# Bordeaux 2016 Abstract Submission

## Title
China’s Import Demand of Alcoholic Beverages: Beer, Wine, and Spirits and by Country of Origin

## I want to submit an abstract for:
Conference Poster Session

## Corresponding Author
James Seale, Jr

## E-Mail
jseale@ufl.edu

## Affiliation
University of Florida

## Co-Author/s

<table>
<thead>
<tr>
<th>Name</th>
<th>E-Mail</th>
<th>Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manhong Zhu</td>
<td>University of Florida</td>
<td></td>
</tr>
<tr>
<td>Bo Gao</td>
<td>University of Florida</td>
<td></td>
</tr>
</tbody>
</table>

## Keywords
Import demand; China; Wine; Beer; Spirits; alcohol;

## Research Question
How will China’s rapidly growing import demand for beer, wine and spirits differentially affect these products as well as the products from country of origin.

## Methods
A multistage differential geographic demand system is fit to Chinese import data for beer, wine and spirits as well as by country of origin for beer, wine and spirits.

## Results
Chinese import demand for beer, wine and spirits are interdependent. Expenditure and own-price elasticities of import demand differ among beer, wine and spirits and among countries of origin.

## Abstract

### Background and Motivation
As the Chinese economy grows and disposable income rises, China is becoming an increasingly important export destination for foreign alcoholic beverage firms, especially those producing wine, beer, and spirits. In value terms, China was the world’s 51st bottled wine importer in 2000, but by 2011 it has risen to the fifth largest bottled wine importer (Muhammad 2014). China ranked as the world’s 35th beer importer in 2007, but it rose to the seventh largest beer importer by 2014 (UN Comtrade database). Moreover, China’s market for imported beer is entering a period of explosive expansion (USDA/FAS, 2015). For spirits, even though 99% of the Chinese market is taken by the domestic produced baijiu, China’s rank among all the world’s spirit importers has evolved
from 33rd in 2001 to 11th by 2014 (UN Comtrade database). As predicted by the International Wine and Spirit Research (IWSR), the imported spirits growth will be closer to 20%-22% while the domestic spirits consumption is predicted to slow to 2.8% between 2014 and 2018.

China’s fast growing importance in the world’s alcoholic beverage market has attracted a considerable amount of attention in research; the majority of research was focused on China’s wine consumption pattern and consumer behavior analysis (Yu et al. 2009; Liu et al. 2008; Liu and Murphy 2007; Balestrini and Gamble 2006). Muhammad et al. (2013) employed the absolute price version of the Rotterdam demand model and estimated the source-differentiated import demand for foreign wines in China. They assumed consumers’ preferences are independent between wine and non-wine products.

Assuming consumer’s preferences are independent between wine and non-wine products, however, eliminates the interactive effects between wine and other alcoholic beverages such as beer and spirits. It is more plausible that consumers allocate their total alcoholic beverage expenditures across product groups: beer; wine; spirits; and other alcoholic beverages. In the next stage, the demand for source-differentiated beverages within each alcoholic category or group can be determined conditional on the expenditure of the corresponding group in the last stage. This multistage budgeting process (Seale et al. 1992) is illustrated in Figure 1.

Following the multistage budgeting process, estimating the demand for cross expenditure and price effects among subgroups can be measured by estimating the demand system consisting each subgroup—wine, beer, spirits, and other alcoholic beverages. Consumers’ expenditure and price sensitivities to different specific beverage types from the same country of origin—for instance,* James L. Seale, Jr. is Professor, Manhong Zhu is Ph.D. candidate, and Boa Gao is a former M.S. student in the Food and Resource Economics Department, University of Florida.

Assuming consumer’s preferences are independent between wine and non-wine products, however, eliminates the interactive effects between wine and other alcoholic beverages such as beer and spirits. It is more plausible that consumers allocate their total alcoholic beverage expenditures across product groups: beer; wine; spirits; and other alcoholic beverages. In the next stage, the demand for source-differentiated beverages within each alcoholic category or group can be determined conditional on the expenditure of the corresponding group in the last stage. This multistage budgeting process (Seale et al. 1992) is illustrated in Figure 1.

Following the multistage budgeting process, estimating the demand for cross expenditure and price effects among subgroups can be measured by estimating the demand system consisting each subgroup—wine, beer, spirits, and other alcoholic beverages. Consumers’ expenditure and price sensitivities to different specific beverage types from the same country of origin—for instance,* James L. Seale, Jr. is Professor, Manhong Zhu is Ph.D. candidate, and Boa Gao is a former M.S. student in the Food and Resource Economics Department, University of Florida.

2 wine and beer from the United States—can be horizontally compared by estimating the demand system individually for each source-differentiated subgroup.

Figure 1. Multistage Budgeting Process
Methodology and Data
We use annual data, 1992 to 2014, from United Nations Comtrade and are classified according to the Harmonized Commodity Description and Coding System (HS). Import value and quantity data are directly collected for beer using HS2203 beer made from malt, wine using HS2204 wine from fresh grapes, and spirits using HS2208 Spirits, liqueurs, other spirit beverages, alcoholic preparations. Data for other alcoholic beverages are aggregated using HS2205 Vermouth and other flavored grape wine, and HS2206 Fermented beverages nes (e.g., cider, berry, mead). The data for beer, wine, and spirits by country of origin are also collected for the same time period and are annual data. The analysis for beer includes Germany, Mexico, the Netherlands, United States, and rest-of-the world (ROW), the analysis for wine includes France, Chile, Spain, United States, and ROW while the country of origin analysis of spirits includes France, United Kingdom (UK), United States, and ROW. The Rotterdam model, often used in demand analysis, maintains that the marginal budget shares of goods are constant over the sample period. This means that when income increases by one dollar the additional amount spent on these goods do not change over time. Assuming the marginal budget shares are constant might be applicable to well-develop import markets for alcoholic beverages. However, this is probably not the case for China where a diverse middle class owning rising purchasing power is rapidly growing. The result is that Chinese people are increasingly willing to pay more for higher quality, brand names, and differentiated features (Song and Cui 2009).

3 In this paper, we use the method suggested by Barten (1993) and refined by Lee, Brown,, and Seale (1994) to choose among four popular demand systems (i.e., Rotterdam (Theil 1964), Central Bureau of Statistics (CBS) (Keller and van Driel 1919), Almost Ideal Demand System (AIDS) (Deaton and Muelbauer 1980), and National Bureau of Statistics (NBR) (Neves 19)). Specifically, a General model (Barten 1993; Lee, Brown, Seale 1994) is fit to the import data of beer, wine, spirits, and other alcoholic beverages and by country of origin for beer, wine, and spirits. The General model nests the Rotterdam, CBS, AIDS, and NBR models and likelihood ratio tests are used to choose the model that best fits the data. The General model may be written following Lee, Brown, and Seale (1994) for the first stage of analysis—wine, beer, spirits, or other alcoholic beverage. The nesting parameters are $d_1$ and $d_2$. When $d_1 = 0$ and $d_2 = 0$, the General model simplifies to the Rotterdam model.
When $d_1 = 1$ and $d_2 = 0$, the General model simplifies to the CBS model. When $d_1 = 1$ and $d_2 = 1$, the General model simplifies to the Aids, and when $d_1 = 0$ and $d_2 = 1$, the General model simplifies to the NBR model. The demand for good $i$ (beer, wine, or spirits) from country $c$ can be represented similarly as the stage one model with the added country subscript. Again, the nesting parameters are $d_1$ and $d_2$. When $d_1 = 0$ and $d_2 = 0$, the General model simplifies to the Rotterdam model. When $d_1 = 1$ and $d_2 = 0$, the General model simplifies to the CBS model. When $d_1 = 1$ and $d_2 = 1$, the General model simplifies to the Aids, and when $d_1 = 0$ and $d_2 = 1$, the General model simplifies to the NBR model.

Summary of Selected Results

Imported beer, wine, spirits, and other alcoholic beverages are found to be interrelated in terms of price effects. Sensitivities to changes in group expenditure and own-price vary among these imported beverages.

In terms of Chinese wine imports by country of origin, wine from France, United States, and ROW are expenditure inelastic while wines from Chile and Spain are expenditure elastic. The own-price elasticity of import demand for French wines is unitary, while those from Chile, Spain, United States and ROW are elastic. Chilean wines are found to be substitutes for Spanish wines and French wines for ROW wines. None are found to be complements.

In terms of Chinese beer imports by country of origin, beer from Germany and ROW are expenditure inelastic while beer from Mexico, Netherlands, and United States are expenditure elastic. The own-price elasticity of import demand for German and Mexican beers are inelastic, while those from Netherlands, United States and ROW are elastic. German beer are found to be substitutes for United States beer, Netherland beers for ROW beers, and Mexican and United States beers are found to be complementary.

In terms of Chinese spirits imports by country of origin, spirits from UK, United States, and ROW are expenditure inelastic while spirits from France are expenditure elastic. The own-price elasticity of import demand for spirits from France, UK, United States, and ROW are all inelastic. French spirits are found to be substitutes for ROW spirits while United States Spirits are substitutes with ROW spirits. None are found to be complementary.

Potential Influence

The allure of penetrating the Chinese beverages market is strong; China’s millenials make up a third of the country’s population, and, with their increasing purchasing power, they are switching to imported premium brands of alcoholic beverages, especially low alcohol content beverages including wine and beer. For international drink producers to take advantage of the Chinese drinks market, a deep understanding is needed with regards to Chinese consumers’ expenditure and price sensitivities among different alcoholic beverage types (wine versus beer) as well as source-differentiated beverage (Chilean wine versus Spanish wine). This research provides business stakeholders empirical results of China’s alcoholic beverage import demand by estimating expenditure and price elasticities.

References


UN Comtrade Database: http://comtrade.un.org/
