European Research Studies Journal
Volume XXI, Issue 1, 2018

pp. 187-205

Misinvoicing Analysis in ASEAN-China Free Trade Aggrement (ACFTA)

Mahjus Ekananda[1]

Abstract:

This paper specifically examines the Smuggling that occurred between Indonesia and the ACFTA member countries can be seen from the import-export trade gap.

Smuggling occurs because the attempt to avoid tariffs, resulting in the manipulation of incoming documents, both in terms of quantity and price of imported goods. The policy change tariff rates on ACFTA cooperation and increase financial penalties affecting allegedly smuggling.

This study uses a fixed effect panel data regression to analyze the policy change. The results obtained are: 1. The reduction of smuggling after the application of policy to reduce tariff rates on ACFTA cooperation, and 2. A decrease in smuggling after the implementation of the policy of increasing the maximum financial penalties.

Keyword: *Smuggling, Tariff Rates, Financial Pinalties.*

JEL Code: *F14, H26, K42.*

[1]*Lecturer and Researcher, Faculty of Economy and Bussines, University of Indonesia, E-mail: m.ekananda@gmail.com*

1. Introduction

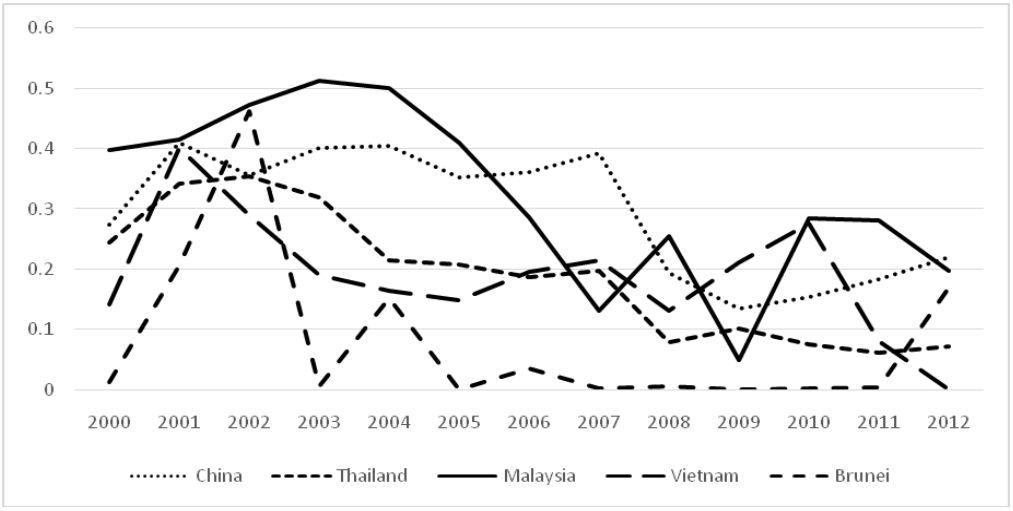
According to Buehn-Eichler (2010), misinvoicing is an indicator that there is a smuggling activity in trade between states. This study analyzes the trade relations between Indonesia and China and six selected ASEAN countries. The ASEAN countries are Thailand, Singapore, Malaysia, Vietnam, Brunei and Philippines. These countries were selected, since they have highest six largest trading interactions with Indonesia in terms of imports (BPS, 2015). If we see the import value each year, total import of Indonesia is higher than the six selected ASEAN countries[2]. The greater the import value of a country indicates that the trade interaction between importing countries with other countries is running well, because mutual need from the economic side. The data used are annual data obtained from BPS, National Bureau of Statistics of China, World Integrated Trade Solutions and The Observatory of Economic Complexity from 2000-2014.

Nitsch (2009) states that smuggling occurs through two lines. The first line is smuggling that occurs by entering imported goods through lines that are not supervised by customs officers. For example, smuggling occurs in border areas. This method has a great risk, because in carrying out its activities smugglers must avoid guarding water police posts and it is usually done at night. Usually illegal goods such as drugs, illegal weapons and human trafficking are entered in this way. Nitsch (2009) calls this as black-ship smuggling.

The second line is to hide the value of import by manipulating the document (manifesto) entry. The document records the characteristics of the goods such as the weight, quality and quantity of imports. This manipulation of records makes the difference between what is recorded in the document (manifesto) and what happens in reality. Nitsch (2009) defines this as a camouflage misinvoicing. This line is certainly through the legal channels listed in the Customs, therefore the differences in data that occurs certainly caused by camouflage misinvoicing. According to Nitsch (2009) this method is relatively more expensive but less risky when compared with black-ship smuggling. It is because, through this way usually the role of Customs supervisor is needed to bribe officers of the Pak Lily. This study analyzes the misinvoicing that occurs in the second line, arguing that the second track recorded in statistical data of BPS and statistical data of each country, namely China and six selected ASEAN countries. Surely, it is clear that the first line is not listed as an incoming or outgoing export import. The data analyzed are data from 2000-2014 with BPS sources, China Bureau of Statistics, World Integrated Trade Solutions and Observatory of Economic Complexity.

Misinvoicing that occurred between Indonesia and China and some ASEAN countries from 2000-2012 fluctuated. It can be seen in Figure 1.

Figure 1. *Value of Misinvoicing Indonesia with China, Thailand, Malaysia, Vietnam and Brunei.*



Source: *BPS (2015), National Bureau of Statistics of China (2015), and World Integrated Trade Solution (2015).*

If we see the coal imports between Indonesia and China from 2011-2013, there is always an average gap of $ 2,326.5 million USD. In 2011, Indonesia exported coal amounted to $ 7,568.9 million USD, while China only received $ 5,081.1 million USD. In other commodities such as copper ore they are also misinvoicing. In 2008 Indonesia exported copper ore to China $ 27.8 million USD but the importing figure by China was only $ 25.5 million USD. This trade gap continues to increase to the highest level in 2013 at $ 74.4 million USD (BPS, 2016 and Observatory of Economic Complexity, 2016). These figures show that there is a trade problem between Indonesia and China.

Rice exports from Vietnam in 2010 had a difference of $ 36.31 million USD of the total rice imported by Indonesia. Similarly, in 2011 that amounted to $ 88.66 million USD. This is due in 2011 Vietnam surplus rice production so that the price of Vietnamese rice is cheaper than the domestic rice. However, this difference decreased to $ 7.28 million USD in 2012 (Table 1).

Table 1. *Gap of Export-Import Trade between Indonesia Rice with Vietnam (2009-2013, million USD)*

Recorded Value	2009	2010	2011	2012	2013
Vietnam exports to Indonesia	7.38	250	957	511	91.6
Indonesia imports from Vietnam	7.28	213.68	868.34	518.28	89.26
Gap	0.098	36.31	88.66	7.28	2,33

Source: *BPS (2015) and Observatory of Economics Complexity (2015), processed.*

Misinvoicing does not only happen in ACFTA cooperation but also in other countries. For example, in the countries of Sub-Saharan Africa misinvoicing values occur each year to a great extend (Table 2).

Table 2. *Misinvoicing Trade In Five Countries of Sub-Saharan Africa (2002-2011, million USD).*

Country	Misinvoicing Exports		Misinvoicing Imports	
	Under-Invoicing	Over-Invoicing	Under-Invoicing	Over-Invoicing
Ghana	568	-270	-464	221
Kenya	1029	0	-438	42
Mozambique	140	-79	-247	119
Tanzania	0	-1034	-11	829
Uganda	26	-46	0	831

Source: *Baker et al. (2014).*

Misinvoicing plays a big role in terms of illegal goods transactions in the world. The Global Financial Integrity's (GFI) 2013 report calculates that developing countries averagely lose $542 billion dollars annually over the past 10 years due to illegal trade. Some 80 percent of that value occurs because of misinvoicing. The government cannot receive income from the transaction. African countries lost between $597 billion to $1.4 trillion out of the continent (1980-2009).

According to Baker (2014) misinvoicing is done by manipulating incoming documents, either in terms of price, quantity or quality being imported or exported. Baker (2014) and Buehn-Eichler (2010) stated that misinvoicing is an indication of smuggling. They stated there was a significant relationship between misinvoicing with incentives for smuggling. This is not only an economic problem, but also a moral hazard issue; therefore, this economic phenomenon is interesting to examine (Nechaev and Antipina, 2016).

According to Buehn-Eichler (2010), Nitsch (2009) and Buehn-Eichler (2010), misinvoicing was created for economic motives. As an illustration, if the imported goods entering a country are not recorded, then the entrepreneur (exporter) may gain advantage from the black market, because it is eluded from taxes and import duties. For example,17 percent of tax revenue on import duty is not payable in the United States (Slemrod and Yatzhaki, 2000).

Misinvoicing analysis between Indonesia and China and ASEAN member countries over the past ten years shows that there are indications of smuggling of Chinese goods to Indonesia, as well as from ASEAN countries to Indonesia. Smuggled goods managed by the Directorate General (DG) of Customs and Excise tends to increase from year to year. According to Customs data (2014), in the period of January to May 2014 the successful prosecution was 1,748 cases with a total value of Rp 34.25 billion. This amount is smaller when compared to the same period in 2013 with the

number of 2,021 cases with a value of Rp 175.49 billion. Table 3 shows the export-import gap between China and Indonesia from 2009-2012 occurred in large numbers.

Table 3. *Value Gap of China's exports to Indonesia (million USD).*

Year	China Export	Indonesia Import	Gap
2009	14720.53	14002.17	718.36
2010	21953.57	20422.22	1,529.35
2011	29.217,24	26212.18	3.005.05
2012	34283.37	29387.07	4.896,30

Source: *BPS (2015) and National Bureau of Statistics of China (2015).*

At the commodity level, for example the export-import trade of coal between China and Indonesia also ecountered a trade gap. This is described in Table 4.

Table 4. *Value Gap Trading Export-Import Coal China and Indonesia (2009-2013, million USD).*

Value Recorded	2009	2010	2011	2012	2013
Indonesia Export to China	2071,7	4.391.8	7568,9	7305.5	6894
China Import from Indonesia	1772,7	3663,6	5318.1	5081.8	4490.9
Gap	298.97	728.16	2250	2223,6	2403

Source: *BPS (2015) and Observatory of Economics Complexity (2015), processed.*

Misinvoicing between Indonesia and China and some ASEAN countries indicates there is a problem in Indonesian trade and the control of Indonesian imports from those countries. The supervision was carried out by the Customs and Excise Officers. Fundamentally, misinvoicing occurs with the agreement between the seller (exporter) and the buyer (importer) in the transaction (Baker 2014). Both parties do so in order to avoid import duty tax. Therefore, the level of corruption between the exporting country and the importer allegedly has effect on misinvoicing.

Misinvoicing may be an additional benefit for exporters if it passes the Customs Officer's checks, as it does not pay import duties. In his research, Fung *et al.* (2011) and Murphy (2011) state that there is a link between misinvoicing and corrupt acts.

The Indonesian Corruption Survey report issued by Transparency International in 2015 indicates the potential for corruption in Customs and Excise continues to increase from 2014. This indicates that the Customs and Excise Directorate General is vulnerable to corruption, as it always interacts with local and international businesspeople. Global Financial Integrity examines the potential state revenue that lost in trading of Sub-Saharan African countries from 2002-2011. It found that Ghana lost $ 386 million, Kenya lost $ 435 million, Mozambique $ 187 million, and Tanzania $ 248 million on average per year. Table 5 illustrates that (Baker, 2014).

Table 5. *Mean Loss of Revenue Sub-Saharan Africa Due Misinvoicing (2002-2011) million US.*

Country	Average State Revenue	Mean Loss of State Income Due to Misinvoicing	Percentage of Loss
Ghana	3.494	386	11%
Kenya	5.242	435	8.3%
Mozambique	1.793	187	10.4%
Tanzania	3.339	248	7.4%

Source: *Global Finance Integrity, 2014.*

Changes to the Law on Customs in 2006, which dealt with maximum fines sanctions on smuggling, should reduce smuggling activities. Whereas the change in the maximum penalty is charged significantly, from Rp. 500,000,000 to Rp. 5,000,000,000 after 2006. Based on the study of Buehn-Eichler (2010), and Fisman-Wei (2004), the increased penalty sanctions should be inversely proportional to smuggling activities. However, the reality from year to year misinvoicing is still happening which indicate the existence of smuggling. This is interesting to examine, because there must be another reason why this is still happening.

Based on the above exposure, then the question about the condition is raised. Therefore, it is necessary to formulate the problem to limit the discussion in this research with a question of the problem as follows: Is the change of import duty tax, the maximum fine sanction and the level of corruption affecting misinvoicing change in ACFTA trade cooperation?

2. Research on Misinvoicing

There are two common approaches to analyze misinvoicing. The first approach is to analyze the effects of misinvoicing (smuggling/illegal trade). Nitsch (2009) states that smuggling is an activity aimed to avoid taxes and import duties and has hypothesized that smuggling (illegal trade) may increase or may not improve welfare (Suryanto and Thalassinos, 2017).

The second approach is to find the determinant of misinvoicing. Buehn-Eichler (2010) state that misinvoicing occurs in order to avoid incoming taxes. Buehn-Eichler (2010), Fishman-Wei (2004) and Buehn -Eichler (2010), state that tax is a significant determinant in influencing misinvoicing as an effort to avoid taxes. They claim that the greater the tax duty per GDP the higher the increase in smuggling (misinvoicing).

Farzanegan (2008), and Buehn-Eichler (2010), in their studies concluded that fine sanctions negatively affect smuggling activities which is indicated by misinvoicing. Fisman and Wei (2004) in a following research in 2009 found that

smuggling is closely related to corruption in a country. They analyze smuggling relationships with corruption in the trade in antiques and cultural art objects. Murphy (2011) and Suryanto (2016) used the Control of Corruption index as the dependent variable to analyze misinvoicing. Murphy explicitly proposed the hypothesis that there is a significant relationship between the level of corruption of a country and the difference in the listing of exports. Murphy's study (2011) suggests that trade openness is significant against misinvoicing. Same result has been made from a research conducted by Buehn-Eichler (2010), which states that the trade openness has a significant positive effect on import-misinvoicing.

3. Literature Review

Buehn-Eichler (2010) analyzed the optimal profit value of misinvoicing on export-import trade between the United States and its 86 trading partners. Buehn-Eichler stated that domestic traders when they import goods from abroad at an amount of M they consider the domestic traders doing misinvoicing amounted to S^M, so that the value recorded by the authorities is $M - S^M$. There are two possibilities in terms of the record, the first is that underinvoice import $S^M > 0$, so that the value of imports recorded by the authorities is smaller than the actual import. The second is overinvoice import $S^M < 0$, so that the value of imports recorded are larger than the actual value. The importers' decision to misinvoicing depends on the income they earn from this activity. The next step is to determine what the optimal value of S^M is to get the highest revenue. They pay attention to determinants of misinvoicing, such as taxes, fines and exchange rates. Therefore, the optimal value of misinvoicing is the absolute value of $|S^M|$. The expacted benefits from import-misinvoicing $E(\pi^M)$ is as follows:

$$E(\pi^M) = (1-t^{inc})[R(M) - (1+t^M)ep^d (M-S^M)] - (1+v)\, ep^d\, S^M - prob\,(|S^M|, H) \qquad (1)$$

with the ∂ provisoprob $/\partial\, S^M > 0$, $(\partial\, prob)^2 /(\partial\, S^M)^2 > 0$ and $\partial\, prob /\partial\, H > 0$
where t^{inc} is a notation for income taxes of imports, R(M) is revenue from imports, t^M is the import tax, e is the official exchange rate in units of US dollars, p^d is the price index of domestic and v is the black-market premium or gap between the official exchange rate and the exchange rate on the black market.

The cost of import-misinvoicing increases against H, i.e. the risk of detected authorized officer and F the fine sanction if misinvoicing activity is detected.

Importers earn revenues as R(M), while misinvoicing recorded after paying import tax which is $(1+t^M)ep^d (M-S^M)$. After importers pay income tax on the import of the revenue recorded the amount is $(1-t^{inc})[R(M) - (1+t^M)ep^d (M-S^M)]$.

In the case of import underinvoicing, $S^M > 0$, the importer pays the value of imports that are not listed with the unofficial exchange rate, so that the amount paid is $(1+v)\, ep^d\, S^M$. In the case of import overinvoicing $S^M < 0$, the value of imports recorded a

greater than imports in fact, that prepared a new equation to analyze the income derived from misinvoicing imports as follows:

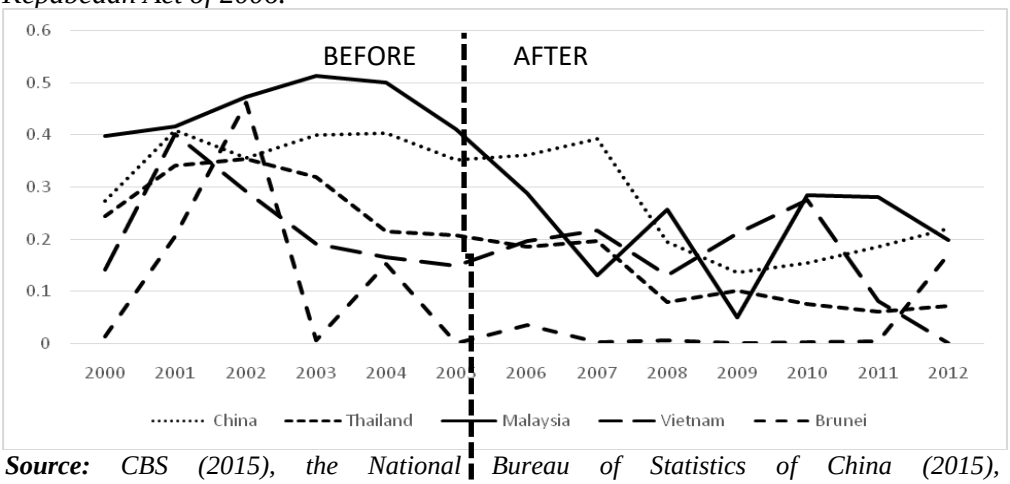
$$E(\pi^M)=(1-t^{inc})[R(M)-(1+t^M)ep^dM]+[(1-t^{inc})(1+t^M)-(1+v)]ep^dS^M- prob(|S^M|, H) \quad (2)$$

The import underinvoicing is optimal if $S^M> 0$;$(1-t^{inc})\ (1+t^M) - (1+v) > 0$.

Therefore, it can be concluded that the optimal advantage is obtained by the importer by doing underinvoicing in the case of high income taxes and high import taxes. Import overinvoicing optimal iwhen $S^M< 0$; $(1-t^{inc})\ (1+t^M) - (1+v) < 0$, or if the importer gains optimal tax, low income and low import taxes.

Avoidance of import taxes will motivate importers to undertake underinvoice, so imported goods are not subject to entry taxes. We relate the conditions prevailing in Indonesia in Figure 2 showing an impairment misinvoicing after 2004. In that year Indonesia made a policy lowering of taxes when joining the ACFTA. This indicates that there is a positive relationship between misinvoicing value with the application of tax reduction because of ACFTA.

Figure 2. *Changes of Trend Missinvoicing Before and After Changes Penalties in Kepabeaan Act of 2006.*



Source: *CBS (2015), the National Bureau of Statistics of China (2015), and Icononomics (2015) (processed).*

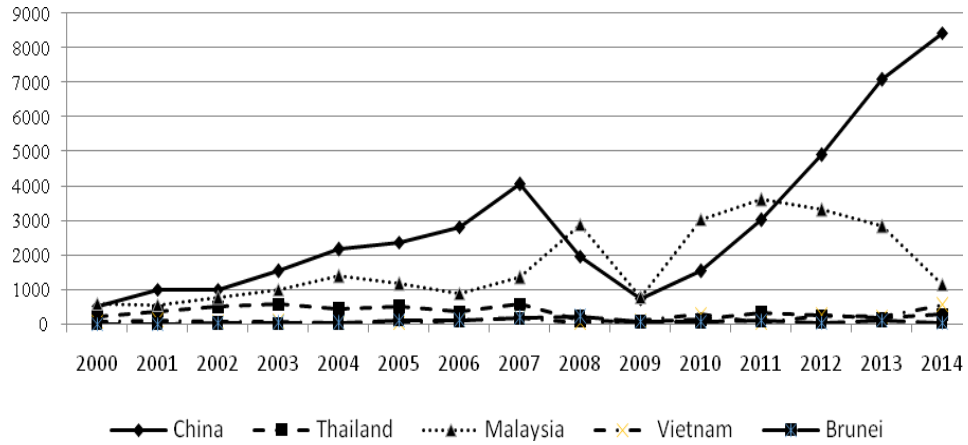
Another thing that can be seen from equation (2) is that misinvoicing income is influenced by the probability of getting penalty sanction. According to Buehn-Eichler (2010), the greater the value of imports per quantity, the more difficult to hide or smuggle. The import value per quantity is obtained by dividing total import value by total import volume. This means that the greater the value of imports per quantity, the greater the chance to be detected, thus, the smaller the occurrence of misinvoicing. Moreover, the better application of the law of a country, the greater the chance of being detected, prob ($|S^M|$, H).

On the same side equation 2 indicates that F can be a deduction of financial penalties income from smuggling activities (misinvoicing). If misinvoicing activities are subject to fines sanction then surely the income of misinvoicing activities will decrease.

4. Model Selection Strategy

The graphical presentation of misinvoicing between Indonesia and China, Malaysia, Thailand, Vietnam, and Brunei shows the heterogeneity and fluctuations in each year in Figure 2. Likewise, with the graphical presentation of Indonesia's trade data gaps with these countries in Figure 3.

Figure 3. *Gap Indonesia Trade Import from Countries ACFTA.*



Source: *National Bureau of Statistics of China (2015), and World Integrated Trade Solution (2015) (processed).*

Figure 3 shows that the specific characteristics (heterogeneous) which affects the position of the trade gap each year. Therefore, panel data analysis is suitable for use in this study. Figure 2 shows the pattern of misinvoicing and how it changed after the tax reduction demonstrating the special characteristics that can be treated with panel data analysis.

In panel data analysis, there are three types of models. The common effect model, the fixed effect model and the random effect model. To select one of the three types of models it is necessary to do some testing. The first test is Wald's test to determine whether or not individual effects exist. The test is performed by comparing the value of R^2 of the common effect model with the fixed effect model. Then the Lagrangean Multiplier (LM) test to see if the common effect model is better than the random effect model. Third is the Hausmann test to test whether the fixed effect model or the random effect model is better to be used. The selection of the final model will be further elaborated in the section of the panel data model selection.

5. Estimation Strategy

Buehn (1981) states that misinvoicing is an indicator of smuggling. The main purpose of exporters to do smuggling is to avoid customs taxes. However, it should be noted that smuggling activities are closely related to the size of the sanctions and the level of corruption of the export destination countries (Fisman-Wei, 2004 and Murphy, 2011). This study takes the focus of import duty tax changes before and after ACFTA cooperation on misinvoicing. Therefore, a basic thought is developed to analyze the response of determinants of misinvoicing in addition to changes in import duty rates.

The model designed in this study is schemed to answer the questions in the formulation of the problem. This model refers to the research of Murphy (2011), Ekananda (2016) and Alano (1984). Empirical models used in this study are as follows:

$$MIS_{ijt} = \beta_j + \beta_1 ACFTA_{it} + \beta_2 CoC_{it} + \beta_3 CoC_{jt} + \beta_4 F_{it} + \beta_5 \widehat{M}_{ijt} + \beta_6 TO_{ijt} + \epsilon_{it} \quad (3)$$

Where MIS_{ijt} is the misinvoicing value as a ratio between the value of the trade gap (GAP_{ijt}) with the value of imports of country i in t year in million USD , $ACFTA_t$ is a dummy ACFTA taking the value of 1 during the period 2004-2014 and 0 in the period 2000-2003, CoC_{it} is the index Control of Corruption in country i in t year, F_{it} is a maximum log fined for the activities of smuggling imports of country i in t year in USD, $\widehat{M}_{ijt}$ is the value of average importing country i from country j in t year in million USD, TO_{ijt} is the value of trade openness of country i in t year, t is year 2000-2014, i is notation for country of Indonesia, j is notation for member country of ACFTA. These countries are China, Singapore, Thailand, Malaysia, Philippines, Vietnam and Brunei.

The panel data model has three different approaches, based on the presence or absence of multiple effects on the independent variables. The panel data model includes:

1. The least squares approximation (pooled least square/common effect);
2. The fixed effect approach;
3. The random effect approach (Baltagi, 2001).

Therefore, to select one of the three panel data estimation approaches, a series of tests is required. The tests are Wald Test, Hausman test and LM test.

6. Operational data and sources

The data used in this study is a panel data set which is a cross-sectional data set of seven member countries of ACFTA (China, Singapore, Thailand, Malaysia, Philippines, Vietnam and Brunei Darussalam) and time series data in the form of annual data from 2000 to 2014 from BPS and international data source agencies.

The variable of misinvoicing (MIS_{ijt}) is formed by a gradual process. First, it is necessary to calculate the trade difference GAP_{ijt} to determine the value of misinvoicing. The value is derived from the difference between the value of Indonesian imports (M_{ijt}) from j country, with the export value of j country to Indonesia (X_{jit}). The value of this difference is selected in the same year from 2000-2014. All export and import values are in USD units. The j countries are China, Malaysia, Singapore, Thailand, Philippines, Brunei and Vietnam. Import data is the data of Indonesian imports recorded in BPS, while the export data of selected ACFTA member countries are recorded in international statistical institutions as well as their respective statistics agencies. Therefore, the misinvoicing value is the import-misinvoicing value. This approach refers to Fisman-Wei (2009), Farzanegan (2008), Ekananda (2017) and Murphy (2011).

$$GAP_{ijt} = |X_{jit} - M_{ijt}| \tag{4}$$

Absolute value is used to know as the value of trade difference only, without need to know whether the difference happened because of over-invoicing or under-invoicing. (Kar and Cartwright-Smith, 2008). The value of exports recorded with FOB (Free on Board) means that the value of exports recorded excluding shipping costs, while the value of imports recorded as CIF (Cost, Insurance, Freight) means the cost of cargo, the insurance and the the value of imports. It is assumed that 10 percent of the value of the real imports are fees and insurance[3]. Equation 4 is converted into equation 5 as follows:

$$GAP_{ijt} = \left| X_{jit} - \left(\frac{(M)_{ijt}}{1{,}1} \right) \right| \tag{5}$$

Where GAP_{ijt} is the trade difference between Indonesia and j country in million USD, X_{jit} is the value of j country export to Indonesia in t year, M_{ijt} is the value of Indonesia's import from j country in t year, i is the notation for Indonesian state, j is the notation for selected ACFTA member countries.

After that, we calculate MIS_{ijt} by dividing the difference in trade with import value M_{IJT} of Indonesia in the same year. This value shows a picture of how much trade difference is between Indonesia as an importing country with selected ACFTA member countries, as exporting countries, to the total value of Indonesian imports. Here is the equation:

$$MIS_{ijt} = \frac{GAP_{ijt}}{M_{ijt}} \tag{6}$$

[3]This method is refer to the literature of Morgentern (1950), McDonald (1985), Kar & Cartwright-Smith (2008) and Farzanegan (2008).

The Control of Corruption used is corruption from importing countries, namely Indonesia's (CoC_{it}) and the control of corruption elected from ACFTA member countries. The control of corruption indicator has a range value of -2.5 to 2.5. This range means that a value of -2.5 means very corrupted and a value of 2.5 means not correpted.

To facilitate the interpretation of results from data processing, CoC_{it} data needs to be transformed. The smallest value of CoC_{it} is -2.5 changed to 0 by adding the largest value of CoC_{it}, so the highest value becomes 5. Thus, the range of CoC_{it} values that have been transformed is between 0 - 5. The maximum penalty of Indonesia will be converted to Dollar (USD) units calculated by the following formula:

$$F_{it} = \frac{F_{1,2}}{e_t} \tag{7}$$

where F_{it} is the Indonesia maximum fine sanctions, in t year, F_1 is the Indonesia maximum fine sanctions in the period of 2000-2005, F_2 is the maximum fine sanctions in Indonesia in the period from 2006 to 2014, e_t is the exchange rate in t year (Rp/USD). After getting maximum fine sanction with USD unit then transformed data into logarithm. Therefore, a maximum penalty sanction variable (F_{it}) is arranged in which states change the nominal value of the maximum penalty sanction (USD) to analyze its relationship to misinvoicing in 2000-2014. Average import value ($\widehat{M}_{ijt}$) is calculated by the formula:

$$\widehat{M}_{ijt} = \frac{M_{ijt}}{VolM_{ijt}} \tag{8}$$

where, $\widehat{M}_{ijt}$ is the import average of i country from j country in t year, M_{ijt} is the value of imports of country i from j country in t year, $VolM_{ijt}$ is the volume of imports of country i from j country in t year, i is the notation for the state of Indonesia, j is a notation for selected ACFTA country.

Trade of openness (TO_{ijt}) is used as a control variable that states the ratio of total trade between countries with GDP-PPP. The calculation of trade openness is as follows:

$$TO_{it} = \frac{X_{it} + M_{it}}{GDP_{it}} \tag{9}$$

where, X_{it} is a total export value of Indonesia in year t, M_{it} is Indonesia's total import value in t year, GDP_{it} is Indonesia's gross domestic product in t year. The selected countries are members of ACFTA and have interaction of import-export trade with Indonesia. These countries are selected because they have the highest export value to Indonesia among other ACFTA members (2000-2012).

The study uses these variables with the basic problem formulation that has been discussed in the previous section. In addition, these variables are derived from references of previous studies. The data used are annual data, as used by Buehn-Eichler (2010), Nitsch (2009), Thusby *et al.* (1991), Murphy (2011) and Oskoee-Goswami (2003).

7. Analysis of Results and Discussion

This section will explain the results obtained from data processing with the regression model that has been determined before. The process is to estimate the model using fixed effect data panel model and the weighted seemingly unrelated regression (SUR). Through the estimation method we will conduct an interpretation of variable coefficients and significance to explain the relationship with the dependent variable. Then the estimation results are compared with the actual conditions that occurred in ACFTA trade cooperation.

Table 6. *Result of Empirical Misinvoicing Regression Model Misinvoicing.*

Variables		(1)	(2)	(3)
Lag dummy ACFTA		-0.072998** (0.033155)	-0.094444*** (0.030801)	-0.09153*** (0.034126)
Lag maximum penalty sanctions		-0.115872*** (0.022861)	-0.065934* (0.036493)	-0.079057* (0.041326)
Control of corruption Indonesia		-0.427095*** (0.092979)	-0.282372*** (0.084416)	-0.285486** (0.095163)
Control of corruption of the exporting country		-	-	0.129124** (0.053018)
Average import value of Indonesia		- -	-0.067691*** (0.019251)	-0.066381*** (0.019626)
Trade openness		- -	0.004461 (0.002917)	0.002624 (0.003367)
Individual effects	China	0.010568	0.031285	0.116294
	Thailand	-0.187554	-0.18557	-0.132921
	Malaysia	0.005206	-0.012	-0.024321
	Singapore	0.602856	0.598995	0.327366
	Vietnamese	-0.197051	-0.22221	-0.123472
	Philippines	0.028745	0.081123	0.178147
	Brunei	-0.262769	-0.29162	-0.341093
Adj. R^2		0.784108	0.825264	0.805597
F_{stat}		37.31950 ***	39.64196 ***	32.07956 ***

*** *p <0.01* ** *p <0.05* * *p <0.1.*

The estimation results showed the sign of coefficient of each variable in accordance with the research hypothesis. Variable change of a decreased import duty tax shows a negative sign (minus). Likewise, with the variable increase of the maximum penalty sanction and the corruption variables in Indonesia, these two variables indicate the sign of variables in accordance with the research hypothesis. Control variables such as the value of the average import and trade openness trade also show the variable mark according to the research hypothesis. Table 6 shows the results of an empirical model misinvoicing regression.

7.1 Misinvoicing Analysis by Model I

The regression results have adjusted R^2 value of 78 per cent meaning that the study variables explained 78 percent of the variance of misinvoicing. In this first model analysis, the researcher wanted to show the relation of the ependent variable owned by Indonesia only in the terms of policy or special characteristic of Indonesia, towards misinvoicing. The variables of the tax policy change (dummy ACFTA) and the maximum penalty change (F) are Indonesian variables in terms of policy change, while the corruption variable (CoC_{it}) is a special characteristic variable owned by Indonesia. This is the first regression coefficient observation.

It can be stated that there is a decrease of misinvoicing of 0.072998 after the policy of tax reduction is implemented in 2004-2014. This is compared before the tax reduction policy was implemented in 2000-2003. By increasing the maximum penalty of one percent it will lower the import misinvoicing value by 0.115872. Based on the results of the regression models revealed that the increase in the control of corruption will decrease import misinvoicing.

Testing hypotheses indicate that internal factors of Indonesian state that researchers make misinvoicing is proven to be a statistically significant effect on misinvoicing based on the results obtained by data processing of individual effects of each country against misinvoicing. These individual effects indicated by the intercept of each country stating that there are unobserved variables that has not been commonly described by the panel data. The intercept of each country also showed a trend of a country against misinvoicing. From the observed results of the regression models, misinvoicing caused by the interaction of trade between Indonesia and Singapore is relatively higher than with the other six member states in ACFTA. The magnitute of this misinvoicing between Indonesia and Singapore is followed by the corresponding values between Indonesia and the Philippines, China and Malaysia.

7.2 Misinvoicing Analysis by Model II

Two states that misinvoicing is not only influenced by internal factors, for exmple the Indonesian state, but also they have been influenced by external factors, namely, the interaction of trade in the form of an average value of imports and trade

openness[4]. Both of these determinants added in order to enhance the interpretation of the results. The hypothesis testing showed that external factors also affect misinvoicing. This is shown by F value which showed that all independent variables significantly influence misinvoicing. The regression results have an adjusted R^2 0.82 which means that the study variables explained 82 percent of the variance of misinvoicing. In other words, the remaining 18 percent variation of misinvoicing is explained by unobserved factors.

Tests on ACFTA's dummy coefficient regression show a negative sign, which means that there is a decrease of 0.094444 after the lowering of taxes in the period 2004-2014. This is compared to prior to the entry tax reduction policy and of course the same level of penalties, corruption, average import and trade openness. Test of regression coefficients with maximum penalty showed a negative sign with a trust level of 90 percent. This means an increase of one per cent of the maximum financial penalties will reduce Indonesia's imports misinvoicing by 0.065934 with ACFTA member countries. The testing of the regression coefficient control of corruption in Indonesia (CoC_{it}) showed a negative sign beeing significant at the 99 percent confidence level. Based on the results of the regression model II, it is stated that the increase in the control of corruption will decrease import misinvoicing. The testing of the average value of imports coefficient showed a negative sign beeing significant at 99 percent significance level. This means that the bigger the average value of imports, the less the misinvoicing of Indonesian imports value with selected ACFTA member countries. The test of trade openness coefficient showed positive signs in accordance with the theories and the research hypothesis. However, the coefficient of trade openness has 87 percent confidence level, a statistically significant effect on imports' misinvoicing between Indonesia and ACFTA member countries.

7.3 Misinvoicing Analysis by Model III

In the third model, the researchers add a new independent variable for the control of corruption in ACFTA member countries elected as the exporting country. It indicates the corrupting influence of the exporting country towards import misinvoicing that occurred between Indonesia and the exporting country.

Overall, this model can be considered good, the reason is indicated by F statistic which showed that all independent variables significantly influence misinvoicing. The regression results have an adjusted R^2 value of 0.83 indicating that 83 percent the study variables explained the variation of misinvoicing. In other words the remaining 17 percent variation in misinvoicing is explained by unobserved factors. The control of corruption value in selected ACFTA members is not significant. This

[4]*Internal Factor: decrease in import duty tax policy, rise in maximum fine sanction policy and enhancement control of corruption Indonesia.*

shows that the improvement in the control of corruption did not record the exporter decision to do misinvoicing.

Based on the results above it can be stated that there is a decrease of 0.09153 misinvoicing after the lowering of tax policies implemented in 2004-2014. This is compared with the prior policy of tax reduction implemented in 2000-2003.

Other results of the regression models are stated that the increase in the maximum penalty of one percent will lower the import misinvoicing by 0.079057. The results revealed that the increase in the control of corruption will decrease import misinvoicing. The testing of the coefficient control of corruption of selected ACFTA member countries showed positive statistically significant signs.

The testing of the coefficient of the average value of imports showed a negative statistically significant sign at 99 percent confidence level. This means that the larger the average value of imports the less the misinvoicing in Indonesian imports with selected ACFTA member countries. An increase in import value by an average of 1 rupiah, the misinvoicing will be declined by 0.066381 rupiah.

7.4 Misinvoicing Analysis by all Models I, II, III

After obtained the results of misinvoicing by all the empirical models used, then the question can be answered quite well regarding the problem formulation in this study. Based on the regression results it has been proven that misinvoicing significantly affect imports. In accordance with the theory and previous researches, the results of the regressions state that the smaller the entry fee charged to imports, the lower the level of misinvoicing. As shown in Figure 1 after 2005 the trend of imports' misinvoicing between Indonesia and ACFTA member countries has decreased.

Therefore, the results of this study are supported by what is happening in reality and because of the very high fine sanctions imposed in 2007. This supports the results of the regressions stating that the reduction in misinvoicing has been influenced by the increase in the maximum financial penalties. These results are also consistent with the theory and previous researches.

The control of corruption in Indonesia has also become an important determinant in influencing misinvoicing. In accordance with the results of this study, control of corruption in Indonesia has a negative impact on misinvoicing imports. This indicates that performance has been improved on the part of Indonesian import entry document examiner. It also shows the tax faud that allegedly occurred at the customs has decreased, thus decreasing the chances of importers to manipulate data entry documents.

On the other hand the control of corruption in exporting ACFTA member states, did not show a significant effect so far. This is due to the value of control of corruption

because did not record the fraudulent activities of exporters, but only the record variable in customs and the official corruption level in the country. It could be the value of exports that occurred in the origin country to be in compliance with the export document and not from the import side where it is possible to manipulate the incoming document.

The analysis of the individual effects of each country shows that misinvoicing imports resulting from trade between Indonesia and Singapore are relatively higher than misinvoicing between Indonesia and other ACFTA member countries. This is captured by the slope value of the individual effects of each country and it is unobserved in this study. It means that this value is derived from another independent variable that was not included. Allegedly, geological proximity of Singapore to Indonesia and the weak supervision by customs officers make imports' misinvoicing between Indonesia and Singapore relatively larger than with the other ACFTA member states.

8. Conclusions and Recommendations

Misinvoicing in tarde is described in a good, significant and consistent way in all models used in this study. It can be seen from the value of counted F statistic and the adjusted R^2 . Independent variables used in this study are the following:

a) ACFTA dummy variable, the variable that shows the decrease in taxes after ACFTA cooperation;
b) Maximum penalty variable, the variable that shows the change in the maximum penalties for smuggling;
c) Control of corruption variable, the variable that reflects improvement of control in corruption both in importing and exporting countries;
d) Average import value variable, the variable that shows the probability of undetected misinvoicing officer or not;
e) Trade of openness, the variable that shows the import-export trade openness.

ACFTA dummy variables were able to explain the relationship with misinvoicing in a proper, significant and consistent way in every empirical model. This variable indicates that there is a decrease in misinvoicing after one year of application of the government to reduce tax rates on ACFTA cooperation (2004-2014).

Maximum penalty variable is able to explain its relationship to misinvoicing in a proper, significant and consistent way in every empirical model. This variable indicates that increased penalties in the previous two years can reduce imports' misinvoicing in Indonesia with ACFTA member countries.

Indonesian control of corruption variable is able to explain its relation against misinvoiving in imports in a proper, significant and consistent way. This variable indicates that Indonesian corruption measure has been improved in the previous year having a negative impact on misinvoicing imports in the period of 2000-2014.

In selected ACFTA member states the control of corruption variable is unable to explain the relationship of the imports‘ misinvoicing in a proper and significant way.

The average Indonesia‘s value of imports variable was able to explain its relationship with misinvoiving in a proper, significant and consistent way in Models II and III. This variable indicates that the average value of imports of Indonesia has a negative impact in misinvoicing in the period of 2000-2014.

Indonesian trade openness variable is capable in explaining its relation against misinvoiving in a proper, significant and consistent way in Model III. This variable indicates that Indonesia's trade openness positively affects the misinvoicing of imports in the period 2000-2014.

Misinvoicing imports between Indonesia and Singapore are relatively larger than misinvoicing Indonesian imports with other member states in ACFTA. It is caused by unobserved variables not included in this study.

References:

Andvig, J.C., Fjeldstad, H.O., Amundsen, I., Sissener T. and Søreide, T. 2000. Research on Corruption: A Policy Oriented Survey, mimeo.

Arndt, C. and Oman, C. 2006. Uses and Abuses of Governance Indicators. OECD Development Centre Studies.

Baker, B. 2014. Hiding in Plain Sight: Trade and Impact of Revenue Loss Ghana, Kenya, Mozambique, Tanzania and Uganda, 2002-2011. Global Finance Integrity.

Baltagi, B.H. 2001. Econometrics Analysis of Panel Data. Second Edition, Chester England: John Wiley & Sons, Ltd.

Beja, E. 2008. Estimating Trade Misinvoicing from China: 2000-2005. China and World Economy 16(2), 82-92.

Buehn, A. and Eichler, S. 2010. Trade Misinvoicing: The Dark Side of World Trade. Journal of the World Economy.

Buehn, A. and Eichler, S. 2006. Uncovering Smuggling: Worldwide Evidence for Four Types of Trade Misinvoicing. Journal of Dresden University of Technology, Germany.

Ekananda, M. 2016. Econometric Analysis. Data Panel. 2nd Ed. Mitra Wacana Media, Jakarta.

Ekananda, M. 2017. Analysis of the Macroeconomic Impact towards the NPL National Banking in Indonesia: The Study of Macro-Economic Shock Using Vector Autoregression Models. European Research Studies Journal, 20(3A).

Farzanegan, M.R. 2008. Illegal Trade in the Iranian Economy: Evidence from a Structural Model. CESifo Working Paper No. 2397, Munich, CESifo.

Fisman, R. and Wei S.J. 2004. Tax Rates and Tax Evasion. Journal of Political Economy, 112, 471–496.

Fung, HG., Yau, J. and Zhang, G. 2011. Reported Trade Figure Discrepancies, Regulatory Arbitrage and Road-Tripping: Evidence the China-Hong Kong Trade Data. Journal of International Business Studies, 42(1), 152-176.

Kar, D. and LeBlanc, B. 2013. Illicit Financial Flows from the Philippines: A Study in Dynamic Simulation 1960-2011. Washington, DC., Global Financial Integrity.

Kaufmann, D., Kraay, A. and Mastruzzi, M. 2003. Governance Matters III: Governance Indicators for 1996–2002. World Bank Policy Research Working Paper 3106.

Kaufmann, D., Kraay, A. and Mastruzzi, M. 2009. Governance Matters VIII: Aggregate and Individual Governance Indicators 1996–2008. World Bank Policy Research Working Paper 4978.

Knack, S. and Azfar, O. 2003. Trade Intensity, Country Size and Corruption. Economics of Governance, 4, 1-18.

Michael, J.A. Murphy, M.A. 2011. El Orto Hueco Comercial : Corruption and the Misreporting of Exports in Latin American Economies. Thesis, Georgetown University.

Nechaev, A., Antipina, O. 2016. Analysis of the Impact of Taxation of Business Entities on the Innovative Development of the Country. European Research Studies Journal, 19(1), 71-83.

Nitsch, V. 2009. Trade Mispricing and Illicit Flow. The Dynamics of Illicit Flow from Developing Countries. Washington, D.C., World Bank Group.

Oladeji, Olaniyi, M. 2010. Perception of Smuggling Among the Yoruba People of Oke-Ogun of South Western Nigeria. Internet Journal of Crimanology.

Oskooee, M.B. and Goswami, G.G. 2003. Smuggling as another Cause of Failure of the PPP. Journal of Economic Development, 28.

Slemrod, Joel, B. and Shlomo, Y. 2000. Tax Avoidance, Evasion, and Administration.Working Paper no.7473, Cambridge, Mass., NBER.

Suryanto, T. 2016. Audit Delay and Its Implication for Fraudulent Financial Reporting: A Study of Companies Listed in the Indonesian Stock Exchange. European Research Studies Journal, 19(1), 18-31.

Suryanto, T., Thalassinos, I.E. 2017. Cultural Ethics and Consequences in Whistle-Blowing among Professional Accountants: An Empirical Analysis. Journal of Applied Economic Sciences, 6(52), 1725-1731.

Yalta, A.Y. and Demir, I. 2010. The Extent of Trade Misinvoicing in Turkey: Did Post-1990 Policies Matter? MIPRA Paper No. 30186, Hacettep University, Bilkent University.