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**WHEN BEING IN THE MINORITY PAYS OFF: RELATIONSHIPS AMONG SELLERS
AND PRICE SETTING IN THE CHAMPAGNE INDUSTRY**

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Abstract

Economic sociologists have studied how social relationships shape market prices by focusing mostly on vertical interactions between buyers and sellers. In this paper, we examine instead the price consequences of *horizontal* relationships that arise from intergroup processes among sellers. Our setting is the market for Champagne grapes. Using proprietary transaction-level data, we find that female grape growers—a minority in the growers’ community—charge systematically higher prices than do male grape growers. We argue that the underlying mechanism for this unexpected pattern of results involves the relationships developed and maintained by minority members. More specifically, in-depth fieldwork reveals that female growers get together to compensate for their isolation from the majority. This behavior enables them to overcome local constraints on the availability of price-relevant information, constraints that stem from prevailing norms of market behavior: individualism and secrecy. We discuss the implications of these findings for the study of how relationships shape price-setting processes, for the sociological literature on intergroup relations, and for our understanding of inequality in markets.

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INTRODUCTION

A widely accepted tenet of economic sociology is that market behavior is both embedded in and shaped by networks of social relationships (Granovetter 1985; Smelser and Swedberg 2005). One of the most vital aspects of market behavior is price setting; it determines how actors are valued, how resources are allocated, and who appropriates the rents from those resources (Uzzi and Lancaster 2004). Hence the various ways in which social relations affect pricing have received considerable scholarly attention (Baker 1984; Podolny 1993; Uzzi 1999; Uzzi and Lancaster 2004). Generally speaking, relationships shape prices either by signaling, to buyers, the quality of sellers (Podolny 1993; Benjamin and Podolny 1999) or by contributing to the governance of interactions between sellers and buyers—as when the exchange of private information helps to improve service or to reduce costs (Uzzi and Lancaster 2004; Bidwell and Fernandez-Mateo 2010).

Most of this research focuses on *vertical* relationships between buyers and sellers. The sociological literature has paid less attention to the role of *horizontal* social ties—that is, among sellers or among buyers—in price-setting processes. Yet we know that meaningful horizontal relationships are common and may shape market behavior via mechanisms that differ from those at play in vertical buyer–seller relationships. Notably, Ingram and Roberts (2000) study friendships among competitors and show that they improve organizational performance by enhancing collaboration and mitigating harmful competition. Their research highlights that competition is often imbued with “extra-economic” interactions that shape collective norms of behavior and regulate market dynamics (see also Zelizer 1988). Building on the view that horizontal relations between sellers can yield legitimate benefits (Ingram and Roberts 2000), we

describe a different and previously unexamined social mechanism whereby such relationships can affect price-setting: intergroup processes.

Many markets are characterized by constraints on the availability of information (Rothschild and Stiglitz 1976; Philips 1988); for instance, local norms of behavior may create frictions in terms of information sharing (Fauchard and Von Hippel 2008). We draw from the literature on intergroup relations (Wirth 1945; Blalock 1967; Brewer 1991; Olzak 1992; Okamoto 2003; Gullickson 2010) to propose that horizontal relationships can help minority sellers overcome some of these frictions. Our starting point is that not all sellers are equally likely to form relationships with one another (Ingram and Roberts 2000). Thus intergroup processes may affect the likelihood of sellers getting together; in particular, we expect that members of a minority are especially likely to develop such horizontal relationships. A wealth of sociological research has established that being isolated from the majority can trigger “reactive solidarity” among minority members (Simmel 1908/1955; Coser 1956/1984; Bonacich and Modell 1980; Olzak and West 1991). Social psychologists have also demonstrated that, when individuals feel excluded from the larger social collective, they often satisfy their need for inclusion by identifying more strongly with their minority group (Brewer 1991). In the context of horizontal market relationships, these processes translate into minority sellers coming together for social support and developing stronger relationships with each other than are evidenced among majority sellers. We expect these horizontal relations to help minority group members overcome local constraints on the availability of information and hence to affect important market outcomes, such as the prices they obtain.

Demonstrating the operation of this mechanism poses a substantial empirical challenge. Most importantly, it requires a setting in which buyer-side discrimination is “switched off” so

that we can isolate the price consequences of intergroup relations among sellers. This task is crucial for our study in light of the empirical evidence documenting that sellers' minority status in vertical relationships (i.e., between buyers and sellers) results in prices that are less advantageous to the seller. Indeed, buyers have been shown to pay lower prices to minority sellers in a variety of markets (Nardinelli and Simon 1990; List 2004; Ayres, Banaji, and Jolls 2011; Doleac and Stein 2013). So unless we can minimize the possibility of *buyer-side* discrimination, any observed price differences between minority and majority sellers will be difficult to attribute to relationships on the *seller's* side of the market. This strict requirement is met by our research setting: the market for Champagne grapes, in which growers (i.e., farmers) sell grapes directly to their buyers (Champagne houses). As we shall describe in some detail, this market has two characteristics that we can use for identification purposes: (i) quality is fully observed, and (ii) buyers are relatively price inelastic owing to their strong demand for the product. These features allow us to observe how variance in relationship formation among sellers affects market prices in a way that would not be feasible if buyers could easily price-discriminate against minority growers.

Champagne is a French wine region where, as in many other settings, women constitute a minority of the sellers. Like Simmel's (1908/1955) "stranger", they are part of the growers' community yet are singled out within this community because of their gender. Representative of women's feeling in this industry is the explanation of Charlotte¹, one of our female interviewees: "Among grape growers, you lose a lot of credibility when you're a woman [. . .] In the vineyard it's harder to fit in as a woman, it's a rough, rustic milieu. It's a milieu, even if it's Champagne so it sounds luxurious, where you're essentially dealing with farmers." Gender relationships are

salient among grape growers, and in this paper we examine how these relations can affect pricing behavior.

For that purpose, our empirical approach is two-pronged: first, using detailed quantitative data, we demonstrate that there are gender-based differences in prices for Champagne grapes. The data involve contracts for 5,757 individual sales transactions between 58 Champagne houses and 429 grape growers over the period 1992–2009. These were obtained from a local agency that gave us confidential access to its entire database, and they were combined with an additional firm-level longitudinal data set assembled from three public sources: DIANE, the French National Registry of Trade and Companies, and the Guide Curien. Second, we use qualitative data to illustrate how relationships between female sellers help explain these price differences. We performed 67 interviews: 16 were conducted with industry experts, 14 with chief executive officers (CEOs) of Champagne houses, and 37 with grape growers (22 males and 15 females).

In contrast to expectations from prior research on minorities and pricing, we find that—compared with their male counterparts—female growers are able to charge systematically *higher* prices for their grapes. Our evidence indicates that, in response to their exclusion by male sellers, women develop informal relationships with other female sellers in search of social support. These relationships allow them to overcome local constraints on the availability of information while deviating from the market norms of individualism and pricing secrecy. Pulling together in this fashion helps women price more aggressively than male sellers and so enables them to extract higher prices from grape buyers.

This paper contributes to the sociology of markets by documenting a novel theoretical pathway via which horizontal social relations between sellers can affect prices. Market exchanges are facilitated by social and cultural processes that provide actors with shared

normative understandings to guide their actions. We argue that intergroup relations create variance in these understandings and hence in the market behavior of minority versus majority sellers. Our findings highlight the consequences of these relations for price setting, which is at the heart of market functioning. This work's second contribution is to the broader sociological literature on intergroup relations (Bonacich 1972; Olzak 1992), by identifying a new mechanism through which intergroup conflict can be contained while preserving the minority's advantage. That literature has focused on occupational segregation, which reduces intergroup competition for resources, as the primary means of minimizing intergroup conflict (for an overview of this literature, see Olzak 2013). Our results suggest that, even in settings where the minority does gain access to an occupation previously reserved for the majority, social segregation may reduce the likelihood of conflict by making economic differences between the minority and majority groups less conspicuous. Finally, this study has implications for research on inequality in markets. In this area, scholars have been mostly concerned with documenting the economic costs associated with being a minority. A key question concerns the social processes that create and reproduce such inequalities. We identify a mechanism that enables the relationships nurtured by minority producers to mitigate some of the negative (economic, if not social) consequences of being excluded. In the discussion section, we elaborate on our theory's boundary conditions as well as on the implications and generalizability of our findings.

THEORY

Price setting is key to market functioning, so it is of vital interest to economic sociologists exploring how social relations affect prices. This literature has focused mainly on interactions between buyers and sellers, and it has identified two broad categories of social mechanisms that affect price setting: governance mechanisms and signaling mechanisms (Podolny 2001). Work

that emphasizes *governance* mechanisms typically studies the role of social ties in providing valuable resources that may affect prices. For example, research on embeddedness has established that long-term exchange relations facilitate the transfer of private information while promoting trust between buyers and sellers (Uzzi 1999). These dynamics have been shown to affect the prices that sellers charge in a variety of contexts (Uzzi and Lancaster 2004; Bidwell and Fernandez-Mateo 2010; Elfenbein and Zenger 2013). In contrast, research that emphasizes the *signaling* value of relationships among sellers focuses on how producers' ties to other market participants shape a buyer's willingness to pay for the seller's product (Podolny 2001). For instance, a seller's ties to key market intermediaries—such as analysts and professional critics—may enhance her legitimacy with potential buyers (Zuckerman 1999), which in turn allows her to charge higher prices to buyers (Roberts, Khaire, and Rider 2011).

It is noteworthy that sociological research on the relational basis of prices has focused almost exclusively on *vertical* relations between buyers and sellers: thus relationships affect prices either indirectly, by influencing buyers' perceptions of sellers' relative quality, or by serving as a conduit for resource exchange between buyer and seller (Podolny 2001). Such research says little about social relations among sellers or among buyers—that is, about how *horizontal* relations may affect the price-setting process. However, we know that horizontal relations are formed by and operate via different processes than relations between buyers and sellers (Baker and Faulkner 1993). As a result, current theories about how vertical relations affect prices are not especially helpful as regards understanding the effects of horizontal relations. There is not much empirical evidence on this phenomenon, but the evidence we do have suggests that horizontal ties among producers shape price setting in unique ways. Ingram and Roberts (2000), for example, show that friendship ties between managers of competing

hotels affect the average price charged for available rooms. Friendship matters in that market because, among other reasons, it favors beneficial norms over aggressive competition and thereby allows producers to avoid price wars. In the Ingram and Roberts (2000) study, ties among producers vary as a function of the level of competition between them. Yet there may be other social factors that affect the likelihood of producers forming ties with one another. Drawing from research on intergroup relations (Blalock 1967; Bonacich 1972; Brewer 1991; Olzak 1992), we propose that intergroup processes on the sellers' side of the market induce relationships between minority sellers, who respond to their isolation from the majority by seeking social support from other minority members.

For the purposes of this study, we use Wirth's (1945: 347) classic definition of *minority* as a "group of people who, because of their physical or cultural characteristics, are singled out from the others in the society in which they live for differential and unequal treatment, and who therefore regard themselves as objects of collective discrimination." Many studies have offered evidence that minority sellers encounter unequal treatment in such markets as employment, housing, credit, or goods and services (Massey and Denton 1993; Ayres and Siegelman 1995; Pager and Shepherd 2008). In labor markets, minorities often receive lower prices for their work—that is, lower wages (for a review, see Grusky 2008). In the market for goods, research also shows that minority sellers often receive lower prices: audit studies provide examples of this phenomenon in classified ads (Doleac and Stein 2013), on eBay (Ayres et al. 2011), and in baseball card shows (List 2004). This work echoes the economic sociology literature on relationships and prices by focusing on vertical relations between buyers and sellers. If intergroup processes are at play in horizontal relationships (e.g., between majority and minority sellers), then it remains an open question just how these relations affect market prices.

In order to cope with their isolation, minority members tend to develop strong relationships with one another (Reagans 2005). One reason is that individuals strive to satisfy both a need for distinctiveness and a need for belonging (Brewer 1991). In such accounts, the theory of “optimal distinctiveness” suggests that too much separation from a group leads individuals seeking inclusion to join another collective (Leonardelli et al. 2010). In particular, when people are socially excluded or made to feel different from those in the majority group, they are likely to seek affiliation with fellow minority members² (Brewer 1991). Such behavior helps reinforce their sense of connectedness to others while allowing differentiation from the majority that excludes them. This explains why members of low-status minorities may defy majority criteria for positive evaluation by embracing their distinctive group membership (Brewer 1991). These theoretical predictions are supported in experimental studies (Markus and Kunda 1986; Frable, Blackstone, and Scherbaum 1990) and are also in accord with the observed functioning of several minority groups, such as early Chinese immigrants to the United States (Nee and Nee 1973).

Furthermore, relationships among minority members that are borne out of being excluded from the majority may yield tangible advantages—beyond satisfying their need for inclusion. Such possibility has been discussed by research on intergroup relations and reactive solidarity (Simmel 1908/1955; Coser 1956/1984; Bonacich and Modell 1980; Olzak and West 1991), with more recent work examining patterns of identification and solidarity across competing ethnic, gender and religious groups (e.g. Okamoto 2003; Gullickson 2010; Abascal 2015; Davenport 2016). Work on ethnic resilience (Portes and Bach 1985) similarly alludes to social capital, broadly defined, as an explanation for the relative economic success of minority groups; examples include Chinese entrepreneurs in East Asia and Cubans in Miami (e.g., Sanders and

Nee 1987; Portes and Zhou 1992). In these studies, the minority advantage occurs through the colonization of a particular sector of employment in such a way that members have privileged access to new job openings while restricting the access of outsiders (Stepick 1989). While this behavior is consistent with that of a typical “middleman minority” (Zhou 2004), it leaves unresolved the question of how minorities might obtain favorable economic outcomes when they are not only minorities in a society but in a market sector as well.

Although these studies do not examine price setting, they do imply that discrimination can be a double-edged sword: while it increases social exclusion from the majority, it encourages minority members to pull together and can create some economic advantages. In the context of market relationships, we expect that the need to belong to a collective stimulates the development of informal relations between minority sellers. This in turn allows them to overcome some common market frictions—for instance, constraints on the availability of information. When they get together, minority sellers can share useful market information from various sources and so can reap the benefits of multiple, nonlocal perspectives. Because these sellers interact and socialize, their trust in the accuracy of in-group information flows tends to be high. Furthermore, ongoing collaboration leads them to develop their own norms of behavior based on their unique understanding of market conditions. We also expect that the need to differentiate themselves from the majority affects how minority sellers behave in markets. Because they feel distinct from the majority and do not aspire to be assimilated (Levine 1977; Brewer 1991), they may well deviate from local norms of behavior. Like Simmel’s stranger, a minority seller is an “inner enemy”; “he is bound by no commitments which could prejudice his perception, understanding, and evaluation of the given [. . .] he is not tied down in his action by habit, piety, and precedent” (Simmel 1908/1955: 405). When local norms create frictions and so

constrain sellers' sharing of information that could be consequential for price setting, the minority can derive unexpected economic benefits by deviating from those norms.

As mentioned previously, there are severe challenges to testing this theoretical argument empirically. In order to isolate our seller-side mechanism, we require a setting in which buyer-side factors can be “switched off”. Put differently, we need to minimize the effect of buyers' actions—in particular, their potential discrimination against minority sellers—as an explanation for observed differences in the prices charged by minority versus majority sellers. It is reasonable to suppose that there is less discrimination against minority sellers in markets characterized by more competition among buyers (Becker 1971), and some empirical work does confirm that demand-side discrimination may not survive such buyer competition (Doleac and Stein 2013). Because the demand for Champagne grapes is relatively price inelastic owing to the limited supply and fierce competition among buyers, this market is an ideal empirical setting in which to observe the theoretical mechanism of interest.

SETTING

The Champagne Grape Market

Champagne is a precisely defined area in France. Only sparkling wines made from grapes grown in that region can legally be called Champagne (Guy 2007). Champagne grapes are grown in vineyards by growers (the sellers) and are generally sold to Champagne houses (the buyers)—such as Bollinger or Moët & Chandon—who use them to produce the sparkling wine. Grape quality is measured on an official scale established in the 1920s by a committee of growers and representatives of the houses; that scale is based on the *crus* (origin) of the grapes in question. Thus there is virtually nothing grape growers can do to improve the official quality of their grapes, since quality is tied to specific plots of land. While this feature is not crucial for our

theoretical argument, empirically, it allows us to be confident that buyers do not use a seller's status (e.g. being a minority) to assess grape quality. All transactions take place at about the same time of the year: immediately following the harvest, which typically occurs between September and November. Most sellers sign declarations of intent to supply a given buyer for a number of years. Yet even when a seller signs a multiyear declaration, prices are renegotiated after each harvest. Furthermore, this is not an auction market: prices are negotiated one on one between buyers and sellers and there is no formal coordination between sellers; prices are not agreed upon by a central body. As these market characteristics suggest, there is little friction regarding information on the identity of buyers and sellers in general, or about the quality of the grapes being transacted. However, there are other significant information frictions: who does business with whom, to what extent, for what grapes, or at what price remains private information. As explained by Camille: "It's still quite secretive [a market]. People don't like to talk about business, especially their business [...] Who they sell their grapes to or for how much is not the type of information people volunteer."

The market involves about 15,000 grape growers and 66 Champagne houses. Although there are many more grape sellers than grape buyers, the latter's demand is relatively price inelastic. The law limits the amount of land that can be cultivated for wine production. As a consequence, grape buyers have extremely low self-supply ratios and depend on independent grape sellers for the vast majority of their supplies. In contrast, grape sellers are entitled to produce their own Champagne and so are not dependent on buyers for distribution: nearly a third of all grape sellers also produce Champagne.

Although the grape supply is limited, demand for Champagne is booming. The domestic market remains strong, and international demand—especially from Russia and China—has risen

dramatically over the past two decades. Grapes have therefore become a scarce resource, which renders their demand virtually price inelastic. In what industry participants refer to as the “supply race”, grape buyers compete fiercely to secure access to supplies: “All that is required to sell unallocated Champagne grapes is a 30-second telephone call. They’ll be bought, unseen with gratitude and alacrity. They all need grapes desperately” (Jefford 2008). Given this high demand and limited supply, it is hardly surprising that the Champagne grape is now the most expensive grape in the world.

It is worth noting that this advantageous position for grape growers did not emerge until after the Second World War; in fact, Champagne grapes sold for modest prices at the beginning of the twentieth century (Guy 2007). The relations then between buyers and sellers were antagonistic, with the houses “bullying” individual growers into giving them the lowest possible prices. Yet as the postwar demand for Champagne grew, growers began to organize into cooperatives (Guy 2007). These structures, which allowed them to store grapes over several harvests, increased the growers’ bargaining power – as they could now decline selling to houses when prices were deemed too low. Growers also successfully lobbied the French government to make it difficult for houses to buy up vineyards, thus securing exclusive access to an increasingly sought-after resource. Despite these bouts of collective action, because growers long struggled to make ends meet and therefore saw each other as competitors, the culture in Champagne grape-growing communities has remained individualistic. Market conditions have changed drastically but the norms and culture have not followed suit.

According to the CIVC, there were 15,567 grape growers in 2009 with an average of 2.18 hectares each. These are very small businesses: in our sample, the average number of employees is just over three. These are also family businesses: the price of the land makes it a valuable

patrimonial asset that is nearly always passed from one generation to the next. The typical grape seller is a relative, by either blood or marriage, of the vineyard's founder; according to Bruno, it is "very rare for a young person to be able to become a grower without inheriting the land from family members."

Female Grape Sellers as a Minority

Like many occupations, grape growing is a male-dominated activity. In our sample, 14% of all grape sellers are women. A host of studies show that, over the last century, women have experienced various forms of social and economic discrimination across all French grape-growing regions (for a review, see Escudier 2014). "At that time [in the 1970s], being a grower wasn't a possible choice for a woman. My older brother would say 'you're going to have children, and that's it.' I was only supposed to be a wife or a mother" (Louise). Emma explains: "Men, especially in farming communities, seem to think that expertise can only come from or be used by men. Even today, you can sense that it's easier to be a man, in this business. If you don't fight, you're left out. In this milieu, as a woman, you're necessarily attached to some man, you're the 'wife of', the 'sister of', the 'daughter of'."

Gender is indeed a salient social category in this setting, where the grape growers' population is very homogeneous in other dimensions such as ethnicity and socio-economic status.³ More importantly, because "people tend to consider grape growing and wine making to be a man's job" (Camille), gender is also a key identity cue that distinguishes between a low-status minority and the higher-status majority (Wirth 1945). Our interviews with female grape growers confirm that they acutely experience their minority status in the community. "We are in the minority as women in the business; we're not always listened to as much as men, particularly in technical areas. In farming communities, tractors and chemical treatments are a man's

domain” (Marie). Juliette adds: “We’re women. We don’t fit in the framework. We’re not your typical, rough farmer who works in the vineyards.” This feeling was echoed by several other women we interviewed, such as Alice: “Men have always had a monopoly; they work and live among one another. They have their technical conversations; there were no women involved. For years women [...] couldn’t penetrate that milieu.” Juliette states that “I feel isolated [in the growers’ community] because we don’t speak” and Emma explains: “In a group of growers about my age, I’m 32, the men will only talk to other men. It’s inevitable.” Being female is thus a visible social category in Champagne, where women readily identify themselves as the minority group. We next examine the price consequences of this minority status.

DATA

As mentioned earlier, our mixed-methods approach relies on rich interview data to both better understand the context as well as subsequently shed light on our proposed theoretical mechanism. We conducted a first round of qualitative research to get a grip on the grape market’s general functioning—in particular with regard to the price-setting process and local industry norms. This involved 43 interviews during regular visits to Champagne between 2009 and 2010: 16 with experts,⁴ 13 with grape sellers (12 men and one woman), and 14 with grape buyers (CEOs of Champagne houses). We then conducted a second round of interviews (between March 2014 and December 2015) with 14 female and 10 male grape growers in order to assess how they perceived their respective positions in the grape-growing community and in the wider industry. Note that the qualitative data was intended neither as a systematic effort to build grounded theory nor to develop theoretical arguments. While our arguments are tested using quantitative data, the qualitative interviews help insure that the mechanism we describe does

indeed correspond to the experiences of both male and female grape growers (see Appendix 1 for further details).

To first establish gender-based differences in pricing, we use proprietary quantitative data that consist of the contracts for 5,757 individual transactions in 815 dyads between 58 grape buyers (Champagne houses) and 429 grape sellers (grape growers) over the period 1992–2009. A *transaction* is the sale of a stipulated volume of grapes of a specified quality and price; in a given year, there could be several such transactions between the same buyer and seller. The set of contracts on which this study is based were obtained from a single agency that gave us confidential access to their entire database. Although such agencies call themselves “brokers”, their role is not to match buyers and sellers but rather to complete the extensive paperwork required by the CIVC to trace and control the origin of grapes exchanged. One of the authors spent a week at the agency in November 2009, during the harvest season, to gain an understanding of the nature of their work and their relationships with both buyers and sellers. All such agencies collect a standard fee, which is always paid by the buyer and amounts to a 2% commission on any transaction they record. We remark that, whereas the typical seller relies on a single agency, buyers often rely on many agencies. This means that our data capture the entire transaction network for grape sellers but not for grape buyers.

We combined these transaction-level data with an additional data set on buyers and sellers assembled from the following public sources: (1) DIANE, a Bureau Van Dijk database containing detailed financial information on 974,000 French private and public companies; (2) the National Registry of Trade of Companies, the official government source of financial and legal information on French private and public companies; and (3) the Guide Curien de la

Champagne, a biennial publication created in 1991 by Champagne experts that provides detailed information about Champagne companies.

Measures

For the quantitative analyses, our unit of analysis is the transaction, but we devise measures at four separate levels: dyad, seller, buyer, and transaction. The data include the following variables, which are computed annually (see Table 1 for descriptive statistics).

——Insert Table 1 about here——

Dependent Variable and Independent Variable

Price. Our dependent variable is the final price (per kilogram) paid for grapes in each transaction observed over the study period. All prices are expressed in the equivalent of 1992 French francs (FRF), and the average per-kilo price in our sample is FRF 23.73 (about €3.60). We decompose the final price into separate components, which are the base price (at which buyers and sellers start negotiating) and—in addition thereto—five categories of premiums that sellers may charge: (1) a *loyalty* premium reflecting past exchange relationships; (2) a *duration* premium for committing to longer contracts; (3) a premium that reflects the *quality* of work completed in the vineyard (e.g. quality of the pruning); (4) a *need* premium for delivering specific grape types (e.g., pinot noir vs. pinot meunier); and (5) an unspecified *other* premium. These premiums are not always added to the base price; some are relatively rare and most are of very small magnitude.⁵

Female seller. Our independent variable is a binary indicator set to 1 if the grape-growing business is managed by a woman and set to 0 otherwise. The data for this variable come from the French registry described previously, which provides the name and gender of managers for all registered businesses. In our sample, 14% of all sellers are female and they account for some

15% of all transactions. The rest of our sample is composed of males (68% of all sellers) and mixed-gender teams (18% of all sellers).

Control Variables: Dyad Level

Relation duration. This count variable is equal to the cumulative number of years of the buyer–seller exchange relation at the time of the transaction. Since this variable is not linearly distributed, we use its natural logarithm (though all results hold when the variable is not logged). The average relation duration for a dyad is about three years. There is no significant difference in the duration of dyads involving male versus female sellers.

Past volumes exchanged. This is the cumulative volume of grapes exchanged within a dyad (in thousands of kilos). We take its natural logarithm (though the results hold when the variable is not logged). The average cumulative volume exchanged for a dyad in our sample is 145,000 kilos and there is no significant difference between dyads involving male versus female sellers.

Control Variables: Seller Level

Mixed-gender seller is an indicator variable set to 1 when the grape-growing business is managed by both a man and a woman (and set to 0 otherwise). Such businesses are usually managed by a couple or by a brother and sister. This variable is included in all regressions so that we can draw clean comparisons between male and female sellers.

Seller incorporation is an indicator variable set to 1 if the seller is incorporated and otherwise to 0. Incorporation is a simple and affordable administrative procedure (costing between €50 and €800) that allows one to separate personal and business-related wealth; it makes a good proxy for the business savvy of sellers. In our sample, 76% of all sellers are

incorporated. Male sellers are significantly more likely than female sellers to be incorporated (73% vs. 58%, $p < .000$). Note that all buyers are incorporated.

Seller winemaking is an indicator variable set to 1 if the grape grower describes winemaking as his or her primary activity. More than 12% of all sellers do so, and there is no significant gender difference in this regard.

Seller unique ties counts the number of different buyers with which a seller transacts in a given year (regardless of how many transactions the seller makes with each buyer). The average number of ties for a seller in our sample is 1.40. On average, female sellers maintain more ties than do male sellers (1.56 vs. 1.38, $p < .001$).

Seller size, or the volume (in thousands of kilos) of grapes sold annually by a seller. The average seller size in our sample is 44,000 kilos, and women tend to sell more than men (51,601 vs. 42,613 on average, $p < .006$). We were unable to obtain reliable size data for five of the smaller sellers, so those observations are dropped from the analyses.

Control Variables: Buyer Level

Buyer unique ties is the number of sellers with which a buyer transacts in a given year (regardless of how many transactions it makes with each seller). In our sample, the average number of such ties is 5.2. Note that the population's true mean is most likely larger, since buyers often use several agencies and we have no reliable data on buyers' exchange relations outside our agency's sample.

Buyer size, or annual volume of purchases (in thousands of kilos; the average per buyer is 3,016). To construct this variable, we use data from both the Guide Curien and DIANE; since buyers often use several agencies, a within-agency sample measure would underestimate the total annual volume purchased by a Champagne house.

Buyer profitability is the buyer's annual return on assets (RoA). We include this variable because sellers may price-discriminate based on a buyer's profitability. The average buyer's RoA is 4.86%. We were unable to obtain reliable profitability data for six of the smaller buyers; hence these observations were dropped from our analyses.

Control Variables: Transaction Level

Grape quality. The quality of grapes exchanged is officially recorded on a scale, the *echelle des crus*, which ranges from 80 to 100. Based on the grapes' origin, industry members distinguish between low-rated grapes—with no designated *crus* (rated between 80 and 90)—and high-rated grapes: Grands and Premiers *crus* (rated above 90). We create three binary variables: one for grapes rated between 80 and 90, one for grapes with *crus* between 90 and 95, and one for grapes with *crus* between 95 and 100.⁶ We remark that the same grower may sell grapes of different quality levels when the corresponding plots of land are located in different areas. There is no significant difference between men and women in the 90–95 category; however, female sellers are overrepresented in the 95–100 category and underrepresented in the 80–90 category. Our analyses do not incorporate the 197 transactions for which we have no data on quality.

Transaction volume, or the volume exchanged (in thousands of kilos). An average transaction in our sample consists of 18,470 kilos of grapes. Women sell larger volumes of grapes on average than do males (20,415 vs. 17,778, $p < .004$).

Share of annual volume is the volume of grapes that each transaction represents as a percentage of the total annual volume exchanged within the dyad. This variable is computed as *Transaction volume* divided by the *Total annual volume* exchanged within the dyad.

Other Variables

We use *Year* dummy variables in all models to control for variations in harvests from one year to the next. Our robustness checks also control for the following variables: *Grape type* (chardonnay, pinot noir, or pinot meunier); *Age of seller*; *Dependence of seller* (volume of grapes sold within the dyad as a percentage of the seller’s total volume, by year); *Dependence of buyer*, defined analogously; *Time since last transaction* (number of years since the dyad’s previous completed transaction); *Female buyer* (gender of the Champagne house’s CEO); and *Total annual volume* (total annual volume of grapes exchanged within the dyad). Because data were missing for some of these variables (e.g., *Grape type* and *Age of seller*) and because some were strongly correlated with other controls, they are not included in the models presented next. However, our results change little when these additional controls are included.

Estimation Strategy

To analyze whether female grape growers charge different prices than male sellers, we use panel-data estimation methods. Prior work on pricing in the Champagne grape market has shown that the buyer’s identity plays an important role: buyers whose characteristics do not match sellers’ expectations, in terms of what a Champagne house “should look like”, are charged higher prices for the same grapes (Ody-Brasier and Vermeulen 2014). In order to control for these time-invariant characteristics, we use buyer fixed effects. A Hausman test supports the use of a fixed-effects specification. So that we can control adequately for relation duration while accounting for the left-censored nature of our data, we omit the first year of observations from our analyses.⁷

Over the period that we examine, about 5% of the sellers (21 sellers, 470 observations) experience a change in their management. However, almost all of these consist of switches from one male manager to another—typically from father to son. In contrast, there are very few cases

of sellers for which we observe a switch from a male to a female manager (3 sellers, 27 observations) or vice versa (no instances). We are thus not able to estimate within-seller effects because doing so would require that we disregard all time-invariant observations.

Since we cannot use seller fixed effects, it is not possible to completely rule out the possibility of unobserved seller heterogeneity and the issues associated therewith. More specifically, there could be selection effects: given the male-dominated grape-growing environment, women who are more talented might choose to take over a family business whereas those who are less talented decide to exit (e.g., by selling the business, hiring a professional manager, or letting a male family member take charge). If the quality of the individual manager affected prices in some unobserved way and if higher-quality women self-selected into the field, then observed differences in prices between male and female sellers could be the result of that self-selection process. To alleviate this concern, we adopt two empirical strategies. First, we construct a control sample by pairing each female seller with an observationally equivalent male seller; second, we exploit an exogenous shock—namely, whether female sellers are widows. The former strategy is implemented via a coarsened exact matching procedure (CEM), which allows us to analyze male and female sellers who are similar to each other on the following dimensions: *Seller incorporation*, *Seller unique ties*, *Seller size*, *Buyer unique ties*, *Buyer size*, *Grape quality*, and *Transaction volume*.⁸ The final sample includes 2,338 observations: 1,851 controls and 487 cases. For the latter strategy, we collect additional data that allow us to identify female sellers who are also widows. Because they took over the business after the death of their husband, these women are presumably less likely to have self-selected into grape growing.

ANALYSIS

Main Results

Results for our main analyses are summarized in Table 2.⁹ In all models, standard errors are robust and clustered by both buyer and seller.¹⁰ Model 1 is a pooled cross-sectional model; Model 2 is a panel regression with buyer fixed effects. *Grape quality* is a significant control variable across models; as expected, higher-quality grapes fetch higher prices. Being a female seller also yields significant results: compared with their male counterparts, females are able to charge FRF .43 more per kilogram in Model 1 ($p < .000$) and FRF .28 more per kilogram in Model 2 ($p < .009$). Recall that we are controlling for sellers managed by mixed-gender teams, which means that these coefficients compare sole male and female sellers. In separate analyses we confirmed that our results hold also if we remove this control variable and either compare female sellers with both male sellers and mixed-gender teams or compare female sellers with mixed-gender teams while controlling for male sellers. The size of the coefficients may seem small, but note that prices are pegged to the 1992 FRF and that the average grower sells about 44,000 kilos of grapes each year. So for an average grape seller in 2009, these coefficients translate into an additional FRF 26,800 (OLS) or FRF 17,700 (FE) every year: about €4,085 or €2,698, respectively. During our interviews, male growers indicated that they would not view an additional €2,500 a year as trivial: “It’s not nothing. I’m a pretty small business. So yes, if my buyer gave me an additional 2,500 euros, of course I’d take it” (Charles).

———Insert Table 2 about here———

We then run robustness checks for this main effect. First, to check that it is not driven by a few outliers, we remove observations in the 90th percentile of either the quality or quantity of grapes sold. Our results remain significant in both the OLS and FE specifications. Second, we

incorporate additional control variables into the regression; these include *Grape type*, *Dependence of the seller*, *Dependence of the buyer*, *Time since last transaction*, *Female buyer*, and *Total annual volume*. Although we lose a large number of observations owing to missing data ($N = 3,048$), our results remain ($\beta = .49, p < .000$ in the pooled OLS and $\beta = .33, p < .002$ in the FE specification – results available from the authors). As mentioned previously, we also use CEM to construct a control sample of observationally equivalent male sellers. On this matched sample we perform pooled OLS and also buyer FE regression analyses while including case control groups and clustering robust standard errors by both buyers and sellers. Despite the dramatic reduction in sample size, our results remain statistically significant at the 10% level (see Models 3 and 4 in Table 2).

Additional Robustness Checks and Alternative Explanations

Although the regressions using CEM help alleviate concerns that male and female sellers are fundamentally different, they cannot entirely rule out the possibility that women differ from their male peers in unobserved ways. We therefore conduct some further analyses to evaluate whether this is likely. First, as already mentioned, we use an exogenous shock (viz., whether female sellers are widows) to control for self-selection into grape growing. The rationale for this strategy involves using cases of women who (it can reasonably be presumed) did *not* explicitly choose to become sole managers of their grape-growing business. Using detailed data (from the French Registry of Trade of Commerce) on the family structure of management teams and individually examining each seller (through local press coverage and individual websites), we identify 29 widows in our sample (402 observations), two of whom were widowed during our sample period (36 observations). As expected, these women were older (54) on average than the average female grower (41). We ran analyses using the *Widow* variable, set to 1 for female

sellers who are widows (and to 0 otherwise); see Table 3. In both the pooled OLS model (Model 1) and the FE model (Model 2), as compared with men and other females, widows charge between FRF .43 ($p < .030$) and FRF .36 ($p < .002$) *more* per kilogram. In separate analyses we confirmed that our results remain significant ($\beta = .56, p < .000$) when we use seller fixed effects; this suggests that prices increase even for the two widows who assumed their late husbands' responsibilities *during* our sample period. Again, these analyses do not obviate selection issues since some widows may decide to sell the business and exit our sample. The results are nonetheless reassuring because self-selection on unobserved quality will almost certainly be much lower among widows, yet these women also secure higher prices for their product.

———Insert Table 3 about here———

As a second robustness check, we perform an event history analysis (EHA) to check whether there are gender differences in seller attrition rates in our sample. One might argue that men who are unsatisfied with the prices they receive may exit the sample at higher rates than do women and perhaps switch to a different agency (for which we would have no record). Our fieldwork suggests that agencies have no effect on grape prices; however, if this were not the case and if male sellers left the sample at higher rates, then that might explain why men seem to command lower prices than women in our sample. The Kaplan–Meier probability that females would remain in our sample does not differ significantly from that probability for male and mixed sellers ($p < .10$; see Figure 1). We obtain similar results both with proportional hazard rate models and with Cox regression models (available from the authors upon request). In short, our results indicate that the higher prices received by female grape sellers cannot be explained by different sample attrition rates of males versus females.

—Insert Figure 1 about here—

Third, it is possible that some grape-growing businesses are, for unobserved reasons, of higher quality or status and so allow their managers to extract higher prices. If women were to self-select into these businesses, then that could explain why they are able to charge higher prices. To address this possibility, we examine the size of individual fixed effects for each seller. Net of the influence of our independent and control variables, there is significant variance in the performance of individual sellers. In separate analyses we omit from our regressions the best performers—those above the 95th percentile and run the same analyses as in Table 2. The coefficient for *Female* remains significant ($\beta = .31, p < .011$ and $\beta = .19, p < .034$ in pooled OLS and FE regressions, respectively). This finding ameliorates the concern that our results are driven by a few high-performing businesses managed by women.

Fourth, we explore whether the women in our sample differ from the men with regard to *Grape quality*; our results hold when we control for that quality. Even so, quality is a significant predictor of price in our regressions, and on average the women sell higher-quality grapes than do men (92.98 vs. 89.80, $p < .000$). One might worry that this pattern is consistent with a self-selection account: “better” women choose to become growers only when they have access to the highest-quality plots. This explanation is unlikely for two reasons. First, recall that the official quality measure is exogenous; hence sellers cannot increase the quality of their grapes. Second, if this explanation were the true one then we would expect that it is the women with higher-quality grapes (i.e., the “better” women) who are able to extract higher prices. To check whether this is the case, we run seemingly unrelated regressions that compare women growing grapes of quality above and below the median. Results (available from the authors) show no statistical difference

between the two – i.e. the female price advantage does not apply only to women selling high quality grapes.

Fifth, one might wonder about homophily; that is, perhaps female sellers charge higher prices to male buyers and lower prices to female buyers. Although we are using buyer fixed effects, in separate analyses we check for whether that distinction is being made by analyzing interaction effects between *Female seller* and *Female buyer*. The interaction does not have a significant effect on prices in the pooled cross section. In fact, our model with buyer fixed effects reveals that—when we control for buyers’ unobserved heterogeneity—female sellers charge *higher* prices when the Champagne house’s CEO is a woman (the coefficient for the interaction effect is $\beta = .28, p < .021$).¹¹ However, one problem with this analysis is that grape sellers do not always deal directly with CEOs; our interviews indicate that sellers typically deal with the wine cellar “masters”. That position is nearly always held by a man: “in terms of the relationships with the houses [. . .] you’re only dealing with men. The decision makers in the big houses are all men” (Pauline). Over our entire period of observation, we identified only five female masters at any point. It follows that buyer-seller homophily is unlikely to play a significant role in explaining the pattern of results that we observe¹².

Once we have established the existence of a female price advantage in Champagne, we next provide qualitative and quantitative evidence concerning its underlying theoretical mechanism.

Informal Relations between Female Sellers

Previously we described how female sellers feel like a minority in Champagne. Studies across French wine regions show that women have long been barred from receiving any training in grape growing. As Charlotte confirmed, “There were generations in the 1980s where we

transmitted much less [knowledge] to women than to men. That's still very true today." Emma adds: "I had to tell my father: 'It's not because I'm a girl that I can't understand something. If you explain something to me, I'll understand it.' But I had to repeat that over and over." Women in Champagne often express frustration about not being taken seriously. Pauline explains: "The men assume I don't know what I'm talking about and [that] I'm not professional [. . .] I'm never looked at as being the head of the business. I'm seen as the 'wife of' or the 'daughter of' so-and-so. No one would assume that I could be the manager." Laurence adds: "Being a woman and the milieu being somewhat misogynous, I'm not going to be taken seriously and when I started, they didn't know me. In that milieu, it's harder. A man who's not known, he's listened to right away [. . .] They'll talk to me about cooking, when really, that's completely silly." The following anecdote is one of several that summarizes the impressions of many female sellers.

Just last night, a friend who we know well, says: "oh, wow, you know how to prune [grapes]?" Well yeah! I've wanted to know how to do all that, from the beginning. In his head, and yet he's a friend, it wasn't possible. He was stuck in that idea [. . .] There's still that attitude around anything tied to the land. The locals think that it's men who work the land. That's really old school. But still current [. . .] Now I feel I've found a job that suits me but also that I'll never be recognized as a professional because of this barrier. (Claire)

In this male-dominated environment, what might female sellers be doing differently to help them extract more value from exchange relationships with buyers? We argue that the underlying mechanism involves interactions among female sellers. Women face social isolation in the growers' community, which leads them to come together informally and to develop relationships with other female growers. Those relationships provide unique opportunities to share relevant industry and private knowledge, helping women overcome local constraints on the availability of information. In particular, women ignore local norms of price secrecy by leveraging informal social support networks to gather price information, which they

subsequently use to raise the bar in price negotiations with buyers. In what follows we present a mix of qualitative and quantitative evidence to illustrate how this mechanism plays out.

Our interviews suggest that female growers fit Simmel's classic definition of "strangers" (1908/1955): even though they are a minority among grape growers, these women remain members of the community. Most have grown up in Champagne and have been raised in long-established grape-growing families: "I come from a family of growers. My parents made Champagne, they were growers" (Pauline). Charlotte also recounts that "I was born in a vine-growing family in Champagne [. . .] As a child, I went to school with grape growers [. . .] I went to the vineyards very early, I would go help my parents during summer vacations." Despite being socially excluded by men, these women reportedly enjoy the "wanderer's" freedom (Simmel 1908/1955) to come and go as they please. "I'm not interested in being typical. I don't have the same mentality or the same philosophy. I'm not like them [. . .] I have nothing in common with the growers in the village" (Juliette). Yet we observed how they suffer from a feeling of isolation due to their minority status. Because they are cast aside, women have a greater incentive to establish their own support network. Talking about her group of female friends, Alice confirms that "We're quite tight in our little community." During informal gatherings, they often share relevant market information and professional advice they do not receive from male growers. Our interviews suggest that female sellers are more involved than male sellers in informal professional groups: "I'm probably more involved than the average [grower], because I do stay informed" (Marie). Several whom we interviewed met with other female colleagues more or less regularly. "We try to do that, a couple of times a year and also try to stay in touch and share what each of us is doing. It's informal, nothing official" (Camille). As explained by Clotilde, "[we get together] among friends [. . .] We share experiences." Charlotte summarizes: "My position is a

bit isolated. If I have a support network, I'm the one who created it. It wasn't there from the start. [. . .] today I know mostly women my age [. . .] Three of us are good friends, we have projects together; I help them on the estate." Note that these informal networks are distinct from established industry groups, such as those set up by the growers' union or the professional Champagne association.¹³

These informal networks allow female sellers to build a collective understanding of market conditions that need not align with the majority sellers' understanding. In particular, women gain a better understanding of buyers' low price elasticity. As Charlotte explains, "growers don't realize [. . .] that they have gold in their hands [. . .] There aren't any problems as far as selling grapes. The demand is there. If we have grapes to sell, there are ten people knocking at the door to buy them, at least for now. We're lucky [. . .] The person who wants to get the best price just needs to ask." In contrast, Alain reflects: "what's surprising is that the houses often raise the price without us asking, from year to year." Based on their unique perspective on market conditions, women may adopt pricing behaviors that differ from those of men. Charlotte explains that "I know I don't get the market price [. . .] What I can say is that I'm above market prices. But that's also thanks to my personal network. There are many growers, I mean male growers, who think they shouldn't talk about prices [. . .] [With three female colleagues] we discuss ahead of time. [. . .] With men, it's really different: you have to keep quiet, not tell anything, do things on your own [. . .] It's stupid." As Blanche put it, "We're less bothered with 'no, in Champagne, this is not the way things are done. You don't just ask your neighbor how much he's getting.' We just go for it so we can make better decisions."

This attitude contrasts sharply with what seems to be the norm prevailing among male grape sellers—namely, to keep price information fairly secret. Claire comments: "On a day-to-

day basis, growers tend to be independent. They work on their own, not needing anyone. They are also proud of saying they are doing things on their own, without any help.” Benjamin confirms that characterization as follows.

No, these [prices] are not things we discuss [. . .] We don't talk about this much. Anyway, who knows if people are being honest about what they say. Personally, I don't talk about money. I don't try to see how much this one or this one got. Because some will always be able to get a little more: “I got X euros”; “Oh yeah, well I got X more,” etc. [. . .] I'm not in that spirit, I'm not in the business of selling carpets. I think it's not right.

Antoine adds: “Well, there's a general market price. No one talks about it, but everyone has a good sense of what it is [. . .] For now, I don't think there's a huge difference between the highest and the lowest price [paid for grapes]. I don't want to know what the percentage is. I don't want to know; it's not that important.” Lucas concludes: “Price is not something people talk about in Champagne. It's a private matter. For some reason, it makes people feel uncomfortable. I think it's a bit distasteful anyway. I don't need to know how much my neighbor makes and my neighbor certainly does not need to know how much I make.” Note that this attitude is very much in line with Lamont's account (1992) of French people's relation to money. “The French in general are clearly less money-oriented than Americans” (Lamont, 1992: 65). This is because money is perceived as impure and talking about money is embarrassing. Money also symbolizes an uncomfortable and profane relationship with customers and institutions. Consequently, “it's not acceptable to talk about prices and purchases” (Lamont, 1992: 67).

Relatedly, our interviews with male grape growers reveal that they are largely unaware of the benefits accruing to female sellers. Men do not know that their female counterparts charge higher prices than they do. Martin puts it this way: “I don't think there are any differences in price [. . .] I don't see any reason why men and women would obtain systematically different

prices [for their grapes]. I really don't." Pierre adds: "What could possibly explain differences [between male and female grape sellers]? Honestly, I think it comes down to individual characteristics: some men are good, some men are bad, some women are good, some women are bad. It's not about gender." Richard concludes: "I would be very surprised to find out women are getting higher prices. I mean, good for them if that's the case. But I'd be surprised."

Furthermore, because female grape growers maintain close and amicable relations with female colleagues, their faith in the information exchanged is high. This level of trust is rare in the growing community. Vincent explains that "this [other] grower was saying: 'this house pays me that much.' Then he went on to say 'I'll ask for more next year.' He was really bragging. But did he really get that price? [. . .] I don't know." Victor confirms: "Nowadays, no one tells the truth. It's a big problem. You just can't figure out what the true market price is." Benjamin adds: "Is this information true? It must be if they say so! [laughs] But you know, I'd rather get some more serious information—from our union. I remain pretty cautious when someone gives me information. I would not act on it until I've received confirmation." Thierry concludes: "to get useful information, I read *Champagne Viticole* [the growers' trade publication]. And I go to our [union's] meetings. I think that's what most of my colleagues do to keep up-to-date." This approach is quite different from the one described by Blanche:

A woman will work on it, inform herself, call her friends for advice on price. With [a female friend], when I renegotiated my grape contracts, I called her. I called other friends. I asked them: "How much do you ask per kilo? I want to be coherent in my pricing strategy." I go and ask. I think women are more willing to ask. As women, we're more willing to get help, and less proud about asking our neighbors for advice [. . .] It's all about information [. . .] [what matters is] knowing what others are doing in terms of price, I mean working the network [. . .] Knowing who works with whom, what price they were able to get, what the offers are.

——Insert Table 4 about here——

Access to private information via these informal relations may help explain differences in the pricing behavior of men and women. More specifically, it could allow female sellers to price their grapes more aggressively. Given our detailed data on the final price obtained by sellers, we were able to examine whether women receive a higher base price or if instead they are negotiating higher premiums. Recall that the final price consists of the base price (at which buyers and sellers start negotiating) and premiums of various types. Although female sellers do not receive significantly different premiums, they extract a higher base price (see Table 4). In Models 1 and 2, female sellers start price negotiations at a level that is from FRF .46 to FRF .29 higher than do their male peers. This finding is consistent with how female growers describe the price negotiation process in interviews. Overall, they describe a short and uncomplicated process in which they lead the discussion:

I have some specific demands. For example, I will commit that many hectares, that many kilos of grapes. I would like to get those at such a price, so I set the bar, typically it's the best price. Once I've given my requirements, then I want to best price [. . .] Negotiations are very, very easy. We're in a position of strength so super easy. I mean, I don't know, maybe my experience is somewhat unique, but honestly men don't negotiate too much with me. I don't know if it's easy for them, but for me it's certainly easy. (Alexandra)

——Insert Table 5 about here——

If female sellers share information that allows them to set a higher asking price than male sellers, as our interviews suggest, then one would expect the variance in price to be lower for women. To see whether or not this is the case, we use a multiplicative heteroscedasticity (or variance decomposition) model (see Table 5). This model enables simultaneous estimates, via maximum likelihood methods, of how gender affects the mean and variance of price (Greene 1997; Weesie 1998; Sorenson and Sørensen 2001). As would be expected if the higher prices are achieved through information sharing within the community of female growers, we find that

female sellers command a higher price than do male sellers ($\beta = .50, p < .000$). It is noteworthy that we also find—in line with our theorizing—that the variance in the residuals is lower when the seller is a female ($\beta = -.12, p < .025$). It is possible that the standard errors for the variance of the residuals are affected by the smaller size of the female-only sample. To check for whether this is an issue, we ran the same analyses using a random but same-sized subsample of male growers. Our results continue to hold.

—Insert Table 6 about here—

If, as our qualitative evidence suggests, women get together to share market information and professional advice to a greater extent than men do, we would expect that the likelihood of such informal meetings is increasing in geographical proximity. If so, then the *spatial autocorrelation* in price should be greater for female than for male sellers. Because we have precise location data for sellers, we are able to examine the general price-clustering tendencies. First we compute Moran's I, a global index of spatial autocorrelation that expresses the degree of similarity in prices charged by proximate sellers (see Table 6). Using the prices charged by each seller in 2009—which is the year for which we have the greatest number of observations—we find significant spatial clustering for both female sellers ($I = .16, p < .014$) and male sellers ($I = .21, p < .000$). An important limitation of Moran's I is that it cannot control for grape quality, which is clearly correlated with location. In order to examine spatial clustering in price while controlling for quality, we compute spatial autoregressive models “with disturbance” (a.k.a. SARAR models) using the price charged by each seller in 2009.¹⁴ For female sellers, we find that prices do reflect SAR dependence ($\lambda = .83, p < .041$); this result indicates that the grape prices of female sellers are affected by those of neighboring (female) sellers. However, we find no such

SAR dependence in the prices obtained by male sellers ($\lambda = .31, p < .219$). These findings give us further confidence in the validity of our proposed mechanism.

DISCUSSION AND CONCLUSION

Prices are crucial in markets; they facilitate resource allocation and constitute a critical means by which market participants appropriate rents (Uzzi and Lancaster 2004). In this paper we document a novel theoretical mechanism—intergroup processes—through which horizontal relationships between sellers shape the prices paid by buyers. We illustrate this mechanism using proprietary transaction-level data in the market for Champagne grapes. Female grape growers (who are a minority of the sellers) obtain higher prices for grapes of the same quality sold by male growers. We posit that women in this setting react to their social isolation from the majority by seeking support from each other, leveraging these informal relationships to gather pricing information. Our qualitative evidence, combined with supplemental statistical analyses, suggests that women tend to disregard the local norms of individualism and secrecy that typify male grape growers. In so doing, they overcome market information frictions and take advantage of buyers' relatively price inelastic demand, which allows them to charge higher prices.

The unique features of our quantitative data allow us to rule out a number of alternative explanations for these findings—e.g., heterogeneity between male and female sellers or businesses, female self-selection, and gender-related sample attrition rates. Nonetheless, we recognize that the quantitative results could be interpreted as being partly driven by women deliberately ignoring norms against price collusion. We believe that our fieldwork helps assuage this concern, since it indicates that women's cordial relations are not simply a vehicle for anticompetitive behavior. That is, it appears that female growers pull together not with the purpose of colluding but rather to compensate for their social exclusion from the majority. These

informal relationships facilitate the benevolent and legitimate exchange of professional information, including market prices (for a similar argument, see Ingram and Roberts 2000). Nevertheless, it is ultimately not possible to rule out that collusion motivates female grape growers to develop informal relations. This motivation would not invalidate our overall theoretical argument, but it would make its interpretation and implications more nuanced. The literatures in economics (e.g., Scherer 1980) and sociology (e.g., Baker and Faulkner 1993, Podolny and Scott-Morton 1999) underscore the controversial nature of price collusion, which creates inefficiencies and reduces social welfare by artificially raising prices. It is worth remarking that cartels are generally formed by high-status incumbents (Podolny and Scott-Morton 1999). Yet our results instead reflect a situation whereby low-status newcomers start from a disadvantaged structural position but then improve their economic outcomes through cooperation. This raises interesting questions about the sources and consequences of price collusion—including consumer welfare—as a function of the status of the groups involved in such practices.

This paper makes three contributions to the literature. First, it contributes to research on how social relationships shape prices by studying horizontal rather than vertical market interactions. With few exceptions (see Baker and Faulkner 1993; Ingram and Roberts 2000), horizontal ties have received little attention by sociological research on price-setting processes. Our study makes advances here by identifying a mechanism that shapes the likelihood and consequences of sellers forming relations with each other. In accord with prior work on intergroup relations (Simmel 1908/1955; Bonacich and Modell 1980; Olzak and West 1991; Brewer 1991), we find that minority sellers feel excluded from the majority and develop relationships to achieve a sense of belonging. Thus group processes help explain the variance in

producers' propensity to form horizontal market relations. This finding matters because who forms relationships with whom is an important aspect of price setting (Ingram and Roberts 2000). Our research extends this line of inquiry by showing how these relationships enable minority producers to deviate from some of the majority's rules of market behavior, especially norms—here, about information sharing—that may be consequential for the price-setting process. Future research may examine how other types of group processes leading to horizontal market ties (on either the seller's or the buyer's side) could similarly affect prices by shaping behavioral norms and/or patterns of information transmission among market actors.

Second, our study contributes to the sociological literature on intergroup relations (e.g., Bonacich 1972; Olzak 1992; Okamoto 2003; Gullickson 2010) by documenting a previously unexamined mechanism that may prevent conflict between majority and minority groups. Previous research has identified horizontal competition between minority and majority producers as a key driver of intergroup conflict, as in markets where producers must compete for finite resources (e.g., jobs; see Bonacich 1972 and Olzak 1992). Our research suggests that, even when minority and majority producers compete for the same resources, social segregation may reduce the likelihood of one group noticing the other's economic outcomes. In Champagne we observed that majority sellers are largely unaware of the benefits accruing to minority sellers: men do not know that their female counterparts charge higher prices. In this setting, social segregation seems to inhibit comparisons by limiting contact between groups. Our findings thus suggest that intergroup conflict may be averted when social segregation makes it difficult for market actors to know they are “leaving money on the table” (see also Fernandez-Mateo 2007).

Finally, our findings have implications for research on market inequality. A stream of work in this area argues that inequality arises from status-based processes of exclusion that

govern the distribution of opportunities (see e.g. Tomaskovic-Devey 1993). Thus high-status groups attempt to preserve their advantage by limiting the access (to resources) of lower-status groups (Tilly 1998); the latter may respond by challenging the majority's advantages or by drawing on other resources (Stainback, Tomaskovic-Devey, and Skaggs 2010). Women in Champagne are not granted high status, and they report feeling underestimated by their male peers. Yet their reaction is not to challenge the majority's dominant status but instead to draw on other social resources and to exercise market power in a way that the majority does not. So contrary to most prior research, we establish that market status and pricing advantages can be decoupled. Of course, it is important to recognize that the female pricing advantage may hardly compensate for the continuing lack of non-material disadvantages, such as a lack of respect, recognition or inclusion, that women experience in this setting. Nonetheless, our finding is significant because, in most social settings, women have less power and status than men. Scholars often cite women's network structures to explain their low (relative to men) positional power and authority (Ibarra 1992, 1993; Burt 1998; Lutter 2015). This line of reasoning argues that gender-homophilous networks limit women's access to high-status actors and that network cohesiveness prevents women from accessing relevant and nonredundant information. There are also consistent findings that women are less likely to ask for higher pay (Babcock and Laschever 2007)—and are more likely to be penalized if they do so (Bowles, Babcock, and Lai 2007). Our research emphasizes the need to identify and examine conditions under which women (and other groups encountering discrimination in one domain) can benefit from their network cohesiveness and exercise market power by other means without suffering a backlash.

Because the supply of Champagne grapes is constrained and demand is relatively price inelastic, buyers do not discriminate among sellers in our setting. This unusual context is

therefore most attractive because it allows us to isolate the effect of horizontal relations between minority producers on market prices. At the same time, the uniqueness of the setting requires that we sketch some boundary conditions of our theoretical argument. That is: Under what circumstances are minority groups likely to engage in the types of information exchange–based networking behaviors that might yield a market advantage?

First of all, our theory applies when minority members pull together for social support in the face of perceived discrimination—rather than distancing themselves from the minority and/or seeking assimilation within the majority group. The basis of minority status here is gender, but elsewhere the defining characteristic could be nationality, ethnicity or any other salient social category (Reagans 2005; Mehra et al. 1998). What matters is that individuals identify as members of the minority group. It is this identification process – and not the nature of the minority status *per se* - that constitutes the basis of increased social cohesiveness in the face of exclusion (Reagans 2005; Brewer 1991). Prior research suggests that individuals' identification with a minority group is shaped both by group size as well as by the clarity of the boundary between the minority and the majority (Leonardelli et al. 2010; Olzak 1992). First, the size of the group shapes the extent to which minority actors collaborate rather than compete with one another. For instance, Ely (1994) finds that women are more likely to develop supportive relationships with other women at work when they constitute a substantial minority rather than a handful of “tokens” (Kanter 1977). Thus we should expect minority members to pull together for social support in settings where they form a minority small enough to induce identification with their in-group but not so small that they feel compelled to distinguish themselves by competing with each other. Second, group solidarity in the face of intergroup conflict is more likely to arise when there is a clear boundary between the minority and the majority (see also Olzak, 1992).

This is in turn more likely to happen for homogeneous rather than heterogeneous groups (Leonardelli et al. 2010). As mentioned above, the status of women as a clearly defined minority group is uncontroversial in the Champagne market. It is however plausible that both intergroup conflict and minority cohesiveness are more diffuse where intersecting minority statuses are present – e.g. where gender and ethnicity are alternative basis of group identification.¹⁵ How the social dynamics we have identified operate in such cases is an intriguing question for future research.

A second boundary condition for our findings—to which we have alluded repeatedly—is that buyers be unlikely to price-discriminate because of their relatively inelastic demand. This condition stems from specific market features: in the Champagne grape market, as in various other settings (e.g., pharmaceuticals, some education, luxury products), supply is constrained and perfect substitutes are not readily available. Nonetheless, our theoretical arguments may still *operate* in markets where buyers are able to price discriminate – we simply would not be able to *observe* their price effects in as clean a manner as we now do. It is indeed plausible that in those markets minority sellers form horizontal relationships, share private information and obtain a better price than they would otherwise (but not necessarily a better price than the majority group). The unique characteristics of our setting thus allow for cleaner identification of our mechanism’s effects on pricing, but they do not necessarily cause its operation. A context worth exploring on this regard is that found in some sectors of the labor market, where minorities may overcome some market frictions by developing horizontal relationships. Whether they obtain price benefits from doing so—such as higher wages than they would obtain otherwise—is an open empirical question that suggests fruitful directions for future research.

Relatedly, for our theory to operate there must be a certain amount of information friction in the market. If information about key determinants of price setting flowed seamlessly among producers regardless of the pattern of relationships among them, then the minority group's ability to extract price benefits from their informal ties would indeed be limited. Yet market frictions in the presence of imperfect information are ubiquitous (Rothschild and Stiglitz 1976; Philips 1988); they may result from local norms of behavior (as in the Champagne grape market) or from other institutional features. For instance, the markets for labor, credit, and housing all feature information frictions, such as significant search costs for both buyers and sellers (Stigler 1962). However, more important for our theory than the existence of market frictions is the ability of minority sellers to extract better prices by overcoming these frictions *without* eliciting a reaction from other market participants. In order for this condition to hold, it is important that the minority group be of small size—a key factor also in the likelihood of group members getting together in the first place. This condition reflects the crucial requirement that minority group behavior be neither widely noticed nor acted upon by the other players, which in our setting are the buyers and the majority of sellers. The former are unlikely to react to small price differences given their low price elasticity; members of the latter, as already described, are not even aware of any price differences. Hence we expect that minorities can avoid backlash in settings where deviations from the norm are not public knowledge. This would be consistent with research in institutional theory confirming the intuitive notion that the opacity or lack of visibility of controversial practices reduces negative reactions from third parties (e.g. Briscoe and Murphy 2012; Phillips, Turco and Zuckerman 2013).

Lastly, it is possible that our broader theoretical argument about intergroup processes in the formation of horizontal ties could have consequences on market outcomes other than prices.

That is, if minority sellers form tighter relationships in response to their isolation from the majority and overcome market frictions in doing so, they could potentially get access to valuable resources in a way that the majority may not do. In such circumstances minority sellers may be unable to extract higher prices from their stronger informal networks but might still translate the benefits from those ties into other types of market advantages, such as access to preferential resources. Given our focus on price setting processes, we have not theorized about this possibility; however, it is certainly an intriguing question for future research.

Hence more research is needed if we are to understand when the specific pricing mechanism that we describe in the case of Champagne can be generalized to other contexts and perhaps contribute to mitigating negative economic consequences for minority groups. Nevertheless, we conclude by stressing that, as our case illustrates, if the likelihood of backlash is small, then minority mobilization can actually trump discrimination. So when given the chance, minorities —like the women in Champagne—*do* ask for more *and* are likely to receive more.

REFERENCES

- Abascal, Maria. (2015). "Us and Them Black-White Relations in the Wake of Hispanic Population Growth." *American Sociological Review* 80(4):789-813.
- Ayres, Ian, Mahzarin Banaji, and Christine Jolls. 2011. "Race Effects on eBay." Working paper, Yale University, New Haven, CT.
- Ayres, Ian and Peter Siegelman. 1995. "Race and Gender Discrimination in Bargaining for a New Car." *American Economic Review* 85(3):304–21.
- Babcock, Linda and Sara Laschever. 2007. *Women Don't Ask: The High Cost of Avoiding Negotiation—and Positive Strategies for Change*. New York: Bantam Books.
- Baker, Wayne. E. 1984. "The Social Structure of a National Securities Market." *American Journal of Sociology* 89(4):775–811.
- Baker Wayne E. and Robert R. Faulkner. 1993. "The Social Organization of Conspiracy: Illegal Networks in the Heavy Electrical Equipment Industry." *American Sociological Review* 58(6):837–860.
- Becker, Gary S. 1971. *The Economics of Discrimination*. Chicago, IL: University of Chicago Press.
- Benjamin, Beth A. and Joel M. Podolny. 1999. "Status, Quality, and Social Order in the California Wine Industry." *Administrative Science Quarterly* 44(3):563–89.
- Besse, A., P. Tegner, and S. Wilkins. 2006. *Champagne: Play Premium Brands and Solid Financials*. Paris: Société Générale Cross Asset Research.
- Bidwell, Matthew and Isabel Fernandez-Mateo. 2010. "Relationship Duration and Returns to Brokerage in the Staffing Sector." *Organization Science* 21(6):1141–58.
- Blalock, Hubert M. 1967. *Toward a Theory of Minority-Group Relations*. London: John Wiley.
- Bonacich, Edna. 1972. "A Theory of Ethnic Antagonism: The Split Labor Market." *American Sociological Review* 37(5):547–59.
- Bonacich, Edna and John Modell. 1980. *The Economic Basis of Ethnic Solidarity: Small Business in the Japanese American Community*. Berkeley, CA: University of California Press.
- Bowles, Hannah R., Linda Babcock, and Lei Lai. 2007. "Social Incentives for Gender Differences in the Propensity to Initiate Negotiations: Sometimes It Does Hurt to Ask." *Organizational Behavior and Human Decision Processes* 103(1):84–103.
- Brewer, Marilynn B. 1991. "The Social Self: On Being the Same and Different at the Same Time." *Personality and Social Psychology Bulletin* 17(5):475–82.
- Briscoe, Forrest and Chad Murphy. 2012. "Sleight of Hand? Practice Opacity, Third-Party Responses, and the Interorganizational Diffusion of Controversial Practices." *Administrative Science Quarterly* 57(4):553–84.
- Burt, Ronald S. 1998. "The Gender of Social Capital." *Rationality and Society* 10(1):5–46.
- Cameron, A. Colin, Jonah B. Gelbach, and Douglas L. Miller. 2011. "Robust Inference with Multiway Clustering." *Journal of Business & Economic Statistics* 29(2):238–49.

- Coser, Lewis. 1984. *Refugee Scholars in America: Their Impact and Their Experiences*. New Haven, CT: Yale University Press.
- Coser, Lewis. 1956. *The Functions of Social Conflict*. London: Routledge & Kegan Paul.
- Davenport, Lauren D. (2016). "The Role of Gender, Class, and Religion in Biracial Americans' Racial Labeling Decisions." *American Sociological Review* 81(1):57-84.
- Doleac, Jennifer L. and Luke C. D. Stein. 2013. "The Visible Hand: Race and Online Market Outcomes." *Economic Journal* 123(572):F469–92.
- Elfenbein, Daniel W. and Todd R. Zenger. 2013. "What is a Relationship Worth? Repeated Exchange and the Development and Deployment of Relational Capital." *Organization Science* 25(1):222–44
- Ely, Robin J. 1994. "The Effects of Organizational Demographics and Social Identity on Relationships Among Professional Women." *Administrative Science Quarterly*, 39(2): 203–238.
- Escudier, Jean-Louis. 2014. *Contribution à l'histoire des rapports économiques de genre: Application à la viticulture française 1850–2010*. Doctoral dissertation, École doctorale Développement et dynamiques spatiales, transfrontalières et inter-culturelles, Perpignan, France.
- Fauchard Emmanuelle and Eric Von Hippel. 2008. "Norms-Based Intellectual Property Systems: The Case of French Chefs." *Organization Science* 19(2):187–201.
- Fernandez-Mateo, Isabel. 2007. "Who Pays the Price of Brokerage? Transferring Constraints Through Price-Setting in the Staffing Sector." *American Sociological Review* 72(2):291–317.
- Frale, Deborah E., Tamela Blackstone, and Carol Scherbaum. 1990. "Marginal and Mindful: Deviants in Social Interactions." *Journal of Personality and Social Psychology* 59(1):140–49.
- Goldin, Claudia. 2014. "A Grand Gender Convergence: Its Last Chapter." *American Economic Review* 104(4): 1091–1119.
- Granovetter, Mark. 1985. "Economic Action and Social Structure: The Problem of Embeddedness." *American Journal of Sociology* 91(3):481–510.
- Granovetter, Mark. 1995. "The Economic Sociology of Firms and Entrepreneurs." Pp. 128–65 in *The Economic Sociology of Immigration: Essays on Networks, Ethnicity, and Entrepreneurship*, edited by Alejandro Portes. New York: Russell Sage Foundation.
- Greene, William H. 1997. *Econometric Analysis*. Upper Saddle River, NJ: Prentice-Hall.
- Grusky, David B. 2008. *Social Stratification: Class, Race, and Gender in Sociological Perspective*. Boulder, CO: Westview.
- Gullickson, Aaron. 2010. "Racial Boundary Formation at the Dawn of Jim Crow: The Determinants and Effects of Black/Mulatto Occupational Differences in the United States, 1880." *American Journal of Sociology* 116(1):187–231.
- Guy, Kolleen M. 2007. *When Champagne Became French: Wine and the Making of a National Identity*. Baltimore: Johns Hopkins University Press.

- Ibarra, Herminia. 1992. "Homophily and Differential Returns: Sex Differences in Network Structure and Access in an Advertising Firm." *Administrative Science Quarterly* 37(3):422–47.
- Ibarra, Herminia. 1993. "Personal Networks of Women and Minorities in Management: A Conceptual Framework." *Academy of Management Review* 18(1):56–87.
- Ingram, Paul and Peter W. Roberts. 2000. "Friendships among Competitors in the Sydney Hotel Industry." *American Journal of Sociology* 106(2):387–423.
- Jefford, Andrew. 2008. "Champagne Power Struggle." Retrieved April 14, 2015 (<http://www.decanter.com/people-and-places/wine-articles/485377/champagne-power-struggle>).
- Jones, Edward. E. 1964. *Ingratiation: A Social Psychological Analysis*. East Norwalk, CT: Appleton-Century-Crofts.
- Kanter, Rosabeth M. 1977. *Men and Women of the Corporation*. New York: Basic Books.
- Kleinbaum, Adam M., Toby E. Stuart, and Michael L. Tushman. 2013. "Discretion Within Constraint: Homophily and Structure in a Formal Organization." *Organization Science* 24(5): 1316–36.
- Kray, Laura J., Connson C. Locke, and Alex B. Van Zant. 2012. "Feminine Charm: An Experimental Analysis of Its Costs and Benefits in Negotiations." *Personality and Social Psychology Bulletin* 38(10):1343–57.
- Lamont, Michèle, 1992. *Money, Morals, and Manners: The Culture of the French and the American Upper-middle Class*. Chicago, IL: University of Chicago Press.
- Levine, Donald N. 1977. "Simmel at a Distance: On the History and Systematics of the Sociology of the Stranger." *Sociological Focus* 10(1):15–29.
- List, John A. 2004. "The Nature and Extent of Discrimination in the Marketplace: Evidence from the Field." *Quarterly Journal of Economics* 119(1):49–89.
- Lutter, Mark. 2015. "Do Women Suffer From Network Closure? The Moderating Effect of Social Capital on Gender Inequality in a Project-based Labor Market." *American Sociological Review* 80(2):329–58.
- Markus, Hazel and Ziva Kunda. 1986. "Stability and Malleability of the Self-Concept." *Journal of Personality and Social Psychology* 51(4):858–66.
- Massey, Douglas S. and Nancy A. Denton. 1993. *American Apartheid: Segregation and the Making of the Underclass*. Cambridge, MA: Harvard University Press.
- Mehra, Ajay, Martin Kilduff, and Daniel J. Brass. 1998. "At the Margins: A Distinctiveness Approach to the Social Identity and Social Networks of Underrepresented Groups." *Academy of Management Journal* 41(4):441–52.
- Nardinelli, Clark and Curtis Simon. 1990. "Customer Racial Discrimination in the Market for Memorabilia: The Case of Baseball." *Quarterly Journal of Economics* 105(3):575–95.
- Nee, Victor and Brett de Bary Nee. 1973. *Longtime Californ': A Documentary Study of an American Chinatown*. Stanford, CA: Stanford University Press.

- Ody-Brasier, Amandine and Freek Vermeulen. 2014. "The Price You Pay: Price-setting as a Response to Norm Violations in the Market for Champagne Grapes." *Administrative Science Quarterly* 59(1):109–44.
- Okamoto, Dina G. 2003. "A Theory of Panethnicity: Explaining Asian American Collective Action." *American Sociological Review* 68(6):811–42.
- Olzak, Susan. 1992. *The Dynamics of Ethnic Competition and Conflict*. Stanford, CA: Stanford University Press.
- Olzak, Susan. 2013. Competition Theory of Ethnic/Racial Conflict and protest. Pp. 1–3 in *The Wiley-Blackwell Encyclopedia of Social and Political Movements*, edited by David A. Snow, Donatella della Porta, Bert Klandermans, and Doug McAdam. Oxford: Blackwell Publishing.
- Olzak, Susan and Elizabeth West. 1991. "Ethnic Conflict and the Rise and Fall of Ethnic Newspapers." *American Sociological Review*, 56: 458-474.
- Pager, Devah and Hana Shepherd. 2008. "The Sociology of Discrimination: Racial Discrimination in Employment, Housing, Credit, and Consumer Markets." *Annual Review of Sociology* 34:181–209.
- Phillips, Damon, Catherine Turco, and Ezra W. Zuckerman. 2013. Betrayal as Market Barrier: Identity-Based Limits to Diversification Among High-Status Corporate Law Firms." *American Journal of Sociology* 118(4):1023–54.
- Phlips, Louis. 1988. *The Economics of Imperfect Information*. Cambridge: Cambridge University Press.
- Podolny, Joel M. 1993. "A Status-Based Model of Market Competition." *American Journal of Sociology* 98(4):829–72.
- Podolny, Joel M. 2001. "Networks as the Pipes and Prisms of the Market." *American Journal of Sociology*, 107(1): 33–60.
- Podolny, Joel M. and Fiona M. Scott-Morton. 1999. "Social Status, Entry and Predation: The Case of British Shipping Cartels 1879-1929." *Journal of Industrial Economics* 47(1):41–67.
- Portes, Alejandro and Robert L. Bach. 1985. *Latin Journey: Cuban and Mexican Immigrants in the United States*. Berkeley, CA: University of California Press.
- Portes, Alejandro and Julia Sensenbrenner. 1993. "Embeddedness and Immigration: Notes on the Social Determinants of Economic Action." *American Journal of Sociology* 98(6):1320–50.
- Portes, Alejandro and Min Zhou. 1992. "Gaining the Upper Hand: Economic Mobility Among Immigrant and Domestic Minorities." *Ethnic and Racial Studies*, 15(4): 491–522.
- Reagans, Ray. 2005. "Preferences, Identity, and Competition: Predicting Tie Strength from Demographic Data." *Organization Science* 51(9):1374–83.
- Roberts, Peter W., Mukti Khaire, and Chris I. Rider. 2011. "Isolating the Symbolic Implications of Employee Mobility: Price Increases After Hiring Winemakers from Prominent Wineries." *American Economic Review Papers and Proceedings* 101(3):147–51.

- Rothschild, Michael and Joseph Stiglitz. 1976. "Equilibrium in Competitive Insurance Markets: An Essay on the Economics of Imperfect Competition." *Quarterly Journal of Economics* 90(4): 629–49.
- Sanders, Jimmy M and Victor Nee. 1987. "Limits of Ethnic Solidarity in the Enclave Economy." *American Sociological Review* 52(6): 745–73.
- Scherer, Frederic M. 1980. *Industrial Market Structure and Economic Performance*. Boston, MA: Houghton Mifflin.
- Shields, Stephanie A. 2008. "Gender: An Intersectionality Perspective." *Sex Roles* 59(5): 301–11.
- Simmel, Georg. 1908/1955. *Soziologie*. Leipzig: Duncker and Humbolt.
- Smelser, Neil J. and Richard Swedberg. 2005. *The Handbook of Economic Sociology*. Princeton, NJ: Princeton University Press.
- Sorenson, Olav and Jesper B. Sørensen. 2001. "Finding the Right Mix: Franchising, Organizational Learning, and Chain Performance." *Strategic Management Journal* 22(6–7):713–24.
- Stainback, Kevin, Donald Tomaskovic-Devey, and Sheryl Skaggs. 2010. Organizational Approaches to Inequality: Inertia, Relative Power, and Environments." *Annual Review of Sociology* 36: 225–47.
- Stepick, Alex. 1989. "Miami's Two Informal Sectors." In *The Informal Economy: Studies in Advanced and Less Developed Countries.*, A. Portes, M. Castells, and L. Benton (eds). Baltimore, MD: John Hopkins University Press: 111-131. .
- Stigler, George J. 1962. "Information in the Labor Market." *Journal of Political Economy* 70(5): 94–105.
- Tilly, Charles. 1998. *Durable Inequality*. Berkeley, CA: University of California Press.
- Tomaskovic-Devey, Donald. 1993. *Gender & Racial Inequality at Work: The Sources and Consequences of Job Segregation*. Ithaca, NY: ILR Press.
- Uzzi, Brian. 1999. "Embeddedness in the Making of Financial Capital: How Social Relations and Networks Benefit Firms Seeking Financing." *American Sociological Review* 64(4):481–505.
- Uzzi, Brian and Ryon Lancaster. 2004. "Embeddedness and Price Formation in the Corporate Law Market." *American Sociological Review* 69(3):319–44.
- Van Der Valt, Maria. 2010. "French negotiation culture." *ADR Bulletin* 12(1): 11–19.
- Weesie, Jeroen. 1998. "Regression Analysis with Multiplicative Heteroscedasticity." *Stata Technical Bulletin* 7(42).
- Wirth, Louis. 1945. "The Problem of Minority Groups." Pp. 347–72 in *The Science of Man in the World Crisis*, edited by R. Linton. New York: Columbia University Press.
- Zelizer, Viviana. 1988. "Beyond the Polemics on the Market: Establishing a Theoretical and Empirical Agenda." *Sociological Forum* 3(4):614–34.

Zhou, Min. 2004. "Revisiting Ethnic Entrepreneurship: Convergencies, Controversies, and Conceptual Advancements1." *International Migration Review* 38(3): 1040-74.

Zuckerman, Ezra W. 1999. "The Categorical Imperative: Securities Analysts and the Illegitimacy Discount." *American Journal of Sociology* 104(5):1398–1438.

Table 1. Descriptive Statistics and Correlations (N = 5,757)

Variable	Mean	S.D.	1	2	3	4	5	6	7	8
1. Price	23.73	2.21								
2. Female seller	0.15	0.36	0.18							
3. Relation duration	1.17	0.78	0.08	-0.02						
4. Past volumes exchanged	3.54	2.22	0.04	-0.03	0.88					
5. Seller mixed-gender team	0.16	0.37	-0.06	-0.19	0.00	0.01				
6. Seller incorporation	0.74	0.44	0.02	-0.15	0.04	0.04	0.13			
7. Seller wine-making	0.17	0.38	-0.01	0.03	-0.02	0.07	0.06	0.22		
8. Seller unique ties	2.20	1.86	0.22	0.10	0.10	0.11	-0.14	-0.12	-0.05	
9. Seller size	87.04	103.25	0.13	0.11	0.12	0.26	-0.09	-0.02	0.21	0.64
10. Buyer unique ties	18.21	12.94	0.20	-0.01	0.00	0.05	0.02	-0.07	0.01	0.00
11. Buyer size	7726.41	9852.25	0.00	-0.05	0.01	0.08	0.03	-0.05	-0.02	0.00
12. Buyer profitability	6.74	5.09	0.00	0.01	0.05	0.09	-0.02	-0.05	0.08	0.04
13. Low grape quality	0.50	0.50	-0.52	-0.16	0.00	0.03	0.08	0.06	0.08	-0.25
14. Medium grape quality	0.20	0.40	0.14	0.04	0.02	0.00	0.01	-0.18	-0.07	0.18
15. High grape quality	0.30	0.46	0.44	0.13	-0.02	-0.03	-0.09	0.09	-0.03	0.11
16. Transaction volume	18.47	26.47	-0.08	0.03	0.04	0.16	0.02	0.01	0.07	-0.04
17. Share of annual volume	58.90	38.92	-0.11	0.03	-0.17	-0.29	0.02	-0.02	-0.15	-0.14
Variable			9	10	11	12	13	14	15	16
10. Buyer unique ties			0.10							
11. Buyer size			0.12	0.46						
12. Buyer profitability			0.16	0.41	0.55					
13. Low grape quality			-0.11	-0.06	0.04	-0.01				
14. Medium grape quality			0.08	0.10	0.03	0.05	-0.50			
15. High grape quality			0.05	-0.02	-0.07	-0.03	-0.65	-0.34		
16. Transaction volume			0.24	0.05	0.07	0.07	0.06	-0.06	-0.02	
17. Share of annual volume			-0.32	-0.13	-0.10	-0.08	0.05	-0.05	-0.01	0.30

Table 2. Pooled and Panel Regressions Predicting Price

Variable	Pooled OLS	Buyer FE model	Pooled OLS with CEM	Buyer FE with CEM
	Model 1	Model 2	Model 3	Model 4
Female seller	0.435*** (0.124)	0.286** (0.109)	0.22† (0.126)	0.222† (0.122)
Relation duration	-0.046 (0.092)	0.084 (0.119)	-0.075 (0.204)	-0.086 (0.217)
Past volumes exchanged	0.004 (0.028)	-0.019 (0.040)	0.024 (0.061)	0.044 (0.069)
Seller mixed-gender team	-0.044 (0.105)	0.037 (0.100)	0.073 (0.200)	0.312† (0.172)
Seller incorporation	0.170† (0.089)	0.100 (0.079)	-3.777 (4.201)	3.201 * (1.260)
Seller wine-making	-0.135 (0.120)	-0.136 (0.117)	-0.293* (0.148)	-0.326 * (0.136)
Seller unique ties	0.017 (0.030)	0.001 (0.031)	1.673 (1.315)	-0.730 (0.326)
Seller size	-0.001 (0.001)	0.000 (0.000)	-0.007 (0.004)	-0.006 (0.004)
Buyer unique ties	0.008 (0.005)	-0.004 (0.003)	-0.001 (0.046)	-0.040 (0.048)
Buyer size	-0.000† (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 * (0.000)
Buyer profitability	-0.018 (0.013)	-0.025* (0.011)	0.004 (0.011)	-0.006 (0.019)
Low grape quality	-2.008*** (0.098)	-1.842*** (0.099)	0.317 (1.275)	-1.889 *** (0.350)
Medium grape quality	-0.903*** (0.111)	-0.874*** (0.102)	0.818 (1.289)	-1.383 *** (0.367)
Transaction volume	0.000 (0.002)	-0.001 (0.001)	0.001 (0.006)	-0.001 (0.006)
Share of annual volume	-0.002 (0.001)	-0.001 (0.001)	-0.003 (0.002)	-0.003 (0.002)
Constant	20.1846*** (0.204)	20.444*** (0.185)	16.433*** (2.639)	20.762 *** (1.125)
Year dummies	YES	YES	YES	YES
Case control groups			126	126
N	5500	5500	2223	2223
R-square	0.73	0.72	0.83	0.85

† p<.10; * p<0.05; ** p<.01; *** p<.001; significance tests are two-tailed.

Standard errors are in parentheses. All SE are robust and clustered by both buyer and seller.

Table 3. Pooled and Panel Regressions Predicting Price for Widows

Variable	Pooled OLS	Buyer FE model
	Model 1	Model 2
Widow	0.428* (0.189)	0.358* (0.166)
Relation duration	-0.055 (0.087)	0.081 (0.116)
Past volumes exchanged	0.002 (0.026)	-0.020 (0.039)
Seller mixed-gender team	-0.096 (0.104)	0.004 (0.098)
Seller incorporation	0.171† (0.089)	0.109 (0.077)
Seller wine-making	-0.104 (0.121)	-0.108 (0.113)
Seller unique ties	0.006 (0.032)	-0.007 (0.031)
Seller size	0.000 (0.001)	0.000 (0.001)
Buyer unique ties	0.007 (0.005)	-0.003 (0.004)
Buyer size	-0.000† (0.000)	0.000 (0.000)
Buyer profitability	-0.016 (0.014)	-0.024* (0.011)
Low grape quality	-2.033*** (0.100)	-1.846*** (0.096)
Medium grape quality	-0.920*** (0.112)	-0.881*** (0.101)
Transaction volume	0.000 (0.002)	-0.001 (0.001)
Share of annual volume	-0.002 (0.001)	-0.001 (0.001)
Constant	20.222*** (0.205)	20.447*** (0.186)
Year dummies	YES	YES
N	5500	5500
R-square	0.72	0.72

† p<.10; * p<0.05; ** p<.01; *** p<.001; significance tests are two-tailed.
Standard errors are in parentheses. All SE are robust and clustered by both buyer and seller.

Figure 1 - Kaplan-Meier Survival Estimates

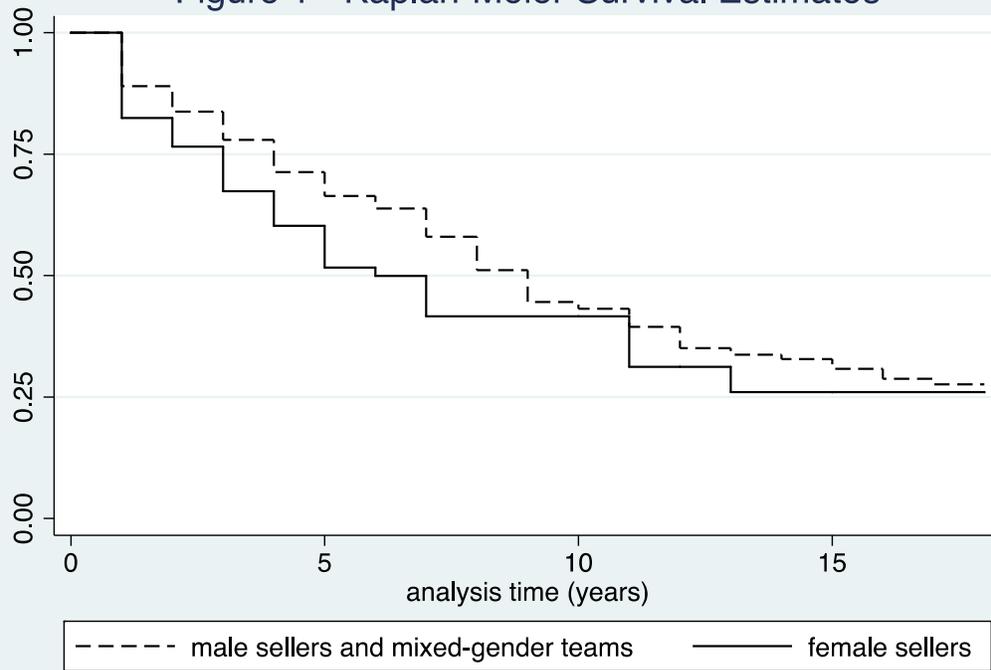


Table 4. Pooled and Panel Regressions Predicting Base Price

Variable	Pooled OLS	Buyer FE model
	Model 1	Model 2
Female seller	0.461*** (0.107)	0.291*** (0.089)
Relation duration	0.081 (0.113)	0.036 (0.105)
Past volumes exchanged	-0.052 (0.046)	-0.024 (0.046)
Seller mixed-gender team	-0.078 (0.133)	-0.063 (0.139)
Seller incorporation	0.120 (0.089)	0.030 (0.087)
Seller wine-making	-0.124 (0.102)	-0.083 (0.097)
Seller unique ties	0.025 (0.042)	0.016 (0.036)
Seller size	0.000 (0.001)	0.000 (0.001)
Buyer unique ties	-0.010** (0.004)	-0.009† (0.006)
Buyer size	0.000 (0.000)	0.000 (0.000)
Buyer profitability	-0.005 (0.014)	0.004 (0.021)
Low grape quality	-2.079*** (0.117)	-1.925*** (0.115)
Medium grape quality	-0.861*** (0.104)	-0.865*** (0.091)
Transaction volume	-0.003*** (0.001)	-0.003** (0.001)
Share of annual volume	0.000 (0.001)	0.000 (0.001)
Constant	18.907*** (0.183)	18.673*** (0.244)
Year dummies	YES	YES
N	5475	5475
R-square	0.78	0.75

† p<.10; * p<0.05; ** p<.01; *** p<.001; significance tests are two-tailed. Standard errors are in parentheses. All SE are robust and clustered by both buyer and seller.

Table 5. Multiplicative Heteroscedasticity Model
Predicting Price

Variable	Pooled OLS
Effect on mean	
Female seller	0.503*** (0.035)
Relation duration	0.021 (0.042)
Past volumes exchanged	0.002 (0.016)
Seller mixed-gender team	-0.074* (0.037)
Seller incorporation	0.159*** (0.029)
Seller wine-making	-0.102** (0.037)
Seller unique ties	-0.003 (0.009)
Seller size	-0.000† (0.000)
Buyer unique ties	0.005*** (0.001)
Buyer size	-0.000*** (0.000)
Buyer profitability	-0.015*** (0.003)
Low grape quality	-1.975*** (0.034)
Medium grape quality	-0.914*** (0.035)
Transaction volume	0.001 (0.001)
Share of annual volume	-0.001*** (0.000)
Constant	24.941*** (0.144)
Year dummies	YES

Effect on log variance	
Female seller	-0.123* (0.055)
Relation duration	-0.006 (0.058)
Past volumes exchanged	-0.062** (0.022)
Seller mixed-gender team	0.024 (0.053)
Seller incorporation	0.367*** (0.046)
Seller wine-making	-0.327*** (0.055)
Seller unique ties	-0.079*** (0.015)
Seller size	0.000 (0.000)
Buyer unique ties	0.001 (0.002)
Buyer size	-0.000*** (0.000)
Buyer profitability	0.025*** (0.005)
Low grape quality	0.126** (0.046)
Medium grape quality	-0.336*** (0.055)
Transaction volume	0.003*** (0.001)
Share of annual volume	-0.005*** (0.001)
Constant	0.649*** (0.175)
Year dummies	YES
N	5583
R-square	0.33
Chi-square (d.f.)	8265(62)
Prob.	0.000

† p<.10; * p<0.05; ** p<.01; *** p<.001;
significance tests are two-tailed.
Standard errors are in parentheses.

Table 6. Spatial Autocorrelation in Price (Year 2009)

	Full sample (N=183)	Female subsample (N=38)	Male subsample (N=145)
Moran's I statistics			
Moran's I	0.214***	0.165*	0.212***
Mean	-0.005	-0.027	-0.007
Std dev	0.030	0.078	0.032
Z-score	7.258	2.464	6.807
	Full sample (N=183)	Female subsample (N=38)	Male subsample (N=145)
SARAR regressions			
Low grape quality	-1.922*** (0.235)	-1.341** (0.470)	-2.095*** (0.248)
Medium grape quality	-1.082*** (0.213)	-0.406 (0.317)	-1.241*** (0.248)
Constant	15.905*** (4.768)	4.617 (10.439)	17.901** (6.393)
Lambda	0.396* (0.190)	0.836* (0.410)	0.318 (0.259)
Rho	-0.215 (0.245)	-1.516 (1.022)	0.358 (0.394)
† p<.10; * p<0.05; ** p<.01; *** p<.001; significance tests are two-tailed. SARAR estimates by GS2SLS with standard errors in parentheses.			

Appendix I. Qualitative Data Description

Interviewees		Interviews		
Type	Gender	Location	Date	Duration
Expert	M	Reims	2-Oct-08	1:36:15
Expert	M	Epernay	2-Oct-08	1:12:29
Expert	M	Phone	9-Oct-08	1:20:49
Expert	F	London	16-Oct-08	1:17:01
Expert	M	London	20-Oct-08	0:37:47
Expert	M	Phone	20-Oct-08	0:58:50
Expert	M	London	6-Nov-08	0:23:55
Expert	M	London	5-Dec-08	1:02:12
House CEO	M	Paris	16-Feb-09	1:19:02
House CEO	M	Ay	17-Feb-09	0:58:10
House CEO	M	Dizy	18-Feb-09	1:20:19
House CEO	M	Epernay	18-Feb-09	1:00:12
House CEO	M	Mareuil sur Ay	18-Feb-09	1:29:00
House CEO	M	Epernay	19-Feb-09	NA*
House CEO	M	Ay	19-Feb-09	0:43:38
House CEO	F	Vertus	19-Feb-09	1:18:44
House CEO	M	Taissy	20-Feb-09	1:19:31
House CEO	M	Tour sur Marne	20-Feb-09	1:03:38
House CEO	M	Epernay	20-Feb-09	0:29:46
House CEO	M	Paris	5-Mar-09	0:49:47
House CEO	M	Epernay	5-Mar-09	1:10:00
House CEO	M	Phone	8-Apr-09	0:43:21
Expert	M	Epernay	20-Oct-09	0:44:40
Expert	M	Reims	18-Nov-09	0:45:10
Expert	M	Reims	18-Nov-09	1:22:51
Grower	M	Celles sur Ource	19-Nov-09	1:16:34
Grower	M	Buxueil	19-Nov-09	1:50:44
Grower	M	Bouzy	19-Nov-09	0:44:45
Grower	M	Charly-sur-Marne	20-Nov-09	1:16:24
Grower	M	Vertus	20-Nov-09	0:42:56
Expert	M	Phone	20-Nov-09	0:41:32
Expert	M	Reims	20-Nov-09	NA*
Expert	F	Epernay	19-Jan-10	1:24:12
Expert	M	Reims	13-Dec-10	1:29:06
Grower	F	Sacy	14-Dec-10	0:23:51
Grower	M	Chamery	14-Dec-10	1:34:32
Grower	M	Rilly la Montagne	14-Dec-10	0:45:40
Grower	M	Rilly la Montagne	14-Dec-10	0:48:03
Grower	M	Rilly la Montagne	14-Dec-10	1:05:34
Grower	M	Villedommange	15-Dec-10	1:04:01
Grower	M	Chamery	15-Dec-10	0:43:17
Grower	M	Ecueil	16-Dec-10	0:47:00
Expert	M	Reims	16-Dec-10	0:54:59
Grower	F	Phone	21-Mar-14	0:58:54
Grower	F	Phone	21-Mar-14	0:51:33
Grower	F	Phone	21-Mar-14	0:58:29
Grower	F	Phone	25-Mar-14	0:50:14
Grower	F	Phone	25-Mar-14	1:15:43
Grower	F	Phone	2-Apr-14	0:42:32
Grower	F	Phone	3-Apr-14	0:51:20
Grower	F	Phone	4-Apr-14	0:57:54
Grower	F	Phone	5-Apr-14	0:56:18
Grower	F	Phone	10-Apr-14	0:58:05
Grower	F	Phone	14-Apr-14	1:36:48
Grower	F	Phone	16-Apr-14	1:09:39
Grower	F	Phone	17-Apr-14	1:05:22
Grower	F	Phone	25-Apr-14	0:58:39
Grower	M	Phone	24-Nov-15	0:24:07
Grower	M	Phone	24-Nov-15	0:17:37
Grower	M	Phone	25-Nov-15	0:39:05
Grower	M	Phone	30-Nov-15	0:22:24
Grower	M	Phone	30-Nov-15	0:18:38
Grower	M	Phone	1-Dec-15	0:22:53
Grower	M	Phone	7-Dec-15	0:31:47
Grower	M	Phone	7-Dec-15	0:25:21
Grower	M	Phone	9-Dec-15	0:32:28
Grower	M	Phone	29-Dec-15	NA*

* These interviews were not recorded (exact duration is not available). With a few exceptions (i.e., English-speaking industry experts), all interviews were conducted in French by a native speaker. The interviews lasted 56 minutes on average; all but three interviews were taped, and then transcribed and translated into English. The interviews were semi-structured, and we used interview protocols to frame the discussion.

¹ All growers were given pseudonyms.

² Note that, in this view, what constitutes a “minority group” is context specific; individuals belong to multiple social categories (e.g. race, gender or socio-economic class) and could identify with one or several of those characteristics depending on the social context (Reagans 2005; Mehra et al. 1998). Of particular interest are cases where individuals choose to identify with a low-status category as a reaction to being excluded by the majority on the basis of that specific dimension (see Leonardelly et al. (2010) for a review of this literature). This focus on the majority’s behavior towards minority members is also a key feature of Wirth’s (1945) classic definition of “minority,” as well as of sociological research that emphasizes competition for resources as a driver of ethnic boundary formation and intergroup conflict (Olzak, 1992; Okamoto, 2003). Thus minority/majority relationships reflect the presence of unequal treatment, either actual or perceived, of one group by another (rather than simple numerical representation).

³ The French Institute of National Statistics does not collect data on ethnicity, so reliable information in this regard is not available. Anecdotally, during our fieldwork and interviews over multiple trips, we did not meet a single visible ethnic minority in the Champagne vineyards.

⁴ Experts include the presidents of the three local trade associations (SGV, UMC, and CIVC), a Masters of Wine (MW), a scholar from the Champagne Management Chair at Reims Business School, a UBS analyst of European luxury goods, the managing director of the UK Champagne Bureau, Champagne agents, and a former head of the UMC.

⁵ Loyalty premiums are 3.02% of the final price and are added to 48% of all transactions, duration premiums are 1.32% and affect 40% of transactions, quality premiums are .28% and apply to 5% of the transactions, need premiums are 1.71% and affect 48% of transactions, and other premiums are .36% and apply to 10% of all transactions.

⁶ In our analyses, the highest-quality grade is the omitted category. Our results are not affected if we use a continuous quality measure ranging from 80 to 100 or use alternative cut-off points for the binary variables.

⁷ The data are left-censored because we do not start observing buyer–seller dyads until 1992. One year is by far the most frequent duration for “breaks” in dyadic relationships. We therefore drop our first year of observations so as to mitigate potential left-censoring issues. That being said, results are unchanged when data for 1992 are included.

⁸ This approach matches with respect to characteristics for which male and female sellers are significantly different. However, our results hold also under alternative matching criteria.

⁹ The R-squared values reported for our regressions are rather high because our year dummies, each of which corresponds to a particular harvest, explain much of the variance in price (over 50% in the pooled OLS and panel regressions). This outcome is not surprising given the agricultural nature of the product we are examining.

¹⁰ We use an implementation developed by Kleinbaum, Stuart, and Tushman (2013) of the Cameron, Gelbach, and Miller (2011) method of multiway clustering.

¹¹ This effect is difficult to interpret because it is driven by only a few observations.

¹² One may worry that women obtain higher prices because of “feminine charm” (Jones 1964). Recent work suggests that using feminine charm in buyer–seller negotiations does not enable female sellers to extract higher prices than their male counterparts (e.g. Kray, Locke and Van Zant 2012). Our interviews did not indicate either that female growers generally perceive feminine charm as a negotiation advantage. It is thus not clear how this could play a meaningful role. Relatedly, one may wonder whether women get higher prices simply because it is culturally inappropriate to argue aggressively with women in France. Research in cross-cultural negotiation suggests this is unlikely. “The French don’t make any difference between men and women. The person across the table is judged for what he or she represents and not on whether they are a man or a woman.” (Van Der Valt, 2010: 2). The openly conflictual dynamics we observed between male and female sellers also lead us to believe that women are unlikely to receive a more favorable treatment when negotiating with men. Overall, then, we have no good reason to believe that these demand-side factors are a viable alternative explanation for our results.

¹³ In fact, the women we interviewed often expressed some skepticism—if not outright suspicion—toward official growers’ groups. The association’s “female grape grower” subdivision is “looked upon [by men and women] as a bit of a joke” (Louise).

¹⁴ Estimates are consistent for most years and are available from the authors upon request.

¹⁵ This is so for two reasons. First, intersectionality theory suggests that the complexity associated with multiple social identities (e.g. race and gender) makes individuals’ choice of a basis for identification less straightforward (see Shields 2008). Second, where intersecting minority statuses are present, the salience of the boundary between the minority and the majority group is fuzzier. This may weaken both intergroup conflict and its ensuing reactive solidarity (see Olzak, 1993).