports in Indonesia makes Indonesia import a lot of wheat to meet the needs of flour consumption and flour-based processed foods such as instant noodles, bread, bakery, and so on. Wheat imports in Indonesia are also used for export because they will be rolled in the form of flour, instant noodles and dried noodles. To produce one ton of wheat flour, import of seven million tons of wheat is needed. The biggest absorption of wheat flour is noodle producers which reaches 55 percent, while bread producers reach 22 percent and biscuits 18 percent. Supported by data from the United States, 2019 that in 2017 Indonesia exported 15 million kg of pasta and noodles, an increase from the previous year of 14.40 million kg.

Indonesia's largest wheat imports came from Australia, reaching 4.23 million tons or around 37 percent of total imports, the second largest from Ukraine weighing 1.98 million tons or around 17 percent and third from

Canada reaching 14.7 percent of total imports. The trend of wheat imports in Indonesia is influenced by world wheat prices, if the price of wheat decreases the demand for wheat imports will increase (Utomo, 2015). If the price of an item decreases, the amount of goods demanded will increase, conversely if the price of an item rises, the quantity of goods demanded will decrease and consumers will look for substitute goods or substitute goods. World wheat prices from 2013 - 2017 decreased by 83 percent, although in 2017 wheat prices increased 1.4 percent from the previous year. This increase was caused by Russia and Ukraine which decided to limit their wheat exports, as well as Australian wheat production which had decreased due to weather disruptions.

Wheat is the raw material for making flour. Wheat is processed into flour into food such as bread, noodles, biscuits, cereals and so on (Maier & Dimitrios, 2015). In addition, wheat is a staple of carbohydrate production because wheat has an advantage compared to other foods, namely the protein content of wheat is higher than that of rice and corn (Bourgeois & Kusumaningrum, 2018). According to Hastuti (2016), wheat flour consumption in Indonesia continues to increase along with the development of flour-based food consumption, as well as wheat flour that is easily processed into various foods such as instant noodles, bakery, biscuits, bread, and others. Noodle is one of the types of processed wheat products with a high level of consumption in Indonesia. The total consumption of instant noodles in Indonesia is estimated to reach 14.6 billion packs in 2016, an increase from the previous year's consumption of around 13.2 billion packs, and making Indonesia the second largest instant noodle consumer after China

The consumption of instant noodles increases along with the increase in consumption of wheat flour in Indonesia, where the increasing demand for the domestic food industry, especially processed foods made from wheat flour, makes Indonesia have to bring in wheat from abroad. The consumption of wheat flour in Indonesia has increased, namely in 2014 by 341.935 tons rose 20 percent to 428,192 tons in 2017. The higher consumption of noodles will lead to higher demand for flour as the main raw material. In 2018, wheat flour production in Indonesia in 2014 - 2017 has increased, namely in 2014 amounting to 4.79 million tons, up 2 percent to 4.88 million tons in 2017. The development of flour industry production in Indonesia indicates an increase in wheat imports in Indonesia. Indonesia (Hastuti, 2016)

According to Ogbokor & Meyer (2017) the rapid shift of consumption patterns of lower and middle income groups to foods originating from wheat, especially instant noodles and bread, has led to an increase in wheat or wheat imports, as well as reduced demand for food originating from domestic resources such as cassava and other tubers. Therefore, wheat now has an important role for the food needs of the Indonesian people. Wheat, which is a subtropical crop, cannot be grown in Indonesia which is a tropical climate country, so that Indonesia can only import wheat to meet the needs of wheat consumption. This makes Indonesia import a lot of wheat (Utomo, 2015). The determining factors for the success of wheat production are soil fertility, soil moisture, and the absence of extreme high temperatures. Drought and high temperatures are the main factors causing the decline in wheat production

The territory of Indonesia has a tropical climate. Daily temperatures in the tropical regions of Indonesia exceed the maximum temperature limit that can be tolerated by wheat plants. Areas where the temperature meets the requirements for growing wheat plants, such as in the highlands more than 900 meters above sea level. High air humidity (above 90 percent) often triggers the development of leaf disease, making it less suitable for wheat cultivation (Rana & Tanveer, 2015). Wheat is the largest imported food ingredient consumed by the Indonesian people every day, and has even shifted the consumption of foods made from local raw materials such as rice and tubers (Rosita, 2017). Regardless of whether or not wheat can be cultivated locally, local products such as processed corn and tubers have the potential to be used as a substitute for wheat flour and wheat (as raw material for wheat flour) which has been widely imported (Arifin et al, 2013). Rice and corn plants that also play a role as processed industrial plants also have a strategic role in meeting the needs of wheat flour in Indonesia (Roder et al., 2016)

Indonesia is a country with a great biodiversity, including tubers. Most of these commodities are traditionally available and are simply cultivated in dry and rain-fed lands. The abundant raw materials of tubers in Indonesia can be maximized and certainly needs a touch of innovation to processed flour products, such as mocaf flour, composite corn flour. In 2015, Indonesia produced more than 21 million tons of cassava per year. Raw materials from cassava can be processed into flour such as Mocaf (Modified Cassava Flour). Mocaf originating from cassava processing is certainly rooted in stronger local culture and resources. Mocaf as an alternative to wheat flour substitution can strengthen food diversification. The effort to diversify food by utilizing cassava as a substitute for wheat flour is an alternative to reduce dependence on wheat flour as imported products (Ambarsari et al. 2018)

In addition to mocaf flour, processed corn, namely composite corn flour, can also be used as an ingredient in various food products, including wet cakes, pastries, dry noodles, and bread. This composite corn flour can substitute up to 30-40 percent of flour in wet cakes, 60-70 percent in pastries, and 10-15 percent in bread and noodles. A country imports due to a deficiency (lack or failure) in carrying out the production of goods and services for the consumption needs of its population, the value of Indonesia's imports is inseparable from the influence of domestic demand for consumer goods and imports of raw and auxiliary materials, and

capital goods which the supply cannot be fulfilled entirely by domestic industries. One of the goods imported by Indonesia is consumer goods, raw materials, and capital goods (Susilawati et al., 2020)

Price increases cause buyers to look for other goods that can be used as a substitute for goods that are experiencing price increases. Conversely, if prices fall, people reduce purchases of other goods of the same type and increase purchases of goods that have decreased prices. The increasing demand for wheat imports in Indonesia, encourages the importance of this to be studied and analyzed the factors that affect the demand for wheat imports in Indonesia. In this study also examined the variables of substitute goods with the expectation that these substitution goods related variables can influence the demand for wheat imports in Indonesia and can be replaced by local flour substitute goods such as processed corn products and tubers in Indonesia (Siregar & Suryadi, 2016). Based on the background that has been explained, the objectives to be achieved from this study are to determine the simultaneous effect of wheat flour consumption, wheat flour production, wheat prices, and corn prices on demand for wheat imports in Indonesia in 2007 - 2017 and to find out the partial effect of consumption wheat flour, wheat flour production, wheat prices, and corn prices to the demand for wheat imports in Indonesia in 2007 -2017.

## II. HYPHOTHESES DEVELOPMENT

According to Permana & Sukadana (2016) production is a process or activity combining inputs (resources) to produce output, and includes all activities or activities that produce goods or services, as well as other activities that support or support businesses to produce these products. Production value is the total of the amount of goods produced by a business multiplied by the selling price of these products using the factors of production owned by the company in one period (Cahya Ningsih & Indrajaya, 2015). The growing gap between domestic production and demand can be caused by a rapid increase in demand or by slow growth in domestic supply (Simatupang & Peter, 2018). If the production of an item increases, the demand for other similar goods will decrease and vice versa, if the production of an item decreases, the demand for other similar goods will increase, meaning that based on the relation of production to the demand for a certain good, it has a relationship the negative. Imports are influenced by domestic production that is unable to meet people's needs. Decrease in the amount of food crop production is caused by the large number of agricultural lands that have been turned into non-agricultural and construction functions, thus affecting the amount of imports to meet domestic needs (Rosetti et al. 2019)

According to Nainggolan et al. (2016), soybean consumption partially has a significant effect on soybean imports in Indonesia. National soybean consumption has an effect of 40.13 percent on soybean imports in Indonesia. This result is in accordance with Ningrum et al. (2018) soybean import is significantly affected by soy consumption. The higher soybean consumption has the potential to increase soybean imports. Rahayu (2017) shows that the relationship between sugar consumption and sugar imports in Indonesia is positive and significant so that it can be said that if the value of sugar consumption rises by 1 kg, sugar imports will increase by 0.2 kilograms. Therefore, the sugar consumption variable is proven to have a positive and significant effect on sugar imports in Indonesia. Rana & Tanveer (2015) states that the consumption per capita per year of the community has a positive and significant influence on the volume of imports in Indonesia. A positive relationship means that if consumption increases, the volume of imports will also increase, and vice versa if consumption decreases, imports will also decrease.

Research conducted by Karina & Sutrisna (2016), consumption has a significant positive effect on the import of Indonesian shallots in the period 1990-2013. According to Putra & Ratya (2015), garlic production has a negative effect on the import of garlic in Indonesia, which means that garlic production is low while the high consumption level results in a production deficit so that the lower production level will result in more and more garlic imports in Indonesia. According to Uzonoz (2019), production has a negative and significant effect on wheat imports. The results of a study conducted by Kurniawan & Safrida (2019) also stated that rice production had a negative effect on rice imports.

Research conducted by Agustarita & Sudirman (2015) stated that partially corn production had no positive effect on Indonesia's corn imports. According to Hastuti (2016), the flour production industry variable has a positive and significant effect on wheat imports in Indonesia in 1984-2014. Increasing the production capacity of the wheat flour industry by 1 ton per year will increase the demand for wheat imports in Indonesia by 0.2 tons (*ceteris paribus*). According to the research of Pratiwi & Hakim (2015), milk import prices have a negative and significant effect on milk imports in the long run. This interpretation is consistent with the theory of import demand which states that the volume or quantity of goods imported is a function of the price of the goods themselves and has a reverse or negative relationship. According to research by Ogbokor & Meyer (2017), international wheat prices are inelastic to the volume of imports, because each increase in international wheat prices by 1 percent is followed by an increase in import volumes with a smaller percentage of 0.491 percent. International wheat price variables have a positive effect on Indonesian wheat imports, so that if international wheat prices rise, the volume of wheat imports will also increase.

According to Putra & Ratya (2015), the variable price of local garlic has a positive effect on the import of garlic in Indonesia, because the price of local garlic is important to the import of garlic in Indonesia. If the price of local garlic increases, the import of garlic will also increase. This is in accordance with research Nainggolan et al. (2016) which states that national soybean prices have a positive and significant effect on soybean imports in Indonesia in 1980-2013 with the assumption that the other variables are constant. In contrast to the research of Ogbokor & Meyer (2017), domestic rice price variables do not significantly influence the volume of Indonesian wheat imports. Rice in this study is used as a wheat substitute commodity, where in theory it is stated that certain goods will substitute each other with other goods. In addition, consumption of processed wheat products has long been popular in Indonesia. In contrast to the research of Yuliawati & Pangestika (2019) which stated that the price of domestic oranges had a negative effect on citrus imports, the direction of this negative relationship indicated that imported oranges were not merely substitute products but as complementary products. Based on the literature review described, the following hypothesis can be formulated.

H1: Consumption of wheat flour, wheat flour production, wheat prices, and corn prices have a simultaneous effect on the demand for wheat imports in Indonesia in 2007 - 2017.

H2: Wheat flour consumption has a positive and partially significant effect on the demand for wheat imports in Indonesia in 2007 - 2017.

H3: Wheat flour production has a negative and partially significant effect on the demand for wheat imports in Indonesia in 2007 - 2017.

H4: Wheat price has a negative and partially significant effect on demand for wheat imports in Indonesia in 2007 - 2017.

H5: Corn prices have a positive and partially significant effect on the demand for wheat imports in Indonesia in 2007 - 2017.

### III. METHODS

This research is included in the type of quantitative research because it is based on quantitative data or findings achieved using statistical procedures or other methods of quantitative. This study uses secondary data types which are time series data or time series data from 2007 to 2017 in the form of quarterly data. This study aims to determine the effect of wheat flour consumption, wheat production, wheat prices, corn prices on the demand for Indonesian wheat imports in 2007 - 2017. The data will be processed, analyzed, and processed based on existing theories to be able to draw conclusions later. This research was conducted in the territory of the Republic of Indonesia. Indonesia is one of the biggest wheat importing countries in the world. The objects of this study include one dependent variable and five independent variables. The object of this research is the effect of wheat flour consumption, wheat flour production, wheat prices, corn prices on the demand for Indonesian wheat imports in 2007-2017. The dependent variable is a variable that is influenced by the independent variable. In this study the dependent variable is the demand for wheat imports in Indonesia in 2007-2017. The independent variable is a variable that affects the dependent variable. In this study the independent variables are the consumption of wheat flour, wheat flour production, wheat prices, and corn prices.

The demand for wheat imports in this study is the large quantity of wheat imported by Indonesia in 2007 - 2017 expressed in tons. The consumption of wheat flour in this study is the large amount of Indonesian people's consumption of wheat flour in the period 2007 - 2017 which is expressed in tons. The production of wheat flour in this study is the large amount of wheat flour produced by the flour processing industries in Indonesia in the 2007 - 2017 time period expressed in units of tons. The price of wheat in this study is the purchase price of wheat prevailing on the international market in the period 2007 - 2017 expressed in US \$ / ton. The price of corn in this study is the price of corn prevailing in the domestic market in the period 2007 - 2017 expressed in units of rupiah / ton. This commodity is a substitute for wheat as raw material to replace wheat flour. In this study the quantitative data used are the data of flour consumption, wheat flour production, wheat prices, and corn prices, and demand for wheat imports in Indonesia in 2007-2017.

### IV. RESULTS AND DISCUSSION

The community's need for flour consumption in Indonesia is increasingly encouraging the government to import raw materials, namely wheat from other countries. According to the theory of the proportion factor or often called the availability of factors of production where a country can carry out trade activities with other countries because the country has a comparative advantage, which is good technology and good production factors such as wheat imports, wheat cannot be grown domestically because weather factors, and can be planted in countries with subtropical climates. Therefore Indonesia must meet domestic consumption of wheat flour by importing wheat from other countries. Indonesia's wheat imports from 2007 to 2017 tend to fluctuate.

In 2007 the volume of wheat imports reached 4.4 million tons increased to 11.4 million tons in 2017 as well as the value increased from 2007 of US \$ 1.2 billion to US \$ 2.65 billion in 2017. The increase in the volume of wheat imports in Indonesia caused by several factors including the increased consumption of wheat flour in Indonesia. People who are increasingly consuming instant foods such as noodles, biscuits, bakeries and

others - encourage them to increase domestic consumption of wheat flour. From 2007 to 2017 flour consumption in Indonesia experienced fluctuations that tended to increase, namely in 2007 flour consumption by 427,667 then in 2009 it dropped to 293,179 thousand tons, in 2012 it decreased from the previous year to 294,265 thousand tons and in 2013 to 2017 consumption wheat flour has increased every year. wheat flour consumption tends to increase along with the development of flour-based food consumption, as well as wheat flour which is easily processed into various foods such as instant noodles, bakery, biscuits, bread, etc. (Hastuti, 2016)

The increase in domestic consumption of wheat flour will affect the increase in domestic wheat flour production which will increase the demand for wheat flour raw material, namely wheat from abroad. From 2007 to 2017, wheat flour production in Indonesia increased, in 2007 flour production of 3.27 million tons increased to 4.88 million tons in 2017. Demand for wheat imports in Indonesia was also influenced by world wheat prices. World wheat prices in 2007 to 2017 decreased in 2007 by US \$ 231.18 per ton to US \$ 145.29 per ton in 2017. The fall in wheat prices was influenced by the Russian state in order to increase sales and spend results old wheat from the warehouse before the new harvest comes. Likewise in Eastern and Western Europe the price of wheat also fell.

The demand for wheat imports is also influenced by the price of substitute goods, where local products such as processed corn have the potential to be used as a substitute for wheat flour or wheat (as raw material for wheat flour) which has been widely imported. In accordance with the theory of demand that the price of other goods can affect demand where the price of other goods there are substitute goods where there is a positive relationship to demand. The development of the price of corn where the price is a substitute for wheat flour and wheat which has been imported. Figure 4.5 shows the development of corn prices in Indonesia from 2007 to 2017 where in 2007 corn prices of 2.2 million per ton increased to 4.1 million per ton in 2012 after that the price of corn fell to 3.4 million per ton in the year 2013 the price has increased until 2017. The long dry season is a blessing for corn farmers in Indonesia. Due to prolonged heat, maize harvested has a low moisture content thereby increasing its selling price

**Table 1 Results of Multiple Linear Regression Analysis**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-5.891723	1.196843	-4.922720	0.0000
LN <sub>X1</sub>	0.384455	0.076082	5.053182	0.0000
LN <sub>X2</sub>	1.031145	0.137673	7.489829	0.0000
LN <sub>X3</sub>	-0.395471	0.043405	-9.111142	0.0000
LN <sub>X4</sub>	0.204646	0.102585	1.994887	0.0531
R-squared	0.972427			
F-statistic	343.8569			
Prob (Fstatistic)	0.000000			

Based on the test results of multiple linear regression analysis presented in Table 1. above, the equation can be arranged as follows.

$$\begin{aligned} \text{LnY} &= -5,891 + 0,38\text{LnX}_1 + 1,03\text{LnX}_2 - 0,39\text{LnX}_3 + 0,20\text{LnX}_4 + e_i \\ \text{S.E} &= (0,076) \quad (0,137) \quad (0,043) \quad (0,102) \\ \text{T} &= (5,053) \quad (7,489) \quad (-9,111) \quad (1,994) \\ \text{Prob} &= (0,0000) \quad (0,0000) \quad (0,0000) \quad (0,0531) \\ R^2 &= 0.972427 \\ \text{F} &= 343,8569 \\ \text{Prob.F} &= 0,000000 \end{aligned}$$

The test results show F (count) of 343.8569, with F (table) of 2.84 thus F (count) > F (table) Then it can be concluded that simultaneously the consumption of wheat flour (lnX<sub>1</sub>), wheat flour production (lnX<sub>2</sub>), the price of wheat (lnX<sub>3</sub>), and the price of corn (lnX<sub>4</sub>) significantly influence the demand for Indonesian wheat imports (lnY). This is supported by the coefficient of multiple determination (R<sup>2</sup>). The value of R<sup>2</sup> is 0.972, meaning that 97.2 percent of wheat import demand is influenced by the consumption of wheat flour, wheat flour production, wheat prices, and corn prices, while the remaining 2.8 percent is influenced by other variables outside the model. determined. With alpha 0.05, t (table) is 2.021 while tcount is 5.053, thus t (count) > t (table) then H<sub>0</sub> is rejected. So it can be concluded that the consumption of wheat flour has a positive and significant effect on the demand for wheat imports in Indonesia in 2007-2017.

The coefficient value of b<sub>1</sub> is 0.38, which means that (X<sub>1</sub>) wheat flour consumption increases by one unit percent, the demand for wheat imports (Y) will increase by 0.38 times the percent unit, if X<sub>2</sub>, X<sub>3</sub> and X<sub>4</sub> are assumed to be constant. This means that changes in wheat flour consumption in Indonesia have a modest

influence on the demand for wheat imports in Indonesia from 2007 to 2017. The results of this study are consistent with the theory that increasing aggregate demand (in terms of consumption) in the country can increase imports through national income. These results are in line with research Nainggolan et al. (2016), partially soybean consumption has a significant effect on soybean imports in Indonesia, as well as research by Karina & Sutrisna (2016) that onion consumption has a significant positive effect on Indonesian shallots imports in the 1990-2013 period. With alpha 0.05,  $t$  (table) of 2.021 while  $t$  (count) of 7.489 thus  $t$  (count) >  $t$  (table) with a probability of 0.0000 < 0.05, it can be concluded that  $H_0$  is rejected and  $H_1$  is accepted, this means flour production wheat has a positive and significant effect on the demand for wheat imports in Indonesia from 2007 to 2017.

The coefficient value of  $b_2$  is 1.03, which means that ( $X_2$ ) wheat flour production increases by one unit percent, the demand for wheat imports ( $Y$ ) will increase by 1.03 times the percent unit, if  $X_1$ ,  $X_3$  and  $X_4$  are assumed to be constant. This means that even a little flour production will have a big influence on the demand for wheat imports in Indonesia from 2007 to 2017. In this study, production has a positive effect on the demand for wheat imports in Indonesia, which means that more wheat flour production in Indonesia will increase demand for wheat imports in Indonesia. Indonesia because the raw material from making flour is wheat which is not produced or cannot be planted in tropical Indonesia. This study is in line with Hastuti (2016), the flour production industry variable has a positive and significant effect on wheat imports in Indonesia in 1984 to 2014. With alpha 0.05,  $t$  (table) is 2.021 while  $t$  (count) is -9.111 thus  $t$  (count) >  $t$  (table) then  $H_0$  is rejected. it can be concluded that the price of wheat has a negative and significant effect on the demand for wheat imports in Indonesia in 2007 - 2017.

The coefficient value of  $b_3$  is -0.39, which means that ( $X_3$ ) the price of wheat rises by one unit percent, the demand for wheat imports ( $Y$ ) will decrease by 0.39 times the percent unit, if  $X_1$ ,  $X_2$  and  $X_4$  are assumed to be constant. The results of this study are in accordance with the theory, if the price of an item rises, in the condition of *ceteris paribus* (other factors are considered constant), then the amount of demand for the item will decrease, and vice versa, when the price of the item down, then the number of requests for these goods will rise. This result is in line with the research of Pratiwi & Hakim (2015), the price of milk imports has a negative and significant effect on milk imports in the long run. With alpha 0.05,  $t$  (table) of 2.021 while  $t$  (count) of 1.994, thus  $t$  (count) <  $t$  (table) then  $H_0$  is accepted, it can be concluded that the price of corn has no significant effect on demand for wheat imports in Indonesia from 2007 to 2017.

The coefficient value of  $b_4$  is 0.2046, which means that ( $X_4$ ) the price of corn rises by one unit percent, it does not affect the rise and fall of wheat import demand in Indonesia, if  $X_1$ ,  $X_2$  and  $X_3$  are assumed to be constant. In this research, maize is not an alternative substitute for wheat, because what is used for substitution is corn processed products, namely composite corn flour, processed composite corn flour from corn can substitute wheat flour, which is processed from wheat up to 30 to 40 percent can be used as flour-based foods such as noodles, bread and cakes. In addition, consumption of processed wheat products has long been popular in Indonesia. Although corn has become a food that is often consumed by the people of Indonesia, in fact the community has experienced a change in consumption patterns to wheat-based foods, so that wheat-based foods already have their own place in people's consumption patterns.

This study is in line with Ogbokor & Meyer (2017), that the domestic rice price variable does not significantly influence the volume of Indonesian wheat imports because the rice in this study is used as a commodity substitute for wheat where in theory it is stated that certain goods will substitute each other with other goods. In the last 20 years, domestic rice prices have fluctuated prices, but these conditions have not affected the volume of Indonesian wheat imports, because rice and wheat are commodities that have the value of their respective needs in the community

The consumption of wheat flour in Indonesia has a significant effect on the demand for wheat imports in Indonesia from 2007 to 2017. The more Indonesian people consume food made from wheat flour, it will increase the consumption of wheat flour in Indonesia and will increase the demand for wheat imports. Wheat flour production has a significant effect on the demand for wheat imports in Indonesia from 2007 to 2017. The more Indonesian people consume wheat flour, it will increase domestic wheat flour production which will increase the demand for wheat imports because wheat is the raw material for making flour, where wheat cannot be planted in Indonesia because it is a tropical country.

The price of wheat which is the international price of wheat has a significant effect on the demand for wheat imports. The higher international wheat prices, the demand for wheat will decrease. Domestic corn prices have no significant effect on the demand for wheat imports in Indonesia from 2007 to 2017. Rising domestic corn prices do not affect the demand for wheat imports in Indonesia, because corn and wheat are commodities that have the value of their respective needs in the community. The results of this study are used as an illustration of the demand for wheat imports in Indonesia. The picture is expected to be useful for the government as a policy maker to be able to take a stance on wheat imports, namely to reduce dependence on wheat imports by increasing local production and to be able to modify local raw materials such as processed

corn and tubers in which local raw materials have the potential to can be used as a substitute for wheat or wheat which has been imported.

Corn production in Indonesia is very abundant, the production target in 2015 is 20.4 million, and the production achievement in that year was 19.83 million tons, or 97 percent of the target. In 2016, the production achievement was 23.16 million or an increase of 17 percent compared to 2015. The production achievement in 2016 also reached 96.5 percent from what was originally targeted by the government, amounting to 24 million tons, and until 2017 corn production increased by 25.2 million tons. Although corn production continues to show an increase, in fact the price of corn also continues to increase. Table 2 shows the comparison of wheat prices with the price of corn where in the last five years the price of wheat is cheaper than the price of corn.

**Table 2 Comparison of Wheat and Corn Prices in Rupiah in 2007 - 2017**

Year	Wheat Price (Million Tons)	Corn Prices (Million Tons)
2007	3.317.436	2.238.000
2008	4.204.121	2.501.000
2009	2.756.780	2.744.000
2010	2.801.815	2.933.000
2011	4.022.399	3.106.000
2012	3.968.314	4.093.000
2013	3.815.515	3.485.000
2014	3.488.233	3.670.000
2015	2.668.000	3.778.000
2016	2.055.456	4.198.000
2017	2.085.456	4.368.000

Corn flour can replace the proportion of flour up to 30 percent without reducing the quality or consumer acceptance of the resulting cake. Corn preparations namely composite corn flour can also be used as ingredients in various food products, including wet cakes, pastries, dry noodles, and bread. This composite corn flour can substitute up to 30-40 percent of flour in wet cakes, 60-70 percent in pastries, and 10-15 percent in bread and noodles

## V. CONCLUSION

Simultaneously the consumption of wheat flour, wheat flour production, wheat prices, and corn prices simultaneously have a significant effect on the demand for Indonesian wheat imports in 2007 - 2017. Partially the consumption of wheat flour has a positive and significant effect on the demand for wheat imports in Indonesia. positive and significant impact on demand for wheat imports in Indonesia, wheat prices have a negative and significant effect on demand for wheat imports in Indonesia, domestic corn prices have a positive and not significant effect on demand for wheat imports in Indonesia. To increase substitute goods for wheat flour, namely corn, the government needs to make efforts to increase the diversification of products such as processed corn, composite corn flour that is able to substitute wheat flour. And the government should also provide training and outreach to the people of Indonesia to be able to process corn (local produce) so that it can be used as a composite of corn flour to reduce the production of wheat flour whose raw materials must import wheat from abroad.

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