Demographics of U.S. Wine Consumers: A Comparison between Two Data Collection Approaches

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Abstract:

Purpose - Today, researchers can choose between various data collection methods. Recently, the use of Amazon Mechanical Turk (MTurk) has become a popular approach to subject recruitment. However, its soundness is often questioned. The goal of this paper is to compare and contrast subjects' demographic data collected with self-administered online surveys.

Design/methodology/approach - An identical survey, administered by Qualtrics, was distributed two ways. For study 1 ("Traditional"), subjects were provided with the survey link by restaurant staff, via one winery's Facebook page and another winery's newsletter, and via email by wine educators at three U.S. based universities. For study 2 ("MTurk"), data were collected using the Amazon Mechanical Turk platform. Data were analysed with SPSS version 22; the data set was split and independent sample t-tests were utilized to compare groups. The data collection was funded by the Nanshan America Group.

Findings - Diverse findings emerged from the comparison. Similarities between subjects of the two studies were found in regard to age, wine consumption experience, and ethnicity. Significant differences emerged for participants' levels of wine involvement, subjective knowledge, wine consumption while dining out, and willingness to pay for a glass of wine in a foodservice setting. However, in comparison to a 2014 study profiling the U.S. wine consumer, parallels with the MTurk participants emerged.

Practical implications - In line with other social sciences research, these findings suggest that MTurk is a viable option for wine consumption related data collection, in the United States.

Keywords: Demographics, Amazon Mechanical Turk, Research Methodology, Wine Consumer Research

1. INTRODUCTION

Since the emergence of the internet, more sources for data collection have become available to researchers in all disciplines (Dillman, Smyth, and Christian, 2009). Particularly, those interested in human behaviour (social sciences) have a variety of options to gather data, including wine consumption studies. For example, questionnaires or surveys are frequently utilized which often refer to tests and assessments administered to participants who self-report their opinions and behaviours on a voluntary basis (Gosling, Vazire, Srivastava, and John, 2004). In the past, such survey research required a significant timeline (e.g. distribution via postal mail) and cost commitment (e.g. for paper, postage, return-envelopes) (Dillman et al., 2009). Today, questionnaires can be more easily administered online. However, data quality of internet-based methodology has been questioned, particularly when using Amazon Mechanical Turk (MTurk) to recruit participants (Paolacci, Chandler, & Ipeirotis, 2010).

Amazon MTurk is a tool to collect data in a timely manner at relatively low cost. It has recently been used in various disciplines, including wine business research (Robson, Plangger, Campbell, and Pitt, 2014). MTurk is a platform of paid "workers" who complete various online tasks such as surveys and experiments that can be administered with tools like SurveyMonkey, Qualtrics or MTurk software. The person facilitating a task (requester), determines a compensation amount prior to study administration and the person completing a task (worker) gets paid automatically or manually (Buhrmester, Kwang, and Gosling, 2011). According to Paolacci, Chandler, and Ipeirotis (2010), compensation in the U.S. varies and can be as little as $0.01 but rarely exceeds $1 per task.

Data from such internet-based samples have raised questions of accuracy and generalizability pertaining to participants' demographic representation, leading to a number of research studies (Casler, Bickel, and Hackett, 2013; Buhrmester, Kwang, and Gosling, 2011; Paolacci et al., 2010; Krantz and Dalal, 2000). Furthermore, the motivation level of participants has been questioned (Buchanan, 2000) to the point that some research proposed that samples were unreliable and not representative of study populations when compared with traditional methods (Krantz and Dalal, 2000). On the contrary, social psychology research investigating these issues proposed that differences between traditional and internet-based samples, including those recruiting participants via MTurk, are less dramatic than initially anticipated (Casler et al., 2013; Buhrmester et al., 2011; Paolacci et al., 2010; Gosling et al., 2004). A controversy emerges that warrants clarification as researchers of all disciplines agree that the benefits of faster and more economical data collection are appreciated as long as data quality is not jeopardized. Put into the context of wine business research, the question emerges to what degree social scientists' claims of this nature apply to wine business research and particularly to the demographic profile of the U.S. wine consumer. A comparison between wine consumer data collected via MTurk and subjects recruited via email/Facebook/in-person was completed to explore demographic differences between the two samples.

2. METHODOLOGY

The same Qualtrics based online survey was distributed to participants in two ways: (1) via email, social media posting (e.g. Facebook), in person and (2) via Amazon Mechanical Turk (MTurk). Participants of study 1 were able to voluntarily join a drawing for one of five 2015 Food & Wine guides (~$10), whereas MTurk workers were compensated with $0.70 for each fully completed questionnaire. Funding for the study incentives (study 1) and study compensation (study 2) was provided by the Nanshan America Group.

The following measurement scales were utilized:

- **wine consumption experience** (in years);
- **wine consumption frequency** in foodservice establishments, 2-item-scale, 6-point Likert, adopted from Hammond, Velikova, and Dodd (2013);
- **involvement**, 3-item-scale, 7-point Likert, modified based on Lockshin, Spawton, and Macintosh (1997), Cronbach α .80 (study 1), Cronbach α .79 (study 2);
- **subjective knowledge**, 3-item-scale, 7-point-Likert, modified based on Brucks (1985), Cronbach α .77 (study 1), Cronbach α. 75 (study 2);
- **use of information sources**, 10-item-scale, 5-point-Likert, modified and extended based on Hammond et al. (2013), Cronbach α .83 (study 1), Cronbach α. 89 (study 2);
- **willingness to pay** (in U.S. dollars) for a glass of wine in a foodservice establishment.

Prior to data analysis, total scores were calculated (if applicable), the normality of the data distribution was assessed, and reliability analyses were conducted. Following Pallant's (2013) assessment strategy and recommendations, the data were considered reasonably normal and reliable with Cronbach's alpha above .70. Data from the two studies were compared in regard to variables specific to wine consumption such as wine involvement, subjective knowledge, and consumption experience. Additionally, socio-demographic information like income, gender, and education was examined.

3. FINDINGS

The comparison of the two studies (see Table 1) showed diverse findings. For study 1, participants were recruited from 22 states with the majority residing in CA, IN, and TX. The participants of study 2 indicated residency in 35 states, predominately living in CA, FL, GA, and PA. In regard to participants' use of wine related information sources, data suggested that interpersonal exchange with others, such as family, friends, and restaurant service staff, is more widely and frequently used than mass media information sources like books, blogs, and magazines. Similar usage frequency was found for both studies.

Table 1. Comparison between two data collection approaches.

Variable	Study1[a] "Traditional"	Study2[b] "MTurk"	Sig. (2-tailed)
Consumption Experience (in years)	μ=14.19 (14 years) n=144	μ=12.43 (12 years)	.24
Consumption Frequency			
(1) *Excluding fast food how often do you dine out?*	μ=3.50; n=147	μ=3.19	.03*
(2) *How often do you order wine when dining out?*	μ=2.61; n=147	μ=3.47	.000***
Involvement *(1)I enjoy drinking wine with my meals. (2)It does not have to be a special occasion to enjoy wine with dinner. (3)I have a strong interest in wine.*	μ=18.37; n=146	μ=15.02	.000***
Subjective Knowledge *(1)Relative to people you know (e.g. friends), how would you rate your knowledge of wine? (2)Based on your current knowledge of wine, how comfortable would you be ordering wine in a restaurant. (3)Relative to a wine expert (e.g. certified sommelier), how would you rate your knowledge of wine?*	μ=15.03; n=146	μ=12.23	.000***
Education	n=138		
High school/diploma/GED	4	10	
Some college work	27	29	
Bachelor's degree	72	55	
Master's degree	21	13	
Doctoral degree	7	3	
Professional degree	7	3	
Ethnicity	n=138		
White/Caucasian	122	94	
African American	3	6	
Hispanic	2	4	
Asian	8	6	
Native American	1		
Pacific Islander			

Other		3	
Income	n=138	n=110	
$19,999 or less	12	10	
$20,000-$39,999	8	31	
$40,000-$49,999	2	12	
$50,000-$59,999	4	18	
$60,000-$69,999	8	13	
$70,000-$79,999	13	3	
$80,000-$89,999	9	5	
$90,000-$99,999	6	5	
$100,000-$119,999	8	7	
$120,000-$139,999	11	1	
$140,000-$159,999	6	2	
$160,000 or more	27	3	
Gender	n=142		
Female	100	48	
Male	42	65	
Age (in years)	μ=38.56 (38 years); n=136 21 (min.) – 75 (max.)	μ=35.89 (36 years) 22 (min.) – 65 (max.)	.12
Willingness to Pay (in USD)			
Glass (5oz.) of red wine	μ=11.40 (USD); n=141	μ=8.61 (USD)	.000***
Glass (5oz.) of white wine	μ=10.26 (USD); n=134	μ=8.61 (USD)	.01**

Note. * Significant at .05 level. ** Significant at .01 level. *** Significant at .001 level. [a] due to missing responses sample size is indicated for each variable, [b] unless noted otherwise n=113.

The data comparison showed that participants of both studies have been consuming wine for similar durations of time, which appears reasonable considering that participants indicated comparable average ages. As far as dining out and consuming wine when dining out is concerned, MTurk workers who are visiting foodservice establishments report drinking wine significantly more often even though they dine out slightly less often than consumers who participated in study 1. Significant differences between participants emerged in regard to consumers' involvement with wine and their subjective wine knowledge. MTurk workers considered themselves significantly less involved and knowledgeable than study 1-participants. Examining education and ethnicity, the samples did not differ much; participants of both studies were predominately Caucasian and had completed at least some college work while a Bachelor's degree was the most frequent reported educational degree in both samples. Despite the similarities in educational background the majority of MTurk workers (n=84) indicated earnings below $70,000; whereas, over half of study 1-participants reported annual household incomes of above $70,000. According to Paolacci et al. (2010) this is not unusual; MTurk workers are known for lower income along with higher than average (U.S.) education levels. In regard to gender, the vast majority of study 1 participants were female whereas the

MTurk sample was more equally made up of males and females. Interesting findings emerged from the comparison of participants' willingness to pay for a glass of wine in a foodservice setting. MTurk participants were inclined to spend about $9 per glass for either white or red wine. On the other hand, subjects who participated in study 1, were not only prepared to spend significantly more per glass of wine but also showed different willingness to pay for red and white wine.

This comparison highlights interesting similarities and differences between these two studies. Based on research conducted by Thach, Olsen, and Atkin (2014) with the aim to profile the American wine consumer, the findings can be compared further. Data from the 2014 study indicated that U.S. wine consumers are predominately Caucasian, residing in states such as CA, FL, NY, IL, and TX, and earning above $50,000, while holding a college degree (Thach, Olsen, and Atkin, 2014). Additionally, U.S. wine consumers can be found in any generation between 21 and 68+ years of age. As far as wine purchases in foodservice establishments are concerned, Thach et al. (2014) suggested that the majority of consumers were willing to spend between $5 and $10 per glass of wine. The study (Thach et al., 2014) did not include information pertaining to wine involvement and levels of subjective knowledge, however, similarities between this U.S. wine consumer profile and MTurk study participants are intriguing, particularly in terms of ethnicity, residency, income, education, age, and willingness to pay for wine by the glass.

4. DISCUSSION

Similar to other survey research with human subjects, the two studies were limited in regard to self-reported data and unequal representation of gender (study 1) and participants from all U.S. states. Additionally, for study 1 various recruitment opportunities (email, in person, Facebook) were used which may limit the generalizability of the findings. Furthermore a connection between recruitment method and responses cannot be drawn; hence, a distinction between the three recruitment sources is not possible. Considering the time it took participants to complete the survey it should be noted here that MTurk workers spent roughly half the time (on average) to respond in comparison with "traditional" participants. Acknowledging that people who partake in the MTurk platform are more experienced in completing online tasks such as surveys, it might be warranted for future research to further explore the time spent per task in relation to data quality. No attention checks were used in either one of these studies.

The comparison of the two studies for which surveys were distributed (1) via email/social media/in-person and (2) via Amazon Mechanical Turk showed some significant differences (see Table 1). However, similarities emerged when taking into consideration recent findings of a large study (n=1028) profiling the American wine consumer (Thach et al., 2014) which was in turn proposed to have vast similarities to other studies of the American wine consumer. Especially, socio-demographically the differences between study 2 and the 2014 wine consumer profile were rather small. This falls in line with Paolacci et al. (2010) who compared demographics of MTurk workers with a student sample and a sample of online discussion board participants, finding little demographic differences. Furthermore, this is in

agreement with findings of Buhrmester et al. (2011). It can therefore be suggested that wine consumer data collected via MTurk is only marginally different than the average American wine consumer in regard to gender, income, education, and ethnicity.

An additional aspect from this study comparison emerged due to the distribution method for online-based surveys. With the aim to capture a cross-section of U.S. wine consumers, various methods were utilized to distribute the survey link for study 1 (e.g. winery newsletter recipients, winery Facebook followers, wine education students, restaurant visitors). Heightened levels of wine involvement and subjective knowledge are therefore not surprising; however, they might not be fully representative of the average American wine consumer. The average U.S. wine consumer might be closely represented by the MTurk sample; however, if due to study purpose a narrower subset of wine consumers is required (e.g. highly involved consumers or people interested in wine tourism or fine dining), MTurk may not be recommendable as a recruitment tool. In other words, MTurk might be a suitable and convenient instrument to aid the collection of data for broad wine consumption study contexts. Due to the exploratory nature of this study, further comparative research exploring MTurk versus other recruitment methods should be conducted.

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