

THE PENNSYLVANIA STATE UNIVERSITY  
SCHREYER HONORS COLLEGE

DEPARTMENT OF BUSINESS ECONOMICS

LAKE ERIE WINE INDUSTRY PROFILED

STUDENT NAME NATALIE SZALAJKO  
SPRING 2018

A thesis  
submitted in partial fulfillment  
of the requirements  
for baccalaureate degrees  
in Business Economics and Finance  
with honors in Business Economics

Reviewed and approved\* by the following:

Mark Owens  
Professor of Economics  
Thesis Supervisor

Mike Brown  
Professor of Management, MBA Program  
Professor of Management, Business and Management  
Honors Adviser

\* Signatures are on file in the Schreyer Honors College.

## ABSTRACT

The wine industry in Pennsylvania is little known outside of the state, but this is most likely to change in the future if production continues to grow. This research intends to identify the stage of development the Lake Erie Wine Country is currently in and expects it and the state of Pennsylvania to be in a stage of growth. Many of the indicators positively suggested growth such as high production growth rates for the state of Pennsylvania, higher than that of California which has reached the maturity stage in development, and an increasing number of producers for the past several years. The growth of production in Pennsylvania is most attributable to the deregulation of the liquor laws in the state. These deregulations allow for continuous new opportunities for growth and expansion for the wineries. The Lake Erie Wine Country also had positive indicators for growth in its increasing number of wine selections being offered, and its rising prices. Legislation also played a larger role in the growth of the Lake Erie Wine Country, it not only provided new opportunities for expansion, but also provided a barrier to entry to the industry by giving it a monopoly on the Erie County area. Other characteristics also supplemented the monopoly the wine industry here possesses by producing wines that are specific to the terroir of the region, and dominating the local wine sections in Wine & Spirits stores.

## TABLE OF CONTENTS

ABSTRACT.....	i
TABLE OF CONTENTS.....	ii
LIST OF FIGURES .....	iii
Chapter 1 Introduction .....	1
Background .....	2
Chapter 2 Literature Review.....	5
Chapter 3 United States Production Level .....	6
State Level Producers and Production .....	7
Chapter 4 Lake Erie Wine Country .....	14
Chapter 5 Conclusion.....	24
Suggestions for Further Research .....	24
Appendix A Top 10 States with Highest Number of Producers.....	25
Appendix B Top 10 Wine Producing States in the U.S. (Gallons).....	27
Appendix C Top 10 Growing States in Wine Production (%).....	29
Appendix D Lake Erie Wine Country Winery Participation.....	30
Appendix F Number of Wine Offerings for Individual Wineries in the Lake Erie Wine Country .....	32
BIBLIOGRAPHY.....	33

**LIST OF FIGURES**Error! No text of specified style in document.

Figure 1: Data from ATTB in U.S. DOT .....8

Figure 2: Data from ATTB in the U.S. DOT .....8

Figure 3: Data from ATTB in the U.S. DOT .....10

Figure 4: Data from ATTB in the U.S. DOT .....10

Figure 5: Data from Lake Erie Wine Country .....16

Figure 6: Data from Individual Winery Websites Using the Wayback Machine .....19

Figure 7: From Intelligent Economist .....23

## **Chapter 1**

### **Introduction**

Pennsylvania is not a state that many think of when they think about wine. Most people figure that the state is covered in too many mountains for vineyards to grow, but inhabitants of Pennsylvania know this is not the case. Specifically in Pennsylvania, there exists a belt of land just underneath Lake Erie that has very fertile soil and a special climate that enables grapes to grow, this belt is called the Lake Erie Wine Country. This study examines the wine industry at the national, state, and micro level specifically for Pennsylvania and the Lake Erie Wine Country. It examines the number of producers, production levels, number of wine selection offered, and percentage changes in prices in order to determine the stage of development of the wine industry. Both Pennsylvania and the Lake Erie Wine Country are in stages of growth due to high production growth rates, a rising number of different wine selections, and rising prices. Deregulation of the liquor laws in Pennsylvania keep the state in a growth stage by constantly presenting new opportunities of expansion for wineries in the state, while other states, like California, have reached a stage of maturity where there are no more opportunities for growth by its wineries. Together with the deregulating legislation that has been enacted in the last several years, the Lake Erie Wine Industry also acts as a monopoly in the Erie County area that gives wineries here significant growth and profits in the long run.

## Background

The Lake Erie Wine Country, located on the southern shore of Lake Erie, currently consists of 22 wineries and is in the largest grape-growing region east of the Rockies (Lake)<sup>1</sup>. It reaches about 50 miles along the coast of Lake Erie from Silver Creek, New York (Chautauqua County) to Harborcreek, Pennsylvania (Erie County) (Lake). The terroir, or heritage of the soil and people, is attributed to the success of the area, which begins back in the Ice Age when glaciers formed the land (Lake). Glaciers came from the north, gouging deep trenches in the earth and formed the Great Lakes, and then when temperatures rose, the glaciers melted leaving behind the Great Lakes and very fertile soil along the Lake Erie shore (Lake). The moderate temperatures along the shore during the spring and fall seasons, which would not be possible without the Lake, combined with the richness of the soil gives the Lake Erie Wine Country its unique terroir (Lake).

Wineries in the area began in the early 1900's and were soon put underground during the prohibition era of the 1920's and early 1930's (Appellation). Despite the efforts of prohibition, grape growing on the shore of Lake Erie actually increased during the period (Appellation). Many growers sold their grapes legally to home winemakers, or made wine illegally and sold it across the lake in Canada (Appellation). In 1937, four years after the repeal of prohibition, the number of wineries soared in the Lake Erie region to 160 wineries (Appellation). Later by 1967, that number dwindled to less than 20 (Appellation). The following year the Pennsylvania Limited Winery Act of 1968 and the New York Farm Winery Act of 1976 were implemented (Lake). The acts allowed individual grape farmers to establish small wineries, which kept the

---

<sup>1</sup> Refer to Appendix D for historical data

industry afloat (Lake). Both set limits on the annual production of wine in the respective areas at 250,000 gallons in Pennsylvania and 50,000 gallons in New York (Lake). These limitation on production, in fact increase the quality of the wine. The quality of grapes on a grape vine is a zero sum game. The more grapes on a vine the less quality that is present in the individual grapes. Therefore limiting the amount of grapes on the vine, or the production, will increase the quality of the grapes and later the wine. The constraint was later revised to its current limit of 200,000 gallons of wine production per winery (Pennsylvania).

The Pennsylvania Liquor Control Board (PLCB) regulates the production limit and requires monthly reports from all license holding Limited Wineries (Pennsylvania). The reports consist of sale invoices showing the name and address of the recipient of the merchandise, date of sale, number of units, size and type of package, brand name, selling price of the wine, and the net cost to the consumer (Pennsylvania). Limited Wineries are broadly defined by the PLCB as wineries that produce less than 200,000 gallons of alcoholic wine, wine coolers, or ciders (Pennsylvania). A license without a production cap is available; however, a winery with this kind of license is not allowed to sell to the public or licensees, but only to the PLCB (Pennsylvania).

Due to the broad definition of a Limited Winery, a winemaker who makes wine in their own home may sell it, as long as they fit the description of a Limited Winery and are licensed (Pennsylvania). Seemingly, by this definition, anyone could crush grapes in their home and be able to call their establishment a Limited Winery, but it is deceptively simple. The application fee alone is \$700, with an annual renewal application and filling fee totaling over \$400, and a quarterly pro-rated license fee outside of application fees equaling nearly \$1,000 (Pennsylvania). The application also includes four different forms, background checks, site plans, and individual

and premise photographs (Pennsylvania). Many wineries do pay the license fees to sell wine, and 22 of them consist of the Lake Erie Wine Country (Lake).

The Lake Erie Wine Country today is home to many quality wines that rival the premium vintages throughout the world, from French-American and European-style wines to fruity natives (Lake). The area is most known for cold weather grapes, which include concord, labrusca, and vidals that have distinctly different tastes than grapes grown in warmer areas (Appellation). The Lake Erie Wine Country, while predominant in production, is a small statistical area making up only part of a greater American Viticulture Area, causing data collection to be difficult and sparse. The data presented is intended to be foundational and built upon, as data of this nature does not exist for this specific area.



## **Chapter 2**

### **Literature Review**

Prior research studies of wine industries use many different variables like production, consumption, expenses, and even the number of visitors (Marrison). They also vary in the ways that data is collected, some use data from sources such as the Gomberg-Fredickson Report, the Alcohol and Tobacco Tax and Trade Bureau, or from wineries themselves (Economics). While others collect data by sending out individual surveys to wineries and recording responses (Marrison). The information from this study is mostly taken from the Alcohol and Tobacco Tax and Trade Bureau, and from the wineries themselves. Surveys were not utilized as Marrison had done in his research. Two previous studies done on wine industries both examined the economic impact of the wine industries on the local economies. Economic impact studies require very extensive software and are beyond the scope of this research, however, this study does share some similarities in the variables examined as Marrison examined in his study on the wine industry in Ohio and what MKF Research LLC examined in Pennsylvania. While both of these studies examined internal information such as number of employees, wages, tourism expenditures, information that is not typically readily available to the public, this study will be examining external information (Marrison, Economics). External information includes variables such as number of producing wineries in an area, wine production, winery age, number of wine selections, and prices.

## Chapter 3

### United States Production Level <sup>2</sup>

In 2016, the world produced 259 million hectoliters and consumed and estimated 240 million hectoliters (Mhl) of wine (Karlsson). The number one wine producing country is Italy, not surprisingly, with 48.8 Mhl followed by France and then Spain with 41.9 Mhl and 37.8 Mhl respectively. The fourth largest producer in the world is the U.S. with 22.5 Mhl, less than half of the production of Italy. After the U.S., production again drops dramatically to 12.5 Mhl produced by Australia, less than half of the U.S. production level. The lower level producing countries are much more clustered, with China producing 11.5 Mhl, Chile producing 10.1 Mhl, and South Africa producing 9.1 Mhl. The U.S. is examined in greater detail below.

---

<sup>2</sup> All data taken from Karlsson, Britt. "The world's biggest wine producing countries in 2016, in short." *BK Wine Magazine*, 20 Nov. 2016, <https://www.bkwine.com/news/worlds-biggest-wine-producing-countries-2016-short/>. Accessed 6 Apr. 2018.

## State Level Producers and Production

Wine production at the state level is mainly dominated by California, to no one's surprise. However, surprisingly, Pennsylvania has been in the top 10 wine producing states since 2012. According to data from the Alcohol and Tobacco Tax and Trade Bureau (ATTB) from the U.S. Department of Treasury (DOT), 41 states produced wine in 2016, the latest year of available data, up from 35 in 2007. The greatest producing state is California with 680,272,512 gallons of wine produced in 2016. California (CA) accounted for 84.4% of the wine produced in the U.S. in 2016, which actually dropped from 89.2% in 2007. California makes up such a large percentage of the U.S. wine production that it exactly mirrors the U.S. trends on a slightly lower level. Appendix B shows the top 10 wine producing states from 2007 to 2016, along with their percent of U.S. sales and the production total for that year. In order to gain a better look at the production level of Pennsylvania (PA), an average for all other states was calculated excluding PA and CA to form a benchmark, and then graphed alongside PA. California totals were so extravagant that they were graphed alongside the U.S. totals. These findings can be found in **Figure 1** and **Figure 2** below.

**Figure 1: Pennsylvania Wine Production Levels (Gallons) from 2007 to 2016**

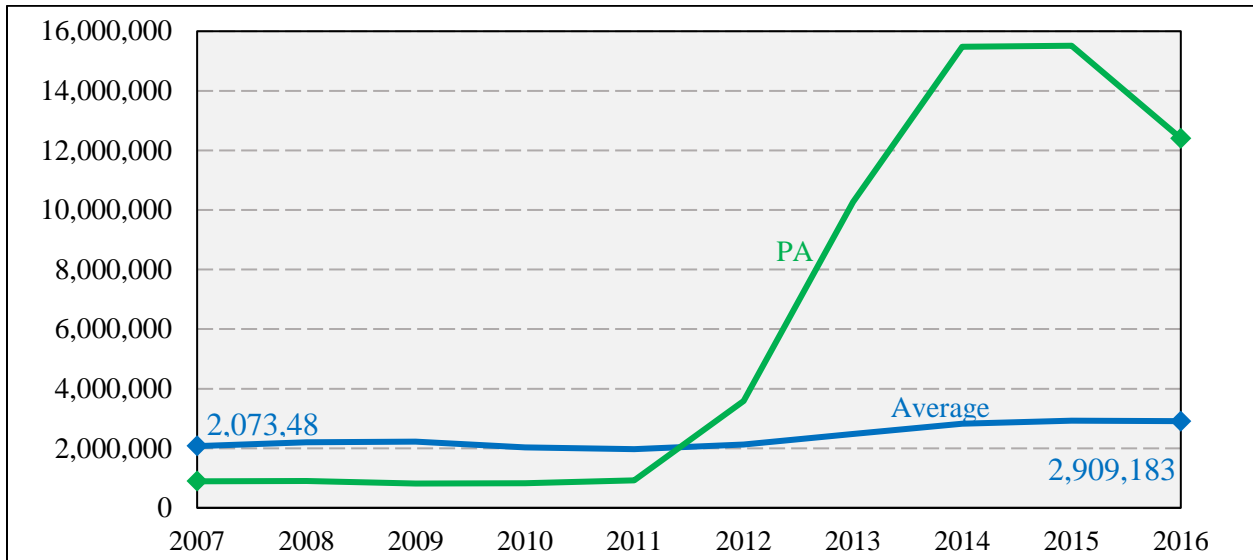


Figure 1: Data from ATTB in U.S. DOT

**Figure 2: California and U.S. Wine Production Levels (Gallons) from 2007 to 2016**

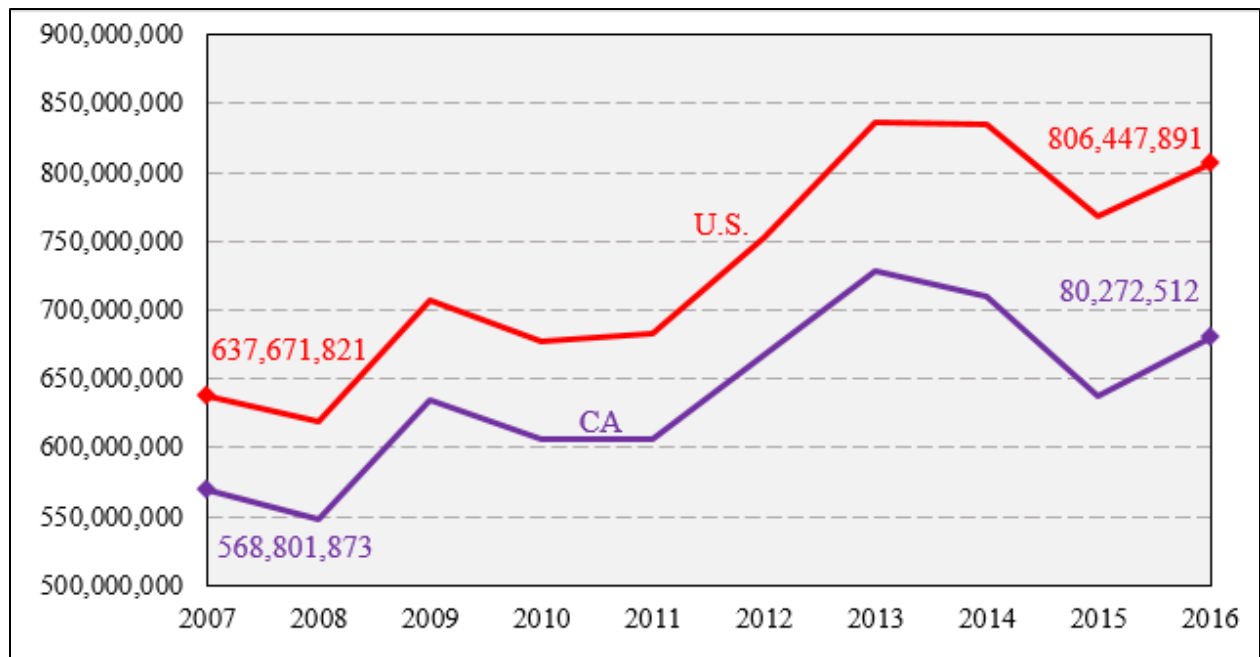


Figure 2: Data from ATTB in the U.S. DOT

As shown in **Figure 1**, PA started below the average benchmark in 2007, but suddenly experienced tremendous growth in the time between 2011 and 2014 before it plateaued for a year and finally decreased in 2015. Wine production in PA increased 1,244.5% from 922,632 gallons in 2011 to 12,405,181 gallons in 2016. The benchmark, during the same period, only grew 47.6% from 1,970,672 gallons in 2011 to 2,909,183 gallons in 2016. PA went from making up 0.14% of U.S. wine production in 2011 to 1.85% in 2014. The only two states that have produced more than the PA, besides CA, since 2013 are Washington and New York<sup>3</sup>.

While CA may produce majority of the wine in the U.S., it is not home to the fastest growing wine industry. California has reached a maturity level in its development where it no longer experiences large amounts of internal growth, but rather the majority of growth comes from the cyclicity of the economy. For example, during the same period that PA experienced a 1,244.5% increase in production, CA only experienced a 12.3% increase in production. The U.S. fared only slightly better with an 18.0% increase from 2011 to 2016. While CA does make up majority of the U.S. wine market, it seems that it is slowly losing some of its market share to other states, especially given the almost 5% decrease in location quotient since 2007. When comparing areas in terms of growth, PA is the area that had to be graphed by itself, while the U.S., CA, and the benchmark average were graphed using the same scale as seen in **Figure 3** and **Figure 4** below.

---

<sup>3</sup> Please refer to Appendix B for more details

**Figure 3: Wine Production Growth Rates (%) of U.S., CA, and Benchmark from 2008 to 2016**

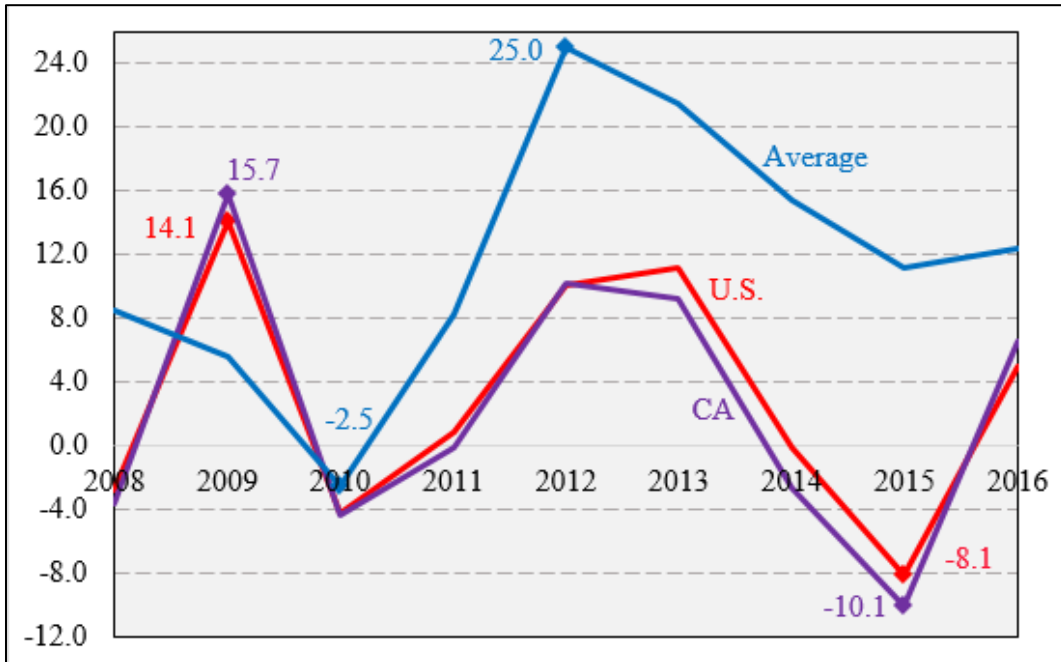


Figure 3: Data from ATTB in the U.S. DOT

**Figure 4: Wine Production Growth Rates (%) of Pennsylvania from 2008 to 2016**

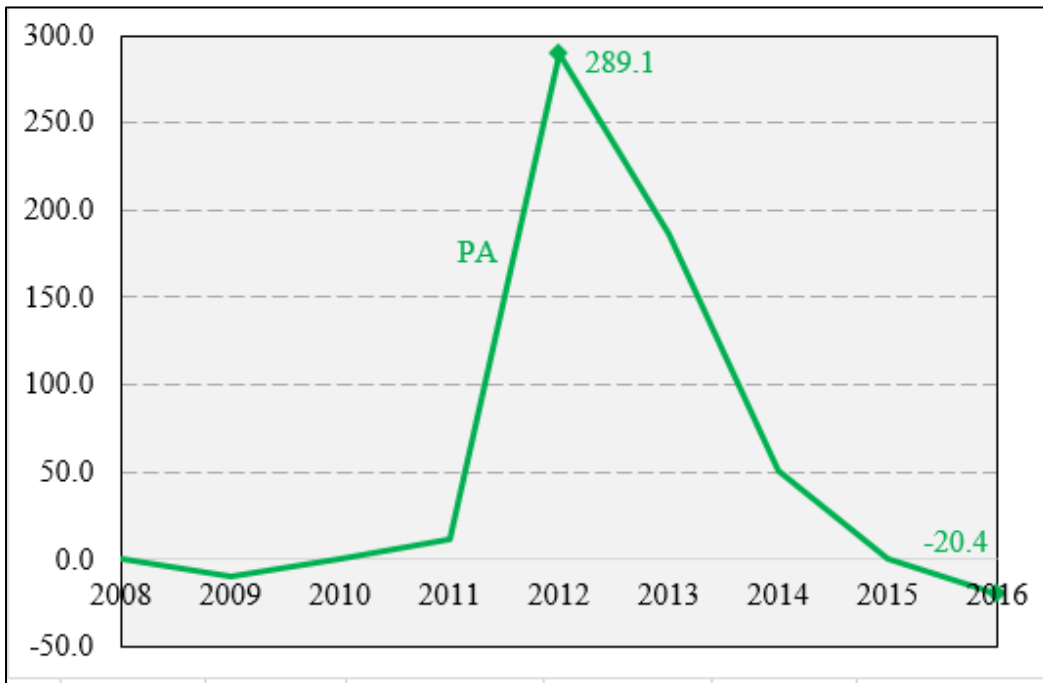


Figure 4: Data from ATTB in the U.S. DOT

California dictates the growth rate of wine production of the U.S. as it does in actual production levels. However, as seen in the graph, it is not an accurate representation of the rest of the U.S. market. The average benchmark out performed CA for several years in terms of growth, meaning that while California has reached its maturity stage, the majority of other wine producing states in the U.S. are still developing. In 2016, CA finished with a growth rate of 6.6% with the U.S. slightly behind at 5.0% and the benchmark nearly double at 12.4%.

Pennsylvania during this time seemed to be following its own rhythm with a growth rate of 289.1% in 2012. In 2012, PA was the fastest growing state in the U.S. for wine production and continued to stay in the top ten until 2014, whereas CA only made a brief appearance in 2009<sup>4</sup>. After 2012, PA's growth rate significantly fell by almost 103 percentage points to 186.6% in 2013. Then, PA's growth rate turned negative in 2016 falling -20.0%. Despite the recent correction in production in PA, there is still noticeable growth in the wine industry.

Pennsylvania was not the only state to experience significant growth in 2012. Prior to 2012, only one state experienced a growth rate above 75%, which was Kentucky in 2009 with a growth rate of 118.7%. In 2012, six states experienced growth rates above 75%, and five of them were over 100%. In 2013, four states experienced growth over 75%, with two in 2014, and one in 2015 and 2016 each. As seen in the production levels for the U.S. in **Figure 3**, the U.S. total production levels increased during this time, even if it's overall growth rate was lower than that of the benchmark. Clearly, there were substantial circumstances at this time to cause such an increase in production. A simple explanation is that there was a large increase in new wine producers during these years; however, the data shows that this was not the case. In 2012, the

---

<sup>4</sup>Please refer to Appendix B and C for more details on the top ten highest growing states in wine production since 2008

year that PA experienced a growth rate of 289.1%, the number of producers in PA only grew by about 15.0%.<sup>5</sup> While still an above average growth rate, it is not a significant enough increase to account for such an enormous spike in production in PA.

If the number of wine producers did not increase enough to account for the amount that production rose in PA, then that means the current wineries in PA upped their own production. The only other logical explanation is a change in legislation. Act 35, signed into law in 2010, made some very drastic changes to the liquor laws for limited wineries. Act 35 allowed limited wineries to utilize up to two additional storage locations outside of its primary winery and satellite locations with no bottling or production requirements at the new storage sites (Alcohol).<sup>6</sup> The act was signed into law two years prior to the large wine production boom in PA, which would fit the timeline. Wineries would need time to, first, build the extra storage sites, and second, apply and receive the additional permits needed, which would take a couple of years to accomplish.

The large increase in production during this time was most likely due to an increased ability to store wine unhindered by production or bottling requirements. Act 35 is certainly not the only contributor, however. Acts 11 and 113 of 2011, Act 116 of 2012, and Acts 39 and 166 of 2016 all contributed to increases in production in PA through the deregulation of PA liquor laws. Some changes included the ability to sell wine kegs (Act 116), the addition of special permits and/or the extension of use for special permits that allow off property sales (Acts 39, 166, and 113), and lengthening the hours a winery is allowed to sell wine (Act 11). All are contributors to the recent spike in production of PA wine as they all facilitate a winery's ability

---

<sup>5</sup> Please refer to Appendix A for a state top 10 list of wine producers with totals and location quotients

<sup>6</sup> Acts can specifically be found here: <http://www.lcb.pa.gov/Legal/Pages/Legislative-Updates.aspx>



to sell. The continuous deregulation of the PA liquor laws are a key factor to the sustained growth of the local wine industries in PA.

## Chapter 4

### Lake Erie Wine Country

Each of the 22 wineries currently in the Lake Erie Wine Country was examined on an individual basis and profiled with data given in Appendix D. Appendix D shows the historical participation of wineries in Lake Erie Wine Country with 17 wineries participating since data was available in 2011, and a total of 28 different wineries participating over the years. The variables examined were years in operation or winery age, percentage change in the average price of a bottle of wine at a winery, and percentage change in the total number of wines offered by a winery. The data was obtained by using a website known as the Wayback Machine. The Wayback Machine is an internet archive that records websites giving one the ability to see a chronological version of the desired site, for dates and years that the website had been archived. From the Lake Erie Wine Country website, I went to the individual winery websites, and then inputted the individual URLs in the Wayback Machine to see historical versions of the individual winery sites. I then recorded the types of wine offered throughout the years by the winery and the prices of each wine for each of the years a URL had been archived.

The availability of data for each winery varies among four wineries (21 Brix Winery, Noble Winery, Johnson Estate Winery, and Merritt Estate Winery), having data available from 2012 to another (Yori Wine Cellars) only having available data from 2017<sup>7</sup>. Some wineries have not yet adjusted to the turn in technology and do not have websites, or only started using websites a few years ago making uniformity in data across all wineries impossible. As a result, the Appendixes give as much historical data as is available for each of the 22 wineries.

---

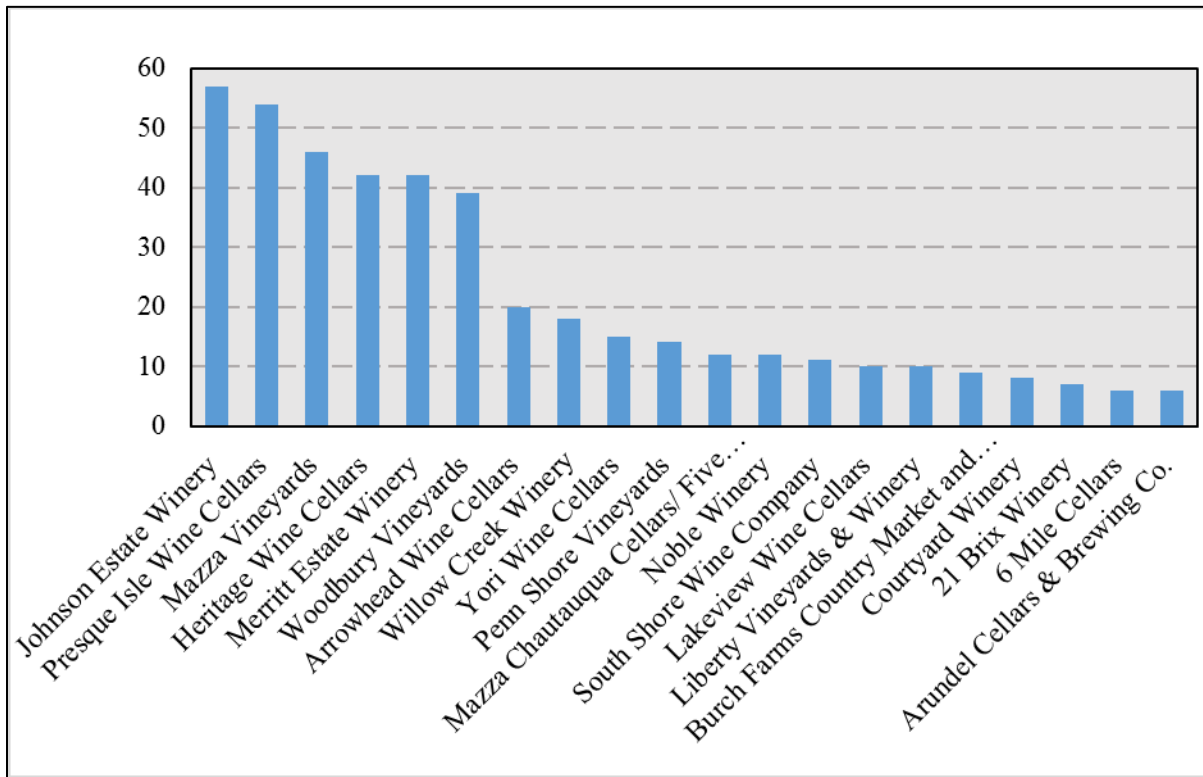
<sup>7</sup> Refer to Appendix E

While, the availability of data for the wineries is not long in breadth, the age of wineries can reach up to 57 years, as is the case of Johnson Estate Winery.<sup>8</sup> Excluding the two wineries that do not list their date of establishment (Quincy Cellars Winery and Sensory Winery & Art Gallery), 30% of wineries are older than 25.5 years old, or the halfway point between the oldest and youngest wineries, and 70% of wineries are younger than the 25.5 year old threshold. The average age for a winery in The Lake Erie Wine Country is 21.9 years old. However, as mentioned, this number is skewed, as majority of the wineries are younger. The median is a better statistical representation of the winery age as it is lower than the average at 15 years. A few exceptions like Johnson Estate Winery, Presque Isle Wine Cellars, and Mazza Vineyards with respective ages of 57, 54, and 46 are the oldest, while 6 Mile Cellars and Arundel Cellars & Brewing Co. are the youngest at 6 years old as shown in **Figure 5** below. Those wineries that were established in 2011 and 2012, that are six to seven years old, were contributors to the substantial rise in wine production that PA experienced on a state level.

---

<sup>8</sup> Refer to Appendix E

**Figure 5: Years Open**



**Figure 5: Data from Lake Erie Wine Country**

The percentage change in wine offerings was calculated using the first year of available data for the individual winery and the current (2018) data, so each winery may or may not have the same length of time the percentage change was taken over. Appendix F gives the total number of wine offerings of each winery for all of the available years of data, with the percentage change calculated in the last column. The raw data is given here so a trend analysis can be done on each winery. Wine offerings fluctuate from year to year, but this study examines each winery from the beginning of its data to the present to obtain an overall picture of the Lake Erie Wine Industry. It is important to note, however, that this statistic does leave out the intermediate changes in the data and that some wineries experience greater or lesser percentage changes if taken using a different initial year. Other wineries such as Quincy Cellars Winery, Penn Shore

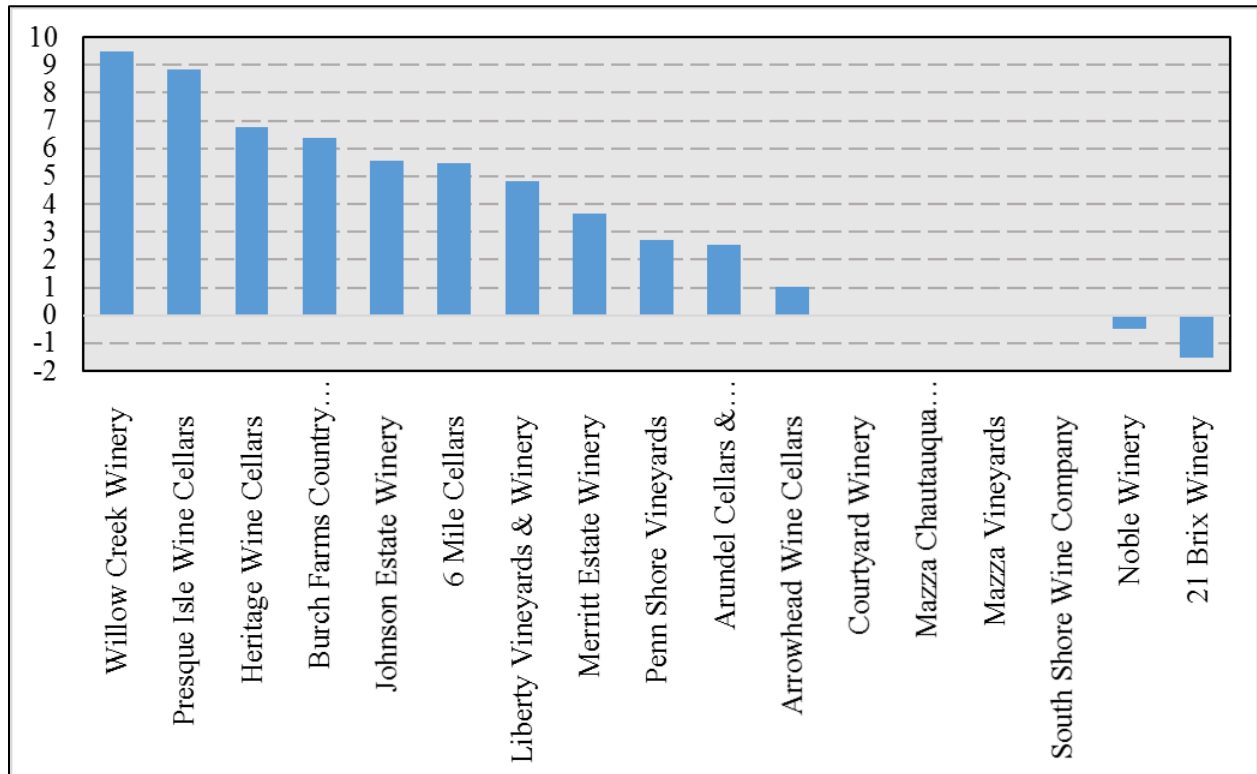
Vineyards, Mazza Chautauqua Cellars/ Five & 20 Spirits & Brewing, Courtyard Winery, Burch Farms Country Market, and Wine Shop had no change in the number of wines they offered since the first date their data was available. Out of the 22 wineries currently in the Lake Erie Wine Country, 21 had enough available data to calculate a percentage change in number of wine offerings. Of the 21 wineries: 81.0% or 17 had percentage changes equal to or greater than zero, 52.4% had percentage changes greater than zero, and 19.0% had negative percent changes in number of wines offered.

21 Brix Winery had the largest percentage change of wine offerings with an increase of 42.1% from 19 wines offered in 2012 to 27 wines offered in 2018. Arundel Cellars & Brewing Co. had the second largest increase in wine offerings of 38.5%, from 13 offerings in 2015 to 18 in 2018. Heritage Wine Cellars, Merritt Estate Winery, 6 Mile Cellars, and Woodbury Vineyards all had decreases in wine offerings, the largest being Woodbury Vineyards with a -15.0% decrease to 17 offerings in 2018 from 20 in 2016. However, the winery with by far the most number of wine offerings is Heritage Wine Cellars, with 47 offerings in 2018, down - 4.1% from 49 offerings in 2015. 6 Mile Cellars has the least amount of wine offerings with only 9 different types of wine in 2018, - 10.0% decrease from 10 offerings in 2015. The Lake Erie Wine Industry as a whole experienced an average percentage change in number of wine offerings by its individual wineries of 8.1%, meaning the frequency and magnitude of positive changes in wine offerings is greater than the frequency and magnitude of negative changes.

An overall increase in wine offerings could mean the industry and the overall performance of the wineries is growing. If examined on an individual basis, with a marketing mindset, the data could show the type of marketing strategy the individual winery is following. Wineries with a positive percentage change in number of wines offered, especially on an extreme

level like 21 Brix Winery, could be adopting a broad strategy where they produce many different types of products to appeal to many consumers. Other wineries like Woodbury Vineyards that experienced large negative changes could be adopting a narrow targeted strategy, where they focus on specializing in a few types of wine therefore decreasing their overall product offerings, in order to differentiate themselves from others.

Another means of providing further insight into the industry is to examine the prices, or changes in prices, that the individual wineries have set over the years. The percentage change in price was calculated by taking the percent change in price for each individual wine the winery offered. The initial and ending periods for each wine differed on all fronts, as the number of wine offerings often change from year to year. However, the first year of data availability was used as the initial year and the ending period was either the current year or when the wine selection was no longer offered. Wine selections that were only offered for one year were not used, as a percent change could not be calculated for those selections due to the brevity of sale time. The percentage changes were then averaged to receive a mean percentage change in price for each winery to achieve an overall effect as displayed in **Figure 6** below.

**Figure 6: Average Percentage Change in Prices****Figure 6: Data from Individual Winery Websites Using the Wayback Machine**

Out of the 22 wineries currently in the Lake Erie Wine Country, only 17 had prices stated online (for further details please refer to Appendix B). Out of the 17 wineries that had pricing data available, 88.2% or 15 had an average percentage change of zero or greater, 64.7% or 11 had an average percentage change of prices greater than zero, and 11.8% or 2 had a negative average percentage change in prices. Willow Creek Winery had the highest average percentage change at 9.5% since 2015, and Presque Isle Wine Cellars close behind with 8.8% since 2013. The price increases are quite significant, especially for Willow Creek Winery, whose prices on average increased 3.2% every year for an almost 10% increase over three years, a hefty rise. Willow Creek Winery and Presque Isle Wine Cellars also increased their number of wine

offerings by 11.8% and 12.9% respectively, two very positive statistics for these two wineries that typically indicate growth. Given the increases in both prices and number of wines offered, it is likely they are following a broad cost and product strategy that entails offering a variety of differentiated products without a focus on cost.

The two wineries that have lowered their prices were Noble Winery and 21 Brix Winery with average percentage change in prices of -0.50% and -1.53% respectively since 2012. These decreases, however, are not very substantial as they represent a -0.08% decrease in prices every year for Noble Winery and a -0.3% decrease in prices every year for 21 Brix Winery. Both of these wineries also increased the number of wine offerings during this time, potentially meaning that they are following a broad product and narrow cost strategy. A broad product narrow cost strategy entails offering a multitude of products at a lower cost. Given the decrease in percentage change in price and the increase in number of wines offered by these two wineries, it is likely they are following this strategy.

Overall, the average of the percentage change in prices of the individual wineries is 3.3%, indicating an overall growth of prices in the industry. The median is slightly lower, but well in line with the average, at 2.7%. Higher prices can be an effect from several different factors; however, most commonly higher prices are a short-term result from an increase in demand. Another option that can be applied to the wine industry is scarcity. Vineyards have a limit on how much they can produce. It is not as simple as running a machine day and night to produce a certain commodity, but depends on the yield of a harvest in any given year. Majority of the wineries are young, so most vineyards will be small in scale and have lower production levels than more established vineyards that possess economies of scale. Increases in prices from these



wineries could also be attributed to the limited availability of their products, in addition to an increase in demand.

The positive results for the Lake Erie Wine Country, in both categories of price and number of wine selections, indicates that the area wineries are in good standing and have been experiencing some growth over the last several years.

Another positive contributor to the growth of the Lake Erie wine industry is that the wineries in the Lake Erie Wine Country have a monopoly on the area, which guarantees them a consistent amount of demand from Erie County. One of the characteristics of a monopoly is that there are many consumers in the market for a good produced by a single supplier. Erie County provides a large base of consumers for these and only these wineries. The Wine & Spirits stores may carry other brands of wines, but when it comes to the local wine section, it solely consists of wines from the Lake Erie Wine Country region. This is especially indicative since “local” in the U.S. can mean anything from within the county to a very different county in a neighboring state hours away. Likewise, as mentioned in the beginning, the wine industry below Lake Erie is the largest grape growing region east of the Rockies (Lake). An easy win as far as competition goes for the wineries that make up the Lake Erie Wine Country.

A second criterion for monopolies is barrier to entry, which often are created through legislation. The legislations used in this case to create barriers to entry in the wine industry are the permits and licenses required to sell wine in PA. The license itself requires a significant amount of capital, much more than any home winemaker is willing to pay to be able to sell their wine. The high fees associated with the limited winery license and with the different and numerous permits needed to sell wine keep smaller winemakers from entering the market. Only

those wineries above a certain size, that have a significant amount of capital built up, would be able to cross the legal hurdles needed to enter the market.

A third characteristic of a monopoly is that there are no readily available substitutes in the market for the good that they produce. The temperature underneath Lake Erie in the growing season enables the area to grow certain grapes that are rare to find in other places, giving them a unique and differentiated quality. Many of these grapes produce sweet wines due to the cold temperatures that bring out the natural sugars in the grapes. Vidal is one such example, Vidal grapes are left on the vine until they are frozen, only then are they picked and left to ferment, producing a very sweet wine that is mostly used for desserts. Other grape varieties include Niagara and Concord, both naturally sweet cold loving grapes. The terroir of the wine belt under Lake Erie provides a natural feature of differentiation to its products, which few other places can replicate to produce the same wines. Wine & Spirits stores are highly unlikely to carry a Vidal Ice from anywhere else in the U.S., let alone the world. Likewise, a Niagara would also be difficult to come by from a vineyard outside of the Lake Erie wine region, and if one was produced, it would not possess the same qualities as one made just below the lake.

One advantageous benefit to having a monopoly on an area is that monopolies can achieve profits in the long run. **Figure 7** shows the equilibrium output of a monopoly, and how it will produce a long run economic profit. This model demonstrates how the Lake Erie Wine Country will generate a profit. The optimal production point for a monopoly in the long run is to produce a quantity at the point where the marginal costs equals the marginal revenue. In order to determine the price from this point, find the price point on the demand curve at the optimal quantity. The price point will be higher than what it is when using the marginal revenue, enabling the monopoly to charge a higher price for their product. Given that Lake Erie Wine

Country possesses the characteristics of a monopoly, its profit model will look and perform similar to the monopoly model shown in **Figure 7**.

### Figure 7: Profit Model of a Monopoly

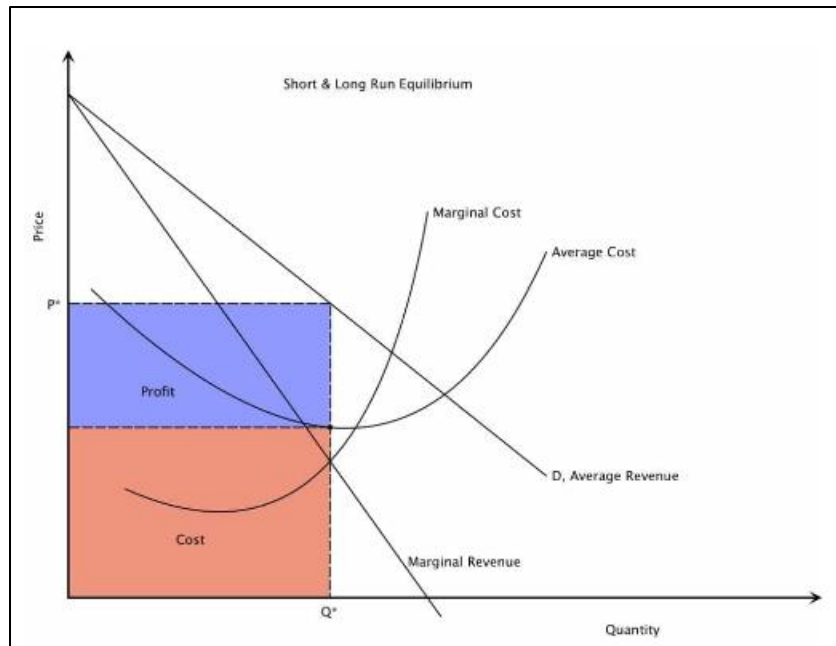


Figure 7: From Intelligent Economist

## **Chapter 5**

### **Conclusion**

The liquor laws in Pennsylvania attribute greatly to the state's wine industry growth, while also providing a barrier to entry for established wineries that gives them a monopoly on the area, along with their specialized grapes and terroir of the territory. This is certainly the case for the Lake Erie Wine Country and its overall increasing number of wine selections and rising prices, suggesting that the micro wine industry is growing right along with the state and its increasing production levels and number of producers. While Pennsylvania may not presently be a state that out of state inhabitants recognize as a wine producer, with its continued growth, this could certainly change in the future.

### **Suggestions for Further Research**

Suggestions for further research include increasing the breadth of data on the wineries by finding greater historical data on the older wineries, and systematically recording data on the young wineries in the future to capture a better outlook of long-term results. As discussed above, increases in price happen as a short-term result of a positive shift in demand. In the long-term sustainable high prices, produce a positive shift in supply as suppliers want to take advantage of the increased profits. This study, however, lacks the span of data necessary to examine long-term effects, and does not look at the supply side of the market. Further examination of supply side factors such as production, vineyard yields, or the amount of inventory that carries over into the next season would provide greater insight into the long-term shifts of the market. Another possible avenue of research is to examine the effects that local wineries have on the local economy. As the wineries become more established and expand in production, they will hire more workers, raise wages as profits increase, re-invest in themselves and improve business processes, or simply enhance the local tourism industry. All of which can have an impact on the local economy.

## Appendix A

### Top 10 States with Highest Number of Producers

2017			2016			2015			2014		
	% of U.S.	Total		% of U.S.	Total		% of U.S.	Total		% of U.S.	Total
CA	167.10	4,836	CA	160.78	4,653	CA	152.59	4,416	CA	148.06	4,285
WA	37.70	1,091	WA	35.21	1,019	WA	34.04	985	WA	34.17	989
OR	24.08	697	OR	22.25	644	OR	20.80	602	OR	20.04	580
TX	19.94	577	ND	18.31	530	ND	16.79	486	ND	16.62	481
ND	19.56	566	TX	17.17	497	TX	15.55	450	TX	15.17	439
MI	15.76	456	MI	13.37	387	MI	11.54	334	VT	10.71	310
<b>PA</b>	<b>13.13</b>	<b>380</b>	VT	11.47	332	VT	10.82	313	MI	9.81	284
VT	12.30	356	<b>PA</b>	<b>11.33</b>	<b>328</b>	<b>PA</b>	<b>10.12</b>	<b>293</b>	<b>PA</b>	<b>9.26</b>	<b>268</b>
OH	11.89	344	OH	10.37	300	OH	9.33	270	OH	8.43	244
MS	8.12	235	MS	7.64	221	MS	7.08	205	MS	7.29	211

2013			2012			2011			2010		
	% of U.S.	Total		% of U.S.	Total		% of U.S.	Total		% of U.S.	Total
CA	140.32	4,061	CA	129.72	3,754	CA	122.32	3,540	CA	104.39	3,021
WA	31.62	915	WA	29.34	849	WA	27.78	804	WA	23.74	687
OR	18.49	535	OR	16.69	483	OR	15.58	451	OR	13.61	394
ND	15.17	439	ND	13.93	403	ND	13.03	377	ND	10.99	318
TX	13.23	383	TX	11.40	330	TX	9.68	280	TX	7.29	211
VT	10.26	297	VT	9.26	268	VT	8.29	240	VT	7.05	204
MI	8.78	254	MI	7.57	219	MI	6.67	193	MI	5.56	161
<b>PA</b>	<b>8.26</b>	<b>239</b>	<b>PA</b>	<b>7.43</b>	<b>215</b>	<b>PA</b>	<b>6.46</b>	<b>187</b>	<b>PA</b>	<b>5.49</b>	<b>159</b>
OH	7.60	220	OH	6.81	197	OH	6.19	179	OH	5.18	150
MS	6.67	193	MS	5.91	171	MS	5.49	159	MS	4.22	122

2009			2008			2007			2006		
	% of U.S.	Total		% of U.S.	Total		% of U.S.	Total		% of U.S.	Total
CA	102.70	2,972	CA	98.24	2,843	CA	92.85	2,687	CA	84.55	2,447
WA	22.87	662	WA	21.73	629	WA	19.97	578	WA	18.21	527
OR	13.03	377	OR	12.44	360	OR	12.13	351	OR	10.99	318
ND	10.92	316	ND	10.50	304	ND	10.23	296	ND	9.36	271
TX	7.43	215	TX	7.01	203	TX	6.25	181	TX	5.49	159
VT	6.74	195	VT	6.36	184	VT	5.63	163	VT	5.22	151
MI	5.49	159	MI	5.29	153	MI	4.70	136	PA	<b>4.39</b>	<b>127</b>
PA	<b>5.46</b>	<b>158</b>	PA	<b>5.08</b>	<b>147</b>	PA	<b>4.66</b>	<b>135</b>	MI	4.32	125
OH	4.91	142	OH	4.70	136	OH	4.28	124	OH	3.97	115
MS	3.94	114	MS	3.73	108	MS	3.49	101	MS	3.46	100

2005			2004			2003			2002		
	% of U.S.	Total		% of U.S.	Total		% of U.S.	Total		% of U.S.	Total
CA	78.61	2,275	CA	71.15	2,059	CA	64.58	1,869	CA	58.88	1,704
WA	15.69	454	WA	12.99	376	WA	11.23	325	WA	9.26	268
OR	10.06	291	OR	8.64	250	OR	7.39	214	ND	6.81	197
ND	8.47	245	ND	7.84	227	ND	7.29	211	OR	6.63	192
TX	4.87	141	TX	3.80	110	OH	3.73	108	PA	<b>3.25</b>	<b>94</b>
VT	4.39	127	OH	3.77	109	VT	3.39	98	OH	3.14	91
PA	<b>3.97</b>	<b>115</b>	PA	<b>3.73</b>	<b>108</b>	PA	<b>3.35</b>	<b>97</b>	VT	3.08	89
OH	3.94	114	VT	3.63	105	MI	3.14	91	MI	2.76	80
MI	3.77	109	MI	3.49	101	TX	2.97	86	TX	2.66	77
MS	3.08	89	MS	2.63	76	MS	2.35	68	MS	2.14	62

2001			2000		
	% of U.S.	Total		% of U.S.	Total
CA	53.97	1,562	CA	50.10	1,450
WA	7.98	231	ND	6.43	186
ND	6.39	185	WA	6.29	182
OR	5.67	164	OR	5.01	145
OH	3.11	90	OH	2.66	77
VT	2.97	86	PA	<b>2.63</b>	<b>76</b>
PA	<b>2.90</b>	<b>84</b>	VT	2.52	73
MI	2.83	82	TX	2.32	67
TX	2.35	68	MI	2.25	65
MS	2.21	64	MS	1.83	53

Appendix A: Data from AATB in the U.S. DOT

## Appendix B

### Top 10 Wine Producing States in the U.S. (Gallons)

2016			2015			2014		
	% of U.S.	Total		% of U.S.	Total		% of U.S.	Total
CA	84.35	680,272,512	CA	83.09	638,173,762	CA	84.94	709,647,220
WA	5.05	40,747,190	WA	5.04	38,730,324	NY	4.14	34,616,418
NY	3.47	27,969,308	NY	4.00	30,707,698	WA	4.07	34,011,480
<b>PA</b>	<b>1.54</b>	<b>12,405,181</b>	<b>PA</b>	<b>2.02</b>	<b>15,513,532</b>	<b>PA</b>	<b>1.85</b>	<b>15,479,868</b>
OR	1.47	11,822,972	OR	1.74	13,379,563	OR	1.40	11,698,997
OH	0.74	5,938,738	OH	0.74	5,716,702	OH	0.54	4,487,434
<i>Average</i>	<i>0.36</i>	<i>2,909,183</i>	VT	0.42	3,255,902	VT	0.46	3,808,701
MI	0.32	2,576,238	<i>Average</i>	<i>0.38</i>	<i>2,926,733</i>	<i>Average</i>	<i>0.34</i>	<i>2,822,740</i>
KY	0.27	2,176,059	MI	0.27	2,064,168	TN	0.28	2,340,348
VT	0.27	2,172,526	VA	0.26	1,962,099	FL	0.23	1,897,279
VA	0.27	2,157,395	FL	0.24	1,838,211	MI	0.21	1,752,699

2013			2012			2011		
	% of U.S.	Total		% of U.S.	Total		% of U.S.	Total
CA	87.18	728,939,759	CA	88.72	667,552,032	CA	88.59	605,619,613
WA	4.08	34,144,441	NY	3.51	26,404,066	NY	3.68	25,183,355
NY	3.25	27,150,759	WA	3.26	24,506,226	WA	3.61	24,656,796
<b>PA</b>	<b>1.23</b>	<b>10,272,127</b>	OR	0.91	6,829,808	OR	0.80	5,479,553
OR	0.95	7,948,408	VT	0.56	4,205,258	VT	0.49	3,356,568
VT	0.52	4,315,420	<b>PA</b>	<b>0.48</b>	<b>3,589,603</b>	KY	0.32	2,196,055
OH	0.39	3,277,838	OH	0.41	3,048,054	<i>Average</i>	<i>0.29</i>	<i>1,970,672</i>
<i>Average</i>	<i>0.30</i>	<i>2,478,838</i>	KY	0.32	2,379,512	FL	0.28	1,920,638
KY	0.27	2,241,527	<i>Average</i>	<i>0.28</i>	<i>2,122,894</i>	OH	0.23	1,568,378
MI	0.26	2,180,359	FL	0.26	1,946,162	MI	0.23	1,540,149
FL	0.24	2,026,230	NJ	0.21	1,561,365	NJ	0.22	1,507,311

2010			2009			2008		
	% of U.S.	Total		% of U.S.	Total		% of U.S.	Total
CA	89.51	606,448,660	CA	89.72	634,384,072	CA	88.46	548,151,246
NY	3.73	25,248,204	NY	3.71	26,257,964	NY	4.37	27,079,238
WA	2.92	19,787,791	WA	3.36	23,757,121	WA	3.92	24,277,400
OR	0.72	4,907,368	OR	0.91	6,417,558	OR	0.95	5,858,545
KY	0.33	2,247,492	<i>Average</i>	<i>0.31</i>	<i>2,224,087</i>	<i>Average</i>	<i>0.35</i>	<i>2,197,248</i>
<i>Average</i>	<i>0.30</i>	<i>2,029,405</i>	KY	0.28	1,992,767	NJ	0.25	1,579,561
FL	0.30	2,018,975	FL	0.26	1,871,429	FL	0.25	1,561,729
NJ	0.22	1,519,742	NJ	0.24	1,711,915	MO	0.21	1,284,993
NC	0.18	1,201,487	MI	0.18	1,269,514	NC	0.20	1,228,619
MO	0.16	1,095,131	NC	0.17	1,231,746	VA	0.20	1,217,978
OH	0.16	1,093,443	VA	0.16	1,162,497	OH	0.18	1,106,719

2007		
	% of U.S.	Total
CA	89.20	568,801,873
NY	4.27	27,219,238
WA	3.10	19,790,978
OR	0.98	6,235,678
<i>Average</i>	<i>0.33</i>	<i>2,073,486</i>
NJ	0.27	1,699,928
FL	0.25	1,610,275
KY	0.21	1,334,461
MI	0.20	1,252,991
OH	0.19	1,186,698
MO	0.17	1,086,944

Appendix B: Data from ATTB in the U.S. DOT



## Appendix C

### Top 10 Growing States in Wine Production (%)

2016		2015		2014		2013		2012	
SC	169.06	MN	99.81	TN	104.53	TN	286.01	PA	<b>289.06</b>
WV	68.22	MA	68.52	NM	100.39	PA	<b>186.16</b>	AZ	172.20
SD	63.02	MT	50.96	SD	62.04	ID	155.15	AR	163.69
TX	33.91	TX	43.04	GA	56.87	MT	125.07	AL	141.68
NE	33.35	SC	37.67	PA	<b>50.70</b>	SC	69.12	TX	130.77
IA	32.55	OH	27.39	OR	47.19	MI	61.77	OH	94.34
KY	32.41	ME	24.54	KS	44.64	NE	49.55	OK	70.70
MI	24.81	AL	22.30	AZ	43.91	AR	48.86	NM	59.12
LA	24.28	CO	21.90	MA	37.49	WA	39.33	WV	53.31
GA	24.19	WI	18.68	OH	36.90	WI	36.01	KS	49.11

2011		2010		2009		2008	
MI	72.51	MT	52.65	KY	118.74	NE	47.04
SD	48.63	TX	47.76	MI	51.59	ID	46.13
MN	47.49	NM	46.85	CO	42.42	VA	35.88
OH	43.43	IN	21.16	SD	22.52	SD	26.87
ME	32.95	KY	12.78	FL	19.83	KS	26.37
CT	32.51	GA	9.47	OK	18.72	NC	24.05
IA	30.01	FL	7.88	CA	15.73	WA	22.67
WA	24.61	AZ	6.80	NE	15.07	CT	22.03
CO	22.70	MO	5.88	MA	12.37	IA	19.23
MA	15.98	MN	3.89	MN	11.36	AZ	18.89

Appendix C: Data from ATTB in the U.S. DO

## Appendix D

### Lake Erie Wine Country Winery Participation

	2011	2012	2013	2014	2015	2016	2017	2018
<b>21 Brix Winery</b>	X	X	X	X	X	X	X	X
<b>6 Mile Cellars</b>			X	X	X	X	X	X
<b>Arrowhead Wine Cellars</b>		X	X	X	X	X	X	X
<b>Arundel Cellars &amp; Brewing Co.</b>			X	X	X	X	X	X
<b>Blue Iris Winery</b>					X	X		
<b>Blueberry Sky Farm Winery</b>	X	X	X	X	X	X	X	
<b>Burch Farms Country Market and Wine Shop</b>	X	X	X	X	X	X	X	X
<b>Courtyard Winery</b>	X	X	X	X	X	X	X	X
<b>Heritage Wine Cellars</b>	X	X	X	X	X	X	X	X
<b>Johnson Estate Winery</b>	X	X	X	X	X	X	X	X
<b>Lakeview Wine Cellars</b>	X	X	X	X	X	X	X	X
<b>Liberty Vineyards &amp; Winery</b>	X	X	X	X	X	X	X	X
<b>Mazza Chautauqua Cellars/ Five &amp; 20 Spirits &amp; Brewing</b>	X	X	X	X	X	X	X	X
<b>Mazza Vineyards</b>	X	X	X	X	X	X	X	X
<b>Merritt Estate Winery</b>	X	X	X	X	X	X	X	X
<b>Noble Winery</b>	X	X	X	X	X	X	X	X
<b>Penn Shore Vineyards</b>	X	X	X	X	X	X	X	X
<b>Presque Isle Wine Cellars</b>	X	X	X	X	X	X	X	X
<b>Quincy Cellars Winery &amp; Banquet Hall</b>	X	X	X	X	X	X	X	X
<b>Schloss Doepken Winery</b>	X							
<b>Sensory Winery &amp; Art Gallery</b>	X	X	X	X	X	X	X	X
<b>Seven Vines Winery</b>	X	X						
<b>South Shore Wine Company</b>	X	X	X	X	X	X	X	X
<b>Sparkling Ponds Winery</b>	X	X	X	X	X	X	X	
<b>Vetter Vineyards Winery</b>	X	X	X	X	X	X	X	
<b>Willow Creek Winery</b>	X	X	X	X	X	X	X	X
<b>Woodbury Vineyards</b>	X	X	X	X	X			X
<b>Yori Wine Cellars</b>								X
<b>Total</b>	<b>23</b>	<b>23</b>	<b>24</b>	<b>24</b>	<b>25</b>	<b>24</b>	<b>23</b>	<b>22</b>

Appendix D: Data from Lake Erie Wine Country

## Appendix E

### Lake Erie Wine Country Profile Data

	First Year of Available Data	Years Open	Average % Change in Price
<b>21 Brix Winery</b>	2012	7	-1.53
<b>6 Mile Cellars</b>	2015	6	5.49
<b>Arrowhead Wine Cellars</b>	2015	20	1.05
<b>Arundel Cellars &amp; Brewing Co.</b>	2015	6	2.55
<b>Burch Farms Country Market and Wine Shop</b>	2016	9	6.37
<b>Courtyard Winery</b>	2017	8	0.00
<b>Heritage Wine Cellars</b>	2015	42	6.78
<b>Johnson Estate Winery</b>	2012	57	5.57
<b>Lakeview Wine Cellars</b>	2017*	10	—
<b>Liberty Vineyards &amp; Winery</b>	2013	10	4.81
<b>Mazza Chautauqua Cellars/ Five &amp; 20 Spirits &amp; Brewing</b>	2016	12	0.00
<b>Mazza Vineyards</b>	2016	46	0.00
<b>Merritt Estate Winery</b>	2012	42	3.67
<b>Noble Winery</b>	2012	12	-0.50
<b>Penn Shore Vineyards</b>	2016	14	2.70
<b>Presque Isle Wine Cellars</b>	2013	54	8.84
<b>Quincy Cellars Winery &amp; Banquet Hall</b>	2013*	—	—
<b>Sensory Winery &amp; Art Gallery</b>	2015*	—	—
<b>South Shore Wine Company</b>	2016	11	0.00
<b>Willow Creek Winery</b>	2015	18	9.49
<b>Woodbury Vineyards</b>	2016*	39	—
<b>Yori Wine Cellars</b>	2018*	15	—
<b>Average</b>	2014	22	3.25
<b>Median</b>	2015	15	2.70
<b>Mode</b>	2015	—	0.00

\*Partial Data Available; Appendix E: Data from Lake Erie Wine Country

## Appendix F

### Number of Wine Offerings for Individual Wineries in the Lake Erie Wine Country

	2012	2013	2014	2015	2016	2017	Current	% Change
<b>21 Brix Winery</b>	19	18	22	24	28	28	27	<b>42.1</b>
<b>Arundel Cellars &amp; Brewing Co.</b>	—	—	—	13	18	18	18	<b>38.5</b>
<b>Liberty Vineyards &amp; Winery</b>	—	24	27	28	25	27	31	<b>29.2</b>
<b>Sensory Winery &amp; Art Gallery</b>	—	—	—	23	23	—	29	<b>26.1</b>
<b>Lakeview Wine Cellars</b>	—	—	—	—	—	9	11	<b>22.2</b>
<b>Noble Winery</b>	22	23	24	27	27	25	25	<b>13.6</b>
<b>Presque Isle Wine Cellars</b>	—	31	32	26	30	28	35	<b>12.9</b>
<b>Willow Creek Winery</b>	—	—	—	17	20	19	19	<b>11.8</b>
<b>South Shore Wine Company</b>	—	—	—	—	19	20	20	<b>5.3</b>
<b>Mazza Vineyards</b>	—	—	—	—	29	29	30	<b>3.4</b>
<b>Johnson Estate Winery</b>	30	32	34	35	34	29	33	<b>0.1</b>
<b>Arrowhead Wine Cellars</b>	—	—	—	34	33	32	34	<b>0.0</b>
<b>Burch Farms Country Market and Wine Shop</b>	—	—	—	—	10	10	10	<b>0.0</b>
<b>Courtyard Winery</b>	—	—	—	—	—	20	20	<b>0.0</b>
<b>Mazza Chautauqua Cellars/ Five &amp; 20 Spirits &amp; Brewing</b>	—	—	—	—	23	23	23	<b>0.0</b>
<b>Penn Shore Vineyards</b>	—	—	—	—	25	25	25	<b>0.0</b>
<b>Quincy Cellars Winery &amp; Banquet Hall</b>	—	11	11	11	11	11	11	<b>0.0</b>
<b>Heritage Wine Cellars</b>	—	—	—	49	49	49	47	<b>-4.1</b>
<b>Merritt Estate Winery</b>	17	18	15	18	18	18	16	<b>-5.9</b>
<b>6 Mile Cellars</b>	—	—	—	10	9	9	9	<b>-10.0</b>
<b>Woodbury Vineyards</b>	—	—	—	—	20	20	17	<b>-15.0</b>
<b>Yori Wine Cellars</b>	—	—	—	—	—	—	24	—
<b>Average</b>	23	23	24	24	24	23	24	<b>7.7</b>

[Appendix F: Data from individual winery websites using the Wayback Machine](#)

**BIBLIOGRAPHY**

*21 Brix Winery*, [www.twentyonebrix.com/](http://www.twentyonebrix.com/). Accessed 15 Feb. 2018.

*6 Mile Cellars*, [www.6milecellars.com/index.html](http://www.6milecellars.com/index.html). Accessed 18 Feb. 2018.

Agarwal, Prateek. *Intelligent Economist*, 3 Dec. 2017,

<https://www.intelligenteconomist.com/monopoly-market-structure/>. Accessed 4 Apr. 2018.

*Alcohol and Tobacco Tax and Trade Bureau (TTB) - U.S. Department of the Treasury*,

<https://www.ttb.gov/wine/wine-stats.shtml>. Accessed 28 Feb. 2018.

*Appellation America.com*, [wine.appellationamerica.com/wine-region/Lake-Erie.html](http://wine.appellationamerica.com/wine-region/Lake-Erie.html). Accessed

26 Mar. 2018.

*Arrowhead Wine Cellars*, [www.arrowheadwine.com/](http://www.arrowheadwine.com/). Accessed 18 Feb. 2018.

*Arundel Cellars & Brewing Co.*, [arundelcellars.com/index.html](http://arundelcellars.com/index.html). Accessed 18 Feb. 2018.

*Burch Farms Country Market & Winery*, [www.burchfarmscountrymarketandwinery.com/](http://www.burchfarmscountrymarketandwinery.com/).

Accessed 18 Feb. 2018.

*Courtyard Winery*, [www.courtyardwinery.com/](http://www.courtyardwinery.com/). Accessed 22 Feb. 2018.

*Heritage Wine Cellars*, [heritagewine.biz/](http://heritagewine.biz/). Accessed 22 Feb. 2018.

*Internet Archive Wayback Machine*, <https://web.archive.org/>. Accessed 15 Feb. 2018.

*Johnson Estate*, <https://www.johnsonwinery.com/>. Accessed 22 Feb. 2018.

Karlsson, Britt. "The world's biggest wine producing countries in 2016, in short." *BK Wine Magazine*, 20

Nov. 2016, <https://www.bkwine.com/news/worlds-biggest-wine-producing-countries-2016-short/>.

Accessed 6 Apr. 2018.

*Lake Erie Wine Country*, [www.lakeeriewinecountry.org](http://www.lakeeriewinecountry.org). Accessed 15 Feb. 2018.

*Lakeview Wine Cellars*, [www.lakeviewwinecellars.com/](http://www.lakeviewwinecellars.com/). Accessed 23 Feb. 2018.

*Liberty Vineyards Winery*, [libertywinery.com/](http://libertywinery.com/). Accessed 23 Feb. 2018.

Marrison, David. "2007 Northeast Ohio Grape & Wine Study." , The Ohio State University ,

Nov. 2008,

file:///C:/Users/Owner/AppData/Local/Microsoft/Windows/INetCache/IE/0XGVZ043/economic%20impact%20of%20the%20viticulatural%20industry.pdf. Accessed 9 Feb. 2018.

*Mazza Chautauqua Cellars*, [enjoymazza.com/mazza-chautauqua-cellars/](http://enjoymazza.com/mazza-chautauqua-cellars/). Accessed 25 Feb.

2018.

*Mazza Vineyards*, [enjoymazza.com/mazza-vineyards/](http://enjoymazza.com/mazza-vineyards/). Accessed 25 Feb. 2018.

*Merritt Winery*, <https://www.merrittstatewinery.com/>. Accessed 25 Feb. 2018.

*Noble Winery*, [www.noblewinery.com/](http://www.noblewinery.com/). Accessed 25 Feb. 2018.

*Penn Shore Winery and Vineyards*, [www.pennshore.com/](http://www.pennshore.com/). Accessed 25 Feb. 2018.

*Pennsylvania Liquor Control Board* ,

[www.lcb.pa.gov/Licensing/ResourcesForLicensees/Pages/Limited-Wineries.aspx](http://www.lcb.pa.gov/Licensing/ResourcesForLicensees/Pages/Limited-Wineries.aspx).

Accessed 26 Mar. 2018.

*Presque Isle Wine Cellars*, [www.piwine.com/](http://www.piwine.com/). Accessed 25 Feb. 2018.

*Quincy Cellars*, [quincycellars.com/](http://quincycellars.com/). Accessed 25 Feb. 2018.

*Sensory Winery & Gallery*, <https://www.sensorywinery.com/>. Accessed 25 Feb. 2018.

*South Shore Wine Company*, [enjoymazza.com/south-shore-wine-company/](http://enjoymazza.com/south-shore-wine-company/). Accessed 27 Feb.

2018.

"The Economic Impact of Pennsylvania Wine and Grapes ." , MKF Research LLC, Aug. 2009,

file:///C:/Users/Owner/AppData/Local/Microsoft/Windows/INetCache/IE/0XGVZ043/P AWines\_2007EconomicImpactReport.pdf. Accessed 15 Feb. 2018.

*Willow Creek Winery*, [www.willowcreekwines.net/](http://www.willowcreekwines.net/). Accessed 27 Feb. 2018.

*Wine Institute*, [www.wineinstitute.org/resources/pressroom/05012017](http://www.wineinstitute.org/resources/pressroom/05012017). Accessed 28 Feb. 2018

*Woodbury Vineyards*, [woodburywinery.com/](http://woodburywinery.com/). Accessed 27 Feb. 2018.

*Yori Wine Cellars*, [www.yoriwinecellars.com/](http://www.yoriwinecellars.com/). Accessed 27 Feb. 2018.

## ACADEMIC VITA

---

### Academic Vita of Natalie Szalajko Nps5181@psu.edu

---

#### Education

Major(s) and Minor(s): Business Economics B.S. Finance B.S. with a minor in Politics and Government

Honors: Business Economics B.S.

Thesis Title: Lake Erie Wine Industry Profiled

Thesis Supervisor: Mark Owens

#### Work Experience

Summer 2017

Capital Markets Internship: Public Finance and Equity Research

Janney Montgomery Scott LLC - Philadelphia, PA

- Built refunding monitor and debt profiles of counties with outstanding bonds using Bloomberg, EMMA, and TM3
- Generated institutional investor holding reports using BD-Advanced and Excel
- Wrote reports and conducted research on equities, FDA regulations, and NIH stimulus expenditures

May 2015 - Present

Undergraduate Research Assistant

Economic Research Institute of Erie (ERIE), Black School of Business - Erie, PA

- Meticulously updated and compiled data in Excel through use of the BLS, BEA, and NAICS websites
- Collected data for a 100 page guide and detailed website to the Erie economy
- Assisted in the Summer 2015 ERIE Conference consisting of 50+ local businesses

#### Grants

Fall and Spring 2016

Undergraduate Research Grants

Penn State Erie Black School of Business

Total: \$1,400

- Conducted research projects on the gas prices and crime rates in Erie, PA investigating potential trends

#### International Education

Summer 2016

- Toronto, Canada

Fall 2018

- Siena, Italy