

Information Asymmetry and Gendered Behavior in Organizations and Digital Markets

Der Fakultät für Wirtschaftswissenschaften der Universität Paderborn
zur Erlangung des akademischen Grades

Doktor der Wirtschaftswissenschaften

- Doctor rerum politicarum -

vorgelegte kumulative Dissertation

von

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2023

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List of Abbreviations

SUR	Seemingly Unrelated Regression
WOM	Word-of-mouth
IV	Instrumental Variables Estimation

1 Introduction

The present dissertation includes four projects addressing various research questions and objectives in the economics of information (Akerlof 1970, Spence 1973, Stiglitz 2000). The following chapter highlights the theoretical background and the research questions before the four projects are presented in detail.

1.1 Motivation and Theoretical Background

In the age of digitization, emerging digital markets are shaping consumers and businesses. While digitized information provides faster access to market decisions and purchasing choices, specific products and their quality remain elusive before consumption characterizing them as experience goods (Akerlof 1970, Nelson 1970). This concept is described as information asymmetry between two parties as one defining characteristic of experience goods (Akerlof 1970). In one of the essential economic studies on information asymmetry, Akerlof (1970) describes the market for "lemons" as a market mechanism in the presence of uncertainty about product quality using the automobile industry as an example, where sellers have more information about the quality of their goods than consumers. Akerlof (1970) defines market conditions under which sellers are motivated to market poor quality because the returns benefit the collective rather than the individual seller. As a result, the average quality of the goods and the market size decreases (Akerlof 1970). For market participants, trust should be built to reduce information asymmetries so consumers may confidently rely on the quality of the producer (Akerlof 1970). Market signaling reduces information asymmetries as the expected quality is indicated through specific market signals (Spence 1973). In this context, previous studies have examined the effects of reputation as a market signal to reduce information asymmetries. Shapiro (1982) has used the example of profit-

maximizing firms to demonstrate that under market conditions where asymmetric information exists, firms are motivated to offer lower quality (Shapiro 1982) at premium prices (Shapiro 1983). Following Shapiro (1983), reputation is understood as consumer trust in the company and the quality offered.

Signaling theory is one of the prominent theories in the management literature (Connelly et al. 2011) and describes a situation in which, in the case of information asymmetries, two parties can send or receive specific signals to inform about the quality of the product (Spence 1973). Using the labor market as an example, Spence (1973) describes the education of high-performing applicants as signals and quality cues of expected performance resulting in the applicant being distinguished from less qualified applicants. In conclusion, market signaling reduces information asymmetries as the expected quality is indicated through specific quality signals (Spence 1973). Kirmani and Rao (2000) introduce a classification of market signals for unobservable product quality, contemplating possible firm costs and investments related to low- and high-quality producing firms. Many studies highlight reputation as a quality signal for unobservable product quality and its impact on (sales) performance, especially in the (digital) experience goods market (e.g., Dellarocas 2003, Chevalier and Mayzlin 2006, Chintagunta et al. 2010). The common feature of these studies consists in presenting approaches to measure the impact of consumer reviews and ratings on performance and sales.

In light of the above, particularly in the wine industry, the information asymmetry between consumers and wine producers regarding product attributes leads potential customers to consider existing prior information, such as professional ratings, as a quality signal of trust (e.g., Storchmann 2012). Various studies consider the relevance of expert reviews as quality signal and their impact on prices (e.g., Schamel 2003).

This dissertation located this field of research. It examines the above-mentioned theoretical considerations for the wine industry as an example of an experience good (e.g., Ali and Nauges 2007b, Gibbs et al. 2009) and credence goods market (e.g., Ashton 2014). The economic impact of the industry worldwide, accompanied by emerging tourism, often results in government investment and research programs supporting the industry in its value creation (Bisson et al. 2002), which further constitutes the wine industry as a relevant object of research.

Currently, including climate change as a possible driving factor for altering production processes (e.g., Ashenfelter and Storchmann 2016a, 2016b), the wine industry is engaged in building and implementing sustainable business practices (e.g., Santini et al. 2013, Szolnoki 2013), that can impact product prices and consumer buying decisions (e.g., Fanasch and Frick 2020, Scozzafava et al. 2021, Vecchio et al. 2023). Therefore, examining the industry-specific market phenomena seems promising for gaining deeper insights into a changing industry sector driven by evolving business models and potential future market dynamics.

1.2 Research Questions

The following chapter presents the research questions and goals forming the foundation of this thesis, examined in the following four projects by empirical analyses using advanced econometric models. Moreover, the chapter provides a brief orientation within the research to substantiate the research questions from a conceptual and theoretical perspective.

1.2.1 Quality Signals and Their (Linguistic) Analysis: The Role of Reviews

A large body of literature highlights the impact of consumer reviews on sales outcomes and prices (e.g., De Maeyer 2012). Especially for experience goods, various

studies confirm the positive effects of word-of-mouth (WOM) on sales of products in digital markets such as books, movies, or apps (e.g., Basuroy et al. 2003, Chevalier and Mayzlin 2006, Dellarocas et al. 2007, Chintagunta et al. 2010, Floyd et al. 2014, Cox and Kaimann 2015, Frick and Kaimann 2017). Nevertheless, previous research has focused increasingly on analyzing text-based reviews to generate an understanding of positive and negative evaluations, for instance, in the context of sentiment analysis (e.g., Villarroel Ordenes et al. 2017, Rocklage et al. 2023) using linguistic methods (e.g., Taboada 2016). Some studies reinforce using textual review texts next to the numerical values, as these provide valuable product information for customers that can decisively shape their buying decisions (e.g., Archak et al. 2011). Pavlou and Dimoka (2006) highlight text reviews' particular value and positive impact on pricing, credibility, and trust. Additionally, analyzing textual content with appropriate, automated linguistic analysis methods has become an essential element of research to discover consumer responses, e.g., in marketing (Berger et al. 2022, Humphreys and Wang 2018, Packard and Berger 2023). Furthermore, Berger et al. (2020) highlight the potential of review text analysis for marketing insights, as text signals information about companies and consumers and influence (consumer) behavior, for instance, by specific use of language that shapes the impact of reviews on consumer (Packard and Berger 2017). In addition to the word level, text analyses can include the syntactic nature of sentences in reviews (Büschen and Allenby 2016, 2020).

Professional wine evaluations authored by renowned experts and prices serve as a quality signal and the first indicator of the product quality to be anticipated, especially in the wine sector (e.g., Lockshin and Rhodus 1993, Schnabel and Storchmann 2010, Mastrobuoni et al. 2014). While the positive correlation between wine prices and ratings have been examined (Oczkowski and Doucouliagos 2015), prior studies have previously

demonstrated that professional ratings have a positive effect on wine prices, demand, and sales (e.g., Dubois and Nauges 2010, Hilger et al. 2011, Friberg and Grönqvist 2012, Thrane 2019, Villas-Boas et al. 2021). In addition, research has examined several factors driving the price of wine. These include features that differentiate wine, such as the region of origin, climatic conditions, grape varieties, the (bottle) age of the wine, and professional ratings (Outreville and Le Fur 2020). Moreover, expert journals and specialized online platforms such as “The Wine Enthusiast Magazine”, one of the seven most essential wine journals in the U.S. (Storchmann 2012), are considered credible sources for expert evaluations. These professional reviews follow a uniform pattern with the points awarded within a defined numerical value dimension of the rating system on a 100-points-scale, and additional text information with written descriptions of the predefined categories of the respective rating system, such as sensory qualities and product characteristics of the evaluated wine sample and bottle. With both numerical and textual information about wine quality, the current research has extended the perspective: While previously focusing on numerically scaled ratings and their impact on wine prices, tasting notes are included as another valuable assessment of quality information (e.g., Ramirez 2010, McCannon 2020, Lam et al. 2019).

Nevertheless, few studies reflect wine reviews' textual dimension and content from reputable wine-rating journals. For example, it has been found that specific keywords in reviews influence wine prices in the high-end range (Chen and McCluskey 2018), that the length of the review can have an impact on the wine rating (Lam et al. 2019) or impacts the wine price (Ramirez 2010). While most studies examine the impact of language types on prices or ratings, the research question arises whether specific linguistic categories may simultaneously impact wine prices and ratings. At the same time, the question arises whether specific linguistic inventory, such as word types and

sentence structures, influence wine ratings. This question assumes that the gustatory experiences of wine tasting are reflected in the reviews through semantic concepts that are transferred by certain word types and sentence structures, indicating different levels of product quality. To the best of my knowledge, a research gap still exists in understanding what linguistic features can be associated with different reputation levels: Are there typical linguistic patterns of use associated with price and rating levels? Consequently, the following research questions are addressed in the first project:

- 1. Do linguistic categories in tasting notes have a statistically significant effect on wine prices and wine ratings?*
- 2. Which linguistic categories have either a statistically positive or statistically negative impact on wine prices and ratings?*
- 3. How do linguistic categories impact wine prices and ratings, assuming that specific wine characteristics are known in the professional evaluation process?*
- 4. Is the use of specific linguistic categories characteristic of distinct reputation levels?*

1.2.2 The Relationship between Quality Signals

In digital markets, consumers can gain product information through rating platforms and dedicated product websites as possible sources of information and expert evaluations. The fast accessibility via the internet and the provided detailed expert opinions could offer consumers an initial impulse for their purchase decision. Several studies have examined the influence of these platforms explicitly on wine prices (e.g., Ali and Nauges 2007a, Dubois and Nauges 2010, Arias-Bolzmann et al. 2003). Of particular interest in research of recent years is the analysis of the possible influence of wine expert "guru" ratings on wine prices (e.g., Jones and Storchmann 2001, Ashenfelter and Jones 2013, Gibbs et al. 2009, Ali et al. 2010, Kwak et al. 2021), demonstrating that producers are also guided by expert opinions in future price setting (Ashton 2016). These findings show experts' high impact of quality reviews on price-setting dynamics. Consumers consider expert

evaluations and wineries' reputations for buying decisions (Schamel and Anderson 2003).

While Oczkowski (2018) has examined reputation in the form of quality score increases in wine prices for Australian wines over the years, Frick and Simmons (2013) have identified the separate impacts of individual and collective reputation on Riesling wine prices originating in the Mosel valley.

Since most studies focus on one wine-growing region and grape variety, the research question arises whether identified pricing trends can be attributed to the respective wine-growing region's product quality or pricing mechanisms. Furthermore, the organizational structure of "The Wine Enthusiast Magazine" assigns the evaluating expert network to specific regions based on existing wine expertise. Thus, experts could be potentially biased in their assessments by the prices of previous wine products in their region or their specific knowledge and preferences (e.g., Boon and Foppiani 2019).

In conclusion, what remains poorly studied, despite significant efforts in the well-developed literature to identify the impact of evaluations and market prices in the wine market, is a detailed examination of the dynamic relationship between evaluations and prices, accounting for different timing of reviews, ratings, and prices over several years and considering the largest wine growing regions as well as the most popular grape varieties. Related to this consideration is the underlying assumption that reviewers maintain a similar reviewing behavior over time, contributing to their consistency and the consistency of ratings. These considerations result in the following research questions, addressed in the second research project:

5. *How are ratings and prices related?*
6. *Does a review consistency exist that drives current ratings?*

1.2.3 Gendered Behavior in Organizations and Digital Markets

Gender differences in behavior and performance have been the main

argumentative foundation of most experimental studies to explain possible gender (pay) gaps and discrepancies in the labor market successes of women and men (e.g., Gneezy et al. 2003). The majority of research consistently shows women to be more risk-averse (e.g., Borghans et al. 2009, Charness and Gneezy 2012, Sarin and Wieland 2016), less (over) confident (e.g., Barber and Odean 2001, Kling et al. 1999, Adamecz-Völgyi and Shure 2022), performing worse under pressure (e.g., Bucciol and Castagnetti 2020), behave in a more altruistic manner (e.g., Andreoni and Vesterlund 2001), and have a tendency to avoid competitive situations (e.g., Gneezy et al. 2003, Niederle and Vesterlund 2008, Niederle and Vesterlund 2011, Pekkarinen 2015, Frick 2011, Jørgensen et al. 2022).

The consistency or reliability of professional wine reviews has already been the subject of research (e.g., Ashton 2012, Luxen 2018, Bodington 2020). However, the literature on the gendered behavior of wine reviewers addresses potential reviewer bias in a limited way. Previous studies have been conducted to identify whether there are differences in wine ratings between men and women, finding little or no difference (e.g., Bodington and Malfeito-Ferreira 2018).

In the (experience good) wine market, expert opinions can influence wine prices similar to the product's objective qualities (e.g., Oczkowski 2016c). At the same time, marginal differences in the ratings can result in different rating scale outcomes and quality levels for the tested wines, which can significantly impact future prices (e.g., Kaimann et al. 2023), reputation, and the firm's overall market and sales performance.

Competition can boost motivation and improve performance in specific situations (Deci et al. 1999). Competition, however, can also result in poor performance in some circumstances, e.g., in male-dominated work environments, particularly for women (Sekaquaptewa and Thompson 2003). After considering self-selection into a competitive

environment (e.g., Frick and Moser 2021), the research question posed is whether women behave more leniently in evaluating the performance of others. To the best of my knowledge, only very few studies shed light on performance ratings provided by both genders (Levy and Williams 2004, Furnham and Stringfield 2001). For this purpose, the third project focuses on gender-specific rating behavior, with a fictitious (exogenous) assignment of reviewers to experience levels to compare the critics in equivalent roles. In conclusion, the following research questions are posed:

7. *Are women more lenient in evaluating the performance of others in comparison to men?*
8. *Do women evaluate less leniently in comparison to men in equivalent roles?*

Prior studies have shown that brand names representing high femininity will receive higher ratings and more positive reviews than those associated with high masculinity (e.g., Pogacar 2021). The research is based on the idea that consumers may perceive feminine brand names as more desirable, with a positive bias toward them, leading to higher ratings and additional positive reviews (e.g., Pogacar 2021). Brand names can be linked to gender by indexing femininity or masculinity through phonetic properties (e.g., Pogacar 2021). In the context of blind wine tastings, the question arises whether female and male reviewers react differently to gendered sound patterns in terms of their evaluations concerning available information in the tasting process, such as the grape variety, which can function as a brand for the consumer (Steiner 2004). Thus, the fourth study aims to contribute to research in the area of gendered behavior, including unconscious perception in quality assessments, to the research in expert reviewer consistency (e.g., Stuen et al. 2015, Bodington 2020, Vollaard and van Ours 2022), as well as to the research of brand gender and their evaluation (e.g., Lieven et al. 2015, Machado et al. 2019, Pogacar 2021). Finally, the following research questions evolve

from these considerations:

9. *How does brand gender impact wine ratings, assuming that specific wine characteristics are known in the professional evaluation process?*
10. *Are female and male reviewers potentially attracted to different brand gender, affecting the overall product rating?*

1.3 Research Design

This dissertation addresses information asymmetry in digital markets, specifically for experience goods, and aims to provide new insights into the relationship of (text-based) quality signals, price dynamics, gender-based preferences, and behavior. One added value of the present research is the analysis of linguistic categories and their impact on quality signals such as ratings and prices. For these purposes, econometric models are applied in individual studies, which are promising for analyzing the proposed research questions. Noteworthy is the combination of empirical and qualitative analysis utilized in an innovative approach to examine the semantic content of the textually based evaluations and their effects on outcome variables such as market price and numerical rating. Furthermore, to identify typical linguistic usage patterns, text content analysis, and graphical quantile plots are created to illustrate these phenomena and capture linguistic specifics across different reputation levels.

In addition, in order to minimize possible endogeneity problems, an instrumental-variables approach is adopted. The instrumental-variables approach is one of the econometric methodologies to minimize endogeneity problems (Stock and Watson 2012). The present work is characterized by examining cross-sectional and panel data with econometric methods.

2 Studies of the Dissertation

The research questions outlined are highlighted and empirically analyzed in this dissertation's following four projects. Each of the four projects is currently either prepared to be submitted to target journals, in the review process of recognized academic journals or accepted for publication. Furthermore, each project has been accepted for presentation at international academic conferences and research seminars.

2.1 Does the Tasting Note Matter? Language Categories and Their Impact on Professional Ratings and Prices

The paper *“Does the Tasting Note matter? Language Categories and Their Impact on Professional Ratings and Prices”* is single-authored. Accordingly, I was responsible for the comprehensive preparation of the dataset, the literature review, the development of the research questions and hypotheses, the content analysis, the research design, all estimations, and the written draft of the paper. At this point, I would like to thank Prof. Dr. Bernd Frick and Dr. Daniel Kaimann for critical discussions and essential feedback in initially setting up this project.

The paper examines the impact on professional ratings and reviews in the wine industry, characterized by information asymmetry (Akerlof 1970) between consumers and wine producers regarding product characteristics and quality. Therefore, prospective buyers search for available product information as a quality indicator for their purchase decisions. Nevertheless, only few studies reflect the textual dimension of reviews and the inherent content. This study explores the impact of reviews and defined language inventory like articles, verbs, or adjectives and their effects on wine prices and ratings. Using 83,067 reviews from the professional wine critics magazine “The Wine Enthusiast,” a seemingly unrelated regression (SUR) estimation, quantile regression, and review text analysis utilizing the content analysis tool LIWC-22 (Boyd et al. 2022) was

conducted to examine the simultaneous impact of linguistic categories on wine prices and ratings. The results indicate that the tasting notes' increased word count and positive sentiment are significantly positively associated with a higher wine rating. Further, specific categories have a statistically significant positive impact on ratings but a negligible effect on wine prices. Consequently, a subsequent instrumental variables estimation is conducted to control for endogeneity and test for the effect of reviews on wine prices, revealing a significant positive influence.

This project provides an added value and key contribution to current research an innovative methodology to analyze ratings and reviews in a simultaneous econometric approach enriched by content analysis, quantile regression plots, and an instrumental variables estimation to address possible endogeneity. The estimated and illustrated quantile plots for linguistic categories, and their impact on prices and ratings can guide future consumers by providing the understanding of language patterns for different price and rating categories. These findings could have practical strategic implications for wine market communication, marketing, and purchasing decisions, as linguistic indicators in reviews could be associated with wine quality by vintners and prospective buyers.

2.2 Ratings Meet Prices: The Dynamic Relationship of Quality Signals

The paper "*Ratings Meet Prices: The Dynamic Relationship of Quality Signals*" is a joint project with Dr. Daniel Kaimann and Prof. Dr. Bernd Frick. While Dr. Daniel Kaimann developed the key idea, estimations, and the first draft of the paper, Prof. Dr. Frick provided valuable feedback to the project. My contribution to the project has been the preparation and provision of the data set, the research and written elaboration of the literature, the formulation of the hypotheses, the completion of the first draft of the full paper, and the proofreading of the paper prior submission to the targeted scientific journal. Likewise, I actively participated in the revision of the paper in the form of revisions and

proofreading. The paper is published in the “*Journal of Wine Economics*”: Kaimann, D., Spiess Bru, C. L. M. and Frick, B. (2023). Ratings meet prices: The dynamic relationship of quality signals. *Journal of Wine Economics*, 18(3), 226-244.

In this project, we focus on how professional critics behave in wine markets by focusing on the impact of product characteristics and former reviews on rating behavior and market prices as additional quality signals. Using data from the “Wine Enthusiast Magazine”, we analyze 8,444 wines and their ratings between 1998 and 2017, resulting in a sample of 13,911 observations. We find clear evidence to suggest that prices and product ratings are significantly related. Our contribution to current research in this field is the empirical analysis of dynamic relationships between expert ratings and wine market prices over time. At the same time, we raise new research questions and research gaps concerning potential reviewer patterns, which are analyzed in the third project.

2.3 Are Women (Really) More Lenient? Gender Differences in Expert Evaluations

The following is a joint project with Prof. Bernd Frick and Dr. Daniel Kaimann. While Prof. Dr. Bernd Frick developed the core idea, set up the research questions and provided the first estimations, I prepared the data set, created new figures, tables, wrote the literature review chapter with development of the hypotheses, created the final empirical estimations as well as robustness checks, described the empirical results and wrote the full version of the paper. This version was supplemented in the second version by the literature work of Dr. Daniel Kaimann and Prof. Dr. Bernd Frick. This project has been accepted for presentation at the annual conference of the “European Association of Wine Economists” in Crete in May 2023.

This study investigates whether women are more lenient in evaluating the performance of others. We examine the gender-specific behavior of female and male

critics in expert evaluations, considering their allocated experience level by using 81,403 observations from high-prestige wine assessments. We demonstrate that women rate, on average, less generously than men, even in direct comparison. In addition, we show that women with advanced experience levels are less generous than the most experienced same-sex reviewer, whereas this effect is not observed for men.

The added value of our project consists of several findings contributing to the current state of research. First, we extend the predominantly experimental research on gendered behavior with a real-world setting to observe the evaluative behavior of men and women under equivalent conditions. Second, by fictitiously assigning experience levels, we observe women and men in equivalent roles, which allows us to draw inferences about other work environments in which men and women evaluate the performance of others. This generalizability of our results should be mentioned as another added value, as the results extend research in this area. Our results suggest that women evaluate more rigorously than men, which can be explained by self-selection into this competitive environment (e.g., Frick and Moser 2021, Nekby et al. 2015), but also offers overarching insights when considering same-sex behavior. Third, we contribute to current research by examining reviewer behavior and identifying gender-specific reviewer patterns. From our findings, we are able to derive new research questions, which will be addressed in the fourth paper, focusing on possible reviewer biases.

2.4 Sounds too Feminine? Brand Gender and The Impact on Professional Critics

This project was developed in collaboration with my co-author Dr. Daniel Kaimann. Dr. Daniel Kaimann provided the data set, the estimations, and the first draft of the paper. I contributed to the project by preparing a review of the literature, the research hypotheses, and the initial data analysis. My other activities included discussing the

econometric methods, their application and describing the empirical results. Likewise, I completed the first draft into a full paper and proofread the paper prior to submission to the endorsed journal. Furthermore, this project has been accepted for presentation at the “45th ISMS Marketing Science Conference 2023” in Miami.

In this study, branding and gender (perceptions) are linked to analyze the impact of product brand gender on professional critics. In particular, this study examines how specifically masculine or feminine brand names classify experience goods and impact wine tastings and professional evaluations. Thus, this study sheds light on assessing product quality in blind tastings and their potential (gender) biases. More, we aim to examine the extent to which sound structures suggest product attributes in the context of professional reviews and, for this purpose, analyze (branded) parameters known to reviewers, such as grape variety. Among other findings, we show that women rank products with higher brand femininity more highly than men. Finally, this study provides empirical evidence that people’s unconscious perceptions and quality assessments of products can be significantly impacted by (brand) gender bias.

7 Conclusion

The added value of the present thesis is a new contribution of the individual projects to the current research in the field of pricing and rating dynamics, the linguistic analysis of reviews and their influence on ratings and prices, as well as gendered (unconscious) patterns of evaluation in the performance of others. Due to the robustness, significance, and relevance of the empirical results, it can be assumed that the results are highly generalizable in other areas with similar situational contexts, such as similar markets for experience goods in different industries. In addition, a novel approach was developed that combines econometric analysis with linguistic methods to allow causal inference about the impact of reviews on prices and ratings using quantile regression plots and an instrumental variables estimation approach. It seems promising to transfer this approach to other applications where the relationship between markets and quality signals such as ratings and prices is examined, including several industries producing and delivering experience goods. Furthermore, this approach contributes to current research focusing on measuring the impact of linguistic categories on economics-related research questions. In conclusion, this thesis aims to provide further insights into market signaling (Spence 1973) to reduce information asymmetries (Akerlof 1970) between producers and consumers in experience goods markets.

7.1 Summary of Findings

The chapter addresses the research questions outlined in the introduction and their analysis in the presented projects. Chapter 3 covers the first four research questions presented, which focus on the impact of linguistic categories on prices and ratings, also considering different reputation levels. Considering a possible endogeneity problem, a research design was developed that is able to shed light on the causal effects of linguistic

effects using the econometric approach of an instrumental variable regression (IV). Since this approach represents a research design for analyzing linguistic categories in text-based communication for markets and customers and their causal impact on outcome variables such as prices or (customer) evaluations, it could have useful application and generalizability to other research questions and environments. Consequently, the examined linguistic features based on the LIWC-22 dictionary (Boyd et al. 2022) in professional review texts could be highlighted. These results involve individual word types, syntactic properties, and sentiment levels. This approach allows to empirically capture different linguistic patterns and characteristics of the studied professional reviews. According to the results, a positive linear progression can be observed across the quantiles of the length of the rating texts, which indicates that the text length of the ratings increases with increasing price and rating, confirming prior results (e.g., Ramirez 2010). The number of words per sentence was included as an additional variable. This variable provides information on whether the syntactic length differs across different reputation levels. At an average score of 88 rating points and the average market price represented in the 50th quantile, sentence length appears to decrease, and review sentences become shorter, as measured by decreasing number of words per sentence. The decreasing number of words per sentence, starting at the 50th quantile, confirms this finding for market prices. Moreover, the plotted quantiles show that reviewers become more critical with increasing prices and ratings from the 50th quantile onwards, as indicated by the decreasing slope of the *Positive Tone* variable, while at the same time, reviewers seem to become more authentic. Thus, the strongly linear slope increases for rating scores and prices indicate a trend (Chapter 3).

This thesis's findings can further enrich research in wine economics with insights into product signals focusing on the dynamic relationship between professional

evaluations and product prices, with Chapter 4 addressing research questions 5 and 6.

We show that one unit increase in rating points increases wine prices by approximately 8 percent, finding empirical evidence that expert ratings drive wine prices. Our finding aligns with former studies (e.g., Oczkowski and Pawsey 2019). In addition, we show that professional reviewers show review consistency over time (Chapter 4). Furthermore, the findings suggest that red and white wines receive significantly higher ratings and are priced higher than rosé wines. Nevertheless, we demonstrate that prices of all wines have leveled off over time (Chapter 4).

Chapter 5 addresses research questions 7 and 8 and examines whether women are more lenient in evaluating the performance of others. Using data from high-ranking wine evaluations, we examine the behavior of female and male critics in expert evaluations, considering the level of experience assigned to them. We demonstrate that, on average, women rate less generously than men, even in direct comparisons. Furthermore, we have outlined that women with advanced experience levels rate less generously than the most experienced same-sex rater, whereas this effect is not observed for men (Chapter 5). The results contradict previous findings on gender-specific behavior of men and women. This implies a new potential in the discourse around gender differences in performance, wages, or behavior by providing new insights into the gender-specific behavior of men and women. In addition, some of the findings presented offer considerable generalizability to organizational and human resource research that addresses gendered behavior.

Chapter 6 addresses the final research questions, whether brand gender can influence professional critics, and examines the information available in blind tastings. The study shows that masculine brand names are rated higher than feminine ones. In addition, we find that women tend to rate products with higher gendered names lower than men. Finally, this study provides evidence that the unconscious perception and quality

evaluation of products can be significantly influenced by gender (brand) biases (Chapter 6). In summary, the findings in Chapter 5 and Chapter 6 also contribute to the research in the context of performance evaluations (e.g., Rynes et al. 2005, DeNisi et al. 2017) and their underlying behavioral patterns of managers and supervisors. The results provide insights into the conscious and unconscious evaluation behavior of men and women with the potential for generalizability to human resources research questions, e.g., in performance measurement (e.g., Roth et al. 2012). These findings and insights could help reduce information asymmetries in the job market through signaling (Spence 1973) for potential applicants and employers.

7.2 Managerial Implications

Given the current focus on the wine industry, this chapter will present managerial implications for wine industry stakeholders. The implications primarily focus on the wine business area to situate the empirical project results generated in the investigated field.

Particularly in the wine industry, vintners' product and price strategies may be affected by the behavior of the reviewers. While higher rating points increase future market prices, as pointed out in Chapter 4, winemakers are probably best advised to submit their products during regular review periods and vintages and to connect their pricing strategy with review outcomes (e.g., Arias-Bolzmann et al. 2003). The results could provide winemakers with indications for strategic action in building a long-term reputation. Thus, strategic considerations can be made when positioning wines in professional testing, or rather what to expect regarding ratings and prices, to foster long-term reputation building and enhance performance in the market. At the same time, linguistic associations of quality levels could create a spillover effect on reputation, which has strategic implications for winemakers who base their pricing strategies primarily on reputation (e.g., Ali and Nauges 2007b). Since the linguistic content can provide

information about the expected product quality, winemakers should pay special attention to the linguistic inventory when designing their customer communications to adequately describe their products available on the market (Chapter 3). However, winemakers who decide not to submit their wines to professional tastings (for various reasons) would be well advised to monitor professional tastings for their price-enhancing potential, assuming reviewers remain consistent in their performance. Chapter 4 provides evidence to suggest reviewers tend to stick to their prior review behavior. In light of the above and that men and women evaluate differently (Chapter 5), winemakers would be well advised to watch for or benefit from changes in reviewers or even editors of professional rating platforms (e.g., Frick 2020). At the same time, a moral hazard or free-riding phenomenon (e.g., Holmstrom 1982, Holmstrom and Tirole 1989), also relevant for the wine industry (e.g., Frick and Simmons 2013), specifically for cooperatives (e.g., Frick 2017, Fanasch and Frick 2018), may occur when winemakers, offering low-quality products, profit from the collective reputation (e.g., Castriota and Delmastro 2015, Tirole 1996) of positively rated wines and higher quality in their product segment. This could have practical relevance for price settings without engaging in professional wine testing systems. Thus, winemakers who commission their wines to be professionally appraised are well advised to monitor the market, competitors, and the quality offered related to the market price.

Based on the results in Chapter 6, a possible strategic implication for wine-producing companies and winemakers could be to extend or optimize their product range, including favorable grape varieties, which tend to be rated better due to unconscious evaluation patterns. This may represent a strategic market advantage for companies to increase the price of their products in the long run, as professional ratings impact wine prices (e.g., Dubois and Nauges 2010) and further build a long-term reputation for the winery.

Furthermore, the findings offer considerable generalizability to organizational and human resource research involving gendered behavior. Chapter 5 provides empirical evidence that women are less lenient than men in evaluating the performance of others. In addition, Chapter 6 shows that men and women prefer certain brand genders and inherent sound structures that may affect performance evaluations. Performance evaluations can be described as follows (Rynes et al. 2005, p.573):

(...)"Although organizations conduct performance evaluations for many reasons, the most basic one is to improve performance (Murphy & Cleveland 1995). Performance, in turn, is believed to be a joint function of both motivation and ability (Campbell & Pritchard 1976, Vroom 1964). Consistent with this notion, PE is believed to be capable of improving performance in two ways: through developmental feedback (directed primarily at improving ability to perform), and through administrative decisions that link evaluated performance to organizational rewards and punishments such as pay, promotion, or discharge (aimed primarily at enhancing motivation)" (Rynes et al. 2005, p.573).

Following Rynes et al. (2005), performance appraisals impact wages and promotions. Thus, the results presented may have strategic implications for companies that could conduct performance appraisals based on neutral evaluation criteria to provide fair performance appraisals without disadvantages for female or male employees.

7.3 Limitations and Future Research

One limitation of the presented projects may be the focus on a single dataset. This may potentially produce partial inferences (e.g., Delmas et al. 2016). However, I analyzed the proposed research questions using econometric approaches using the cross-sectional and panel data structure, thus, controlling for unobserved heterogeneity over time. Additional studies could employ the proposed research design consisting of empirical and qualitative analysis of other sources of professional (wine) reviews or even customer reviews to generate additional insights into the linguistic factors in reviews influencing reputation and market dynamics, considering different product price levels.

Besides analyzing professional text reviews, future studies could shed light on

other textual formats of product and market communication regarding their linguistic inventory to draw inferences concerning linguistic characteristics in professional evaluations. Further research could also focus on experimental settings to investigate whether consumers recognize the underlying quality levels the product corresponds to based on the linguistic patterns used in professional or consumer evaluations.

In addition, future research could address other industries as an example for experience goods markets, e.g., to examine the dynamic relationship of quality signals (Kaimann et al. 2023). Furthermore, to test for causality and confirm the findings regarding (unconscious) gender preferences, future studies could conduct targeted experiments to address potential endogeneity issues (e.g., Stock and Watson 2012).

Further analyses of the factors and different (gender-specific) roles that condition, and drive performance evaluations could help optimize organizational structures by ensuring unbiased performance reviews to overcome barriers in terms of the development of careers, especially for women (e.g., Lazear and Rosen 1990, Roth et al. 2012). Further research in this area could continue using organizational data samples to develop gender equity performance measures in the labor market.

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