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khao yai winery: an economic perspective

Jordan French wrote this case solely to provide material for class discussion. The author does not intend to illustrate either effective or ineffective handling of a managerial situation. The author may have disguised certain names and other identifying information to protect confidentiality.

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In 2015, Heribert Gaksch was the marketing and business developer at Khao Yai Winery, located in Thailand. Gaksch was interested in examining how the government’s taxes on imported and domestic wines affected the winery, and the relationship between Khao Yai Winery’s domestic wine and local beers and imported wines. Gaksch was very concerned with the effect of Thailand’s tax structure on the winery’s development. He had stated, “There had only been one steep increase in the price [of our wine] which was due to the government’s excise tax increase implemented in October 2012.” By 2013, the winery’s sales had decreased, but the overall consumption of wine in Thailand had been rising. Gaksch wondered why Khao Yai Winery’s sales had decreased and, if the decreased sales were a result of the tax, why the added tax had not appeared to affect imported wines.

“From my experience, I sense that the foreign wines are distinct and we are not in competing market segments, but I need some concrete analysis,” said Gaksch to his interns. “With AEC [the ASEAN, or Association of Southeast Asian Nations, Economic Community, a free-trade bloc] coming into full effect at the end of 2015, you have just three months to prepare an economic analysis with your recommendations of whether we should lobby the government to reduce the excise taxes.” The interns, David Danler-Swatt and Shivam Agarwal, agreed to this. They were curious to know whether the reduction of an excise tax would have an effect on the winery since it would apply to all alcohol sales (i.e., both local and imported).

The interns knew they needed to consider how the government tax on imported wines from the popular countries (i.e., France, Italy, Chile, and United States) affected the domestic wine industry. This information would allow the marketing and business developer, Gaksch, to better understand how the tariffs benefited the winery, if at all. Often, when governments made imported items more expensive through tariffs, local entrepreneurs were more inclined to invest larger amounts. In addition, the interns were interested in the role of various elasticities (e.g., income, price, and cross-price elasticities) in terms of the effectiveness of the government tax policies. In addition to examining how sales were affected by taxes, Danler-Swatt and Agarwal wanted to use the elasticities to better understand the marketing strategy and pricing decisions, and the effect of the imported wine and domestic beer competitors on the winery’s sales.

Thai wine market and public policy overview

Khao Yai Winery was founded in 1989 and achieved success in 1999 during a boom in Thailand’s demand for wine. Khao Yai Winery was a subsidiary of Boonrawd Brewery (Singha), one of Thailand’s top two breweries. The winery was a three-hour drive north of Bangkok, Thailand’s capital. Khao Yai Winery’s most popular grape was the red Shiraz, and it produced only a fraction of its annual 600,000-bottle capacity. Thailand had a total of five wineries. The largest, Siam Winery, produced more than 17,500 cases (210,000 bottles) during a peak in local demand. By industry standards, a “boutique winery” was considered to produce up to 3,000 cases per year.[[1]](#footnote-1)

Wine had been growing in popularity among Thai consumers due to its relatively low alcohol content, reported health benefits,[[2]](#footnote-2) consumers’ changed drinking preferences, and tourism. The wine imported into Thailand comprised one-fifth of the market share for all imported alcohol. One-third of Thailand’s wine consumption was French wine, followed by wine from Italy, Chile, and the United States, comprising one-tenth of Thailand’s total wine consumption. By 2009, 10 per cent of the Thai population drank wine. Red wine dominated white in the wine market, accounting for 80 per cent; wine from the Shiraz grape was the most popular.[[3]](#footnote-3)

Only a Thai company could import wine, and each different label of wine needed to be registered through the government’s excise department. The importing company (i.e., the distributor) would resell the wine to retailers (e.g., grocery stores, restaurants, bars, and specialty wine outlets). Large volumes were imported by cargo ships and could take two weeks to two months to reach Thailand. Industry regulations were enforced by the Excise Department, which exercised most of the authority. The Ministry of Finance, Customs Department, and Revenue Department were also responsible for regulating the marketing, licensing, importing, distribution, and sale of wine.

Thai government policy was aimed at reducing alcohol demand through higher prices (e.g., taxes), enforcing a legal drinking age of 20, and reducing supply by not allowing bars to exist within 300 metres of colleges and universities, and by requiring those bars within 700 metres of colleges and universities to close by midnight (unless the bars also sold food). Local governments were responsible for enforcing the laws on the sales and distribution of alcohol; however, they had direct interests (through ownership) and indirect interests (through taxation) in the profits of local businesses.

Celebrities had been fined for posting images of alcohol brands on their social media accounts. However, the police grossly neglected to enforce the drunk driving laws, the legal drinking age, and the laws relating to bars and their proximity to schools. Previous studies found that 16 per cent of the population under the age of 17 drank at least on a monthly basis at privately operated bars.[[4]](#footnote-4) In addition, the beer corporations had found a way to advertise on posters and banners on school campuses through the sponsorship of “English competitions.” Although the alcohol industry was not allowed to have television commercials, many Thai television game and talk shows displayed beer company logos centre stage on their sets. It thus stood to reason that the government policy with respect to wine stemmed more from corporate interests than moral sentiments or was, at best, simply inept. After the interns discussed the alcohol advertising industry with Gaksch, they believed it was corporate interests that drove the government policy.

Costs

To analyze the impact to local producers of the tariff on popular imported wines, the interns collected cost data to measure the effective rate of protection. The interns scaled the costs per bottle so that regardless of the annual output, the cost analysis remained accurate as long as production was within the relevant range. Each case of wine contained 12 bottles, each with a capacity of 750 millilitres (ml), which had spent 12–18 months in the aging process. The most common grape, Shiraz, came from Australia at $200 a ton.[[5]](#footnote-5) A winery striving to achieve high-quality wines would require 60 tons of grapes to produce 3,000 cases annually, but in Thailand, it was typical for the grapes to be pressed with more ferocity; therefore, they required only approximately 46 tons to make the same volume of wine (27 million ml, or 27,000 litres—the equivalent of 36,000 bottles or 3,000 cases).

Packaging wine required a glass bottle, cork, foil, and label. The most common 750-ml bottle was flat-bottomed, and all the packaging particulars amounted to $0.92 per bottle. Small boutique wineries required the same machinery as a large-scale operation. Unfortunately, the boutique wineries were unable to benefit from economies of scale on their fixed asset costs, but they could buy lower-capacity equipment, which was approximately 20 per cent less expensive.

The typical method in Thailand, and at Khao Yai Winery, to produce better quality grape wines was to store the wine in oak barrels. New American or French oak barrels could be used for three years before needing replacement. Each barrel cost $200, and 160 barrels were needed to store 27 million ml of wine. The lifespan of the barrels and other equipment was used to calculate the per bottle cost. For example, the barrels’ cost of $32,000 ($200 × 160) was divided by the 108,000 bottles that could be produced over the three-year life of the barrels to calculate the cost of $0.30 per bottle. Unlike the other equipment that could be imported from China with no tariff, the oak barrels had a 40 per cent import tax, which increased the total per bottle cost from $0.30 to $0.41 per bottle in Thailand (see Exhibit 1).

When the interns calculated the per bottle cost of the assorted equipment (see Exhibit 1), the equipment was assumed to be custom equipment that had no residual value. The interns knew that custom equipment should not be considered to be capital, but should instead be classified as an intermediate input when calculating the effective rate of protection. The assortment of machines required for a winery included a crusher/stemmer, a must pump, a forklift, a grape press, secondary stainless steel storage tanks, barrel racks, hoses, clamps, and a small bottling machine.

The manufacturing of wine also incurred non-importable input costs. Those costs included land, a basic structure, salaries for the winemaker and assistant, marketing, and overhead. Overhead costs included licences, insurance, accounting, office supplies, and shipping. For a Thai winery, those costs were the same as foreign entrants, except the salaries were far lower in Thailand because of a lower cost of living.

The non-importable inputs were important for determining the final world and domestic prices of wine, as the winery added a standard 20 per cent markup to its total cost. The foreign wineries needed to sell their wine to a Thai distributor, which added a hefty 50 per cent markup. Because of the 60 per cent nominal tariff, the $12.13 per bottle price was increased to $19.40. The higher price on imported wines allowed the distributor of local Thai wines to increase the price by $12.51 per bottle. The wholesale distributor would add a high markup because of the shipping, tax, and low sales volume. Boutique wines needed to be hand-sold, one bottle at a time. Wine was a very heavy, fragile, and expensive item to ship.

After the wholesale price was determined, the retailer would mark up the wine by another 10 per cent, and restaurants and hotels would mark up an extra 200 per cent. More than half of all wine sales were through restaurants and hotels. French and Italian wines were in great demand at fine dining restaurants, especially those that offered themed cuisine from those two countries. The combined markup placed on wine from the winery, distributor, and retailer was known as the three-tier system, and was used worldwide to supply alcohol even in developed economies, such as the United States. It was against the law to sell wine from the winery directly to the retailer.[[6]](#footnote-6) The interns surmised the three-tier system was, in part, responsible for the higher global and domestic prices.

TaxES

Imported wines from non-ASEAN countries were subject to a tariff of 60 per cent. For wines produced within ASEAN countries, no import duty was charged. All other taxes on imported wine were compounded as a result of the cost for import, insurance, and freight (CIF) and the tariff cost. Domestic wine taxes were calculated on the cost only, which did not include the CIF or the tariff. This arrangement created higher tax amounts for importers even if the value of the wine was the same, leading to an advantage for domestic wineries. In other words, both local and imported wines paid the same rates for excise tax, municipal tax, health tax, and value-added tax (VAT). However, the tax rates were all based on the summation of the cost of the imported wine, the CIF, and tariff. This summation increasingly punished wine importers at each tax level (see Exhibit 2).

The excise tax was 60 per cent of the CIF, plus tariff, plus excise tax paid, plus municipal tax. Excise taxes were commonly levied on luxury and unhealthy goods. The municipal tax was 10 per cent of the excise tax amount. The municipal tax was received by the Ministry of Interior, and applied to products that also incurred an excise tax. The health tax was 2 per cent of the excise tax. Lastly, the VAT was 7 per cent of the total of the cost and all other taxes.[[7]](#footnote-7)

Conclusion

Armed with the data on winery costs and tariffs, the two interns needed to calculate the effective rate of protection and use the elasticities for Thailand’s wine industry to interpret the results for Gaksch. The interns had complete access to the data from Khao Yai Winery and the Bloomberg Professional service for their estimates, using ordinary least squares regression (OLS), the various elasticities, and both total demand for wine in Thailand and the local wine demand (see Exhibit 3). The interns also needed to interpret the elasticities for Gaksch to see the quantitative relationship between the winery, local beer, and imported wines. In an illustration of income elasticity, economic variables that were used as proxies for wealth often moved in unison with the total demand for wine over time.

In an economic downturn in 2009, wine consumption fell exponentially, but as the economic variables increased, the consumption of wine then rose exponentially alongside the wealth indicators (see Exhibit 4). Although the total demand for wine had risen, local wine demand was falling (see Exhibit 5). Whereas the data that were used for cross-price elasticity estimates with beer illustrated that the beer consumption had flatlined during the same period, wine consumption had been growing (see Exhibit 6).

Gaksch would be able to use the interns’ economic report to better understand the government’s role in terms of encouraging or discouraging investment in Thailand’s wine industry. The report would also include analysis of the effect on Khao Yai Winery’s sales as a result of the demand and pricing for imported wines and local beers, and the winery’s decision to raise or lower prices. Also, understanding how wealth in Thailand affected domestic sales would be used to improve the winery’s marketing campaign and target audience during changing economic conditions. The interns knew that a product viewed as a luxury good versus an inferior good would need drastically different marketing messages. Additionally, the interns understood that if Khao Yai Winery’s wine was an inferior product, it could be targeted toward lower-income customers; however, during a recession when wealth was falling, it could be targeted toward a higher-income group that would have an increased demand for the product.

exhibit 1: The INTERNATIONAL cost of producing a bottle of wine versus thailand’s domestic cost (IN US$)

|  |  |  |
| --- | --- | --- |
| **Type of Cost** | **Per Bottle Cost (World)** | **Per Bottle Cost (Domestic)** |
| Grapes | $0.26 | $0.26 |
| Packaging Particulars | $0.92 | $0.92 |
| Oak Barrels | $0.30 | $0.41 (tariff) |
| Assorted Equipment | $0.37 | $0.37 |
| Non-Importable Inputs | $4.89 | $3.78 |
| Winery Markup (20%) | $1.35 | $1.15 |
| *Subtotal* | $8.09 | $6.89 |
| Distributor Markup | $4.04 | $12.51 |
| Wholesale Price | $12.13 at border, no tariff | $19.40 after 60% tariff |

Note: Because the substitutable world market price per bottle is $12.13 but has a 60 per cent import tax, the domestic company is able to match the sales price of $19.40 ($12.13 x 1.60).

Source: Khao Yai Winery.

exhibit 2: taxes paid on Thailand’s domestic wines versus imported wines

(In US$)

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | **Thai Domestic** | **USA, Chile, and Europe** |
| A | CIF (per bottle) | 6.89 | 8.09 |
| B | Tariff: A x 60% | 0.00 | 4.85 |
| C | Excise Tax: (A + B + C + D) x 60% or 1.7647 x (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% |

Note: CIF = cost to import, insurance, and freight; VAT = value-added tax.

Source: S. Sirikeratikul, *Report TH9124*, U.S. Department of Agriculture Foreign Agricultural Service, 2009.

exhibit 3: elasticities for Thailand’s total wine demand and local wine demand

If the marketing expenditure for beer increased by 1 per cent then the demand for total wine and local wine decreased by 0.09 and 0.35 per cent, respectively. If the price of wine were raised by 1 per cent, the demand for local wine would decrease by 2.73 per cent. During the same price increase period, total wine demand had increased by 2.84 per cent. Positive price elasticity is uncommon. However, the buyers of wine were generally wealthy and believed the more expensive the wine, the better it would be. Therefore, as price increased, the demand by wealthy people also increased.

|  |  |  |
| --- | --- | --- |
| **Type of Elasticity** | **Total Wine Demand** | **Local Wine Demand** |
| GNI PPP | 2.13 | –1.97 |
| GDP pc | 1.95 | –1.82 |
| Rural population | –4.15 | 4.36 |
| Unemployment | –0.65 | 0.42 |
| Household Expenditure | 1.82 | –1.74 |
| Income | 1.65 | –1.70 |
| Beer Price | N/A | –2.12 |
| Beer Marketing | –0.09 | –0.35 |
| Beer Demand | –0.71 | N/A |
| Imported Wine pc | N/A | –0.78 |
| Wine Price | 2.84 | –2.73 |

Note: Total wine demand includes imported wine, Thai domestic wine, and Thai local wine; GNI PPP = gross national income converted to international dollars using purchasing power parity; GDP pc = gross domestic product per capita; Imported Wine pc = imported wine per capita; N/A = amounts not statistically significant in the regression to use for inferences.

Source: Company documents.

exhibit 4: Thailand’s total wine consumption and economic indicators, 2007–2014

This graph looks at GDP per capita and household expenditure in relation to Thailand’s total demand for wine. The GDP per capita and household expenditure were used as proxies for income and the feeling of wealth. Total wine consumption decreased in 2009 by 6.25 per cent relative to 2007 consumption and then increased every year thereafter. The total wine consumption in Thailand increased by 64.08 per cent over the eight-year period. However, GDP per capita increased only by half that of consumption, 32.78 per cent.

Note: GDPpc = gross domestic product per capita.

Source: Bloomberg Professional.

exhibit 5: Thailand’s total and local wine consumption, 2007–2014

This graph shows the negative relationship between local and foreign wines in Thailand. Within the sample period, the demand for domestically produced wine decreased by 54.68 per cent; however, wine consumption in Thailand increased by 64.08 per cent. The difference between the total demand and local wine is the amount that needed to be imported into the country by foreign producers.

Source: Company documents. .

exhibit 6: total wine and beer consumption in thailand, 2007–2014

This graph helps to illustrate the cross-price elasticity relationship between wine and beer. Beer had increased in price by 44.96 per cent, and the demand for beer decreased by only 1.46 per cent. These data suggest that, at current price levels, beer was fairly inelastic. Since 2009, the gigantic beer industry had experienced little change in consumption; however, the smaller wine industry (representing approximately 10 per cent of the beer industry) had rapid growth.

Note: This graph helps to illustrate the cross-price elasticity relationship between wine and beer. Beer had increased in price by 44.96 per cent, and the demand for beer decreased by only 1.46 per cent. These data suggest that, at current price levels, beer was fairly inelastic. Since 2009, the gigantic beer industry had experienced little change in consumption; however, the smaller wine industry (representing approximately 10 per cent of the beer industry) had rapid growth.

Source: Bloomberg Professional.

1. Nareerat Wiriyapong, “Thai Wine, Anyone?,” Things Asian, February 1, 2007, accessed January 16, 2017, http://thingsasian.com/story/thai-wine-anyone. [↑](#footnote-ref-1)
2. Arthur Klatsky, Mary Ann Armstrong, and Gary Friedman. “Red Wine, White Wine, Liquor, Beer, and Risk for Coronary Artery Disease Hospitalization,” *American Journal of Cardiology* 80, no. 4 (1997): 416–420. [↑](#footnote-ref-2)
3. Domingo, “Trends and Opportunities: Wine to Thailand,” China Wines Information Website, 2009, accessed August 11, 2016, http://en.wines-info.com/html/2009/3/189-25666.html. [↑](#footnote-ref-3)
4. W. Chaveepojnkamjorn, “Alcohol Consumption Patterns among Vocational School Students in Central Thailand,” *Southeast Asian Journal of Tropical Medicine and Public Health* 43, no. 6 (2012), 1560–1567. [↑](#footnote-ref-4)
5. All currency amounts are in U.S. dollars unless otherwise stated; AU$0.71 = US$1. [↑](#footnote-ref-5)
6. Domingo, “Trends and Opportunities: Wine to Thailand,” China Wines Information Website, 2009, accessed August 11, 2016, http://en.wines-info.com/html/2009/3/189-25666.html. [↑](#footnote-ref-6)
7. S. Sirikeratikul, *Report TH9124*, U.S. Department of Agriculture Foreign Agricultural Service, 2009. [↑](#footnote-ref-7)