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ABSTRACT: *This is the first known large-scale study in the literature to examine women in the wine industry. By investigating the top wine-producing states in Australia and using a unique database, women across CEO, winemaker, viticulturist, and marketing roles are tracked for the years 2007-2013, resulting in 16,763 firm year observations. By relying on social identity theory, a hypothesis is put forth that women's representation in top roles is actually less than predicted. The hypothesis is confirmed. A hypothesis is also posited that women in South Australia have higher representation in top roles than women in any other wine-producing state. The hypothesis is partially supported. Finally, this study hypothesizes that were a wine firm has a woman CEO, the likelihood of women representation in the other roles studied increases, which finds support. The results are discussed, along with future research directions and limitations.*

Keywords: Australia, gender diversity, social identity, women, wine

Introduction

Wine production is thousands of years old, is culturally significant around the world, and represents a multi-billion dollar global industry. However, the wine industry has historically been dominated by men (Bryant and Garnham, 2014; Gilbert, 2011; Ting, 2013). As such, little is known about how many women actually work in the industry, nor what roles they might play. Despite this lack of knowledge, emerging evidence suggests that women could be breaking through the glass ceiling in the wine industry. For example, a recent study (Gilbert and Gilbert, 2012), using a quality rating database for wine and a matched-pair analysis of a set of California winemakers (men versus women), finds that women are more likely than men to produce a higher quality wine. Similarly, in Australia, at a recent wine show, a woman winemaker took the "Best Wine of the Show", beating out hundreds of other wines dominated by men winemakers (Prestipino, 2012). Lastly, in Europe, a winery consisting of a team of all women was recently awarded "UK Wine Producer of Year" (Daily Wine News, 2012).

While having, to a degree, improved our understanding of women in the wine industry and the value-adding potential they might offer, the contributions of prior research are limited in three ways. First, what research that does exist focuses on winemakers, as this is one of the most highly vaulted positions in the industry. What still needs to be understood is the extent of the representation of women in a broader context. For example, there are other important roles in wine firms, including CEO, viticulture, and marketing roles. These are critical roles because they directly relate to the strategy, production, and sales of wine products. Second, what evidence of women in the wine industry that does exist largely comes from North America and Europe, while little is known about women's status in other wine-producing countries. In Australia, Ting (2013) suggests that despite the size and success of the wine industry, studies of women in the field are virtually non-existent (for an exception, see Bryant and Garnham, 2014). Lastly, there is

no research that tracks women in the wine industry over time. This lack of time-based study limits an understanding as to whether or not women are advancing, and if so, in which roles.

To address these limitations, this paper makes three contributions to the literature. First, this is the first known large-scale study in the literature to examine women and wine, relying on social identity theory to advance knowledge in gender diversity research. Social identity theory is chosen because there is evidence to suggest that in the wine industry, a "male" *identity*, in terms of both work and work roles, is pervasive (Bryant and Garnham, 2014). Second, by relying on a unique database, this study tracks gender in the wine industry across CEO, winemaking, viticulture, and marketing roles, for the years 2007-2013. By tracking these roles over time, this paper adds much needed insight into the extent to which women advance to top roles in business, and if the prevalence of women in certain roles is greater than others. Lastly, the study has practical implications. In Australia, the percentage of full-time women employed across all agriculture industries (including wine production) is estimated at around 14 percent (WGEA, 2012). This paper provides some insights that could inform future policy, particularly for policy makers who are seeking to increase rural and regional employment for women.

Background and some current statistics

Women and leadership roles in business

The issue of gender diversity in business organisations has become prominent in both academia and the popular press. On one hand, the issue of equality and discrimination is driving the discussion around the increase of women in leadership roles. Here, the argument is that gender diversity is an *ethical* imperative (Kelan, 2008; McCabe *et al.*, 2006). On the other hand, women are thought to bring specialist skills and expertise that increase the effectiveness and efficiency of firms (Kalleberg and Leicht, 1991; Torchia *et al.*, 2011). Here, the argument is that gender diversity is a *resource* imperative (Burke, 1997; Galbreath, 2011). In both cases, management

research examining gender diversity appears to coalesce around one common theme: gender diversity in upper echelon positions.

The study of gender diversity in upper echelon positions, while prominent, is somewhat recent. Largely, such research has gravitated toward studying women on boards of directors of large, publicly traded firms (Adams and Funk, 2012). This is because corporate governance is seen as critical to these firms' decision-making, particularly strategic, operational, and financial decisions, as well as to the setting of policy objectives (Nekhili and Gatfaoui, 2013). One of the larger debates to surface is the issue of quotas. For example, in 2003, Norway was one of the first countries to impose a gender quota law for boards of directors, set at 40%. More recently, in 2011, the French parliament imposed a gender quota for corporate boards, whereby firms must have 40% gender representation by 2016 (for firms with more than 500 employees and turnover exceeding 50 million Euros). Similarly, Sweden and Spain have imposed quotas of 25% and 40% gender representation on boards, respectively. Outside of Europe, gender quotas are rare and sample statistics of women on boards include Australia (15.6%), China (7.2%), Hong Kong (8.9%), Japan (0.4%), and the US (16.1%).

Apart from the supra upper echelon board roles, relatively less research examines gender diversity in other top roles. One exception is the study of women CEOs (e.g., Cook and Glass, 2014). In Australia, for example, a recent study on women in leadership identified that, in 2012, women CEOs in the ASX500 was around 3% (WGEA, 2012). In the US, the percentage of women CEOs in the Fortune 500 was 4.4% in 2013 (Catalyst, 2014), slightly higher than Australia's figures. Similarly, in the UK, women CEOs in the FTSE350 stood at 3% in 2013 (HRReview, 2013). In Germany, in 2013, firms in the major DAX 30 index did not boast a single woman CEO (Marcus Evans, 2013). Generally, statistics suggest that while most countries under study have shown an improvement, over time, in the percentage of women on boards and

other top leadership roles (e.g., CEOs) in large, publicly traded firms, the clear message is that they remain underrepresented, particularly in countries without gender quotas.

Women and the wine industry

Wine, as a consumable product, is approximately 8,000 years old (Anderson, 2013). Wine also has cultural significance the world over and has, for wine-producing countries, a strong impact on national reputation. However, today, and historically, the production of wine is concentrated in Europe. Europe still represents around 60 percent of the global surface area used for wine grape growing and production (OIV, 2012). Alternatively, so called "New World" producers, including Argentina, Australia, Chile, South Africa, and the United States, have made significant inroads in recent decades in terms of both quantity and quality of production. For example, Argentina, Australia, Chile, South Africa, the United States, and recently, China, now all rank as top 10 global wine producers. Surprisingly, despite its age as a product, its cultural significance, and its reputational impact, little research has examined women in the wine industry (Ting, 2013). The few studies that do exist reveal some important insight.

In one study, Gilbert (2011) examines 3,200 wineries based in California to determine the gender of winemakers. The study classifies the wineries into eight wine regions: Mendocino/Lake County, Napa Valley, Sonoma/Marin, Sierra Foothills, Central Valley, North Central Coast, South Central Coast, and Southern California. The findings suggest that 9.8% of California wineries have women winemakers, with a higher percentage of those found in the state's premier wine regions; namely, Sonoma/Marin and Napa, with 12.4% and 12.2% women winemakers, respectively. In a follow up study, Gilbert and Gilbert (2012) compare the quality of wine produced from the earlier sample of Gilbert (2011) by comparing men versus women winemakers listed in *Opus Vino*, a global ratings guide that identifies the highest quality wines. The study of 450 wineries, using a matched-pair analysis (men versus women winemakers),

finds that women winemakers are more likely than men winemakers to be listed in the *Opus Vino* quality wine guide.

In the Australian context, Ting (2013) suggests that there is a scarcity of knowledge about women in the wine industry. However, there is some evidence to suggest that women are potentially making some inroads. For example, Ting (2013) reports that in the two oldest schools for winemakers, the proportion of women enrolling in oenology programs is on the rise. From around 13% in the 1980s, women enrolment in oenology at the University of Adelaide is now at 30%. At the Charles Sturt Wagga Wagga campus, women enrolment in oenology is now around 27%, up from 12.5% from 1976 to 1984. In other schools, results are also encouraging. At the University of Melbourne, enrolments are equal to men at 50%. Although relatively small compared to other programs, at Curtin University, over the 2009-2013 timeframe, women enrolments stood at 54%. Ting (2013) further notes that while some women appear to be reaching top leadership roles in small wineries in Australia, there is a noticeable lack of women in upper echelon positions at larger firms. This is confirmed by Byrant and Garnham (2014).

In their study, Bryant and Garnham (2014) seek to challenge a perception that women in the traditionally patriarchal wine industry are no longer subject to structural constraints based on gender. Interviewing 16 women working in one of the largest wine producers in Australia, they find that within the corporation, a male-dominated hierarchy exists, particularly in upper-level positions. The interviewees expressed views that within the organization, the ideal worker is constituted as masculine. This includes, for example, the need to work long hours, to demonstrate commitment to the organization ahead of social or family responsibilities, cultural norms such as golf days and watching football, and required physical strength for heavy lifting and using machinery. Ultimately, this led the researchers to conclude that:

> …the majority of roles [within the corporation] are occupied by men, work roles are shaped by assumptions about gender that position men higher in the organizational hierarchy, masculine benchmarks for skills and experience to achieve promotion into higher levels requires women to 'match' their careers to those of men to be competitive, and masculine culture, norms and value practices are embedded in the everyday practices and processes of the organization. Within this organization the ideal labouring body is therefore constituted 'male', where work and worker *identity* are shaped by masculine norms. (italics added)

Theoretical framework and hypotheses

Based on the findings of Bryant and Garnham (2014), the theoretical framework used for this study is social identity theory (Tajfel, 1974). Social identity theory posits that individuals classify themselves and others into various social categories (e.g., religion, age cohort, gender, etc.). These categories are defined by prototypical characteristics abstracted from the members within the same group (in-group) and differences between groups (out-groups), enabling them to locate or define themselves in the social environment. Here, in-groups are established, where one perceives herself as an actual or symbolic member of the group, and perceives the fate of the group as her own. Hence, individuals' knowledge of their in-group—and out-group—and the way these are evaluated has an effect on self-image and action and that people have a motivation to "seek a positive social identity" (Turner *et al.*, 1987, p. 30). A negative or threatened social identity will induce the adoption of various resistance strategies by the group, in an attempt to change the content of negative social identity (Tajfel and Turner, 1986; Turner and Brown, 1978). Given the evidence to suggest that in the wine industry, a "male" *identity*, in terms of both work and work roles, is pervasive (Bryant and Garnham, 2014), social identity theory serves as an appropriate theoretical framework in the context of this study.

Following social identity theory, according to several scholars (Morrison *et al.*, 1994; Schmitt *et al.*, 2009; Rossi, 1985), perceptions that women are well represented in a traditionally male-dominated field can serve as a barrier to their increased participation. For example, highly visible women winemakers such as Vanya Cullen and Severine Logan in Western Australia, and Kerri Thompson and Pam Dunsford in South Australia, can create a perception of a high level of presence of women in a field dominated by males. This is exacerbated by media reports, which highlight the advancements of a few prestigious women in a few select companies, leading to perceptions that the industry has undergone a gender "sea change" (Bryant and Garnham, 2014). However, high visibility or cult status of a few acclaimed women in a field can create perceptions that can lower the perceived need to encourage women to enter the field, resulting in lower representation rates (Morrison *et al.*, 1994; Schmitt *et al.*, 2009; Rossi, 1985). That is, as perceptions are formulated that inequality does not exist as a result, for example, of tokenism, in-groups can have less suitable motivation to challenge perceived gender equality, which results in a woman's unwillingness to take up roles that are, in actuality, dominated by males (Schmitt *et al.*, 2002; Wright, 1997).

With respect to the wine industry, the only available estimate of the representation of women, on the lower end, is 15% in the prestigious winemaking role (Heimoff, 2007; Kauffman, 2009). However, there is no evidence to suggest that representation rates are any higher for any other top roles. Considering the problematic nature of having high visibility or cult status of a few highly reputable women in an industry, and the possibility of women therefore not challenging actual gender imbalances, perception likely does not equal reality. Thus:

> **H1:** There are significantly fewer women in top roles in the wine industry than the estimated representation level of 15%.

Following Unger (2006), as women strive to make inroads into fields that have been historically unavailable to them, they seek to achieve "exceptional" status. There are two key ways that women might to seek to achieve such status. First, individuals can seek to be a part of group because of the status or recognition it provides. By becoming part of certain groups, members believe that their social status is automatically looked upon as special and peculiar, endowing them with a level of prestige. Second, individuals can seek to achieve exceptional status by aligning themselves with groups that align to their personal goals. Here, because the group's goals are seen as cutting-edge or advanced, gaining entrance into the group can afford the individual the opportunity to achieve her personal goals of excellence. In the case of women in the wine industry in Australia, this group identification phenomenon is extended to a larger dimension; namely, location or region as a specific form of social identification.

In the wine industry in Australia, South Australia is arguably the most acclaimed wine-producing state in the country and is recognized around the world for some of its leading brands. South Australia is the largest producer (nearly 50% of total wine production) and arguably has the country's most iconic and reputable regions (e.g., Barossa Valley). South Australia is also Australia's hub for wine research and innovation, and produces some of the most respected—and expensive—wines in the world (Aylward, 2007). Further, the state boasts the country's highest levels of the implementation of environmental practices (Galbreath and Charles, 2014), suggesting a strong reputation for the stewardship of natural resources and a commitment to protect the environment. As women strive for visibility and accolades, the expectation is that they would seek to gain entry into a wine-producing state that could afford them the greatest potential opportunity to achieve their goals or to gain recognition. This is supported by Gilbert's (2011) findings, where the most famous wine regions in California boast the highest rate of women winemakers. Hence:

H2: There are more women in top roles in the wine industry in South Australia than in other wine-producing states in Australia.

Lastly, individuals can seek to be a part of a group because they like one or more of its members. There are two ways this can be manifested. First, as women attempt to enter the wine industry, because of in-group identification, they are likely to seek out positions in firms where there is a woman leader, particularly in the top role (i.e., CEO). This is because intergroup anxiety can be reduced (Riek *et al.*, 2006), self-esteem can be increased (Morton *et al.*, 2009), and a sense of belonging and self-enhancement achieved (Hogg, 2006). Second, top-level decisions makers, such as CEOs, can reserve attractive or prestigious positions—for example, the winemaker position—for in-group members (Powell and Butterfield, 2002; Tajfel and Turner, 1979). This may be a case of in-group loyalty, as in-group members are seen as more essential to the firm, or because of the comfort level of the in-group members. By example, Cook and Glass (2014) and Elsaid and Ursel (2011) find that when there is greater gender diversity on boards of directors, there is a greater likelihood that a woman will be appointed to the CEO role of the firm. Considering these postulates and findings, the following is hypothesized:

H3: Where a wine firm has a woman CEO, there is a greater likelihood that there will be women in the winemaker, viticulturist, and marketer roles.

Data and methods

Sample

Data were collected from the database version of the annual Winetitles *Australia and New Zealand Wine Industry Directory* (e.g., Winetitles, 2013), for the years 2007-2013. Surveying and analysing the industry annually, the Winetitles directory is one of most comprehensive guides to wine producers in Australia, and collects a wide variety of detailed data, including variables of interest such as state of location and names of key personnel (e.g., CEO, winemaker). All data were coded appropriately (see below under Variables section) and entered

into SPSS for analysis. Because of the nature of the hypotheses, where a firm had a woman who served in multiple roles, only cases where *different* women served in each role were counted. Hence, in 2007, 2,145 wineries were included for analysis, in 2008 2,298 wineries, in 2009 2,319 wineries, in 2010 2,419 wineries, in 2011 2,476 wineries, in 2012 2,532 wineries, and in 2013 2,574 wineries. This equates to 16,763 firm year observations.

Variables

To capture top roles, a series of dichotomous variables were calculated. CEOs are critical because these are the top decision-makers of the firm, with substantial control and authority over strategy and resource allocation. Winemakers can be considered the "rock stars" of the industry in the sense that they actually produce the product, generally receive the most press coverage and attention from wine critics, and can gain global reputations for their vintages. Viticulturists work in the vineyard to ensure that a quality grape is produced, without which a vintage can be sub-par or scrapped altogether, and thus playing a vital role in wine production. Marketers are critical because they market and sell wine, generating the revenue stream that sustains the business. Thus, to capture gender diversity, for each CEO, winemaker, viticulturist, and marketer, women in these roles were coded 1, 0 otherwise (but only where women in the roles were different to avoid double counting as noted above). Where names that can be common across men and women (e.g., Chris, Jamie, Sam) or where gender was not obvious, websites were consulted for visual inspection and/or firms were called for confirmation. As for reliability of the data, a random sample of the names of 100 winemakers from each year was compared to the listed winemaker in the James Halliday *Australian Wine Companion* guidebooks (e.g., Halliday, 2013). The *Wine Companion* guidebooks offer quality ratings and prices for thousands of wines. Where

matches were found between both sources for the name of the winemaker[1], interrater agreement across all years revealed kappa's < 0.93, demonstrating more than satisfactory agreement and reliability of the data.

To make state comparisons across the roles, each state was given its own unique identifier. States include New South Wales, Queensland, South Australia, Tasmania, Victoria, and Western Australia. These states were chosen as they represent 99.8% of total Australian wine production. The study also accounts for firm age, firm size, and export orientation, as inertia and other factors can impact the level of representation of women in top roles (Bryant and Garnham, 2014; Hillman *et al.*, 2007).

For firm age, categorical variables were established where 1 = 10 years old or less, 2 = 11-20 years old, 3= 21-30 years old, 4 = 31-40 years old, and 5 = 41-50 years old, and 6 = 51 year old or more. For size, number of cases produced was used, where 1 = 1 to 2,499 cases, 2 = 2,500 to 19,999 cases, 3 = 20,000 to 99,999 cases, 4 = 100,00 to 1,499,99 cases, and 5 = over 1,500,000 cases. For export orientation, firms where coded on the basis of their percentage of export sales, where 1 = do not export, 2 = 1-25 percent, 3 = 26-50 percent, 4 = 51-75 percent, and 5 = 76-100 percent. Data for these variables was collected from company websites and the Winetitles databases.

[Insert Table 1 here]

Results

Means and correlations are presented in Table 1 and descriptive statistics in Tables 2 and 3. The descriptives suggest a few interesting patterns. First, although the wine industry in Australia has demonstrated growth in the number of firms (albeit modest growth at 2.86%), women in the

[1] The Halliday guidebook only lists the names of the winemakers and does not offer the complete coverage of wineries listed in the Winetitles database.

leadership roles under study have not kept pace, with women CEOs the closest at a 2.24% growth rate for the 2007-2013 period.[2] Second, the representation of women in marketing roles, across all states, is clearly at the highest level. The 2007-2013 average across all firms and all states for a woman in the marketing role is 53.5% (with a growth rate of 1.23%). Third, women in the CEO role have the second highest representation at 12.7%. Fourth, in the prestigious winemaker role, only 8.8% are women across the reporting period. This is less than, although close to, the 9.8% of women winemakers in California (Gilbert, 2011). Lastly, overall, women in the winemaker role actually have *declined* since 2007 (-1.04% growth). This is perhaps most evident in Western Australia, where there has been a 6.15% decline of women winemakers. Conversely, New South Wales demonstrates the highest growth of women winemakers at 2.89%. These figures need to be considered with respect to the fact that the rate of women entering Australia's oenology and viticulture programs is much *greater* in the last 10-20 years, suggesting the difficulty of translating a formal education into higher ranking roles in the wine industry.

[Insert Table 2 here]

[Insert Table 3 here]

To test the hypotheses, chi-square tests were used. As for Hypothesis 1, with the exception of women in the marketing role, the actual percentage of women in all other roles was significantly less from the 15% predicted rate (Table 4). Thus, given that the representation of women in the majority (75%) of the roles is significantly less than the predicted rate, Hypothesis 1 finds support. With respect to Hypothesis 2, South Australia is compared to other states across all the roles (Table 5). Relative to New South Sales, South Australia has less women CEOs (χ^2 = 7.93, p = 0.005), less women viticulturists (χ^2 = 5.63, p = 0.018), and less women marketers (χ^2 =

[2] Growth rates use the straight-line method, where: (present value - past value)/past value x 100. The resulting factor is divided by n (in this case, 7).

17.27, $p = 0.000$). Compared to Queensland, South Australia has less women CEOs ($\chi^2 = 5.62$, $p = 0.018$) and *more* women winemakers ($\chi^2 = 22.25$, $p = 0.000$). With respect to Tasmania, South Australia has less women CEOs ($\chi^2 = 7.36$, $p = 0.007$) and marginally less women marketers ($\chi^2 = 2.78$, $p = 0.096$). As for Victoria, South Australia has *more* women winemakers ($\chi^2 = 23.03$, $p = 0.000$), less women viticulturists ($\chi^2 = 27.48$, $p = 0.000$), and less women marketers ($\chi^2 = 5.29$, $p = 0.021$). Finally, regarding Western Australia, South Australia has less women winemakers ($\chi^2 = 7.53$, $p = 0.006$), *more* women viticulturists ($\chi^2 = 11.54$, $p = 0.001$), and less women marketers ($\chi^2 = 15.31$, $p = 0.000$). These results are mixed. While there is not strong evidence for the argument that women in the roles studied *always* fair better in South Australia than other states, there is some support that this is the case, depending on the state comparison and the role. Therefore, Hypothesis 2 is partially supported.

[Insert Table 4 here]

[Insert Table 5 here]

As for Hypothesis 3, the likelihood that firms with women CEOs also have women in winemaker, viticulturist, and marketing roles is tested (Table 5). In all cases, firms with women CEOs tend to have women winemakers ($\chi^2 = 444.47$, $p = 0.000$), women viticulturists ($\chi^2 = 538.22$, $p = 0.000$), and women marketers ($\chi^2 = 48.77$, $p = 0.000$). Across each individual year, for each role, the results are all statistically significant. Hence, the findings offer support for Hypothesis 3.

[Insert Table 6 here]

Further results

Because inertia and other factors can impact on the representation rates of women in top roles (Hillman *et al.*, 2007), supplemental tests explore women in the specified roles by firm age, size, and export orientation (Table 6). With respect to firm age, with the exception of women

marketers (χ^2 = 4.38, p = 0.496), women appear to have greater representation in younger firms. As for firm size, confirming Ting's (2013) observation, women in top roles tend to be in smaller firms, particularly those that are producing less than 20,000 cases annually. In all roles, the difference between women in smaller versus larger firms is statistically significant (woman CEO, χ^2 = 140.06, p = 0.000; woman winemaker, χ^2 = 52.47, p = 0.000; woman viticulturist, χ^2 = 179.42, p = 0.000; woman marketer, χ^2 = 130.45, p = 0.000). Regarding export orientation, the pattern generally holds the same. There appears to be more women across all roles in wine firms that export less product; namely 50% or less (woman CEO, χ^2 = 60.85, p = 0.000; woman winemaker, χ^2 = 14.84, p = 0.005; woman viticulturist, χ^2 = 105.05, p = 0.000; woman marketer, χ^2 = 63.30, p = 0.000). Therefore, the findings of the hypotheses need to be viewed in light of these results.

[Insert Table 7 here]

Discussion

The role that women play in top or leading roles in business is subject to much popular press and has become a topic of substantial interest to gender, work, and organization scholars. However, apart from the study of a few women on boards of directors in large, publicly traded companies and, to a lesser extent, women CEOs in the same, relatively less is known about the representation of women in other important roles in industry. This is particularly the case of the wine industry (Ting, 2013). .

First, the representation rate of women in top roles in firms in the wine industry in Australia is mixed relative to the findings of previous studies (e.g. Catalyst 2014; HRReview 2013; Marcus Evans 2013; WGEA 2012). For example, in the prestigious winemaking role, the percentage of women in this role in Australia, relative to the United States, is roughly equal (8.8% to 9.8%, respectively). Women CEOs on the other hand, have a higher representation rate than

other studies of women CEOs. While the findings are not necessarily novel *per se*, they do add to the literature by the fact that data used did *not* consist only of large, long established, publicly traded firms. This is relevant because the evidence from the present study suggests that women appear to have higher representation, generally, in *smaller* firms, as well as *younger* ones. There is also some evidence to suggest that women appear to fare better in other roles when there is a woman CEO, and some women appear to fare better in the industry depending on which state they operate in, although the findings here are mixed. Further, the representation of women in both winemaking and viticulture roles has actually declined since 2007, despite the clear evidence to suggest that women enrolments in Australia's leading oenology and viticulture degree programs has been on the rise since the 1980s—and in some cases now have equal gender enrolments. This perhaps counterintuitive finding suggests that such gender gaps are unlikely to be explained by a lack of formal education on the part of women in the field and that other explanations need to be examined.

Second, if education can plausibly be ruled out, there a few perspectives that might explain the findings of this study. Following social identity theory (Tajfel, 1974), the sense of self that an individual formulates is not limited to individual characteristics or traits alone. Rather, social identities are formed according to which group a person belongs, including an in-group (us) in relation to an out-group (them). This shapes how individuals can perceive gender discrimination (Schmitt *et al.*, 2002). In the case of the current findings, one possible explanation for the lack of representation rates below the prediction (the marketer role being the exception) might be due to the token progress of a few women. For example, the success of a few token women is often touted as an indicator of women's progress (for evidence of this in the wine industry, see Bryant and Garnham, 2014). Here, tokenism can create perceptions of a more egalitarian and open system. From a social identity perspective such perceptions of relative

equality can have consequences for emotions, identity, and a willingness to challenge gender equality. This can actually lead to the perception that inequality does not exist, and therefore the in-group may lack the motivation to enter the field lowering their representation (Schmitt *et al.*, 2002; Wright, 1997). Alternatively, men's group identity is threatened when women enter into traditionally male-dominated roles (e.g., winemaker), directly challenging constructions of men's group identities (Schmitt *et al.*, 2003). If men perceive that their status is shrinking, they will be encouraged to identify with the gender in-group and attempt to protect its status and identity (Turner and Brown, 1978). Given that men have historically dominated the wine industry, this could be another plausible explanation for the representation of women below the predicted levels, particularly winemaking and viticulturist roles.

Another explanation for the findings relates to stereotype threats and in-groups. A stereotype threat refers to the experience of being in a situation where one faces judgement based on societal stereotypes about one's group (Spencer *et al.*, 1999; Steel and Aronson, 1995). Here, for women in male-dominated fields (e.g., wine industry), their career decisions and performance are likely to be affected by their knowledge of gender stereotypes. However, even if women do not believe that gender stereotypes are true, awareness that they might be judged in terms of negative stereotypes can not only impair performance, but can affect their career aspirations (Steele and Aronson, 1995). The findings of the present study suggest that stereotype threats might at least partially be enacted. For example, there is clear evidence to suggest that women are motivated to enter the wine industry as evidenced by the significantly growing rates of their enrolment in oenology and viticulture programs across the country. Yet, those women that are most motivated to excel in the male-dominated wine industry can be the most at risk for experiencing a threat that their performance, once in the industry, could confirm a negative stereotype about their group (cf. Steele *et al.*, 2002). This stereotype threat can aggravate and

distract women, interfering with their performance, and ultimately leading them to exit the field. This might be particularly representative of the viticulturist and winemaker roles, where women in these roles have *declined* since 2007. These roles are very prominent because they require a high degree of skill and experience and the quality of the output of the two roles (grapes, wine) determine the success of any annual vintage. Therefore, stereotype threats are likely to exist here more than in any other roles. Alternatively, CEO and marketing roles might be perceived to be a more "suitable" role for women in the industry (representative of positive stereotypes), lessening stereotype threats, and hence an *increase* in these roles since 2007. Further, aside from the low rates (and declining growth) of women representation in winemaker and viticulturist roles, where a woman is the CEO relative to men CEOs, the likelihood that winemakers and viticulturists are women is increased. This suggests that in-group acknowledgement and support is perhaps benefiting women to a degree, and that when women are in the CEO role, the threat of being negatively stereotyped in winemaker and viticulturist roles is not as prevalent as when men are in the CEO role.

A final alternative explanation for the findings includes the seeking of status or prestige. For example, since women face far greater barriers than men in reaching top roles in firms (Terjesen *et al.*, 2009), the expectation is that they strive to achieve "exceptional" status (Unger, 2006). They can achieve this by working harder or preparing more effectively for task execution than their counterparts who are men (Huse and Solberg, 2006; Nielson and Huse, 2010). However, they can also attempt to achieve this by breaking into top positions in highly visible industries or regions. A good example is when Carly Fiorina was appointed CEO of Hewlett-Packard in Silicon Valley, one of the most prestigious companies in the most prestigious technology regions in the world. Similarly, the wine industry has many prestigious regions, such as Napa Valley in California, Bordeaux in France, and Barossa Valley in South Australia. The

results of this study do suggest that South Australia boasts some higher levels of women in the studied roles than other states, but this is relatively mixed. Hence, from a counter perspective, penetrating top roles in a firm in a prestigious industry or location might, in some cases, actually be more difficult. This could be due to out-groups (i.e., men) that dominate the top roles in the industry or location and who seek to protect their own status. And once a woman arrives, achieving individual accolades and high performance can be fraught with difficulty, with Carly Fiorina, for example, enduring a highly contested tenure and ultimately resigning from Hewlett-Packard.[3]

Lastly, this study has practical implications. Relative to CEOs in Australia's largest 500 firms, women in the wine industry are filling this roll at a much higher rate (nearly 13% to 3%, respectively), and have seen growth in this role, from 2007-2013, just under industry growth rates in the same period (2.24% to 2.86%, respectively). Similarly, with the exception of Queensland and Tasmania, women in the CEO role have grown in all other states under the study period. Given that across all agriculture industries, the current full-time employment rate of women is around 14%, that there is good representation at the CEO level in the wine industry is a positive. However, in winemaking and viticulturist roles, there appears to be much room for improvement. Good policies, such as mentoring programs and internships for women entering the industry, are therefore recommended by both the government and industry peak bodies to translate the solid enrolments of women in oenology and viticulture programs into actual employment in winemaking and viticulturist roles.

[3] Of course, following Bertrand *et al.* (2010), there is also the possibility that as women working in the wine industry have children, they simply leave their jobs. However, if this were a possibility, one might expect to see a decrease of women representation across all the roles examined in this study, which is not the case.

Limitations, future research, and conclusion

As with all empirical research, this study is not without limitations. First, only a single industry in a single country was studied, therefore generalizability is limited. However, there is some evidence to suggest that the findings are similar to those in other countries, such as the United States (at least with respect to the percentage of women in the winemaker role). Future research needs to expand to other countries to gain a better understanding of whether women are reaching leadership roles in the wine industry and what factors might be impeding—or advancing—progress. Second, given the nature of the industry and the available data, the study relied mainly on smaller, private firms. However, because most published research examines women at the boardroom level (and to a smaller extent, in top executive positions) in the largest, publicly traded firms, this study provides much needed insight beyond such a narrowly defined context. Future research could include large samples of SMEs as job creation is strongly influenced by such firms, and the opportunity for women to add value (or advance) here might be greater than in large, high profile companies typically found in the literature. Future research could also examine how and why women in top roles might have more success in specific regions or clusters, as the present study suggests that this could be a factor in determining representation rates. Lastly, this study did not directly examine how women are adding value in the wine industry in Australia. Future research could, for example, rely on samples across countries (or across different wine regions within a single country), and following Gilbert and Gilbert (2012), compare women winemakers to those who are men to determine if quality wines, or wine price, are more influenced by women than men, and if so, why?

In conclusion, are women in the wine industry in Australia forging ahead or falling behind? It depends. Some progress is being made, overall, in CEO and marketing positions, while women in winemaker and viticulturist roles are declining. Further, there are differences

depending on location. For example, in South Australia, women in the CEO role have grown, just ahead of the state's wine industry growth. In Queensland, women in marketing roles have grown, well ahead of this state's wine industry growth. Alternatively, in Western Australia, women in the winemaker role have declined steadily since 2007. In nearly all cases, however, women in smaller and younger firms appear to have much greater representation across each role than in larger and older firms. Further, where the CEO is a woman, the representation of women in the other roles studied is strongest. In an industry that has been dominated by men, particularly in top roles, the results of this study therefore offer some good and bad news. There is clearly some advancement while on the other hand there is likely the persistence of social identity issues (e.g., tokenism) and stereotype threats that might actually be limiting or restricting the advancement of women in the industry, particularly in larger and older firms.

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TABLES

Table 1. Means and correlations

Variable	Mean	S.D.	1	2	3	4	5	6	7
1. Gender CEO	0.13	0.33	1.00						
2. Gender winemaker	0.09	0.28	0.18**	1.00					
3. Gender viticulturist	0.10	0.30	0.22**	0.12**	1.00				
4. Gender marketer	0.54	0.49	0.11**	0.01	-0.01	1.00			
5. Firm age	2.30	1.26	-0.04**	0.01	-0.06**	-0.02	1.00		
6. Firm size	1.63	0.78	-0.10**	0.00	-0.13**	-0.16**	0.28**	1.00	
7. Export orientation	2.31	1.02	-0.07**	-0.03**	-0.08**	-0.07**	-0.02	0.42**	1.00

** $p < 0.01$

Table 2. Percentage of women by role by year (overall sample)

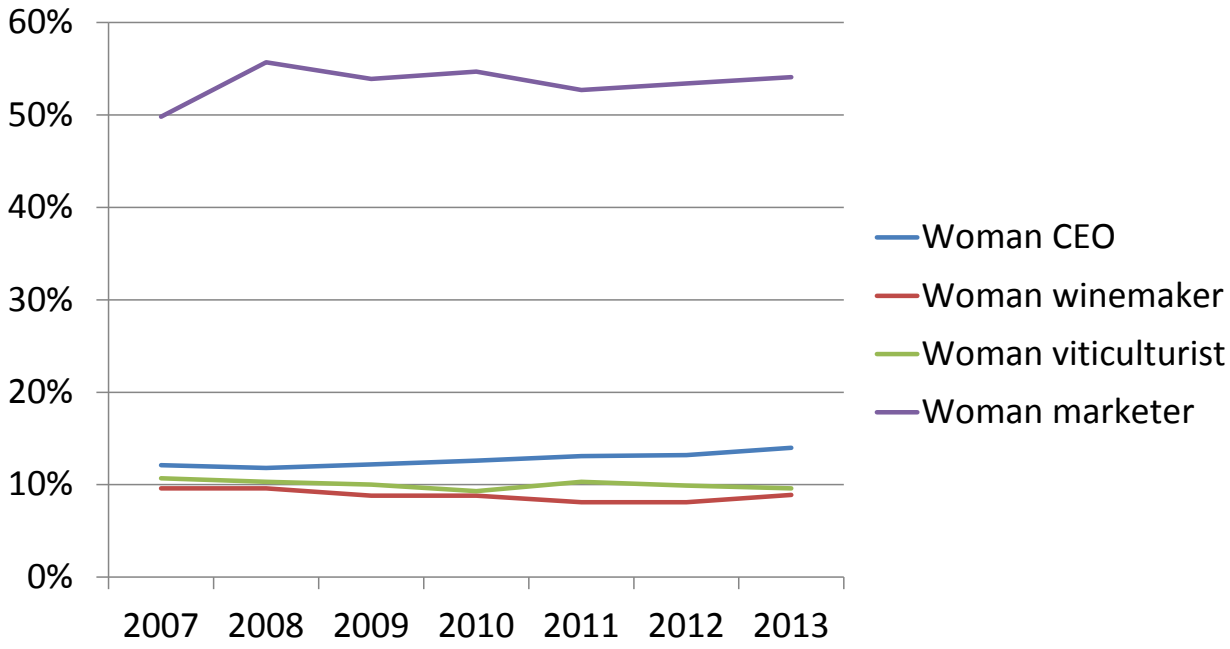

Table 3. Descriptive statistics

Percent women by role (overall sample)

	2007	2008	2009	2010	2011	2012	2013	Averages	Growth rates*
Women CEOs	12.1	11.8	12.2	12.6	13.1	13.2	14.0	12.7	2.24
Women winemakers	9.6	9.6	8.8	8.8	8.1	8.1	8.9	8.8	-1.04
Women viticulturists	10.7	10.3	10.0	9.3	10.3	9.9	9.6	10.0	-1.47
Women marketers	49.8	55.7	53.9	54.7	52.7	53.4	54.1	53.5	1.23
Number of firms	2,145	2,298	2,319	2,419	2,476	2,532	2,574	2,395	2.86

* caculated using straight-line growth rates

Percent women by role (New South Wales)

	2007	2008	2009	2010	2011	2012	2013	Averages	Growth rates*
Women CEOs	13.4	12.9	12.6	13.9	13.2	14.3	16.1	13.8	2.88%
Women winemakers	7.9	8.9	8.5	9.3	10.2	9.8	9.5	9.2	2.89%
Women viticulturists	12.7	11.2	10.4	9.2	10.4	10.5	10.7	10.7	-2.25%
Women marketers	43.4	60.7	53.3	60.4	59.1	61.2	58.3	56.6	4.90%
Number of firms	432	452	443	467	474	474	487	461	1.82%

* caculated using straight-line growth rates

Percent women by role (Queensland)

	2007	2008	2009	2010	2011	2012	2013	Averages	Growth rates*
Women CEOs	16.7	14.0	13.3	15.6	15.6	14.4	12.9	14.6	-3.25%
Women winemakers	3.9	4.1	4.1	6.9	4.0	3.1	3.3	4.2	-2.20%
Women viticulturists	6.1	6.0	10.8	10.2	12.2	10.4	8.6	9.2	5.85%
Women marketers	25.0	53.8	60.0	57.7	53.8	52.2	56.5	51.3	18.00%
Number of firms	109	107	106	111	111	106	102	107	-0.92%

* caculated using straight-line growth rates

Percent women by role (South Australia)

	2007	2008	2009	2010	2011	2012	2013	Averages	Growth rates*
Women CEOs	10.3	10.7	10.9	10.9	12.4	12.3	13.2	11.5	4.02%
Women winemakers	9.9	9.5	9.8	10.1	8.8	9.4	11.1	9.8	1.73%
Women viticulturists	9.4	9.7	8.8	7.9	9.3	8.8	7.3	8.7	-3.19%
Women marketers	48.0	48.7	49.6	49.4	48.2	49.4	50.0	49.0	0.59%
Number of firms	564	607	619	648	667	697	705	644	3.57%

* caculated using straight-line growth rates

Percent women by role (Tasmania)

	2007	2008	2009	2010	2011	2012	2013	Averages	Growth rates*
Women CEOs	17.7	14.6	14.4	15.1	14.4	15.2	15.9	15.3	-1.45%
Women winemakers	10.0	10.3	10.0	7.1	5.7	6.7	9.4	8.5	-0.86%
Women viticulturists	12.1	10.8	10.7	11.4	7.8	10.3	6.7	10.0	-6.38%
Women marketers	44.4	61.9	60.9	60.0	52.0	50.0	58.3	55.4	4.72%
Number of firms	81	90	92	98	104	112	115	99	6.00%

* caculated using straight-line growth rates

Percent women by role (Victoria)

	2007	2008	2009	2010	2011	2012	2013	Averages	Growth rates*
Women CEOs	11.6	11.3	12.6	13.0	13.2	12.6	13.5	12.5	2.34%
Women winemakers	8.6	7.0	6.7	6.5	6.1	6.0	7.5	6.9	-1.83%
Women viticulturists	12.3	13.0	12.4	12.7	13.7	12.8	12.9	12.8	0.70%
Women marketers	55.4	56.5	55.6	53.6	51.0	51.8	54.1	54.0	-0.34%
Number of firms	627	686	698	723	738	749	776	714	3.39%

* caculated using straight-line growth rates

Percent women by role (Western Australia)

	2007	2008	2009	2010	2011	2012	2013	Averages	Growth rates*
Women CEOs	11.0	11.4	12.0	11.4	12.8	13.6	13.5	12.2	3.25%
Women winemakers	15.1	17.1	12.9	11.4	10.0	9.8	8.6	12.1	-6.15%
Women viticulturists	8.1	6.5	6.5	4.8	5.2	5.2	6.1	6.1	-3.53%
Women marketers	60.0	61.7	58.5	58.5	56.5	55.6	55.7	58.1	-1.02%
Number of firms	332	356	361	372	382	394	389	369	2.45%

* caculated using straight-line growth rates

Table 4. Actual versus predicted percentage of women by role

Actual versus predicted precentage women by role (2007-2013 average)					
	Actual	Predicted	χ^2	df	significance
Women CEOs	12.7	15%	65.20	1	0.000*
Women winemakers	8.8	15%	429.92	1	0.000*
Women viticulturists	10.0	15%	224.51	1	0.000*
Women marketers	53.5	0.2	5379.98	1	0.000*

* Statistically signficant

Table 5. South Australia vs. other states

Percent women by role (2007-2013 average)					
	South Australia %	New South Wales %	χ^2	df	significance
Women CEOs	11.5	13.8	7.93	1	0.005*
Women winemakers	9.8	9.2	0.69	1	0.406
Women viticulturists	8.7	10.7	5.63	1	0.018*
Women marketers	49.0	58.0	17.27	1	0.000*

* Statistically signficant

Percent women by role (2007-2013 average)					
	South Australia %	Queensland %	χ^2	df	significance
Women CEOs	11.5	14.6	5.62	1	0.018*
Women winemakers	9.8	4.2	22.25	1	0.000*
Women viticulturists	8.7	9.2	0.13	1	0.716
Women marketers	49.0	51.3	0.84	1	0.360

* Statistically signficant

Percent women by role (2007-2013 average)					
	South Australia %	Tasmania %	χ^2	df	significance
Women CEOs	11.5	15.3	7.36	1	0.007*
Women winemakers	9.8	8.5	1.17	1	0.280
Women viticulturists	8.7	10.0	0.80	1	0.371
Women marketers	49.0	55.4	2.78	1	0.096*

* Statistically signficant

Percent women by role (2007-2013 average)					
	South Australia %	Victoria %	χ^2	df	significance
Women CEOs	11.5	12.5	2.03	1	0.154
Women winemakers	9.8	6.9	23.03	1	0.000*
Women viticulturists	8.7	12.8	27.48	1	0.000*
Women marketers	49.0	54.0	5.29	1	0.021*

* Statistically signficant

Percent women by role (2007-2013 average)					
	South Australia %	Western Australia %	χ^2	df	significance
Women CEOs	11.5	12.2	0.70	1	0.404
Women winemakers	9.8	12.1	7.53	1	0.006*
Women viticulturists	8.7	6.1	11.54	1	0.001*
Women marketers	49.0	58.1	15.31	1	0.000*

* Statistically signficant

Table 6. Likelihood of women in other roles where CEO is a woman

Likelihood of firms with women in the CEO role having women in other roles (2007-2013 average)			
	χ^2	df	significance
Likelihood of firms with women CEOs (vs. men CEOs) having women winemakers	444.47	1	0.000*
Likelihood of firms with women CEOs (vs. men CEOs) having women viticulturists	538.22	1	0.000*
Likelihood of firms with women CEOs (vs. men CEOs) having women marketers	48.77	1	0.000*

* Statistically signficant

Table 7. Comparisons of women in roles by age, size, and export orientation of the firm

Percent women by role (2007-2013 average) by firm age (in years)									
	10 years or less	11-20 years	21-30 years	31-40 years	41-50 years	51 years or more	χ^2	df	significance
Women CEOs	28.1%	45.2%	14.3%	8.8%	1.8%	1.8%	42.69	5	0.000*
Women winemakers	28.2%	35.6%	17.7%	9.7%	2.3%	6.5%	27.20	5	0.000*
Women viticulturists	24.6%	47.6%	15.4%	9.2%	1.5%	1.7%	50.11	5	0.000*
Women marketers	24.5%	40.0%	16.0%	9.9%	3.1%	6.5%	4.38	5	0.496

* Statistically signficant

Percent women by role (2007-2013 average) by firm size (# cases produced)								
	1 to 2,499	2,500-19,999	20,000 to 99,999	100,000 to 1,499,999	1,500,000 or more	χ^2	df	significance
Women CEOs	66.0%	27.2%	5.5%	1.3%	0.0%	140.06	4	0.000*
Women winemakers	54.2%	32.3%	7.2%	5.0%	1.3%	52.47	4	0.000*
Women viticulturists	69.6%	24.1%	5.5%	0.9%	0.0%	179.42	4	0.000*
Womans marketers	39.5%	42.0%	13.1%	4.3%	1.0%	130.45	4	0.000*

* Statistically signficant

Percent women by role (2007-2013 average) by firm export orientation (% product exported)								
	No exports	1-25%	26-50%	51-75%	76% or more	χ^2	df	significance
Women CEOs	23.7%	53.9%	11.5%	7.0%	3.8%	60.85	4	0.000*
Women winemakers	19.5%	51.9%	18.7%	6.4%	3.5%	14.84	4	0.005*
Women viticulturists	28.5%	52.6%	8.7%	5.1%	5.1%	105.05	4	0.000*
Womans marketers	16.0%	50.0%	17.3%	9.4%	7.3%	63.30	4	0.000*

* Statistically signficant