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wintour

MASTER THESIS

**CREATING A WINE TOURISM FRAMEWORK FOR NEW
WINERIES IN PORTUGAL**

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ABSTRACT

Issue: The increasing demand in the last two decades for Wine Tourism and the revolutionary trend to allow customers to visit wineries is creating a newfound expectation for wineries to have wine tours. For a winery to establish themselves and be competitive in this new industry, they must quickly develop a wine tourism offer.

In general when products are rushed in development issues may arise because many factors are neglected or overlooked. However when guidelines and instructions are given these products can be created faster and more efficiently.

Objectives: This work aims to analyze the current wine tourism offerings of one country, Portugal, to identify a framework for individual wine tourism offers. Once the framework is established it will be applied to a Casa de Quintã, a winery in Portugal looking to develop a wine tourism offer. Casa de Quintã then can use this framework to quickly establish a high quality wine tourism offer once their facilities have been completed and the COVID-19 restrictions in Portugal have been lifted.

Methodology: Methodology used consists of the author's personal experience, a quantitative survey of industry leaders and some bibliographic research. The quantitative survey will be analyzed and formulas will be extrapolated as well as an order of events for the tour.

Findings: The conclusions show the framework and the theoretical application of the guideline created applied to a real world winery. However due to the Global pandemic, COVID-19, testing of the results and measurement of success could not be conducted.

Keywords: Binary, Casa de Quintã, Covid-19, Data Manipulation, Ethicality, Portugal, Quantitative Survey, Variable, Wine Tours.

List of abbreviations:

UNWTO: United Nations World Tourism Organization

1. INTRODUCTION

This paper is a report of the author's final internship of Wintour Master where the author had the opportunity to work remotely for a small boutique hotel, Casa de Quintã, in the vinho verde region of Portugal. The author's faced various challenges when trying to analyze the wine tourism market around to develop a competitive offer for this new market entry to wine tours. As the tourism industry in Portugal has been continuously growing it's important to be focused on new trends, whether they last or not and wine tourism is an important one currently. Although the COVID-19 Pandemic has created major setbacks there is a belief that sooner than later life will return to normal and development will continue. The author's purpose is to create a generalized framework for new market entrants like Casa de Quintã so they launch themselves into the wine tourism sector.

a. Casa de Quintã

i. Company History

Casa de Quintã is a 18th century palace in Soalhaes, Portugal located in the municipality of Marco de Canaveses in the district of Porto, Owned by Maria Manuel Cyrne and her family. Along with Casa de Quintã they also own Casa dos Viscondes da Varzea which is located around 1 hour away in Lamego. The Casa has been in the process of restoration after its repurchase recently and its primary functions are accommodation and an event space. The Casa contains 26 rooms each accommodating anywhere between 1 to 6 guests and is best recognized for hosting extravagant weddings. This coming Fall 2021 the winery will be completed and the 20 Ha of vines that were planted will be mature enough to begin wine production. The 20 Ha of native regional grape vines fall within the Vinho Verde region of Portugal and more specifically in the Amarante sub-region of Vinho Verde. Their other home mentioned before, Casa dos Viscondes de Varzea, also produces wines, a white and red under the Douro appellation. This winery has a unique old style twin action lever press which utilizes granites tanks all located within the stone walled winery[FIGURE 1]. Additionally, Casa de Quintã has a reputation for their artisanal cooking and decoration classes using local products and resources creating extra experiences for guests and visitors. Not only does the Palace and region have a long and detailed history but Maria Manuela Cyrne has a captivating life story she loves to share with guests that creates an organic and emotional connection with her guests.

ii. Advisor

Maria Manuela Cyrne is related to the Cyrne is of a royal family of Portugal of the Cyrne family and at one point grew up in a a Quintã however during the economic and political hardships Portugal faced during the 1970's lost seemingly everything worked hard to regain her familial assets. In the 2010's she repurchased Casa de Quintã. After a long career in teaching and fashion in Lisbon she eventually gained the economic capacity to repurchase Casa de Quintã and restore it to its former glory. At the present state of the Quintã and years of restoring it, it is once again restored to its former glory as a beautiful site . Maria Manuela de Cyrne has Worked in Lisbon through multiple job roles and gained success at one point becoming a host on one of the national television channels SIC. SIC is one of the 5 standard television channels that the overall population of Portugal has access too 13 million. Although she has since retired from that career she has many connections within Portugal and around the world. Currently she finds herself between both Casa's helping her two sons and husband live a find a calmer lifestyle maintaining and hosting clients. While sharing her life unique experiences and perspectives between both their family own properties. Although her busy life constrains her I was aided much by her assistant at Casas de Quintã Catarina. Catarina, while being young was extremely well informed knowing all the in's and out's of the Casa and providing nothing but the most detailed descriptions of all the business functions. I stayed multiple days overnight at Casa de Quintã experiencing the full experience of a guest and had the opportunity to enjoy the modest landscape and unbelievable view.

iii. Description of interactions

During the length of this internship other roles and tasks were carried out including the development of the wine tourism strategy in which this thesis results. The development of this thesis and the other roles of this thesis were carried out independent of each other as the idea of this thesis came about much later in the internship as a secondary development. Some of those other roles included:

- Photography and Drone footage;
- Listings on accommodation booking platforms like Airbnb & Expedia;
- Website creation;
- Listing of Experiences online.

These tasks were a priority because Casa de Quintã was in need of a larger digital media presence as they were only established on Facebook, Instagram and available to book on

Booking.com. Capturing new content via drone and camera allowed more material to be used on those platforms as well as the new platforms they requested I.E. their own website and new booking platforms. By adding these new platforms they would be able to reach out to a much larger audience as well as creating a place to read basic information and contact the Quintã directly for events and experiences on their website. The interactions were generally carried out in person, meeting at Casa de Quintã and over the phone, both directly with Maria Manuela Cyrne and her assistant at Casa de Quintã Catarina. Due to the severity of the Covid-19 crisis in late 2020 and early 2021 in Portugal scheduling was extremely difficult and irregular during the entire internship. These interactions began informally in December 2020 when I first visited Casa de Quintã personally and discussed ideas to help build a better online presence for them. Eventually the connection evolved into this internship and the proposal of developing a wine tourism offer. The goal of the wine tourism offer is to allow Casa de Quintã to have a smooth launch once their facilities are complete and laws regarding Covid-19 allow so as well.

b. Proposal and Objectives

i. Proposal

The overall proposal for this thesis is composed of three objectives, two of which culminate into a real world application which is the creation of a wine tour for Casa de Quintã, the third objective. The first objective is to create an equation which calculates pricing and time while the second provides the framework for the wine tour offer. The first objective allows a company that would like to create a new wine tourism offer to use basic inputs of what is wanted during the wine tour which results in the price and time of their offer. The price and time can be further adapted afterwards to any other unique characteristics that don't fit in the formulas by directly adding their estimated intrinsic value. The second objective is to observe the current order of events in wine tourism to identify a generally accepted framework. This framework will allow clients who participate in the new wine tour to follow a comfortable flow which is recognized to be the standard. The formulas and framework are created by using data collected from wine tours around Portugal and then analyzing and manipulating the data to find correlations. Again, the third objective is to use the results of the first two objectives and apply them to what Casa de Quintã's aims to offer resulting in a price and length of time and a basic structure for the wine tours they will offer. Ideally these three objectives will provide a general base for future wine

tour offers so that, not only Casa de Quintã but other, wine producers can enter the market in a competitive position or even compare their current offer and reevaluate.

ii. Objective 1 (Price and Time)

The first objective of this thesis is to create formulas that calculate the price and time of a wine tour based on a dataset of information collected on wine tours in Portugal. To reach this first objective a quantitative survey will be conducted resulting in a group set of data will be collected. Once the data is collected it will be clean and manipulated so that analysis can be carried out. Although data manipulation sounds negative it just means processed and organized to be easier to work with. The goal is to develop a good medium sized data set to work with and analyze. Each type of entry will eventually be associated with a Price and time Value which will be represented mathematically as an Y1 and Y2 in the formulas. Finally, the formulas will be extrapolated from the information given and a page will be created where inputs of data can be entered and a button will run the function and return the total X and Y outputs. By calculating a pricing and timing schedule, planning factors like profitability, scheduling and even quality perception can be more easily managed. By figuring out how much to charge to have a competitive offer for your winery compared to others this is important in quality perception as well. Another key point to check is the profitability of your wine tours, by pricing according to the value of your wines. Clients better understand which again supports the price to quality perception of the experience. Timing of a wine tour is also important not only because a client may feel rushed or bored during an experience but on the business's side time should be allocated appropriately so a schedule can be created to manage bookings and recognize how to allocate workers. Although the consumer's satisfaction is the most important in the end, pricing and time are key factors in their final opinion.

iii. Objective 2 (Structure)

The second objective of this thesis is to recognize a pattern in existing between wine tours and their structures. The term structure relates to the order of events the wine tour is carried out in. For example the order in which you visit the winery, visit the wine cellar, and taste. To support the assumption that the order of these wine tours are well planned all the wineries considered in this study all the wineries which participated were first of all included in the **Guide to wine tourism Portugal 2018** and secondly then confirmed to have 4+ Stars out of 5 on multiple

platform reviews. While examining these structures regularities will be recognized and a generally accepted order will be established. Once establishing the generally accepted tour structure, irregularities will also then be identified. By recognizing the order of events in a wine tour and identifying patterns in wine tours with good reviews those patterns can be assumed to be successful or just a norm. Using this common structure keeps a wine tour in line with others located in Portugal and displays a tried and true method, leaving only the underlying experiences accountable for the quality. This base structure can then be adapted to include unique aspects a winery may contain as mentioned before, however when doing so make sure to attempt to calculate the intrinsic value in relation to the time spent so that appropriate pricing and scheduling can be maintained. If the unique experiences are not well received or if a winery would like to add another experience in one method that may help is to begin experimentation within each tour by adjusting the placement in the order of events. See what adaptations may work best for the offer regarding: pricing, time and quality of the experience.

iv. Objective 3 (Application to Casa de Quintã)

The third and final objective of this thesis the results of the first two objectives will be applied to a real winery so that when wine tour offers begin a program can be followed for a smooth start. Casa de Quintã is the company that the results will be produced for. When applying the formulas to calculate pricing and value of the wine tour all the inputs to the formulas will be identified and input into the calculator and the outputs will be recorded. To develop the structure of the tour the experiences that are desired to be shared during the tour will be identified and then placed in the generally accepted order. The additional unique attributes of the wine tour will be placed into the order where they are best fit to enhance the tour based again on the results of the research. Ideally the result will provide Casa de Quintã with a wine tour that can show their winery and wine visitors so they can experience a comfortable wine tour in a generally accepted format and face normal pricing and timing during their experience.

2. METHODOLOGY

a. Defining the research

i. Variables and Constants

To gather data in this thesis a quantitative research approach was used to record data through a series of survey questions. This series of data is then analyzed, calculated and divided into variables and binary data. Variable data includes:

- Number of wines to be tasted;
- Price of wines;
- Length of the tour;
- Price of the tour.

The reason this data is considered Variable is because these are not consistent and change between every tour. The number of wines to be tasted and the Price of wines are Independent variables whereas Length of the tour and Price of the Tour are Dependent variables. Later on in the development of the formulas Y1 is Time and Y2 is Price.

Binary data, in a simple form is a Yes or no format, to be considered in the tour include:

- Is there a tasting included;
- Visit of a winery, vineyard or cellar;
- Food to be paired to the wines;
- Other productions (Olive Oil or Jam).
- Visit of House, Castle, or Ruins;
- Relevant historical information;
- Unique production methods (Foot stomping of grapes, Stone Presses or Indigenous grapes);
- Museum/ Art/ Nature Display.

The above mentioned data types constant but in the data are represented in binary because they either are or are not in the wine tour, a Yes or No, a 1 or 0. In the formula these entries are represented as X Values and will have constant values which are later identified. During wine tours these experiences are typically not the main focus and are allocated a pretty consistent time or value. This is later more clearly identified in section 3 during the analysis of data. The first of these questions is the most important regarding this research because if there is no wine tasting included in the tour it will not be considered as a wine tour, as later defined in 2.a.ii, must include a wine tasting.

ii. Data Collection

The data used in this research was taken through surveying and asking quantitative questions. To gather the data needed for the first objective, ethical surveys were conducted through a series of calls and emails to over 100 wineries located around Portugal. The first attempt at retrieving data from wineries was through Email, if left un-responded for 3 days a call was used as a follow up to gather data asking and recording the same information that was asked in the email. A Mail Merge function was used in Google Sheets to send out the survey to the mass of

wineries. The list of wineries considered was used from **Guide to wine tourism Portugal 2018** as it provided a complete list of popular current wine tourism offers here in Portugal pre Covid-19. A more detailed overview of ethicality used in this research to contact participants can be found in the ethics section 2.a.iii. The email consisted of a greeting, description of the survey, it's purpose, a link to the survey and a thank you for participation [ANNEX 1]. The survey was created in Google forms and is composed of 8 fields. 5 short answer fields, 4 of which expect numeric inputs and 1 for the name of the participant. A checkbox grid question was also used to both figure out what events occur in their tours and the general order of those events. Only the general order was asked to keep the survey simple and keep the time reduced. Additionally, this was simplified to the beginning, middle and end because some of the activities listed in the events are often combined. Question 7 an open ended question was left for any extra details they may like to enter. Finally question 8 is a request for anonymity if they would like to allow the winery's name to appear in the survey data. All questions required answers except number 7 as it was an open ended question. The Google form data was directly converted to a Google sheet and then transferred over to excel for data manipulation. If the survey was left unanswered a Call was conducted during business days directly to the general number or tourism department [ANNEX 2]. The questions asked during the phone call were exactly the same as the ones in the survey and the data was recorded by the other and input directly into the Google form. Google Forms and Sheets made it simple to design and carry out a standard survey and to collect the data needed.

iii. Ethics

Ethics is a topic that must always be covered when conducting any type of research. To ensure the author collected survey data ethically a set of generally accepted guidelines were followed and respected. The guidelines recommended by "Good practice in the conduct and reporting of survey research" one of the main points that needed to be followed during this research are "confidentiality and informed consent". Although all the wineries are public entities they have the right to remain anonymous in the survey. However, in the end almost all participants agreed to disclose their winery name. The second important point when conducting a survey is that "In the majority of surveys, the patient should be fully informed about the aims of the survey, and the patient's consent to participate in the survey must be obtained and recorded." This guideline is strictly followed as seen in Annex 1 and 2. The second sentence in both scripts is informing the participant that I am calling or emailing for a survey to use in my thesis research about wine

tourism in Portugal. Unethical practices especially in research can lead to major problems with everything from quality of research to the potential of having a thesis pulled from lack of consent.

iv. Defining a Wine Tour

One important definition that must be defined is what is being considered as a wine tour in this research. What is a wine tour? According to the UNWTO a wine tour is “as a sub-type of **Gastronomy Tourism**, refers to tourism whose purpose is visiting vineyards, wineries, tasting, consuming and/or purchasing wine, often at or near the source.” For this research wine tours will be considered in their most basic form as wine tasting along with one or more additional experiences. Wine tours that include activities like escape rooms, sports and multiple wineries will not be considered as they are not basic or simple frameworks, require much more elaboration, resources and special skills that cannot be compared in the scope of this project.

b. Data Manipulation

i. Data organization

To properly manage and analyze the data gathered from the surveys all of it must be organized. Various steps were taken to organize the data, however the first step was transferring the data into a program. Thankfully Google Forms directly converted from the survey into an array on Google sheets. The array was then moved from Google Sheets to Microsoft Excel for ease in functionality. When in Excel the data was cleaned and inputs which were poorly formatted or not the correct data type were corrected. Examples of this were especially prevalent in the total value of the wines. Data inputs were often ranges of values or marked as “premium” in these cases the wines tasted were found and verified in Online shops. After finding the wines in online shops the data inputs were corrected. Other corrections that were made were based on the 7th question in the survey, “7. Other unique activities or offers?”. This question did not lead to many responses; however an occasional response provided insight to modify entries, two examples of which are from Adega Cartuxa and Caves Alianca. Both of which mentioned values of their additional food options, in these cases an additional listing was added with the new value of the tour and additional time added. For ease of calculations when creating formulas regarding time instead of having an hour:minute format to just a minute format. Finally

and most importantly wine tours that were extremely out of the norm were considered as outliers and separated from the data set, however there were very few and were in the 3+ hour range. Once the data was organized and treated it was ready to be used to calculate the formulas and structures in objective 1 and 2.

ii. Creating a formulas

Once the data was suitable to advance, base formulas were calculated and the binary data was given constant values for price and time. Some wineries provided great information for this study as they completed the survey for multiple levels of their tours. By giving multiple levels of tours there was direct correlation within pricing and timing with clearly identifiable differences in the order of events. One of the best data sets that demonstrated this were the 5 different tours of Adeg Cartuxa, this set provided insight as they reported all their tours took between 80 and 90 minutes and tasted between 1 and 5 wines depending on the level of the tour. Additionally each level had different average bottle values showing their own internal relationship between tour schematics. This data set provided a solid insight into pricing and timing for the tasting portion of the tour. Additionally the shortest wine tours also provided a lot of insight as they in their most basic a winery, vineyard, cellar tour and tasting. The pricing and timing of the tasting portion was later tuned by processing the rest of the data set resulting in the base Y1 and Y2 Formulas. Then using a bottom up approach and observing the most basic wine tours then increasingly complex ones regarding their timing and additional values. The first values, after the tasting, that were identified were the time and price of the visits to winery, vineyard and cellar further broken down into an estimate of 10, 15 and 10 minutes respectively totaling 35 minutes. Then visits to some sort of palace, castle, or ruin takes on average 15 minutes. Museums/ art displays and large outdoor nature displays were such large enhancements to tours and were often offered as separate tours as they added a lot of time to the tours on average 40 minutes. The costs did not increase much as in Portugal tours are typically less than 5 euros. The author then recognized that the added costs to these parts of the tour seem to correlate to the time spent, which makes sense because they are non consumable assets like wine and food. Speaking of consumables, when food and production of other goods were included in the tour only a few extra minutes were added but an increase of 2 (food i.e. cheese and bread) to 5 euros (for home made productions i.e. jam and honey) were realized.

iii. Identifying structure regularities

To identify the regularities and irregularities in the structures of the wine tours numerical data was no longer needed. The data that was observed were the details given about the placement of events during the wine tour, whether they occurred in the beginning, middle or end of the tour. Although all wine tours are unique there are many similarities in their structure. The two most clearly identifiable regularities in structure are that wine tastings almost always occur at the end of a tour and that vineyard, winery and cellar visits occur together at the beginning of the tour. The other parts of tours had to be more closely examined as the cases varied. As the analysis proceeded other obvious combinations were made, for example Food and wine tastings always combined, museum/ art/ Nature displays were often in the middle of the tour as well as visits to houses/castles or ruins. There are some other patterns that were recognized that changed the orientation of the tour. To simplify the explanation these patterns are "If's" or conditional statements, meaning that if a certain condition is met then the tour will be different. The "If's" that were identified in the survey are as follows. Other productions are combined with the wine tasting if there are not unique facilities where those products are made, In this case they are placed in the middle of the tour before the wine tasting. Unique wine production methods are shown at the same time as the winery/vineyard/cellar visit if the method is still being practiced and the equipment is there. In the case they are no longer used and at a different location they should be shown in the middle of the tour. Finally historical information about the winery is often shared during the beginning or middle of the tour often while moving from one location to another.

3. OBJECTIVE 1: The formulas

Base Formulas

Y1	Number of wines to be tasted;	Time:	$\#W * 4$ mins	
Y2	Price of wines;	Price:	$(\#W * AVG \text{ €}) / 4$	
X1	Visit of a winery, vineyard or cellar;	Time:	35 mins	Price: 3 €
X2	Food to be paired to the wines;	Time:	3 mins	Price: 2 €
X3	Other productions	Time:	5 mins	Price: 4 €
X4	Visit of House, Castle, or Ruins;	Time:	15 mins	Price: 2 €
X5	Relevant historical information;	Time:	5 mins	Price: 0 €

X6	Unique production methods;	Time: 5 mins	Price: 0 €
X7	Museum/ Art/ Nature Display.	Time: 40 mins	Price: 3.5 €

Complete Formulas

$$Y1 = \#W * 4 \text{ mins} + X1T+X2T+X3T+X4T+X5T+X6T+X7T$$

$$Y2 = ((\#W * \text{AVG } \text{€}) / 4) + X1P+X2P+X3P+X4P+X5P+X6P+X7P$$

#W = Number of wines tasted

AVG € = The average price of the wines tasted

T= Time Minutes

P= Price €

To confirm the strength of the formulas the constraints of each survey entry were then retested and compared to the original length and price of the tour that was reported. This resulted in the margin of error which was a percentage. By looking at this margin of error a few issues became apparent. One issue was the error on time. Participants of the survey often gave estimates of their tour lengths in increments of 15 or 10 minutes, and additional often advised that there was a “give or take of 15 minutes” during their tours. This has caused a large standard deviation in relation to their tours leaving an also large margin of error in the time estimates. These time estimates ranged mostly from 5% to 35% margin of error. On the other hand, regarding pricing, participants gave accurate prices of the wines consumed, allowing the formula estimation to be more precise and with a margin of error often less than 10%. Another correlation that became present, and is noticeable at first glance of the X values is that information/ knowledge don't seem to have any monetary value during tours, only tangible resources seem to have value. This may be because when moving around during wine tours it's often those moments where history and information is exchanged. Although it does enhance the wine tour it's not directly adding to the value as that time could also be spent in silence or even other conversation.

Statistical data

Tour Time

Minimum	Maximum	Average	Standard Deviation
30 mins	210 mins	84.2 mins	18.24 mins

Tour Price

Minimum	Maximum	Average	Standard Deviation
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5.00 €

50.00 €

23.56 €

12.50 €

Other interesting statistics 70% of tours are between 45-1:30 with the majority being in the later half between 1:15-1:30. This may be suggesting that the natural balance of a standard wine tour that has formed over the years and may be what guests best enjoy. Wineries with shorter wine tours can potentially seek to add more interactions in their tours to extend the time into that comfortable range. Additionally these wineries offer approximately 4 wines on average which could be another sweet spot for consumer satisfaction and provide a representative display of the wines produced.

4. OBJECTIVE 2: The Structure

Base Structure

Beginning

Winery/ Vineyard/ Cellar
Unique Production Method*
Historical Information

Middle

House, Castle, Ruins
Museum/ Art/ Nature Display
Historical Information

End

Wine Tasting
Food Pairing
Other Productions*

Conditionals *

Other productions combined with wine tasting

If No unique facilities to make products

Then Middle of tour.

Unique wine production method combined with winery/vineyard/cellar

If Method still practiced and has equipment.

Then Middle of tour.

These structures were accepted from the data set when strong representative groups shared these similarities. When over 60% of a group shared an activity in the same section of a tour it was then recognized and accepted as a general practice. To be considered part of the group of data for an activity the wine tour must include that activity during the tour. For example a wine tour that only included Tasting, Winery, Vineyard, Cellar, and a Castle would be excluded from the data group of other productions, food pairing, Etc.. However the conditional statements became important when looking at additional information added to their data. Multiple cases for both conditions were recognized in the data. These conditions follow the same reasoning though, if the tour has to visit an additional facility, which would display the other production method or unique winemaking equipment, it would obstruct the flow of the wine tour. When creating a new wine tour an important consideration is the efficient path between destinations in the tour, because every location is unique there might be better quicker paths to lead guests through.

5. OBJECTIVE 3: APPLICATION TO Casa de Quintã

a. Identifying Casa de Quintã's Variables and activities

To calculate using the formulas derived in objective 1 and 2 we must identify the goals of Casa de Quintã's wine tour and what wants to be displayed. Firstly it must be established that Casa de Quintã will have 2 wine tourism offers, 1 offer for guests and 1 offer for non guests. The difference between these 2 tours will only be the tour of the grounds and palace that is Casa de Quintã. Although production will not be ready for tasting until 2022 we estimate that 4 wines may be offered in their production with an average price of 12 € per bottle. 12 € is an assumption taken because the current pricing of their wine at Casa dos Viscondes da Várzea is also 12 € a bottle. As Casa de Quintã offers cooking workshops and produces their own artisanal goods there will be foods and other products like jam and bread. Additionally as shown in figure 1 the granite stone winery contains a unique press, although not in use is uncommon to see along with the 20ha located on the property. Finally during the tour the history of Casa de Quintã and Maria Manuela Cyrne's intense life story would be talking points through the tour even though there is a potential to talk for hours about either.

b. Applying the formulas

When looking at the formula the variable and constant data must first be laid out to be easily input into the formula. Two layouts will be followed as Casa de Quintã is interested in two different tour models. The first model will only exclude Variable X7 because Casa de Quintã does not have a museum, art gallery or large nature display.

$$\#W = 4$$

$$\text{AVG } \text{€} = 12 \text{ €}$$

X1	Visit of a winery, vineyard or cellar;	Time: 35 mins	Price: 3 €
X2	Food to be paired to the wines;	Time: 3 mins	Price: 2 €
X3	Other productions	Time: 5 mins	Price: 4 €
X4	Visit of House, Castle, or Ruins;	Time: 15 mins	Price: 2 €
X5	Relevant historical information;	Time: 5 mins	Price: 0 €
X6	Unique production methods.	Time: 5 mins	Price: 0 €

Complete Formula with Substitutions

$$Y1 = 4 * 4 \text{ mins} + 35 \text{ mins} + 3 \text{ mins} + 5 \text{ mins} + 15 \text{ mins} + 5 \text{ mins} + 5 \text{ mins}$$

$$Y1 = 84 \text{ minutes}$$

$$Y2 = ((4 * 12 \text{ €}) / 4) + 3 \text{ €} + 2 \text{ €} + 4 \text{ €} + 2 \text{ €} + 0 \text{ €} + 0 \text{ €}$$

$$Y2 = 21 \text{ €}$$

The result of the formula and inputs is a 1 hour and 24 minute wine tour at a cost of 23 € per person. For what Casa de Quintã has to offer this is a competitive pricing as it is slightly below the average calculated in this survey. This tour also contains almost all of the aspects followed in this survey showing that it is an eventful offer that is sure to keep visitors entertained through its dynamism.

Complete Formula with Substitutions

$$Y1 = 4 * 4 \text{ mins} + 35 \text{ mins} + 5 \text{ mins} + 5 \text{ mins}$$

$$Y1 = 61 \text{ minutes}$$

$$Y2 = ((4 * 12 \text{ €}) / 4) + 3 \text{ €} + 0 \text{ €} + 0 \text{ €}$$

$$Y2 = 15 \text{ €}$$

The second tour option is for guests that are staying at the palace and have already had the opportunity to explore the palace and taste the amazing food as well as local products created at the Quintã. This offer is 8 € cheaper and 23 minutes shorter, great as an addition to a guest's stay or offered as an add on to a package deal.

c. Building the optimal structure

As identified in section 5.a Casa de Quintã has many activities they want to include in their future wine tour. Casa de Quintã will have two wine tours available for their guests, one including the palace tour and one without. The tour without the palace will also exclude the unique production and food pairing. Following the structure and conditionals defined in objective 2 the complete wine tour will be carried out as follows. Firstly both tours will start with being greeted at the front of the palace and the guests will be introduced briefly to the beautiful Casa de Quintã. After being greeted the tour will continue to the newly restored winery, in the winery the guests will be able to see the ancient twin action lever press and beautiful granite stone construction. Located adjacent to the winery is the 20ha of vineyard to walk through while appreciating the amazing view down down the mountain to the city of Marcos de Canaveses. While experiencing this view they will be told the history of the region and about the legacies of wines produced. However at this point the tours will begin to differentiate. Clients who are staying at the palace will return down to the winery and begin their tasting of the 4 wines. Clients who are visiting from afar will have the pleasure to explore the palace and the gardens around it. Upon entering the front entrance and being amazed by the ceiling high bookshelves they will make their way around the masterfully constructed atrium and appreciate all the artwork and decorations. After finishing their tour around the palace and it's annexes the clients will return back to the winery verandah and carry out their tasting there. This tasting will also include 4 wines however they will be accompanied with food including some of the local jams and spreads made at Casa de Quintã. If clients are lucky and they have the opportunity to be toured by Maria Manuela Cyrne they will leave with a wonderful story to share with friends and family that will make them want to visit too.

6. CONCLUSION AND OTHER THOUGHTS

Although this project is specifically for Casa de Quinta this framework has the potential to be used by other wineries and can be easily modified. By using this framework project proposals

can be made for extra funding with private and public investment entities. One example are **SME** or **Small and Medium Enterprise** funds, these types of funds exist around the world and aim to help entrepreneurial companies launch new and innovative practices. As wine tourism is a new industry, companies can take advantage of these funds by building a project using the frameworks specified in this program and elaborating for their specific winery. After developing a solid project they can propose it to the leaders of these funds for assistance. Secondly the models for pricing can be potentially adapted to other countries by combining it with the **PPP** or **Purchasing Power Parity**, this parity shows the relation in pricing across countries related to their **GDP** or **Gross Domestic Product**. Shorter wine tours can also consider working with other local establishments or resources to enhance their tours. Additionally it was interesting to analyse data more and see what other relationships may be apparent. After developing this I believe there is also potential in seeing if any exponential equations or regression models. Potentially an even more accurate data set can be obtained by performing timed tours at each winery, however the scope would have been too large for this project and restrained from the current COVID-19 situation.

8. ACKNOWLEDGMENTS

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I also would like to thank Professor Jorge Queiroz, my academic advisor at the University of Porto for his help and advice with my thesis during this research and writing.

To all the other professors over the past two years I greatly appreciate the tools and skills you shared with me during this project and in my future career.

Finally thank you to all the participants of the survey for sharing their data and the professionalism carried out through our conversations over the phone and email. I hope to one day visit all of your wineries and experience all the tours and tastings.

9. Annexes

ANNEX 1. CALL TEMPLATE

Good Morning/Afternoon, I am Anthony Neves, a student in the WINTOUR master studying in U.PORTO. The reason for this call is that I am conducting a short survey to collect data for my thesis on wine tourism in Portugal. I am reaching out to wine producers that offer wine tours to collect information on their program. If you have 2-3 minutes to complete this survey it would be greatly appreciated.

Do you have wine tours?

Is there a tasting included in the tour?

How many wines do you taste?

How long is the tour?

How much is the tour?

What's the average price of the wines tasted?

What is Included in the tour and the order of the tour?

ANNEX 2. EMAIL TEMPLATE

Recipients

Wine Tourism Survey

Hello [WINERY],

I am Anthony Neves, a WINTOUR master student studying at U.PORTO. The reason for this email is that I am conducting a short survey to collect data for my thesis on wine tourism in Portugal. I am reaching out to wine producers that offer wine tours to collect information on their program. If you have 2-3 minutes to complete this survey it would be greatly appreciated.

{Link to Survey}

Thank you in advance for your cooperation!

Best,

Anthony Neves

ANNEX 3. GOOGLE FORM

Wine Tour Offer

Data collection for Anthony Neves's WINTOUR Master Thesis

* Required

1. Name of wine producer?

Your answer _____

2. How long is your tour? (Hours and Minutes) *

Your answer _____

3. How much does the tour cost? (Euros) *

Your answer _____

4. How many wines are tasted? (Number) *

Your answer _____

5. Average value of the wines? (Euros) *

Your answer _____

6. What is the order of activities during the wine tour? *

	Beginning	Middle	End	Not in Tour
Wine Tasting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vineyard Visit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Winery Visit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cellar Visit (Barrel Room)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Food Pairing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other Products (Olive oil, Fruit, Jam, Tea)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Special building's (Castle, Palace, Ruins)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unique wine making process	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
History/Education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Museum/ Art/ Nature Display	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (add information below)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. Other unique activities or offers?

Your answer _____

8. Would you like to remain anonymous in this survey? *

Yes

No

Submit

ANNEX 4. TREATED DATA SAMPLE

1. Name of wine producer	2. How long	3. How long	4. How long	5. Average	6. What is the	6. What is the	6. What is the	6. What is the	6. What is the	6. What is the	6. What is the	6. What is the	6. What is the	6. What is the	6. What is the
Sao Domingos	60	7.5	1	7	End	Beginning	Beginning	Beginning	End	Not in Tour	Not in Tour	Not in Tour	Middle	Not in Tour	Not in Tour
Adega Cartuxa	80	10	1	4	End	Beginning	Beginning	Beginning	End	End	Middle	Not in Tour	Middle	Not in Tour	Not in Tour
Adega Cartuxa	90	25	3	15	End	Beginning	Beginning	Beginning	End	End	Middle	Not in Tour	Middle	Not in Tour	Not in Tour
Adega Cartuxa	90	32	3	20	End	Beginning	Beginning	Beginning	End	End	Middle	Not in Tour	Middle	Not in Tour	Not in Tour
Adega Cartuxa	90	40	4	20	End	Beginning	Beginning	Beginning	End	End	Middle	Not in Tour	Middle	Not in Tour	Not in Tour
Adega Cartuxa	90	45	5	20	End	Beginning	Beginning	Beginning	End	Middle, End	Middle	Not in Tour	Middle	Not in Tour	Not in Tour
Adega Colares	40	15	2	16	End	Beginning	Beginning	Not in Tour	Not in Tour	Not in Tour	Not in Tour	Not in Tour	Not in Tour	Not in Tour	Not in Tour
Adega Luis Pato	120	40	10	12	End	Beginning	Beginning	Beginning	End	Not in Tour	Not in Tour	Not in Tour	Middle	Not in Tour	Not in Tour
Adega Luis Pato	105	20	5	10	End	Beginning	Beginning	Beginning	Not in Tour	Not in Tour	Not in Tour	Not in Tour	Not in Tour	Not in Tour	Not in Tour
Adega Cantor	60	10	4	5	End	Beginning	Beginning	Not in Tour	Middle	Not in Tour	Not in Tour	Not in Tour	Not in Tour	Not in Tour	Not in Tour
Adega Cantor	30	10	4	5	End	Beginning	Beginning	Not in Tour	Not in Tour	Not in Tour	Not in Tour	Not in Tour	Not in Tour	Not in Tour	Not in Tour
Aliança	90	15	3	12	End	Not in Tour	Beginning	Beginning	Not in Tour	Not in Tour	Middle	Middle	Middle	Middle	Not in Tour
Aliança	90	30	4	18	End	Not in Tour	Beginning	Beginning	Not in Tour	Not in Tour	Not in Tour	Middle	Middle	Middle	Not in Tour
Adega Vila Santa	75	17.5	4	10	End	Beginning	Beginning	Beginning	End	End	Not in Tour	Not in Tour	Not in Tour	Not in Tour	Not in Tour
Adega Vila Santa	75	45	5	20	End	Beginning	Beginning	Beginning	End	End	Not in Tour	Not in Tour	Not in Tour	Not in Tour	Not in Tour
Caminhos Cruzados	45	10	1	15	End	Beginning	Beginning	Beginning	Not in Tour	Not in Tour	Not in Tour	Not in Tour	Not in Tour	Not in Tour	Not in Tour
Caminhos Cruzados	45	35	4	25	End	Beginning	Beginning	Beginning	End	Not in Tour	Not in Tour	Not in Tour	Not in Tour	Not in Tour	Not in Tour
Campolargo	60	20	1	30	End	Beginning	Beginning	Beginning	End	Not in Tour	Not in Tour	Middle	Not in Tour	Middle	Not in Tour
Casa de Insua	90	20	4	10	End	Beginning	Beginning	Beginning	End	End	End	Not in Tour	Not in Tour	End	Not in Tour
Casa Pasarella	75	5	1	4	End	Beginning	Beginning	Beginning	End	End	Middle	Not in Tour	Not in Tour	Not in Tour	Not in Tour
Casa Pasarella	75	35	6	15	End	Beginning	Beginning	Beginning	End	End	Middle	Not in Tour	Not in Tour	Not in Tour	Not in Tour
Casa de Santana	210	30	2	25	End	Beginning	Beginning	Beginning	Not in Tour	Not in Tour	Middle	Not in Tour	Not in Tour	Middle	Not in Tour
Casa de Santana	150	25	2	25	End	Beginning	Beginning	Beginning	Not in Tour	Not in Tour	Middle	Not in Tour	Not in Tour	Middle	Not in Tour

FIGURE 1. TWIN VERTICAL PRESS



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