# Customer Segmentation in the Charter Bus Industry

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## Objectives

- Introduce students to the application of customer segmentation in revenue management.
- Develop a thorough understanding of the theory behind customer segmentation.
- Develop basic skills in business analytics, descriptive statistics and the use of Excel.

## Introduction

### *The charter bus industry*

This case study describes how ESCOT Bus Lines, a charter bus transportation company, started a revenue management initiative by first analyzing its customer segments based on historical data and descriptive statistics. In this case study, we help Josh, the Director of Sales and Marketing, understand some of the revenue and utilization opportunities the company is facing and make recommendations on how to optimize revenue.

The scheduled and charter bus services industry operates passenger buses to transport guests to different destinations in the same city or as far as across the country or contiguous countries (Gale, 2018). The scheduled and charter bus services industry generates USD 5.2 billion annually, with USD 430 million of profits. This is a mature industry with low revenue volatility (less than 3%) and low barriers to entry; consequently, competition is high. This level of competition has led to a low market share concentration. Nevertheless, the scheduled and charter bus services industry is strong, and its revenues are expected to grow at a 2.3% annualized rate over the next five years (Kalyani, 2017).

This case study focuses on the charter bus services subsegment, which represents 7.4% of the industry. As defined by IBISWorld, charter refers to "the hire and exclusive use of a motor coach by a preformed group" (Kalyani, 2017, p. 14); that is, customers, usually a group, who request a bus service exclusively for them, with a specific purpose and for a limited time. This subsegment is mainly made of small companies. Services provided by charter companies include school field trips, transportation to and from conventions, tours and airport shuttles, group outings, among others (Gale, 2018).

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The demand for charter bus services is dependent on disposable income, time available for leisure and travel, school funding, public sector funding, growth in international tourist arrivals, and private sector income. Thanks to economic growth, an increase in school funding, an increase in disposable income and growing demand from private companies, charter bus companies' revenues and demand are expected to keep growing. Although, this growth is limited since the subsegment's services have not had any major changes to boost the demand (Kalyani, 2017), making it difficult for the many existing small companies to differentiate themselves.

The lack of differentiation is accompanied by the following threats: (1) increasing competition due to low barriers to entry and medium regulation; (2) high fuel costs for long-distance charters, which can be controlled by cross-subsidies and forward purchase contracts; and, (3) growth in new car sales, since convenience and lower gas prices make people prefer driving instead of taking a bus (Kalyani, 2017).

Nevertheless, as charter bus services fulfill specific needs of the economy, this is a stable segment with limited external substitutes. Other opportunities for charter bus services lie on (1) targeting retirees, who use charter services at a higher rate than any other group of the population; (2) the 2018 personal and corporate tax cuts that will increase the disposable income of individuals and companies; (3) utilizing capacity at an optimum level, which is facilitated through the practice of revenue management and pricing analytics; (4) building a strong brand name to be differentiated in a highly competitive market with no dominant players; (5) inbound trips by non-U.S. residents, which increased 4.5% in the last year (Kalyani, 2017); and, (6) sightseeing tours, which belong to an industry with an expected growth of 3.5% in the next five years and are services demanded by tour operators, international tourists and convention attendees (Sayler, 2017b)—highly important customers of charter bus companies.

### *Applied revenue management*

Revenue management is the practice of offering the right product to the "right customer at the right place at the right time" (Kimes, 2004, p. 5). This discipline helps companies identify consumer characteristics to design desirable products for multiple types of customers and helps identify consumer behaviors to forecast demand more efficiently; in doing so, companies can develop strategies to achieve an optimal balance between sales' prices and volume to yield the highest revenue possible (Ng, 2008).

From the latter, it becomes apparent that all revenue management initiatives start by understanding what the demand is and who is generating that demand. This process is known as customer segmentation, which is the first step for the successful implementation of revenue management. As a process, customer segmentation leads to forecasts that represent the real demand; these forecasts are necessary for later steps in the process, like unconstraining and strategic pricing. Thus, the purpose of the case study is to develop an understanding of customer segmentation as a foundation for optimizing revenues through business analytics and the application of descriptive statistics.

Business analytics is the "discovery and communication of meaningful patterns in data" (Strickland, 2015). Business analytics is divided into three categories: descriptive (as used in customer segmentation), predictive (as used in forecasting), and prescriptive (as used in capacity-based revenue management and pricing analytics). This case study focuses on descriptive analytics, which enable a better understanding of who the company's customers are (Bodea & Ferguson, 2014).

Descriptive analytics are facilitated through the application of descriptive statistics. This statistical methodology is one of the two—the other being inferential statistics—branches of statistics, which is the science of making "numerical descriptions of a sample" (McCune, 2010, p. 65). Descriptive statistics summarize, describe and organize information with the help of simple calculations that measure central tendency or variability. Measures of central tendency describe the typical values, i.e., the mean, the mode and the median. For example, calculating the average revenue per transaction by dividing total revenues by the total number of transactions. Measures of variability describe how disperse is the data from the typical or the central value, i.e., variance, standard deviation and range. For example, identifying the minimum and maximum rates for a particular customer segment (McCune, 2010).

## Conceptual Background: Customer Segmentation

### *Customer segmentation and its effect on pricing*

A group of customers with identifiable, shared and unique characteristics forms a market segment (Hayes & Miller, 2011). The characteristics by which customers are grouped and the size of the groups are not standard among companies, especially for those competing in heterogeneous markets, like the hospitality industry; instead, the customer segments must make "business sense" (Forgacs, 2010, p. 70), i.e., customers must be grouped in a way where marketing initiatives get the most favorable response. With that said, customer segmentation is a process that allows companies to identify those meaningful and diverse groups of customers based on their preferences and buying behaviors to develop effective and sustainable product strategies, while optimizing capacity and maximizing revenues (Bodea & Ferguson, 2014; Teichert, Shehu, & von Wartburg, 2008).

Traditionally, customers are segmented based on demographic, geographic, behavioral (i.e., buying habits, attitude towards products and use frequency), psychographic (i.e. lifestyle, social class and personality), and price-sensitivity traits (Forgacs, 2010). But, the rise of technology has changed people's lifestyles and has boosted consumer power (Cullen & Helsel, 2001). For many industries, this has translated to blurred customers segments. For example, in the hospitality industry, remote work empowered by technology means that a guest can be simultaneously travelling for business and for leisure. Moreover, guests have access to a plethora of travel booking and review websites that reduce the information asymmetry, so they can modify their buying behaviors at their convenience making it difficult to sellers to properly place them in a previously identified segment.

Because of this, firms need to be more strategic regarding how they identify and manage their customer segments. Ideally, each segment served by a company would have its own strategies regarding promotion, distribution, sales and, more importantly, pricing (Cullen & Helsel, 2001). Appropriate pricing for each segment plays a key role since each segment has a different level of price sensitivity (Forgacs, 2010) or places value on different product attributes. Ultimately, an appropriate price is the one that matches customers' willingness to pay, because charging a lower price to customers who are willing to pay more—i.e., a consumer surplus—represents a lost opportunity for more revenue. To capitalize on consumer surplus, which is the difference between what a customer is willing to pay and what that customer actually pays (Hayes & Miller, 2011), the science of revenue management has evolved the concept of segment pricing, also called: price discrimination, price differentiation, demand-based pricing, or differential pricing. Segment pricing is the "practice of charging different prices to different buyers for the same product or slightly different versions" of it (Hayes & Miller, 2011, p. 94).

If a firm wants to optimize its revenues by serving different customers segments, then the firm could offer different prices following two main customer segmentation strategies: customer-based and product-based segmentation (Bodea & Ferguson, 2014b), which will be discussed next.

### *Customer-based segmentation*

In customer-based segmentation, the same product is sold at different prices to different customers based on their personal characteristics (Bodea & Ferguson, 2014). In line, a company can offer different prices for groups of customers that have a different willingness to pay for the same product (Hayes & Miller, 2011). An example would be a senior getting a discount for entry into a museum; or a member of an organization who can get a preferential rate at a hotel. This is a straight forward way to segment customers, but it has the risk of not capitalizing on the consumer surplus since an affluent senior would pay the same price as a price-sensitive senior, and a member of an organization that truly values the hotel services would pay the same rate as another member that is staying at the hotel just for the discount. Firms pursuing customer-based segmentation and pricing should be able to have a standardized and accurate way to identify customers, to establish regulations so that benefits cannot be transferred to other customers, and to defend and make other customers understand and accept these parameters.

### *Product-based segmentation*

Product-based segmentation is when different versions of a product are sold at different prices, with additional incentives for customers to purchase the higher priced version (Bodea & Ferguson, 2014). To implement product-based segmentation, companies can follow different pricing strategies based on: time of purchase (e.g. season of the year or booking date), product versioning, quantities or packaging (e.g. bulk purchases), bundling (i.e. buying two or more products for one price, which is less than purchasing both separately), distribution channel, location of the seller or buyer (e.g. local resident discounts), and payment terms (e.g. credit card payment fee).

As part of the transportation industry and as the pioneer in the application of revenue management, airlines offer a valuable opportunity to exemplify product-based segmentation and its effect on pricing. Imagine you want to purchase an airplane ticket to your dream island destination this summer. A last-minute purchase and a flight in the peak summer season will make your ticket more expensive; but, if you are willing to purchase a ticket in advance and to fly at the end of the summer season in a red-eye flight, you can save some money—*pricing based on time of purchase*. The price of your ticket will also change if you want to have more flexibility and comfort by flying in business class—*pricing based on product versioning*. Where you purchase your ticket is also a determinant; some airlines will charge a booking fee if you reserve your ticket via the call center instead of online—*pricing based on distribution channel*. Flying to an island implies paying for a location premium because of its difficulty of reach and reduced flight alternatives—*pricing based on location*—so, you can consider inviting a group of family and friends to get a preferential group price—*pricing based on quantity*—and consider booking the hotel as a vacation package to receive extra savings—*pricing based on bundling*.

### *Applying customer segmentation and differential pricing*

Regardless of the chosen customer segmentation and differential pricing, companies should base their decisions on the combination that facilitates an optimal mix of customer segments (Cullen & Helsel, 2001). But, how to identify customer segments? How to truly understand what is the source of business? Due to blurring customer segments, now more than ever it is important to redefine and re-evaluate customer segmentation, which provides multiple benefits: enabling differentiation and avoiding commodization (Rach & Gilbert, 2003), ensuring that products satisfy the needs of today's consumers and trends, boosting the efficiency of marketing efforts, increasing conversion rates, and developing a deep understanding of who are the customers and what they value (Cullen & Helsel, 2010).

There are multiple approaches to identify and define customer segments; some might be based on surveys, some on redesigning the service chain, and some on understanding historical data. This case study approaches customer segmentation through business analytics by applying descriptive statistics to historical data and analyzing what this data tells about ESCOT Bus Lines' customers.

## Critical Issue: Escot Bus Lines

### *ESCOT Bus Lines Background*

Florida has 6.9% of all establishments belonging to the scheduled and charter bus services industry in the United States (Kalyani, 2017). Therefore, competition is high. First, there are companies whose growth is based on building a network of charter bus operators, like GOGO Charters (n.d.) with presence in four countries and 300 cities in the United States, and US Coachways (2018). Second, there are companies with a strong presence in Central Florida, like: Mears Transportation (2017), with 220 motor coaches—plus shuttle vans and luxury cars—and the official shuttle service from Orlando International Airport; Martz First Class (2016), with over 250 motor coaches; and, Academy Bus (2018), with presence in Orlando, Tampa and other 12 cities in the east coast, and with more than 1,000 charter buses.

ESCOT Bus Lines is a private company, owned and operated by the Scott family since 1983. This is a full-service charter company that focuses on local and long-distance charters and contract services. ESCOT Bus Lines has offices in Tampa and Orlando and provides service to the entire continental United States and Canada. The company's fleet includes 41 charter coaches and 19 transit style coaches that can accommodate from 14 to 58 passengers each. Prices depend on several factors, including: group size, vehicle type, use duration, special stops, single or round trip, and if it is an overnight trip. Customers must hire the bus for at least 4 hours and the most common trip duration is 8 hours (ESCOT Bus Lines, 2018).

Josh is the Director of Sales and Marketing of ESCOT Bus Lines. One of his main responsibilities is to know who are ESCOT Bus Lines' customers and their contribution to revenue and profits. In an interview1, he shared the main characteristics of the top customer segments based on their contribution to the company's profit margins.

> *"We currently serve eleven different customer segments, including private and corporate groups, schools and universities, conventions and events, sport teams, weddings, government contracts, airport transfers, tour operators, NASCAR attendees and cruise passengers.*

1 The dialogs below are fictitious but are a true interpretation of an interview conducted in January 2018 with Josh, ESCOT Bus Lines' Director of Sales and Marketing, and another company executive.

*Although, from these, we have clearly identified four segments that make the biggest contributions to our profits. These are tour operators, public schools, universities and corporate clients".*

***Tour operators:*** Tour operators use charter bus services to transport tourists within a destination or from destination to destination. This is a mature industry with decreased demand since travelers can now book and plan their trip online with more convenience and with better prices. This has encouraged tour operators to compete online; but, to do so, they must lower their prices. In addition, tour operators are subject to sudden service cancellations when a crisis arises, e.g., terrorism and disease outbreaks (O'Connor, 2017).

*"Tour operators are our most important customer segment, contributing to 27% of our profit margins. Another characteristic that we like about them is that they book the services well in advance, because their customers also book their vacation in advance. The downside is that they are price sensitive customers with a high cancellation risk".*

***Public schools:*** Public schools use charter bus services primarily to take students on field trips and other out-of-school activities. As public school funding continues on the rise (Kalyani, 2017), the company strives for the renewal of contracts with these customers.

*"Public schools are the second most important contributors to our profit margins, about 15%. To get their business, we go through a bidding process and the contracts we get last for three years. Although this is good for repeated business, we must provide all services under the contract at the same rate. An additional challenge in this segment is that customers expect and demand availability, even within short notice. So, we would like to improve our value proposition to them to negotiate a better rate or non-fixed rates in future contracts".*

***Universities***: Universities use charter bus services for academic trips, activities, faculty meetings, and other related transportation needs. Although universities' revenues have not fully recover from the 2008 economic recession, this industry shows recovering funding levels and increasing tuition and enrollment, which led to 4.6% revenue growth in 2017. Florida accounts for 4.7% of all public colleges and universities in the country (Sayler, 2017a).

*"Approximately 9% of our profits come from universities. Usually, these are price sensitive customers since they are subject to government funding. We think that if we can increase the value proposition for universities, we could gain their acceptance regarding fluctuating service rates".*

***Corporate clients***: Businesses use charter bus services to transport their employees and clients to and from meetings, conferences, and other events. After the economic downturn, corporate income has recovered and will continue to rise over the next five years. Consequently, marketing budgets are increasing, allowing corporations to spend on events—e.g., out-of-the-office meetings and conferences (Roth, 2018).

*"We definitely believe that corporate clients are a great opportunity for ESCOT Bus Lines. Currently, they contribute to 11% of our profit margins. Also, they provide two major advantages: they are less price sensitive, and they usually generate business during the weekdays".*

## *The business problem*

During the same interview, Josh described the business problem ECOT Bus Lines is facing:

*"We are concerned with two main issues. First, the company finds itself in a position where, because of lack of differentiation, it is hard to negotiate higher rates for contracts and it is hard to make customers accept fluctuating rates. We want to increase our value proposition and, consequently, differentiate ourselves, to avoid entering a "price war" with the smaller players who are willing to significantly decrease prices just to get the customer. Second, our vehicles are underutilized during the weekdays and during the summer, when schools are on break. While, during the weekends, the school months and the holiday season, we fully utilize our fleet. Sometimes, we even have to pass services to another company, and we keep only a commission. We would like new customer segments to increase our fleet utilization in periods of low demand".*

These issues could be solved by following revenue management practices since ESCOT Bus Lines is facing challenges in optimizing the utilization of its assets and its revenue streams. Moreover, the company is looking for a more comprehensive approach to identify and better serve different customers segments because, if the company truly understands what each of these segments value, it would be able to develop enhanced products that customers value at a price they are willing to pay.

As explained before, revenue management initiatives start by defining customers segments and clarifying from where the business is coming and what those customers value. If gaps are discovered, companies look for ways to either add more value to existing customers—a potential solution for gaining the acceptance of higher and/or fluctuating rates among price-sensitive customers—or to serve new customer segments—a potential solution for increasing utilization during weekdays and the summer.

Josh just hired you as a revenue consultant and provided you with last year's sales data to understand from where the business is coming. Your ultimate task is to make an objective, data-driven recommendation to Josh about which customer segment should he focus and what else can he do to improve revenues and optimize capacity. The following section provides questions that will take you step-by-step to reach your goal, so it is recommended that you answer the discussion questions in order. Your instructor will provide you with a Microsoft Excel workbook containing the sales data.

## Discussion Questions

- Describe the company's top four customer segments. Incorporate descriptive statistics to your answer by identifying from each segment: (a) total revenue generated, (b) total number of transactions, (c) average service price, (d) service price range, and (e) most commonly used product (bus type). Consider these values over various timeframes (e.g., annually, seasonally, quarterly and monthly).
- Assuming that these four customer segments represent the company's total revenue, how can you graphically demonstrate the contribution of each customer segment to the company's total revenue? Accompany your response with the appropriate graph.
- Which is the customer segment with the widest service price variation? Would it be advantageous for this customer segment to implement fluctuating prices? Why?
- How can ESCOT Bus Lines further a product-based segmentation to better serve each of the top customer segments? Provide specific examples based on the factors discussed above (time, product versioning, location, distribution channel, quantities, bundling and payment terms).
- What utilization problems can you identify in the data? Based on your findings, propose a minimum of two new customers segments that have the potential of solving those issues.
- What is your final recommendation to Josh to improve revenues and optimize capacity utilization?

### *Challenge questions*

- Public schools, at first glance, appear to be the most productive customer segment. But, in fact, they are not. Why is this? Which of the other customer segments is really the most productive and why?
- Can you identify anything else in the data that is misleading?

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## Online Resources

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2 This is an online tutorial from Lynda.com. Check if you can get free access to the material on Lynda.com through your university or local public library.

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