**Critic-buyer effects on the valuation of ambiguously appraised products**

**Abstract**

Valuation in markets of ambiguously appraised products is often performed by a group of recognized experts using centralized evaluation frameworks. Current business practices and technologies allow these participants to fluidly switch their role from evaluator to consumer. Participants who occupy both roles are known as critic*-buyer*. We draw on the theories of the role transition and endowment effects to theorize the effects of critic-buyers on the final price of goods. We further posit that critics’ participation tends to evolve into a network of critic-buyers, which also affects price. We build an affiliation network of critics and test whether centrality in this network relates to final price. Using data from a specialty coffee sales platform, our results show that the transition of critics to critic-buyers positively affects prices by reinforcing these participants’ commitment to the product. Therefore, this transition should be encouraged.

**Keywords**: valuation process; duality of roles; endowment effects; network analysis; specialty coffee market

1. **Introduction**

Interest in the valuation of ambiguously appraised products such as fine art, coffee, wine, and upscale restaurants has grown through the emergence of various awards, competitions, and auditing and review practices (Espeland & Sauder, 2007; Gemser et al., 2008). Because these products have private value and are difficult to appraise, third-party evaluators (i.e., experts, critics, or judges) are needed to provide guidance on the worth of such products (Gemser et al., 2008). Critics educate consumers about products or services (Hagiu & Spulber, 2013; Spulber, 2010; Standifird, 2001), enhance trust, and promote exchanges among market participants (Jeacle & Carter, 2011; Kashkool, 2010). Traditionally, they do not participate in the transaction and instead act primarily as evaluators (e.g., Zuckerman, 1999).

 However, with the recent growing popularity of online marketplaces and platforms, valuation practices have become more open and less centralized (Dukes & Liu, 2016; Orlikowski & Scott, 2014; Rietveld & Eggers, 2016). The identity of critics is now transparent, and they are allowed to participate as buyers once they have completed their evaluation duties (e.g., Gemser et al., 2008). We call these buyers *critic-buyers*. Thus, we define critic-buyers as buyers who have valued products they might subsequently invest in or purchase. These changes in the role of critics not only have helped enhance consumer trust in the valuation process, but also may have inadvertently affected the value of products. For instance, attachment with the product during the valuation process may mean that these critic-buyers pay a premium for the product, which increases its realized price. Dual roles may also lead to conflicts of interest, where critic-buyers collude and undervalue products to generate surpluses and lower realized prices.

 The valuation literature offers scarce insight into critic-buyers. To address this gap, this study explores three related research questions: (1) Do critic-buyers influence the final price of the product? (2) Does critic-buyers’ experience as critics influence the final price of the product? (3) Do quality and scarcity of the product moderate the way that critic-buyers affect the final price of the product? We draw on the theories of role transitions (Ashforth et al., 2000) and endowment effects (Kahneman et al., 1991) to hypothesize a positive effect of critic-buyers on the realized price of products. We also draw on social network theory to hypothesize the formation of communities of critics resulting from critics’ frequent participation as evaluators. We examine how the role of critic-buyers in these communities (in terms of network characteristics such as centrality) affects the final price (Dass et al., 2014).

 To investigate our research questions, we collected both qualitative and quantitative information from the specialty coffee industry. More specifically, we gathered data from the Alliance for Coffee Excellence (ACE) platform. This platform organizes coffee quality competitions in 11 countries and then sells the competing coffees via online auction. We conducted an exploratory study using two data sources. The first consisted of data from online auctions held between 1999 and 2012. The second consisted of qualitative information from interviews with participants of a quality competition. We further validated the critic-buyer effects with data collected via a questionnaire developed specifically for a sample of current participants on this platform.

 By addressing the proposed research questions, this study contributes to the literature and managerial practice in several ways. First, it contributes to our understanding of dual roles in markets (Koch & Schultze, 2011), particularly the role of critic-buyers and their effects on value realization. Second, this study contributes to the literature on market intermediation for products with ambiguous values. We argue that understanding the valuation practices of these intermediaries not only potentially strengthens the theoretical foundations of this type of firm but also provides practical insight such as marketing tools that online marketplaces can employ to increase involvement and commitment. Third, this study highlights product quality and product scarcity as moderators that influence the effects of critic-buyers on final prices. Finally, this study provides insights into how auction managers should involve critic-buyers in the transaction process.

1. **Theory and hypotheses**

***2.1. Process of social valuation***

Valuation refers to practices that are used to estimate the worth of an object (i.e., a product, event, etc.). It also refers to a process whereby objects are assessed and compared against a measurement scale (Beckert & Aspers, 2011; Verdaasdonk, 2003). Our valuation context is that of *social valuation*, which is performed in conjunction with other individuals (Zuckerman, 2012). Social valuation is generally used for products where value is private and quality is uncertain or constantly contested. As the social valuation literature suggests (Lamont, 2012; Zuckerman, 2012), the valuation of products with private value tends to mix relational mechanisms (i.e., popularity measures, status, brands, market categories, etc.) with scientific measures (i.e., performance, reliability tests, etc.). Both relational and objective criteria are therefore needed during the evaluation process (Zuckerman, 2012). In our case, the dynamics of coffee critics are relational mechanisms, whereas coffee quality scores are scientific mechanisms.

In situations where the value of goods is ambiguous, review systems, and therefore critics, are influential (Gemser et al., 2008; Hsu, 2006; Karpik, 2010; Khaire & Wadhwani, 2010; Zuckerman, 1999). Evaluation practices to assess these kinds of products tend to be specialized, thus requiring experts to use their knowledge of market organization during the valuation process (Bourdieu, 1993; Khaire & Wadhwani, 2010; Zuckerman, 1999). Industries where such valuation processes are used include the wine industry (Benjamin & Podolny, 1999), creative industries such as art (Anand & Jones, 2008; Wijnberg & Gemser, 2000), and, in our case, the specialty coffee market.

***2.2. Online marketplaces and dual roles: Critics as buyers***

Platforms organize exchanges between different sides of the market (in this case, coffee critics, buyers, and sellers) (e.g., Hagiu & Spulber, 2013; Rochet & Tirole, 2003). Because of the ubiquity of the Internet and online platforms, current marketplaces blur the traditional boundaries between critics and other market participants. We adopt the theories of role transitions and conflict resolution strategies (Ashforth, 2001; Ashforth et al., 2000) to understand the implications of dual roles in exchanges within these marketplaces.

In general, roles appear in the form of pairs of actor roles, where each actor has different expectations. That is, roles develop in pairs of ego and alter-ego interactions such as buyer-seller, boss-employee, and critic-buyer (Leifer, 1988; Turner, 1962). The role of a critic makes little sense without the role of a buyer and/or seller. The theory of role transitions suggests that transitioning between roles is more difficult when roles are highly segmented than when roles are highly integrated (Ashforth et al., 2000). Integration and segmentation refer to the thickness of boundaries around roles. These boundaries can be physical, temporal, emotional, cognitive, or relational.

Studies suggest that online platforms are able to design and create boundaries that integrate or segment different market roles (Koch & Schultze, 2011; Orlikowski & Scott, 2014). Examples of integration can be observed in online evaluation systems such as TripAdvisor. These systems offer reviews of products written by users for users. Thus, the integration of roles (reviewer-user) occurs as users perform a task that was previously carried out by expert reviewers (Orlikowski & Scott, 2014).

Integration of review systems might also entail potential conflicts. Review systems can face problems such as fraud, lack of authenticity, and misleading information (Anderson & Simester, 2014; Luca & Zervas, 2016). Once the credibility of these review systems has been compromised, major efforts are required to rebuild it. Thus, platform organizers spend considerable time strengthening their review systems for several reasons, including protecting their reliability. Such strategies can be classified as segmentation strategies, which aim to ensure the credibility and reliability of the platform.

Using insights from cognitive aspects of consumer behavior such as endowment effects (Kahneman et al., 1991), we argue that integration strategies such as critic-buyer dual roles played by the same organization, strengthen commitment to the product. Because these critic-buyers spend considerable time with the products during the evaluation process, they develop a strong desire to own them. Endowment effects emerge when decision makers develop a strong connection with a product such that they are willing to make tremendous efforts to maintain possession of that product (e.g., Morewedge & Giblin, 2015). Thus, we hypothesize that the integration of the critic-buyer role can increase endowment effects. Critic-buyers will therefore be willing to pay higher prices than others will to obtain the products.

Because our context relates to a highly specialized product, groups of buyers usually form before the online auction takes place. In e-commerce, this is called group buying (e.g., Anand & Aron, 2003; Wang, Zhao, & Li, 2013). We posit that having critics as buyers in the buying groups increases potential endowment effects in the group buying behavior. Here, we use insights from network theory and the flow of information among contacts in the buying group (Borgatti, 2005). Because the type of interaction in the buying groups occurs through replication rather than transfer (critic-buyers do not lose their opinions about a coffee the moment they share them with others), we hypothesize that the more critic-buyers there are in the buying group, the stronger the replication effect and the endowment effect will be. Hence, keeping everything else constant:

***H1****. The more critic-buyers there are in the buying group, the higher the final price of the products will be.*

***2.3. Critics’ level of engagement in the marketplace***

The first hypothesis refers to situations in which buyers participate in the assessment as critics of the same products that they would like to buy in a subsequent auction. In the second hypothesis, we explore how previous experiences of being a critic for other products might still affect the final price of different products on these online platforms. Drawing on the concept of psychological ownership (Pierce et al., 2001), we suggest that critic-buyers who have participated in previous evaluation events might be more engaged with the platform than other buyers who have never acted as critics. Psychological ownership is a state in which individuals feel as though the target of ownership (material or immaterial), or at least a piece of it, is theirs (Pierce et al., 2001: 299).

The literature suggests that greater control over a particular product and knowledge about that product means a higher level of psychological ownership. Therefore, the endowment effect is also greater (Harmeling et al., 2017; Pierce et al., 2001; Walasek et al., 2017). We suggest that critic-buyers who are more engaged with the platform and who know more about the ACE will experience feelings of ownership toward the organization and greater endowment effects than other critic-buyers.

 Prior studies have found that greater user participation is positively related to a sense of belonging to the platform. This sense of belonging positively affects the total money spent on products on the platform (Bagozzi & Dholakia, 2006). Sense of belonging refers to the personal involvement of the users (critic-buyers) (Hagerty et al., 1992). This personal involvement increases the sense of ownership and the desire to purchase the product at almost any cost. Accordingly, we propose the following hypothesis:

***H2.*** *The greater the critic-buyers’ level of involvement with the platform is, the higher the final price of the product will be.*

***2.4. Variability in the participation of critic-buyers***

 Next, we focus on the way participation variability among critic-buyers affects the final price of the product. Drawing on findings regarding mitigating uncertainty in online exchange relationships (Pavlou et al., 2007) and the influence of uncertainty on endowment effects (Inder & O'Brien, 2003), we suggest that high variability in critic-buyers’ involvement with the platform in different events may result in higher perceived uncertainty about the product’s worth. Accordingly, high participation variability would lead buyers to nominate a price below that which they would offer in the absence of any uncertainty (Inder & O'Brien, 2003; Pavlou et al., 2007). Accordingly, we propose the following hypothesis:

***H3****. The greater the variability of the critic-buyers’ involvement with the platform is, the lower the final price of the product will be.*

***2.5. Quality and scarcity as moderators***

We suggest that certain product characteristics heighten endowment effects. Two such characteristics are quality and scarcity. Quality is an objective measure of value. Prior experiments suggest that higher perceived quality increases the endowment effect because buyers tend to feel a bigger loss if they do not have the product and are therefore willing to pay more to obtain the product (Azar, 2011). Other studies have shown that when participants are involved in some aspect of the product, they perceive the product to be of a higher quality (Buccafusco & Sprigman, 2011). In our case, the critics assess the quality of the product, so they should experience endowment effects and should therefore be willing to pay a higher price. Accordingly, we propose the following hypothesis:

***H4a.*** *The effects of critic-buyers on the final price of the product are positively affected by the quality of the product.*

We also postulate that product scarcity will enhance the endowment effect and will result in a greater willingness to pay (Cialdini, 2001). When facing the decision to buy exclusive, limited availability products, critic-buyers may experience greater perceived loss if they are unable to obtain the products. Therefore, they may be willing to pay higher prices to obtain these products. Accordingly, we propose the following hypothesis:

***H4b.*** *The effects of critic-buyers on the final price of the product are positively affected by the scarcity of the product.*

1. **Method**

***3.1. Platform context***

To test the above hypotheses, we used data from a specialty coffee platform. This context was well suited to our research objectives for two reasons. First, the criteria that make a coffee “good” are constantly being redefined (Giovannucci & Ponte, 2005; Reinecke et al., 2012). This context therefore enables a better understanding of social valuation. Second, critic-buyers play a dual role in this context, thereby making it suitable for our analysis.

Usually, specialty coffee refers to coffee that is considered gourmet or premium because of special soils and ideal climates where the coffee is grown. The coffee is also believed to be distinctive because of its flavor and lack of defects. Evolving from a commodity-based industry in the 1980s, the coffee industry has embraced investment in this new niche market (Luttinger & Dicum, 2006; Rindova & Fombrun, 2001). An important characteristic of this product category is the differentiation and decommodification of coffee (Luttinger & Dicum, 2006). A proliferation of standards and guidelines continue to structure and define the identity of this new category, leading to constant reevaluation of the desirable characteristics of specialty coffees (Giovannucci & Ponte, 2005; Reinecke et al., 2012). The Alliance for Coffee Excellence (ACE) has made particular efforts to establish quality standards in the specialty coffee niche.

*3.2. Alliance for Coffee Excellence (ACE)[[1]](#footnote-1)*

 We studied a quality competition, called the Cup of Excellence, and the corresponding online auction of specialty coffee. Both of these events were organized by ACE, a nonprofit organization that brings together the different participants of the specialty coffee market. ACE was established in Brazil in 1999 by a group of dedicated coffee specialists, who received international government support and backing from NGOs. Its goal is to help small-scale farmers receive financial recognition for their hard work and dedication to cultivating high-quality coffees (ACE, 2011). ACE organizes a quality-based competition and online auction of coffees. This online auction takes place approximately five weeks after the quality competition. Competitions and the corresponding online auctions are organized for a given country in a given year. Coffees from different countries are not mixed. Table 1 lists in chronological order the events that have been organized by ACE.

Insert Table 1 about here.

*3.2.1. Quality competitions*

ACE ensures a strong presence of farmers who are able and willing to participate in the competitions. Despite variations in size by country (Brazil has larger coffee farms than, for example, Guatemala), the target population is small and medium-sized coffee farmers who are little known in the international market but who grow specialty coffee. Thus, characteristics such as the seller’s reputation tend to be of little importance at this stage. Because participation in the quality competition is free and open to any farmer in the host country, ACE’s country partners are usually government or private sponsors whose function is to promote the national coffee sector. As of 2015, 11 countries (Brazil, Colombia, Guatemala, Bolivia, Honduras, Nicaragua, Costa Rica, El Salvador, Rwanda, Mexico, and Burundi) had participated in the annual competitions, although Bolivia last competed in 2009. In quality competitions in the specialty coffee niche, experts “cup” coffee to assess its quality. Cupping the coffee means that expert coffee tasters physically assess different qualities (e.g., appearance, aroma, and taste) of the competing coffees. The detailed categories that are evaluated include sensory attributes such as acidity, aroma, cleanness of cup, and flavor, all of which are difficult for non-experts to assess (Donnet et al., 2010). In the coffee industry, coffee is assessed and rated on a 100-point scale that is provided by The Specialty Coffee Association of America (SCAA). Coffees with scores of 80 or higher are designated specialty coffees (Donnet et al., 2010).

These quality competitions have two rounds and last approximately three weeks. In the first round, national critics rate the coffee samples to narrow down the number of coffee samples. The second round involves international critics and the most experienced national critics. The international critics travel to the city where the competition takes place. These international critics rate the coffees on location by performing blind tastings over a period of approximately one week.

During both rounds, coffee critics receive the coffee samples without any further information (i.e., growers, growing area, or coffee characteristics). Coffee samples are rated at least five times. Through blind tastings, the international critics rate the same coffee samples the same number of times. Only coffees that consistently score highly may progress further in the competition; the top ten are cupped six times. The coffees that score 90 or higher are designated “presidential” and are presented with an additional award. Throughout the process, the sellers remain anonymous to all critics. The three highest cupping scores are announced at a ceremony in the host country. The international jury and the winning farmers participate in this ceremony.

Participation as an international critic in these competitions is a major achievement for both the critic and the organization that he or she represents. Here, the boundary between the reputation of the individuals as coffee critics and the organizations that they represent tends to be blurred. First, although it is growing, the specialty coffee segment is still a niche market, suggesting that the industry is small. Second, specialty coffee organizations tend to be medium-sized or small. Thus, coffee critics represent the organizations and themselves in these competitions.

International critics can apply to a competition in a specific country by providing information about their experience in tasting and buying coffee. ACE staff evaluate all applicants and choose the final pool of critics based on their experience as coffee cuppers and coffee buyers and their country of origin. Some international critics purchase coffee in the subsequent online auctions. ACE also uses specific criteria to analyze the performance of critics. If any critic fails to meet these criteria, that critic is not invited or accepted again. During a competition, an external audit is used to check the robustness of the system. To reduce the bias of a single critic’s score, the overall quality score for each coffee is calculated disregarding the lowest and highest scores. This procedure ensures the high standards of the international critics who assess the coffees in the cupping competitions.[[2]](#footnote-2)

*3.2.2. Online auctions*

ACE promotes each competition among the international community of buyers of these coffees by hosting an online auction of the coffees from the country where the competition took place. These international buyers are coffee importers, wholesale retailers, and other organizations that sell coffee in the specialty niche. They are registered as buyers in the ACE database. These international coffee buyers may also be individuals who participated as coffee critics in the competitions.

Usually, up to 50 coffees participate in these online auctions. These coffees must have scored more than 85 in the round of assessment by international critics. International buyers are members of ACE who pay a membership fee and have access to an online database with technical information about the coffees (i.e., origin, coffee grower, variety, quality ranking, processing systems, qualitative descriptions, altitude, size of lot, etc.). The buyers can physically taste coffee samples before the online auction. They can also bid in groups, which is common practice in online buying strategies (Anand & Aron, 2003). All online buyers remain anonymous while bidding for the coffees during the live auction. Thus, while the auction is open, coffee buyers do not know who else is bidding for a particular coffee lot. These auctions tend to last three to four hours.

***3.3. Data collection***

To test our hypotheses, we collected both qualitative and quantitative data from ACE. The qualitative data were collected from interviews with ACE staff and international coffee critics. These interviews were conducted for a sample of 29 respondents, including 21 judges who participated as international coffee critics, 4 observers, and 4 organizers. One of this paper’s coauthors traveled to Colombia and spent one week observing and interviewing international coffee critics at this competition. During this time, this coauthor made first-hand observations of a quality competition. The interviews were based on unstructured open-ended questions. Our goal was to learn from the ACE Directors about the organizational practices, organizational history, and future of ACE and to ascertain from the ACE organizers why organizations participate in different ACE-run activities (i.e., competitions and auctions).

Regarding the quantitative information, we first used auction transaction data from 1999 to 2011. These data were collected from the ACE website between 2012 and 2013. We obtained data on 2,055 transactions conducted between 1999 and 2011. Complete data were available for 1,470 of these transactions. The auction data show the identities of the coffee buyers who won each coffee lot, general information about these coffee lots, and details of the coffee growers. We did not have access to bid history. The second set of quantitative information was collected during the first half of 2018 using an online questionnaire distributed to current participants in the organization. ACE sent the questionnaire by email to the list of participants and then posted the link to the questionnaire on its social media profiles. Another email was sent later to remind participants about the questionnaire.

***3.4. Measurement of variables: Online auction***

*3.4.1. Dependent variable*

Our dependent variable was the final price of the product. More specifically, this was the USD amount paid by the buyer(s) per pound of coffee in the auction.

 *3.4.2. Dual roles*

To determine whether buyers in a given online action were critics in the corresponding quality competition, we used the information that was provided on the ACE website on coffee critics and coffee buyers. This information provided the names of the critics, the organizations they represented, and their countries of origin. Coffee buyers were also identified with the name of the organizations that bought the coffee. This information was made public after the auction. During the online auction, the buyers remained anonymous. We used the name of the organizations acting as both coffee critics and coffee buyers to identify the critic-buyer effect. Although the international critic was always an individual, the coffee buyer could be an organization. We therefore created a dummy variable that took the value 1 when the buyer was a critic in the competition and 0 when the buyer was not. Because a coffee lot can be bought by many buyers, we summed the instances in which buyers were critics in the competition. We used summation because we wanted to capture information replication (copy mechanism) and not transfer (move mechanism). Thus, with more buyers, this type of information does not diminish with usage as it does for tangible resources such as money. Therefore, a summation measurement of critic-buyer effects could be applied in this case (Borgatti, 2005).

*3.4.3. Level of involvement through affiliation networks*

We used affiliation networks to measure critic-buyers’ involvement with ACE (Borgatti & Everett, 1997). These affiliation networks were networks of critics that represented their involvement with the ACE. We measured participation in the affiliation networks by the number of times the participants had attended competitions. Participation in different coffee competitions is seen as an opportunity to develop social ties and create knowledge and information flows (Borgatti & Halgin, 2004). In these competitions, 15 to 30 international critics that represent organizations or themselves travel to the host country of the cupping competition, stay at the same hotel, and share at least a week cupping and tasting different coffee samples. We posit that different social dynamics and ties evolve among the critics during this time. Critics who regularly participate in these competitions have more opportunities to share information and participate in the evaluation of coffee lots.

 The affiliation network is illustrated in Figures 1 and 2. Figure 1 presents the connections between critics based on the events in which they participated in 2001. Figure 1 shows the critics who have participated together in the same events. Figure 2 shows how, by 2003, this network had evolved into a more complex network. Certain critics are identified as more central than others in terms of the frequency with which they participate (denoted by large squares). From this information, we built the network of critics using the software *UCINET* and computed the centrality measures for the network participants.

Insert Figures 1 and 2 about here.

We computed a normalized degree centrality measure of critics’ positions in the network to measure involvement. Critics who were well known in Cup of Excellence events because of extensive participation had a higher degree centrality than others. Because our goal was to assign a centrality measure to the buyers who had been critics in previous competitions, we matched the names of organizations that were both critics and buyers. Moreover, because buyers can buy as a group, we summed the centrality measures whenever buyers in a group had been critics in prior competitions, following the same logic as for the dual role variable.

To avoid a high correlation with the measure of dual roles, we used the centrality measure at time *t-1* for an auction at time *t*. We also computed the variance of degree centrality among different buyers in a group to capture the variability across the buyers as a measure of critics’ involvement with the network.

*3.4.4. Quality and scarcity*

We measured product quality using the ranking information and the number of qualitative descriptors of the coffee taste (i.e., honey, caramel, apricot, etc.) attributed to the coffee during the quality competition. We took the total number of bags as an indicator of scarcity, where fewer bags indicated product scarcity.

*3.4.5. Control variables*

We controlled for characteristics that relate to how and where the coffee is grown because these factors can affect the taste. We included information such as variety (e.g., Caturra, Bourdon, Catuai, Colombia, Typica, Pacamara, and Pacas), processing type (e.g., conventional, pulped natural, and solar-dried), altitude (height above mean sea level in kilometers), lot size in 30kg coffee bags, and certification (organic, Rainforest Alliance, etc.). We included the number of winning bidders per lot to control for the size of the buying group. We also included a proxy variable of the accumulated transaction volume in USD spent by buyers on the platform. We controlled for country effects and for the number of online auctions per country. Finally, we included the lag variable prices for the commodity coffee market by country. These prices were gathered from the International Coffee Organization (ICO). We included these prices to control for possible endogeneity problems due to the effect of coffee prices in international markets on the final value in the auctions.

***3.5. Measurement of variables: Online questionnaire***

The online questionnaire had two parts. The first part related to participation as a coffee critic and the second to participation as a buyer. To develop the questions, we used scales related to the level of purchasing involvement and the level of importance of information search in pre-purchasing and post-purchasing behavior (Bearden et al., 2011; Mitra et al., 1999; Schneider & Rodgers, 1996). We modified and adapted these scales to our context. To measure the relative importance of different factors that influence participation as a coffee critic, we used items such as “to develop social contacts with other companies that also participate,” “to better understand what to expect in subsequent online auctions,” and “to build your reputation as a specialty coffee critic.” To measure the importance of specific information used in purchase decisions, we used items such as “have sampled the coffee lots,” “have participated as a judge before,” and “find another companies to buy as a group.” We also included opened-ended questions to allow participants to express any important aspect that was not covered by the scales. We ran reliability tests for the different scales. The results met the minimum expected levels (0.6 or higher for Cronbach’s alpha).

***3.6. Model developed with data on online auctions***

Because our online auction data had different levels of analysis (i.e., country, year, and transaction) and the coffees purchased at specific online auctions could be grouped into clusters with unknown correlations, we used a mixed model to account for the fixed and the random components. The random component accounted for the auction per country over time. We called this component *auction cohort per country*. In the fixed effects model, the unit of analysis was the lot sold at auction. This model included our primary variables of interest. To account for skewness, we used the log-transformed final price of the coffee as our dependent variable. The hypotheses were tested in STATA 14. Listwise deletion was used to handle missing data. We used a series of models of the following form (main variables in bold):

Main effects:

1. Log (Final price)it = *β0* + *β1* (Score)*i* + *β2* (Coffee descriptors)*i* + *β3* (Certification)*i* + *β4* (Altitude)*i* + *β5* (Buyers)*i* + *β6* (Bags)*i + β7* (Commodity coffee market)*i,t-1* +∑v *β* (Coffee variety)*vi* + ∑p *β* (Coffee processing types)*pi* + *β8* (transact volume USD)*t-1* + ***β9* (Buyer as critic)*i,t*** + ***β10* (SUM degree centrality)*i,t-1* + *β11* (Variance degree centrality)*i,t-1*** + *γ0* + *γ1* (Auction cohort per country)+*error terms*

Interaction effects:

1. Log (Final price)it = *β0* + *β1* (Score)*i* + *β2* (Coffee descriptors)*i* + *β3* (Certification)*i* + *β4* (Altitude)*i* + *β5* (Buyers)*i* + *β6* (Bags)*i + β7* (Commodity coffee market)*i,t-1* +∑v *β* (Coffee variety)*vi* + ∑p *β* (Coffee processing types)*pi* + *β8* (transaction volume USD)*t-1* + *β9* (Buyer as critics)*i,t* + *β10* (SUM degree centrality)*i,t-1* + *β11* (Variance degree centrality)*i,t-1* + ***β* (Buyer as critic)*i,t* \* *β* (Score)+ *β* (SUM degree centrality)*i,t-1* \* *β* (Score)+ *β* (Variance degree centrality)*i,t-1* \* *β* (Score) + *β* (Buyer as critic)*i,t* \* *β* (Bags)*i* + *β* (SUM degree centrality)*i,t-1* \* *β* (Bags)*i* + *β* (Variance degree centrality)*i,t-1* \* *β* (Bags)*i +****γ0* + *γ1* (Auction cohort per country) +*error terms*

**4. Results**

***4.1. Analysis of auction data***

The average quality score for the coffee that competed in the competitions was 86.86. The maximum score was 95.85 (see Table 2). Single buyers performed 65% of transactions, while groups of more than one buyer performed the remaining 35% of transactions. Lots were bought by up to 16 winners, but the most common number of buyers was 2 (16.01%, 329 transactions). The number of critics in different competitions was between 14 and 33. Although the percentage varied, on average, 30% of coffee critics purchased coffee in the corresponding auction, indicating the presence of a critic-buyer effect in 30% of transactions. As Table 2 indicates, the dependent variable (log high bid) correlated strongly with score, number of bags, and the number of qualitative descriptors for each coffee. Moreover, our primary variables had moderated correlations with the dependent variable.

Insert Table 2 about here.

Table 3 reports the coefficients of the four models that were analyzed in this study. We first estimated a control model. The control variables were score, number of qualitative descriptors, and coffee growing characteristics (i.e., variety, processing system, altitude, etc.). We included country and number of online auctions per country as part of the random component of the models. As expected, the score of the coffee lot was positively related to the final price. Other covariates that had significant and positive relationships with final price were number of buyers, altitude, number of descriptors, and natural processing type. The size of the lot (i.e., bags) had a negative relationship with price, indicating that coffees that were sold in smaller quantities sold for higher prices.

Insert Table 3 about here.

The second model that we estimated was the main effects model to test the first two hypotheses. Hypothesis 1 states that the number of buyers that participate in the corresponding competition as critics is positively related to the final price of the product. To test this hypothesis, we included the count variable for the number of critic-buyers of lot *i*. This variable was positively related to the final price of coffee lots (*β* = 0.06, *p-value <* 0.001). Therefore, the data support hypothesis 1. Hypothesis 2 states that the higher the critic-buyers’ level of involvement with the platform, the higher the final price of the products. To test hypothesis 2, we examined the network measure *degree centrality of buyers at time t - 1*. It had a significant positive effect on the final price (*β* = 0.01, *p-value <* 0.001). Therefore, the data support hypothesis 2.

 Hypothesis 3 states that the variability of buyers in the critics’ networks is inversely related to the final price of the product. To test this hypothesis, the variability of the degree centrality of buyers who act as critics was added as one of the covariates in the main effects model. The results suggest that the variability of buyers in the critics’ network had a marginally significant negative effect (*β* = -0.003, *p-value <* 0.01) on the final price of the products. Therefore, the data support hypothesis 3.

 Finally, we tested hypotheses 4a and 4b by including the interaction terms in our model. Quality moderated the relationship, albeit with a small effect. Therefore, the data support hypothesis 4a (same critic-buyer per lot *β* = 0.009, *p-value <* 0.05; degree centrality *β* = 0.0013, *p-value <* 0.1). The results regarding scarcity were inconclusive. Therefore, the data fail to support hypothesis 4b. These results indicate that *critic-buyer effects* on economic exchanges occur in business models that encourage dual critic-buyer roles.

***4.2. Validation study using qualitative data***

 To validate our empirical findings, we transcribed the interviews collected in 2012 and analyzed these transcripts following qualitative analysis guidelines (Miles & Huberman, 1994). Even though we did not reach theoretical saturation from this analysis, four common insights emerged from the data: (1) There is a sense of community and ownership among the participants of the quality competition. (2) There is a tight-knit community of critics and buyers. (3) Not all coffee critics behave like coffee buyers. Some attend the event for training and development, while others participate for networking. (4) Participation as a critic in the competitions is an important credential in the specialty coffee market. Therefore, the critic’s credibility is at stake during the cupping event. The following quotation from the CEO of the organization in 2012 summarizes these key insights from these interviews:

The judges [critics] actually choose which country they want to go and cup at so they are listed [on the website]. So, historically, the judges are typically the buyers because they felt a sense of ownership of what they have passed…We do know for the most part who our bidders are, … these bidders are companies and dealers in specialty coffee, and who want smaller lots to make money out of it. You wouldn’t have somebody like a multinational coffee company necessarily bidding [in this online auction]. (CEO, ACE 2012)

Detailed transcripts of the interviews can be obtained from the authors upon request.

***4.3. Validation study using online questionnaire***

To validate the critic-buyer effects, we performed a survey in which we asked a sample of ACE participants to respond to an online questionnaire. We obtained 50 complete responses, from new and past participants. Of this sample, 48% were critics and 31% were buyers. We ran t-tests for independent samples and found no significant differences between new and past participants’ responses. The sample includes 53.8% critic-buyers, 10.8% only critics, 21.5% only buyers, 9.2% producers, and 4.6% classified as others where different personnel from companies participated as buyers and critics in a competition. This suggests that not all participants played the same role but that the majority were critic-buyers.

The analysis yielded several key findings related to the dual role of critic-buyer. We found that 80.48% critics participated in coffee buying decisions. On average, critics had bought coffee in online auctions organized by this platform 11 times, whereas buyers had bought coffee an average of 9 times. We also found that 85% of critics who participated in coffee quality competitions tended to share their experiences with the rest of their company. Moreover, 79% of critics said that they tended to feel more involved with the development of the ACE after their experience at the competitions. Finally, the two main reasons why respondents participated in coffee quality competitions were (1) to develop experience in distinguishing quality coffee and (2) to support the activities organized by the ACE platform.

Thus, the results from the survey support the insights obtained from the qualitative interviews. A large proportion of participants acted as both critic and buyer. At the same time, however, other participants (a smaller proportion) performed only one role (either buyer or critic). Critics participated in quality competitions for various reasons, but they reported that the experience was relevant when buying coffee. Participating in the quality competitions is related to a greater sense of belonging to this coffee platform community.

**5. Discussion**

Several studies have examined the general features of product valuation as a social and cultural process. Both scientific and relational evaluation practices play a role in how market agents value products, especially in cases where valuations of such products tend to be ambiguous (e.g., Lamont, 2012; Zuckerman, 2012). Questions about the marketing mechanisms used by organizations that exchange ambiguously appraised products to potentially create customer engagement remain unanswered (Harmeling et al., 2017; Sriram et al., 2015).

 We conducted a study to investigate the specialty coffee market, where views on the value of coffee vary and are thus constantly redefined. This study contributes to our understanding of how platforms design strategies in which integrating the apparently separate roles of critic and buyer can generate customer engagement with the product and the organization. Drawing on the theory of role transitions, we theorize that when a market intermediary integrates relational mechanisms such as the roles of critic and buyer, an endowment effect occurs. This effect increases critic-buyers’ appreciation of goods and engagement with the product (Harmeling et al., 2017).

We also theorize that highly involved critic-buyers will develop high levels of affiliation and psychological ownership with the organization. Our results suggest that both quantitative measures of coffee quality (scientific) and the dual role of critics and buyers (relational) are positively related to the price of goods. We provide support for the main effects and for an interaction effect with quality: Both the participation of critics-buyers and the constant participation of buyers in the networks of critics are positively related to the realized price of the product. When the quality of the product is higher, the positive effects that critic-buyers exert on price are accentuated.

Because the type of coffee buyers that we studied here tended to be niche organizations, we were able to trace dual roles. Research using larger organizations in which different people play different roles would require adjustments to account for this variability.

These effects, albeit modest, can help explain valuation models in market organizations for which the worth of products is ambiguous or socially constructed. These effects can also contribute to our theoretical and practical understanding of the interaction between relational evaluation strategies (e.g., dual roles and social networks) and scientific measures (e.g., quality scores). We acknowledge that additional information such as bid history could have strengthened our results. However, the qualitative and the quantitative information provided by the questionnaire yields insights that help triangulate our results.

**6. Conclusion**

In the last decade, entrepreneurs have created alternative ways of intermediating online markets. This has encouraged customer engagement at different levels through a continuum of strategies that range from high integration of different market roles to high segmentation or separation of such roles. In this study, we explicitly link sociocognitive aspects of evaluation and role transitions to understand how interactions between relational and scientific evaluation practices are linked to the integration of market roles. Participation in evaluation systems can offer an important strategy for integrating roles such as those of critics and buyers. As we have shown here, participation can increase customer engagement. As prior research has shown, participation in evaluation systems tends to create trust among disparate buyers and sellers. Our findings show encouraging effects of critic-buyers in the context of online platforms. We expect the implications to be similar for similar organizations and contexts. We have shown that integration of the roles of critic and buyer can increase commitment to products and the organization. These critic-buyers tend to pay more for products that are highly valued in terms of quality. In conclusion, online marketplaces can play a prominent role in managing participants’ engagement with the market by using hybrid strategies of role segmentation and integration.

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**Table 1:**

*Chronological order of events organized by ACE for each coffee-growing country*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Stage | Event | Participants | Type of interactions | Duration |
| 1 | Advertisement in the coffee-growing country of coffee competition | ACE – national sponsors\* | Online and face to face between national sponsors and farmers | Several months |
| 2 | Preparation of coffee samples (national round) | National jury – head critic (ACE) – national sponsors | Face to face in the country sponsoring the competition | Approximately 1 or 2 weeks |
| 3 | International coffee competition (international round) | International jury – head critic (ACE) – national sponsors | Face to face in the country sponsoring the competition | Approximately 1 week |
| 4 | Advertisement of the final coffee lots to be auctioned | Buyers from different countries interact – ACE | Face to face (different coffee buying countries) and online | 4 to 5 weeks |
| 5 | Online auction | Registered buyers – ACE | Online | 3 to 4 hours |

\*There might be other international sponsors, but national institutions are the main sponsors of the competition/auction

**Table 2:**

*Correlation and descriptive summary*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Variable | N | Mean | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1 | Log (final price per lb.) | 2055 | 1.62 | 0.58 |  |  |  |  |  |  |  |  |  |  |
| 2 | Quality Score for each lot (80-100) | 1910 | 86.86 | 2.37 | 0.59\* |  |  |  |  |  |  |  |  |  |
| 3 | Total of descriptors per lot  | 1908 | 12.92 | 6.34 | 0.55\* | 0.53\* |  |  |  |  |  |  |  |  |
| 4 | Bags (Lot size) | 2055 | 30.37 | 18.27 | -0.07\* | -0.02 | 0.15\* |  |  |  |  |  |  |  |
| 5 | Altitude (MSL/1000) | 1692 | 1.5 | 0.24 | 0.27\* | 0.12\* | 0.21\* | -0.02 |  |  |  |  |  |  |
| 6 | Prices to growers (US cents per lb.) | 1809 | 88.8 | 48.25 | 0.48\* | 0.09\* | 0.33\* | 0.31\* | 0.33\* |  |  |  |  |  |
| 7 | Total buyers | 2055 | 1.96 | 1.92 | 0.27\* | 0.25\* | 0.15\* | 0.01 | 0.05 | 0.12\* |  |  |  |  |
| 8 | Buyers as critics per lot | 2055 | 0.41 | 0.71 | 0.22\* | 0.29\* | 0.11\* | -0.05 | -0.01 | -0.01 | 0.41\* |  |  |  |
| 9 | Sum degree per lot | 2055 | 2.98 | 5.74 | 0.08\* | 0.31\* | 0.09\* | -0.04 | 0.02 | -0.17\* | 0.29\* | 0.46\* |  |  |
| 10 | Variance degree per lot | 2055 | 1.36 | 6.75 | 0.18\* | 0.28\* | 0.13\* | -0.08\* | 0.04 | -0.01 | 0.26\* | 0.34\* | 0.46\* |  |
| 11 | (log) Buyer’s total USD accumulated (year-1) | 1827 | 12.62 | 1.50 | 0.39\* | 0.17\* | 0.24\* | 0.12\* | 0.15\* | 0.39\* | .32\* | 0.26\* | 0.15\* | 0.21\* |

\* *P* < .01

**Table 3:**

*Regression models dependent variable log highest bid a*

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Dependent variable: log high bid a** | **Control** | **Error** | **Main effects b** | **Error** | **Interaction (Quality)b** | **Error** | **Interaction (Scarcity)b** | **Error** |
|   |   |   |   |   |   |   |   |   |
| **Critic-buyers \* Bags** |   |   |   |   |  |  | 0 | 0.001(H4b) |
| **Sum degree \* Bags** |   |   |   |   |  |  | 0 | 0(H4b) |
| **Variance degree \* Bags** |   |   |   |   |  |  | 0.001\*\* | 0(H4b) |
|  |  |  |   |   |
| **Variance degree \* Quality** s**core** |   |   |   |   | -0.001 | 0.001 | -0.001 | 0.001 (H4a) |
| **Critics-buyers \* Quality** s**core** |   |   |   |   | 0.01\* | 0.004 | 0.009\* | 0.004(H4a) |
| **Sum degree \* Quality** s**core** |   |   |   |   | 0.001+ | 0.001 | 0.0013+ | 0.001(H4a) |
| **Critic-buyers per lot** |   |   | 0.0602\*\*\* | 0.0140 (H1) | 0.038\*\* | 0.016 | 0.039\*\* | 0.015 |
| **Sum degree per lot** |   |   | 0.0104\*\*\* | 0.0024 (H2) | 0.008\*\*\* | 0.003 | 0.007\*\*\* | 0.003 |
| **Variance degree per lot** |   |   | -0.0034\*\* | 0.0013 (H3) | -0.002 | 0.002 | -0.003 | 0.002 |
|   |   |   |   |   |   |   |   |   |
| **Quality** s**core per lot** | 0.112\*\*\* | 0.004 | 0.1063\*\*\* | 0.0043 | 0.103\*\*\* | 0.005 | 0.102\*\*\* | 0.005 |
| **Bags** |  -0.006\*\*\* | 0.001 |  -0.0061\*\*\* | 0.0007 | -0.006\*\*\* | 0.001 | -0.006\*\*\* | 0.001 |
| **Altitude** | 0.196\*\*\* | 0.052 | 0.1790\*\*\* | 0.0492 | 0.177\*\*\* | 0.051 | 0.176\*\*\* | 0.049 |
| **Descriptors** | 0.009\*\*\* | 0.002 | 0.0093\*\*\* | 0.0016 | 0.010\*\*\* | 0.002 | 0.010\*\*\* | 0.002 |
| **Caturra (variety)** | 0.019 | 0.027 | 0.0125 | 0.027 | 0.01 | 0.027 | 0.009 | 0.026 |
| **Bourbon (variety)** | -0.033 | 0.029 | -0.0316 | 0.0276 | -0.035 | 0.029 | -0.031 | 0.029 |
| **Catuai (variety)** |  -0.076\*\* | 0.025 |  -0.0702\*\*\* | 0.025 |  -0.074\*\*\* | 0.024 |  -0.072\*\* | 0.024 |
| **Colombia (variety)** | 0.010 | 0.042 | 0.0178 | 0.0393 | 0.023 | 0.041 | 0.03 | 0.04 |
| **Typica** **(variety)** | -0.072 | 0.046 | -0.0743 | 0.044 | -0.072 | 0.045 |  -0.073\* | 0.045 |
| **Pacamara (variety)** | 0.046 | 0.042 | 0.0441 | 0.034 | 0.039 | 0.041 | 0.044 | 0.041 |
| **Pacas (variety)** | 0.011 | 0.035 | 0.0149 | 0.034 | 0.003 | 0.034 | 0.013 | 0.034 |
| **Lag prices commodity market** |  -0.003\*\*\* | 0.000 |  -0.0028\*\*\* | 0.0005 | -0.003\*\*\* | 0 | -0.003\*\*\* | 0 |
| **Total buyers per lot** | 0.017\*\*\* | 0.005 | 0.006 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 |
| **Certification** | 0.007 | 0.047 | 0.0114 | 0.046 | 0.01 | 0.046 | 0.0023 | 0.046 |
| **sun (processing techniques)** |  -0.099\* | 0.046 |  -0.1007\* | 0.046 |  -0.095\* | 0.045 |  -0.093\* | 0.045 |
| **natural (processing techniques)** | -0.043 | 0.222 | -0.1466 | 0.224 | -0.153 | 0.224 | -0.155 | 0.223 |
| **conventional (processing techniques)** |  -0.102\* | 0.047 |  -0.1057\* | 0.047 |  -0.102\* | 0.046 |  -0.101\*\* | 0.046 |
| **e-auctions (per country)** |  -0.14\*\*\* | 0.016 | 0.1489\*\*\* | 0.016 | 0.148\*\*\* | 0.015 | 0.150\*\*\* | 0.015 |
| **Buyer’s total USD accumulated (year-1)** | 0.021\*\*\* | 0.007 | 0.0071 | 0.007 | 0.009 | 0.007 | 0.009 | 0.007 |
| **\_cons** | -8.835 | 0.393 | -7.888\*\*\* | 0.386 | 1.068\*\*\* | 0.158 | 0.892\*\*\* | 0.158 |

a + p < 0.1, \* p < 0.05, \*\* p <0.01, \*\*\* p < 0.001. N = 1470; group variable = Country; random component = e-auctions per country.

b Variables of interest are centered

**FIGURES**

**Figure 1:** Critics’ affiliation network in 2001

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**Figure 2:** Critics’ affiliation network in 2003

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1. (<https://www.allianceforcoffeeexcellence.org>) [↑](#footnote-ref-1)
2. Information from Commercial Director, Alliance of Coffee Excellence [↑](#footnote-ref-2)