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Determinants of Exporting Firm in Indonesian Food Processing Sector

Amzul Rifin

Departemen Agribisnis, Fakultas Ekonomi dan Manajemen, Institut Pertanian Bogor
Jl Kamper Kampus IPB Dramaga Bogor

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ABSTRACT

Firm size, foreign networks and location has been analyzed as the factors in differentiating between exporting and non exporting firms. The objective of this study is to analyze factors which made the firms export on the case of food processing sector in Indonesia. The data utilized is the Industry Survey in 2013 by the Statistics Indonesia. The results indicate that foreign networks, represent by foreign shares and imported input, and location are affecting firm to export. Meanwhile from four variables of firm size only one variable has significant effect (production worker expenditure). From these variables it can be inferred that linking with foreign side in the form of share or inputs will induce firm to export.

SARI PATI

Ukuran perusahaan, jaringan, dan lokasi asing telah dianalisis sebagai faktor dalam membedakan antara perusahaan ekspor dan non ekspor. Tujuan penelitian ini adalah untuk menganalisis faktor-faktor yang membuat perusahaan mengekspor pada sektor pengolahan makanan di Indonesia. Data yang digunakan adalah Survei Industri tahun 2013 oleh Statistik Indonesia. Hasilnya menunjukkan bahwa jaringan luar negeri, yang mewakili saham asing dan input impor, dan lokasi memengaruhi perusahaan untuk diekspor. Sedangkan dari empat variabel ukuran perusahaan, hanya satu variabel yang berpengaruh signifikan (production worker spending). Dari variabel tersebut dapat disimpulkan bahwa keterkaitan dengan pihak asing berupa saham atau input akan mendorong perusahaan untuk melakukan ekspor.

Corresponding author:
amzul_rifin@yahoo.com

INTRODUCTION

Indonesia has experienced a stable Gross Domestic Product (GDP) growth over the years, during the period of 2001 until 2015 the GDP growth average reached 5.33 percent (Figure 1). Among the components of GDP, investment has the highest growth on the same period with 7.04 percent followed by export and consumption which grew 5.87 percent and 4.88 percent, respectively. Export growth tend to fluctuate over the years depending on many factors such as the global economy and the increase in export price for several commodities. In 2009, Indonesia's export decrease 9.69 percent caused by the global crisis while the following year it rebounded by 15.27 percent. In 2015, the country experienced a negative export growth again by almost 2 percent caused by the slowing down of global economy and decrease in commodity prices.

Looking at the sector which contribute to export, food and beverage sector exported 35.3 billion US$ or about 20 percent of Indonesia's total export in 2014 (Figure 2). This sector consist of three sector in the SITC classification, namely food and live animal (SITC 0), beverages and tobacco (SITC 1) and animal and vegetable oil (SITC 4). Meanwhile the largest contributor of Indonesia's export is the mineral and fuel sectors which exported 51.1 million US$ or 29 percent of Indonesia's total export in 2014. Compare to 2013, Indonesia's total export decrease by 3.6 percent. On the other hand, the food processing sector's export grew by 15.6 percent in 2014.

Looking at the export trend of the food processing sector during the period of 2000 until 2014, the sector export grew at an average of 15.7 percent which is higher than the total export growth at the same period (Figure 3). Comparing the three sub-sector, animal and vegatable sub-sector grew the highest with an average of 23.5 percent followed by beverage and tobacco with 12.4 percent and food and live animals with 9.8 percent. In 2012, the animal and vegetable oil export decrease is caused by the decrease in the international price of crude palm oil (CPO), which is one of the main Indonesia's export commodities, in the international market.

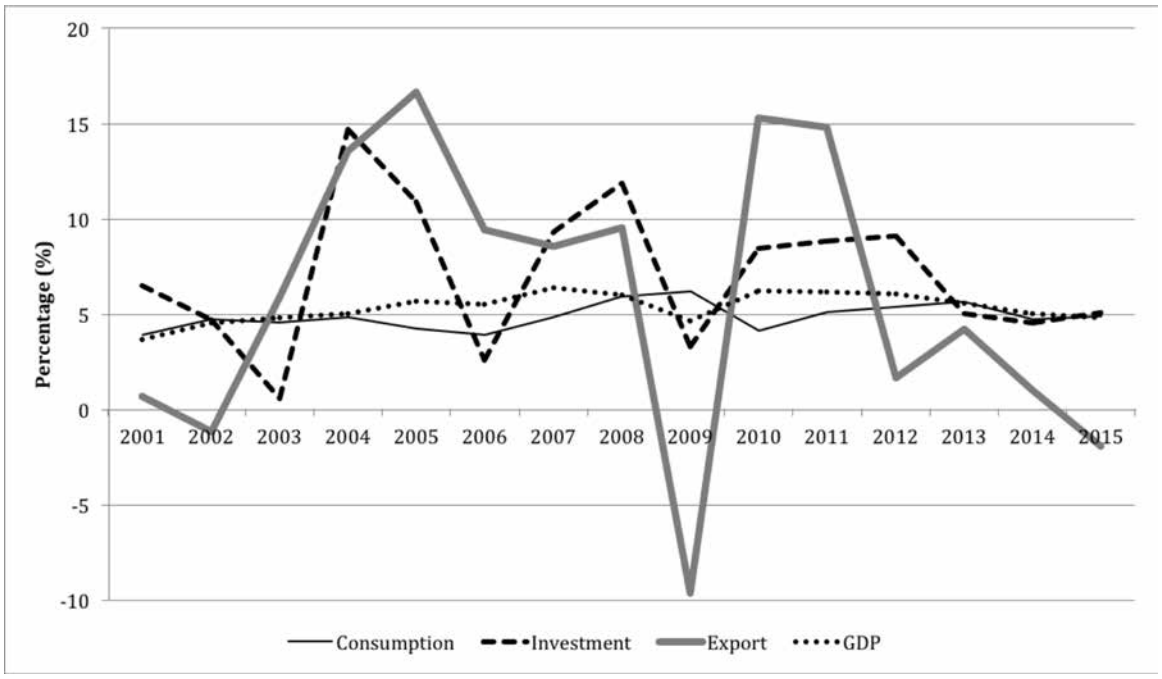

Figure 1. Indonesia GDP, Consumption, Investment and Export Growth
Souce: Central Bank of Indonesia (2016)

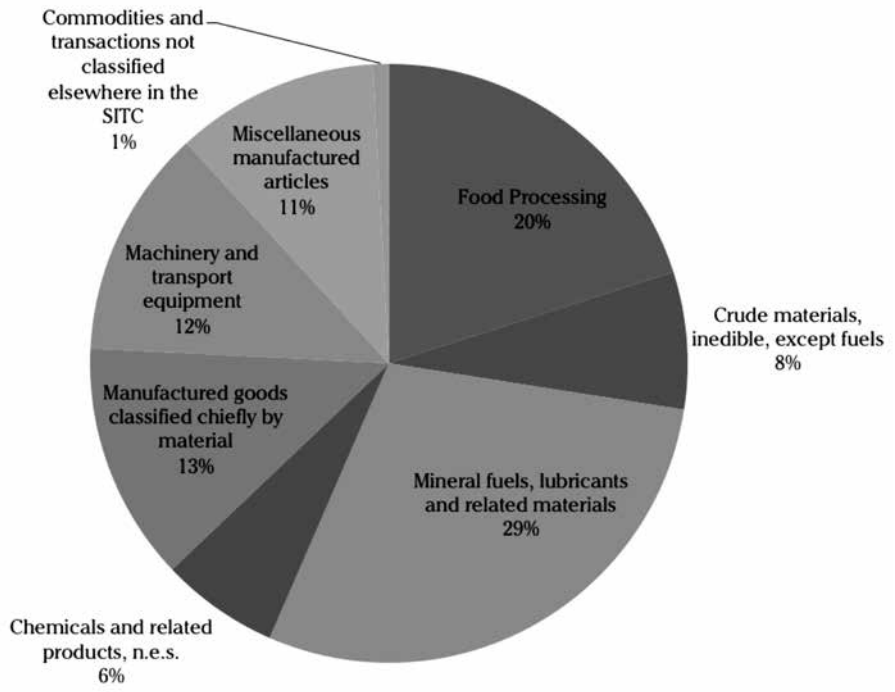

Figure 2. Indonesia's Sector Export Share in 2014
Source: UN Comtrade (2016)

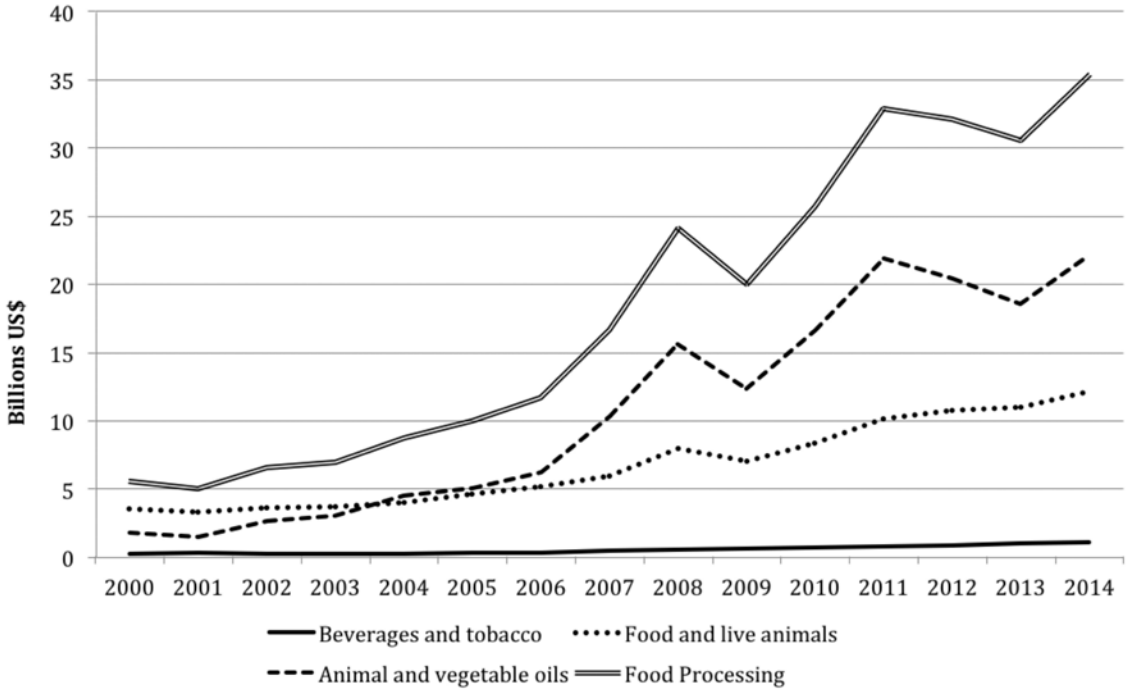

Figure 3. Indonesia's Food Processing Export, 2000-2014
Source: UN Comtrade (2016)

In 2012, CPO price decrease by 12.7 percent and in 2013 the price also decrease by 18.7 percent (IMF, 2014). The following year, the export of animal and vegetable oil rebounded by 19.3 percent.

In order to increase export in the future, it is essential to analyze which firms export in terms of characteristics. Using firm level data on the food processing sector, information regarding which firm export will be beneficiary in order to increase export in the future. The objective of this study is to analyze factors which made the firms export.

Literature Review

Articles discussing the relation between export activities and firm can be classified into two categories. The first category discuss the difference between exporting and non exporting firm (Bernard and Jensen, 1999; Javalgi, White and Lee, 2000; Bhavani and Tendulkar, 2001; Silvente, 2005; Alvarez, 2006; Byford and Henneberry, 2006; Rodriguez-Pose et.al, 2013). The second category deals with export intensity (Majocchi, Bacchiocchi and Mayrhofer, 2004; Blalock and Gertler, 2004; Lee and Habte-Giorgis, 2004; and Serra, Pointon and Abdou, 2012). Different with the former, this category only deals with firm which export.

There are several variables which can differentiate whether firm conducting export or not, these variables includes number of employees (Javalgi, White and Lee, 2000; Silvente, 2005; Bernard and Jensen, 1999), total sales (Javalgi, White and Lee, 2000; Silvente, 2005; Bhavani and Tendulkar, 2001; Lee and Habte-Giorgis, 2004), age of firm (Javalgi, White and Lee, 2000), firm ownership (Javalgi, White and Lee, 2000; Sjoholm, 2003), industry type (Javalgi, White and Lee, 2000); innovation (Pla Barber and Alegre, 2007), wages or share of wages (Silvente, 2005; Bhavani and Tendulkar, 2001; Bernard and Jensen, 1999) and imported inputs (Bas and Straus-Kahn, 2010; Aristei et.al, 2013).

Only several previous studies focus on specific commodities such as textile (Bhavani and Tendulkar, 2001; Serra, Pointon and Abdou, 2012) and processing industry (Byford and Henneberry, 2006). Javalgi,White and Lee (1999) using huge dataset, divided the analysis on several industries. The authors concluded that different industries have different factors affecting export activities. Byford and Henneberry (2006) conducted analysis for food procesing firms in Kansas, Missouri and Oklahoma USA using survey data. The study reveals that there are only slight difference among exporting and non exporting firms in terms of firm size, age of primary products and other firm characteristics. In addition, an important variable in increasing the firm's export is the managerial apathy. This article analyze the characteristics of exporting firms and analyze factors which can differentiate between exporting and non exporting firms.

METHODS

The research is conducted using secondary data from the Manufacturing Survey 2013 conducted in 2014 for the food processing sector. There are 4667 observation included in the analysis. Logit analysis is utilized since the dependent variable is binary with the model as follows:

$$L_i=\alpha_0+\alpha_1 WORK + \alpha_2 EXP + \alpha_3 PROD + \alpha_4 INPUT + \alpha_5 DIMP + \alpha_6 DFOR + \alpha_7 DLOC$$

Where

L_i = exporting or non exporting firm (1 = exporting; 0 = non exporting)
WORK = number of production worker (person)
EXP = production workers expenses (Thousand rupiah)
PROD = production value (Thousand rupiah)
INPUT = input value (Thousand rupiah)
DIMP = dummy imported input (1 = imported input; 0 = no imported input)
DFOR = dummy foreign ownership (1 = foreign share; 0 = no foreign share)
DLOC = firm location (1 = island of Java; 0 = outside Java)

The hypothesis is that all of the coefficients are positive. The variables of production worker (WORK), production workers expenses (EXP), production value (PROD) and input value (PROD) resembles the firm size. Many scholars have concluded that bigger firm size (in terms of employee, sales etc) will have higher probability to export compare to smaller size firms (Javalgi, White and Lee, 2000). The variables of foreign ownership (DFOR) and imported inputs (DIMP) represent the foreign network variable. Sjoholm (2003) concluded that foreign networks have important effect on exporting firm in Indonesia since it decrease the sunk cost for export. The firm local variable (DLOC) represent the geography variable. Rodriguez-Pose et.al (2013) reveals that geography make an important difference on the behavior of firms in Indonesia.

RESULTS AND DISCUSSION

The coefficient of the logit equation is calculated with two types, odds ratio and marginal effects (Table 1). The results indicate that from the seven variables, four variables are significant. These variables are production worker expenditure, dummy imported inputs, dummy foreign share and dummy location.

From the four variables, dummy foreign shares has the highest effect on exporting firm. Firms with foreign shares has 3.67 times more probability to export compare to firm with no foreign shares or in terms of marginal effect, firm with foreign shares will increase the probability of firm to export by 0.19. This can be explained that firms with foreign shares have network abroad at least in their home countries and use this network in buying the product they produced. In addition, the firm with foreign shares will have also market information regarding their home country (Sjoholm, 2003).

The other variable with high effect is the dummy of imported inputs. Firm with imported inputs has 2.99 times more probability to export compare to firm with no imported inputs or in marginal effect indicates that firm with imported inputs will increase the probability of firm to export by 0.15. This shows that firm with imported inputs have the experience to deal with foreign firms therefore have the experience to deal with foreign buyers. With import activities, it can promotes personal network and obtain market information (Sjoholm, 2003).

The location of the firm is also an important factor and this is supported by Rodriguez-Pose et.al

Table 1.

Variables	Odds Ratio		Marginal Effects	
Constant	0.17	***		
Production worker	1.00		0.00	
Production worker expenditure	1.00	**	0.00	**
Production value	1.00		0.00	
Input value	0.99		-0.00	
Dummy imported input	2.99	***	0.15	***
Dummy foreign shares	3.67	***	0.19	***
Dummy location	0.44	***	-0.09	***

Note: *** significant at 1 percent level
** significant at 5 percent level
* significant 10 percent level

(2013). The hypothesis is that firm located in Java island have more probability to export than firm located outside Java island since in Java island has better quality of infrastructure. But the result indicates otherwise, firm located outside Java island has 2.27 (1/0.44) times more probability to export compare firm located in Java island. In marginal terms, firm located in Java island will decrease the probability of firm by 0.09. Firm located in Java mainly serve domestic market especially in Java island meanwhile firms located outside Java mainly focus on local resources which has the potency to export.

MANAGERIAL IMPLICATIONS

Exporting products are considered to be the goal of many firms. With export activities, firm will have diversify their market not only depending on domestic market. From the result, it indicates that networking with foreign sector, in terms of import or foreign shares, will increase the probability to export. In term of the firm, inviting foreign owner will make the probability of exporting increase. Therefore, these firms should attract foreign investor to buy the firm's share since the foreign investors not only will bring new market but there are other advantages such as nwe skills and technology.

In the policy side, there are two ways that the government can intervene. First by making the environment for foreign investors to invest in Indonesia much more supportive. Secondly by investing in infrastructure especially in the island outside Java. Islands outside Java has huge potential especially in natural resources and by improving the infrastructure, investors will come and invest in the area.

CONCLUSION

Four variables have the effect on exporting firm, namely production worker expenditure, dummy imported inputs, dummy foreign shares and dummy location. From these variables it can be inferred that linking with foreign side in the form of share or inputs will induce firm to export. From the policy side, the government should be more open to foreign investors in order to increase the country's export value. ■

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