Thailand's Effective Rate of Protection on Wine

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Abstract

This paper examines Thailand's wine industry and tariffs on wine and any intermediate inputs. This is achieved using firm-level data in computing the effective protection rate on wine within Thailand. Findings on the effec-tive rate for the domestic wine industry are greater than the nominal tariff of 60 percent. In addition this research will provide a summation of the wine industry in Thailand and the usefulness the effective rate provides to the industry. A higher price on imported wines not only protects the domestic wine industry, but also substitute goods that are dominant in Thailand such as beer and whiskey.

Keywords: Taxation, Real Tariff, Effective Rate of Protection, Nominal
Tariff

1. Introduction

When components of the intermediate inputs and the finished good are at different tariff rates, the effective rate of protection (Ep is actually different than the advertised rate. This creates a non-transparent environment. This research will show what the Ep is on wine. When governments impose a tariff they gain from the tax collection and the local producers also gain from the protectionism.

This study will shine light on the protectionism of wine in Thailand. The major countries that produce and sell wine to Thailand, US, France, Argentina, Chile, South Africa, and Italy, are not members of ASEAN. Therefore even though Thailand is a member of ASEAN the wine tariff will still remain in effect for those countries. The effective rate of protection creates implications for investment. It will help management for domestic wine companies properly solve make or buy decisions and it shows the real tariff rate so that investors have a better understanding. Grape farmers may even be interested in adding more value to their business by expanding into wine. As more Thai companies enter the market the more competitive the market becomes; benefiting consumers from a quality and price standpoint, creating more jobs, and generating more income for entrepreneurs. Thailand may not have absolute advantage in producing wines, but with the Ep calculated industry investors will have a better understanding of the investment opportunities that exist. This study will hopefully encourage wine industry investment within Thailand. Though whisky and beer are already big industries within Thailand, some of the educated middle-class and elites of Thailand do prefer wine to whisky and beer.

With a tax system favoring domestic wines over imported, Siam Winery has grown from their original exports of 1,800 bottles to exporting over 210,000 bottles a year with a market in 14 different countries according to Siam Winery's business development director, Kim Wachtveitl (Wiriyapong, 2007.

1.1 Thailand wine market overview

The wine market in Thailand has gained support from consumers due factors that include: lower percent of alcohol compared to spirits; reported health benefits; changed generational preferences; and tourism. Wine is over 20 percent of the market share for alcohol beverages imported into Thailand. Table wine is priced between $15-$30. France has 33 percent of the market followed by Italy, Chile, USA (10 percent of the market), and Spain (Domingo, 2009, pp. 2-3). Roughly 10 percent of the population (6.7million) drinks wine (Sirikeratikul, 2009, p. 1).

In Sukanya Sirikeratikul's research (2009) she finds that US wines have good opportunities in Thailand as they are less costly than Old World wines and Thai consumer demand for wine is fairly elastic. She found that Thai wines are viewed locally as competitive with imported wines for varieties that are $20 or more per bottle. This is important in that the effective rate of protection (Ep) model assumes identical products. The Thai wineries are small in size and in numbers with fewer than ten domestic wineries. A primary argument economists give in support of tariffs is to protect new local start-up "infant" industries. Giving them a chance to grow to increase market share and reduce costs through economies of scale so that in the future they may then be on equal footing with international competitors. Red wine has over 80 percent of the market share, one of the most popular being Shiraz, and wine between $14 to $40 retail makes up 70 percent of the market (Sirikeratikul, 2009, p. 3).

1.1.1 Industry Regulations

Importing, distribution, marketing and sale of wine is governed by the Ministry of Finance, Customs, the Revenue Department and the Excise Department which is given the main authority; are responsible for controlling the marketing, labeling, licensing, quality control and environmental issues. All labels must contain in Thai or English: Name and brand of the wine; details of distributor (name, address, phone number); details of manufacturer and source; volume of the product; and percent of alcohol. There must also be a health warning printed in Thai with the letters being greater than 2mm and must stand out from the background (Domingo, 2009, pp. 2-3 and Sirikeratikul, 2009, p. 7).

1.1.2 Import Entry

Only a Thai company may register a wine and apply for an import wine permit and each individual label of the wine must be registered with the Excise Department. Once the process is finished the import permit will be issued allowing that company to import the wine. The distributors will then sell the wine to retailers (supermarkets, hotels, entertainment venues, and specialty wine shops).[1] Samples of the wine are shipped using airfreight. Large volumes are shipped by sea. Shipping by boat can take two weeks to two months (Domingo, 2009, pp. 2-3 and Sirikeratikul, 2009, p. 7).

1.1.3 Tax Structure

In Thailand for wine there is a tariff of 60 percent on imports. All other taxes compound off from the imports cost, insurance and freight (CIF) plus the tariff cost. Domestic wine taxes are calculated just on the cost and not the remaining values of the CIF and import tariff. Because of this the tax burden falls more heavily on the importers, creating favorable advantage to domestic wineries. Though both domestic and foreign wineries pay the same rates for excise tax, municipal tax, health tax, and value added tax (VAT). Those tax rates are all based on the import wine CIF plus tariff, which has a negative compounding effect, for the importer, with each tax level (Sirikeratikul, 2009, p. 6). This allows the winery to actually sell their wine for 60 percent more than the world price, given that the products are perfect substitutes. The total after tax cost would be the same as the imported wine.

For calculating the imported value of the wine Thai Customs will use the declared value or the reference price, whichever is greater. Below are the reference prices on varieties of US wines:
- Wine from 123 American Viticulture Areas have a minimum value of 150THB ($5) per bottle.
- Napa Valley and Sonoma County have a minimum value of 200THB ($6.66) per bottle.
- Premium California wines (Camus, Stag's Leap Wine Cellars, ect) have a minimum value of 700THB ($23.33) per bottle.

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[1] The flow of goods from winery to distributor/wholesaler to retailer is referred to as the three tier system.

Tariff: According to Thai Customs the current import tax rate for wine from North America, South America, Africa, and Europe has a 60 percent ceiling rate. All importable inputs are made within Thailand (except for the American oak barrels) and therefore are not subject to tariffs, per Thailand's national accounts (2005). However, even if inputs were required from outside Thailand, the inputs would most likely come from China which is tariff exempt for the inputs needed. Below are the various input tariffs, however in calculating Ep only the American oak barrel tariff will be used as all other inputs are assumed to be domestically made or made in China.

Listing of intermediate inputs and their ceiling tariff rates if they were to come from North America, South America, Africa, and/or Europe: grapes zero percent; bottles zero percent; corks zero percent; labels 40 percent; foil 30 percent; American oak barrels 40 percent; crusher/stemmer 30 percent; must pump 30 percent; forklift 35 percent; press 30 percent; stainless steel tanks and barrel racks 30 percent; bottling machine 30 percent; hoses and clamps 50 percent (Thai Customs, 2012).

Placing tariffs on investment goods (i.e. machinery) and other inter-mediate inputs may slow economic development. Just the American oak barrels alone in this study, reduce protection of domestic wine by 3.52 percent.[2]

Excise tax: This is a tax for luxury goods (i.e. cars) and unhealthy goods (i.e. tobacco). For wine this tax is 60 percent of the CIF plus tariff plus excise tax paid plus municipal tax. Note that the calculation creates a circular reference. It is detailed below in table I (Sirikeratikul, 2009, p. 6).

Municipal tax: Collected by the Ministry of Interior and applies to most products that also incur an excise tax. Municipal tax rate is 10 percent of the amount of excise tax (Sirikeratikul, 2009, p. 6).

Health tax: Two percent of the amount of the excise tax (Sirikeratikul, 2009, p. 6).

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[2] In Kauppila's study he also found that tariffs on intermediates hindered the full exploitation of the tariff on the leather industry's final goods and that value added was reduced by the placement of tariffs on foreign inputs (Kauppila, 2006, p. 12).

VAT: Value added tax is seven percent of cost plus all other taxes: ((CIF+ tariff + excise + municipal + health) x seven percent) (Sirikeratikul, 2009, p. 6).

Table I

		Thai Domestic	USA, Chile, and Europe
A	CIF (per bottle)	6.89	8.09
B	Tarrif: A x 60%	0.00	4.85
C	Excise Tax: (A+B+C+D) x 60% or 1.7647059(A+B)	12.16	22.84
D	Municipal Tax: C x 10%	1.22	2.28
E	Health Tax: C x 2%	0.24	0.46
F	VAT (A+B+C+D+E) x 7%	1.44	2.70
	Total After Tax Cost (A+B+C+D+E+F)	21.94	41.22
	Effective Tax Burden	218%	410%

Source of computation method: (Sirikeratikul, 2009, p. 6).

2. Related literature

To the best of the researcher's knowledge, this is the first paper that analyzes the effective rate of protection for the wine industry within Thailand. However, the effective rate of protection (Ep is an extensive area of research. The literature review will briefly discuss two key findings and three strands of additional research but does not attempt to document all literature examining Ep.

2.1 Input / Output (I/O) model

A popular method used in the calculation of the Ep is the input/output (I/O model. The I/O model factors in the interdependency between the industries. Tariff on wine not only protects wineries, but all economic activities from various inputs used to produce wine.[3]

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[3] Empirical analysis of the I/O model was made possible by Wassily Leontief. For additional information see Balassa (1968) and Corden (1971).

$$Ep_j = (t_j - \Sigma_i a_{ij} t_i)/(1 - \Sigma_i a_{ij})$$

Where *j* represents the wine industry, *tj* the nominal tariff rate for the final product, *ti* the nominal rate of any input *i*, a_{ij} is the input coefficient of the industry, and Σ (sigma) is the summation. The coefficient can be found on Thailand's national accounts I/O chart.

Current I/O models are not recognized as completely sufficient for empirical analysis and less advanced forms have dated back to the 17th century in Francois Quesnay's work. Since Leontief advancements other economists have adapted the model, albeit economic theory has outpaced empirical modeling technologies (Anderson, 2003, p. 429). The I/O model uses industry data and an adjustment would be required to calculate just domestic sales because the Thai wine that is exported is at world prices and does not benefit from the tariff protection.[4]

2.2 Firm-level

In a paper titled "Various methods for measuring and analyzing economic assistance" written for the Organization for Economic Cooperation and Development (OECD, 1989), the author calculates Ep using firm-level data. Using a finished good with a free trade price of $1, a domestic price of $1.05 with a five percent tariff, and a cost of $0.90 for both domestic and free trade intermediate inputs the author calculates an Ep of 50 percent.

In a book published by the World Trade Organization (WTO) and United Nations, the output world price is $100 and domestic is $115 with a 15 percent tariff. The inputs at world price are $60 and $66 domestic with a 10 percent tariff. The authors calculate a 22.5 percent Ep. Because the domestic export would be sold at world prices, but carry the 10 percent tariff on inputs. The authors go on to calculate if the domestic output were to be exported it would have a -15 percent Ep (Bacchetta, Beverelli, Cadot, et al, 2012).

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[4] Over 70 percent of Siam Winery's outputs are exported.

2.3 Three strands of additional research

The first strand of additional research has calculated Ep for various Thailand industries in 2004. This report does not calculate Ep for the wine industry; instead for agriculture they have calculated wheat, rice, and other. For the other agriculture sector the report concludes a -25 percent Ep (Gilbert and Mikic, 2009, p. 106-107).

A second strand of research conducted by Berger and Anderson (1999) uses 1996 data to calculate the consumer tax equivalents (CTEs) of wine taxes for various OECD countries including Thailand. Rates of taxation and methods used in calculating taxes vary tremendously between countries; CTEs show the impact of import, wholesale, excise, and value-added taxes. The paper finds that for a premium 750ml bottle of Thai wine the CTE is 140 percent. Also that the VAT is seven percent, import tariff is 60 percent and Thailand consumes less than one-tenth percent of the world's supply of wine (Anderson and Berger, 1999).

The third strand of research regarding taxation includes a GAIN Report conducted by Rodrick McSherry (2003). This research conducted concludes that the high excise taxes hurt the wine market and thus hampers tourism development for Thailand. That to develop tourism in Thailand the inputs being food and beverage must be well priced and dependable. This report states that The Royal Thai Government's goals include crop diversification and agricultural development. To better do this Mr. McSherry argues that a lower excise tax should be implemented and will lead to increased tourism. Furthermore domestic grape wine producers were interviewed and complained of high excise taxes (McSherry, 2003). A USDA Report conducted by a Thai national, Sukanya Sirikeratikul (2009) concurs with McSherry. Sirikeratikul (2009) also finds that although the numerous tax rates are the same for both domestic and foreign wines, the tax rate calculations are multiplied by the cost of the product plus the import tariff. Domestic wines are not subject to the import tariff, thus the levied taxes are lower amounts. Another paper dealing with taxation in Thailand mentions about how the tariff on wine is 60 percent to import. However the author discusses how the infrastructure of government agencies is not consistent when charging the tariff. The author warns that on the surface Thailand appears to be fairly free trade, but in reality there is a

non-transparency in implementation of the system; Royal Thai Customs operates on their own accord and applies rates as it wishes ("Less than Zero," 2011).

3. Methodology

3.1 Firm level

The World Trade Organization (WTO study confirms that Ep is best calculated using "firm-level" data, as presented in this research, and that the I/O method may not be very revealing (WTO, 2012, p. 71. This model is widely used and accepted by economists, governments, World Bank, World Trade Organization, and Organization for Economic Cooperation and Development (OECD(Schutz, 2007.

The method the author uses to calculate Ep on wine in Thailand assumes zero cross-price elasticity between inputs meaning that input industries are independent. This same method is still widely used in empirical studies conducted on behalf of the Organization for Economic Cooperation and Development (OECD and can be found in the United Nations publication by Mikic and Gilbert detailing commonly used trade indicators.

Given that the excise tax structure allows domestic wineries to markup prices 60 percent greater than the free trade price, but domestic wineries complain of the excise tax, it is assumed the burden is placed on them; meaning the wholesaler is more elastic. Also keeping with an elastic wholesaler assumption, the costs of the tariff are passed on to the retailer. In many agriculture sectors it can be seen that the distributors often have the negotiation power in prices.

3.2 Effective rate of protection

The effective rate of protection is a tool used to show how trade protection measures like tariffs distort investment incentives (Gilbert and Mikic, 2009, p. 107. It does this by measuring the net assistance by govern-ment given to a group by comparing between the value-added by the same but unassisted group (world, free trade, or reference price. The value added considers the output price due to the support from government tariff as well as

assistance from subsidies and tax paid due to government tariff on inputs.[5]

When calculating the Ep, researcher Kym Anderson notes, "comparisons of the domestic wholesale price and the border price are more appropriate" and are the prices that are used in lieu of the manufacturers' price or a retail consumer price. That is why for this research the $19.41 (domestic wholesale) and $8.09 (border/world price) per bottle are used in the calculation. This method of using the wholesale price is also used by the OECD in calculation. Please see results section below.

The rates mentioned earlier are all based on the nominal tariffs, which are simply the rates of protection applied to the individual goods. In the research conducted by Gilbert and Mikic they find that to find the full extent of the protection one must not only think about the output, but also the protections applied to the various inputs to production. In this research each input value is increased from the world price by that amount of the input's tariff. The previous research concludes that the effective rate of protection is often used as a summary measure of the overall level of protection by measuring the protection on the value-added of an industry, with and without tariffs (2009).

Mathematical Definition:

$$Ep = ((VAd\text{-}VAf) / VAf) \times 100$$

Effective rate of protection is expressed as a percentage where:

VAd = domestic value added after imposition of tariff systems
VAf = value added under free trade.

Value added is the difference between the value of output and the cost of the intermediate inputs:

$$VAd = Vd_{out} – Vd_{inp}$$
$$VAf = Vf_{out} – Vf_{inp}$$

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[5] This Ep method is also utilized by the Australian Industries Assistance Commission which has published a number of studies regarding Ep.

Where by Vd*out* and Vd*inp* are the values of the output and input under a tariff system. In the absence of tariffs on intermediate inputs then:

VAd = Vd*out* - Vf*inp*
Vd*out* = (1+NRP) * Vf*out*

NRP and Vfout are the nominal rate of protection and the free trade value of output.

Assuming no tariffs on inputs: Vd*inp* = Vf*inp*

This method is also used in Elbehri and McDougall's research. Unlike the nominal tariff, the Ep may be negative if the input protection is greatly higher than that of the output protection (Elbehri and McDougall, ch. 5). Another difference between nominal and effective rate is that nominal tariff gives the domestic wineries price of their output. Whereas effective rate indicates the extent the wineries value added is increased, factoring in tariffs on importable intermediate inputs and the wineries value added in the finished good (Anderson, 2003, p. 415). The magnitude of gains to the wineries depends entirely on how much the tariff raises domestic prices above the world prices (Kauppila, 2006, pp. 2-3).

When computing Ep the Global Trade Analysis Project (GTAP) separates out the exportable and the competing imports from the non-tradable to compute, omitting the non-tradable inputs from the domestic inputs because they are an element of the value added (i.e. labor, taxes, profits) (Elbehri and McDougall, ch. 5). However, the non-tradable is used in addition to the other inputs to calculate the output price.

3.2.1 Limitations

The caveat with Ep is that it assumes that both the foreign and domestic are identical perfect substitutes and the consumption of the domestic product would reduce the foreign consumption by that equal amount. In the world-wide wine industry each winery prides itself on distinguishing itself from competitors in order to avoid directly competing with one another. Wineries attempt to do this through the type of grape they use, technique for pressing the juices from the grapes, the type of containers the wine is stored in, the length of time

they are stored for, and of course through bottling, labeling, and marketing techniques.

In both Gilbert and Mikic's (2009 research and Elbehri and McDougall's research both report that Ep assumes imported goods and the domestic goods are perfect 1:1 substitutes. Also that it can be difficult to separate out tradable vs. non-tradable.

The Ep is not used to demonstrate the changes in consumption due to the tariff implementation. The calculation also is not inclusive of the lobbying, administration, corruption at customs, and smuggling costs associated with instilling the tariff. Nor does it factor in tax revenues gained, which is especially important for poorer countries. Empirical analysis with this method also assumes there remain a perfect competition and a permanence of constant returns to scale for the average costs, not taking into account diseconomies of scale as the domestic wineries' output increases. Given that Thailand is a small importer of wine and importable intermediate inputs,[6] it is also assumes that tariffs and importation amounts do not disrupt international prices.[7]

Whether using the latter Ep model or the I/O method, both models assume that tariffs on inputs and outputs are reflected in the domestic price to the full extent. No adjustments are made as to the elasticity of supply or demand. In other words, the burden of the tariff is placed to what extent on the suppliers and to what extent on the demand side. Future methods may consider quotas, different tariff amounts at different quota levels,[8] as well as non-trade barriers into the analysis.

4. Data Sample

When establishing a world price for wine the same inputs that the "infant" Thai company would have though priced at world prices, are used. The below pricing information was obtained from winemaker Dana Nigro at Robert Mondavi Winery and assistant winemaker Brendan Eliason at David

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[6] Refer to the Thailand national account for the foreign inputs on wine.
[7] As of 2008 Thailand's wine import was valued at $33 million Sirikeratikul (2009), p. 2.
[8] Known as a tariff rate quota (TRQ) and is now illegalized by the WTO.

Coffaro Winery, both of whom have input pricing on world prices. Dana also writes for Wine Spectator Magazine and Brendan writes for Wine-X Magazine. Data for the inputs represents what is needed to make the most common wine in Thailand that is also viewed by the populous as comparable with imported wine, mentioned in the industry overview (red wine between $20-$40 retail).

4.1 Grapes

Siam Winery is Thailand's leading manufacturer of wine. The red grape that they produce the most is Shiraz, but they also use Chenin blanc, Malaga blanc, and Pokdum grapes.

In 1999, Siam Winery was only exporting maximum of 1,800 bottles (150 cases) per year according to their winemaker Laurent Metge-Toppin. Also that exporting is 70 percent of their business so that would mean they were producing around 2568 bottles (214 cases) when they were first starting out (Wiriyapong, 2007). The Thailand winery would be known within the industry as a "boutique-winery" producing 0-3000 cases of wine per year.

For this paper the author uses an output of 3000 cases per year to collect data. Assumes 12 months aging in the barrels, but with time spent in stainless steel, shipping and warehousing within the three-tier system, it may be up to 18 months of total aging before the consumer drinks the wine. Each case contains 12 (750ml) bottles of wine for a total of 36,000 bottles produced each year. The most common grape used in domestic wines is Shiraz, which is a red wine grape imported from Australia at $200 per ton. An American winery striving to achieve elitist rating would require 60 tons of grapes to produce 3000 cases; however our Thai counterpart will press the grapes harder and only requires 46.1538 tons to make the same volume of 27,000,000ml. This brings the total yearly cost of grapes to be $9230.76. Price per bottle is $0.26 (Elison, 2012 and Nigro, 2002, pp.2-5).

4.2 Packaging

The most common bottle used is a 750ml flat-bottomed bottle which can be purchased on the low side at $0.50. Inexpensive cork, label, and foil for

$0.12, $0.11, and $.09. Utilities for the entire operation are $0.10 per bottle. This brings the current world price at $0.26+0.92=$1.18 (Elison, 2012 and Nigro, 2002, pp.2-5).

4.3 Equipment

To have a small "boutique-winery" requires the same machinery that a large scale operation would have, but the machines can be of lower capacity. The machinery used is about 20 percent less expensive than an American elitist boutique, but because output capacity is small scale, generic machines can be used without loss in lifespan. To store the wine, the typical method in Thailand for premium wine is to use oak which is more expensive than storing in stainless steel tanks and then pouring the wine over oak chips to get the flavor of the oak. New American oak barrels are used for 3 years then replaced; they cost $200 per barrel and to store 27,000,000ml of wine 160 barrels are needed for a total cost of $32,000. When calculating the per bottle cost of equipment the life of the machine was factored in. Lifespan used is within low level maintenance period, without need for significant improvements. For example the oak total cost has been spread over the three year lifespan at 36,000 bottles a year, $32,000/108,000 bottles= $0.30 per bottle. For the domestic oak cost there is a 40 percent tariff, making the domestic price $0.41 per bottle. In calculation the equipment will be assumed to be custom equipment and have no residual value.[9]

One crusher/stemmer machine at $8,000, one must pump at $10,000, one forklift at $16,000, and one press at $36,000 (all with 15 year life-spans). Secondary storage stainless steel tanks and barrel racks for a total $6,000 (20 year life-spans). Hoses and clamps are $4000 and a small bottling machine is $0.20 per bottle or $44,000 (3and 6 year life-spans). This adds to the per bottle price from $1.18 + 0.67(equipment) to $1.85 (free trade) and $1.97 (domestic) on importable inputs (Elison, 2012 and Nigro, 2002, pp.2-5).

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[9] Custom equipment is considered an intermediate input and not as capital (Monke and Pearson, 1989, ch. 9.4).

4.4 Non-importable inputs

To lease the land and a basic structure is priced at $120,000 (20 year lease), winemaker salary $50,000/year, assistant winemaker $30,000/year (both salaries include incidentals), and overhead at $2.50 per bottle or $90,000 (licenses, insurance, accounting system, office supplies, and shipping to wholesale distributor). Marketing has been left out of the cost per bottle, but the back page of Wine Spectator can be purchased for $0.77 per bottle or $28,000. This adds to the previous $1.85 (importable inputs) an additional $4.89 for a total manufactured cost of $6.74 (Elison, 2012). Now the creation of the Thai substitute good is complete. Opportunity costs and financing are withheld. For the domestic wine all non-importable input prices are assumed to remain the same except winemaker salary is $25,000/year and assistant winemaker $15,000/year (both salaries include incidentals). For domestic non-importable the cost is $3.77 in addition to the previous 1.97, for a total bottle cost of $5.74.

4.5 Three-tier system

The non-importable inputs are important for determining the final world price of wine the manufacturer then adds a standard 20-33 percent markup. This research will use the lower markup for the manufacturer bringing the cost from $6.74 to $8.09 and $5.74 to $6.89(domestic). The manufacturer must sell their wine to a wholesale distributor. The wholesaler will want to buy the wine at a low markup because the small non-popular Shiraz boutique wine is more difficult to sell and they pay for shipping and taxes. The wholesaler markup is between 35-50 percent. Wholesalers will markup the lower rate when selling large quantities of popular brand wines.

Smoke Wallin, executive vice president and director of National Wine & Spirits, a wholesale distributor based in Indianapolis, USA has been recorded explaining that the higher volume wines are at a lower margin because they move quickly, the business isn't sitting on tons of inventory and that for boutique wines the business has to hand sell each bottle (2007).

For this research the higher 50 percent wholesale markup is used for this reason also because the wholesaler needs to cover for taxes and shipping.

Wine is a very heavy, expensive item to ship. This brings the wholesale world price to $12.13 per bottle or $145.56 per case. It should be noted the standard markup for the retailer is another 10 percent and restaurants and hotels can markup an extra 200 percent per bottle. Also 60 percent of all wine is sold through restaurants and hotels. With the number of fine-dining restaurants themed as French and Italian growing throughout Thailand, the wine from these countries makes a large part of the imports (Sirikeratikul, 2009, p. 6. The three-tier system is the method used globally to supply wine and even in most developed economies, such as the USA, it is against the law for the manufacture to not sell to the wholesale distributed and try to sell directly to the retailer. The three-tier system is partly responsible for higher global and domestic prices.

5. Results

As mentioned in limitations, it is unknown the elasticity between the seller and the buyer at each level in the three-tier system. Ep calculations for domestic and world price intermediate inputs are $6.89 and $8.09 (border price, the winery factors in the 20 percent markup from costs. The burden of the 60 percent tariff is passed on to retail, creating a selling price to the retailer of $18.19. To arrive at $18.19, the wholesale world price of $12.13 was used and multiplied with the tariff tax. This creates the same cost between foreign and domestic wines; even after all additional taxes are accumulated, for the wholesaler.

Effective rate of protection for wine in Thailand: 179.46 percent (299.11 percent larger than the nominal tariff.

$$Ep = [(18.19 - 6.89 - (12.13 - 8.09] / (12.13 - 8.09$$

Source: Author calculations.[10]

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[10] Bureau of Economic Analysis defines intermediate input as output price less value added of non-importable inputs i.e. operating surplus, wages, depreciation, land, and taxes (2012).

6. Conclusion

The Ep is very important for the wine manufacturers because it demonstrates the level of protection domestic wineries have against importing competitors. The higher the percentage of protection may be strong incentive to reallocate resources into the protected industry. Even if the nominal tariff is quite low, if the value added share is also low the effective rate can be quite high, giving good opportunities to the domestic wine industry. The content presented in this paper may provide information for those interested in Thailand's resource allocation and aids in trade negotiations between winery and wholesaler.

The advantage of effective rates over nominal is that they take into account the negative effect caused by input tariffs and demonstrate how an industry is more sensitive to tariffs the less the share of value added is reflected by the price of finished output. For better calculations one could factor excise tax into the Ep (which would reduce protection, make the assumptions that the supply elasticity is less than perfect, there exists imperfect substitution between foreign and domestic wines and apply to all varieties of wine. Results within this paper should be considered preliminary and require further study.

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