Near or far: How physical proximity shapes price in exchange relations

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Abstract

This paper distinguishes, both conceptually and empirically, among three mechanisms by which physical proximity shapes transaction patterns and price setting in vertical exchange relations. I propose that community-based buyer–seller proximity, as measured using various geographically based insider–outsider cutoffs, affects the normative constraints experienced by exchange partners and therefore price setting as well. I find that, in the market for Champagne grapes, sellers who transact with buyers from their own community set systematically lower prices. Thus social control inhibits deviation by sellers from local pricing norms in their community but not when dealing with outsiders. I discuss the implications of these findings for strategy research and for our understanding of how markets function.

1. Introduction

Space plays a crucial role in both structuring and determining the outcome of buyer–supplier relations. Building on the spatial economics literature, which studies the location choices of economic agents (Hotelling, 1929; Marshall, 1920; Weber, 1909), strategy scholars have extensively examined the geographic agglomeration of related businesses—many of which are linked by buyer–supplier relations (for examples, see Alcácer and Chung, 2014; Alcácer and Zhao, 2016; Chen et al., 2009; Singh and Marx, 2013; Wang, Madhok, and Li, 2014). Their work emphasizes the role of efficiency gains in accounting for agglomeration: being close to one's suppliers lowers *transportation costs* (Weber, 1909) or/and reduces *information and communication costs* (Scherer, 1984). Because physical proximity affects transaction costs, it is also likely to affect price setting between exchange partners. This paper addresses that important topic by examining how physical proximity can affect interaction patterns and price setting in the context of buyer–supplier relations.

Recent work suggests that proximity is a complex construct that tends to be oversimplified in both theoretical and empirical accounts (e.g., Alcácer and Zhao, 2016). Highlighting 'a glaring gap in the literature,' Singh and Marx (2013: 2057) show not only that 'distance matters' in shaping interfirm relations but also that different geographic boundaries (e.g., city, county,...) play an independent role, which has been largely overlooked. It is necessary to understand these boundary effects as they may affect price setting in ways that transcend proximity—for example, because of 'institutional differences' across space (Singh and Marx, 2013: 2056). While some economists (e.g., Engel and Rogers, 1996) have found that boundaries affect relative prices across locations, their work focuses on consumer markets across international borders, highlighting the role of tariffs, taxes and regulation between countries (Anderson and van Wincoop, 2004). In the context of supply relations, few scholars have examined how price may be affected by geographic boundaries.

This paper distinguishes, conceptually and empirically, among three separate mechanisms via which proximity may affect price setting in vertical exchange relations. Building on prior work in spatial geography, I start by discussing how *transportation costs* (Weber, 1909) as well as *information and communication costs* (Scherer, 1984) may affect price setting between buyers and sellers. I then augment that research by theorizing about a different mechanism: social control within a bounded geographical community. By 'social control' I mean the idea that different communities represent different social networks of individuals, which implies variance across community boundaries in terms of actors' ability to enforce local norms (Coleman, 1990). Proximity increases the chance of encounters across multiple social domains—for example, as neighbors, parents, colleagues, or co-religionists (Verbrugge, 1979)—and also facilitates the formation of close personal relations (Marmaros and Sacerdote, 2006). I propose that such multi-stranded relationships within bounded geographical communities—or *community-based proximity*—facilitate the enforcement of local norms among members, which can affect transaction patterns and price setting.

To investigate how proximity may affect price (conditional on forming a relationship), I use fine-grained data on buyer–seller exchange relations in the Champagne grape market. In this market, the location of grape buyers and sellers has remained virtually unchanged for decades, which helps mitigate endogeneity concerns (in the sense that location choices were made well before current managers took over the business). Champagne also features little friction in terms of travel time or of information and communication costs: this wine region is small and so transportation costs represent a small portion of the final product's cost; furthermore, actors must follow an explicit pricing norm (as described in what follows), which sharply reduces information asymmetries. These characteristics make the Champagne grape market a relatively conservative setting in which to study the role of proximity in vertical relations; they also provide an opportunity to study how community-based proximity may affect price setting through variance in actors' ability to enforce pricing norms.

Using proprietary data, I examine 5,824 grape transactions, for which I have complete price information involving 294 sellers and 54 buyers over the 2003–2009 period. I first examine how *community-based proximity* affects the likelihood of an exchange occurring. Second, I find support for my hypothesis that (conditional on transacting) sellers charge systematically lower prices to buyers who belong to their community as variously defined by boundaries around cantons,[1] school districts, villages, and streets. In contrast, neither *transportation costs* nor *information and communication costs* have a significant effect

[1] In France, cantons are legally defined clusters of small cities that share some administrative services.

on price setting. I conduct some robustness checks to alleviate concerns about the role played—in the pattern of results I describe—by the search behavior or willingness to pay of buyers. In particular, I am able to show that my results hold in multiyear contracts, when buyers have secured a given amount of grapes from a given seller and when it is therefore improbable for temporal and spatial search behaviors to come into play, as compared to one-off grape transactions. In additional analyses, I provide further support for the mechanism involved by distinguishing between transactions with identifiable sellers (i.e., individual grape growers) and those with unidentifiable sellers (i.e., anonymous growers in co-operatives). In line with my argument about when actors are most subject to normative constraints, I find that membership in the same geographical community affects transaction prices only when buyers can identify the individual seller and *not* when they transact with an agent for anonymous principals (i.e., a co-operative director).

This paper makes three contributions to the strategy literature. First, it responds to calls for further investigation of how geographical boundaries affect relation outcomes (e.g., Singh and Marx, 2013). It contributes to prior work in this field by highlighting a crucial but usually overlooked mechanism by which proximity affects price setting in vertical relationships. More specifically, the paper explains how membership in a geographical community affects actors' ability to enforce local norms and, in turn, prices; it thereby furthers our understanding of variance in price, a key means by which resources are allocated and rents are appropriated by economic actors.

Second, by identifying a possible downside to transacting within the community (versus transacting with outsiders), my results add nuance to our understanding of social networks in the strategy literature (Gulati, 1999; McEvily and Zaheer, 1999; Uzzi and Gillespie, 2002; Zaheer and Bell, 2005). This work has generally depicted social relations in a positive light, including studies on geographic agglomerations (e.g., Sorenson and Audia 2000; Stuart and Sorenson, 2003). By contrast, I show that social control within a bounded geographic community can act as a significant constraint on the profitability of economic actors (in my setting, grape sellers). In light of this constraint on profitability, the Discussion section elaborates on the question of why a seller may still choose to transact within her community—an apparent paradox that attests to the strength of social control.

Finally, this paper increases our knowledge about the general functioning of markets. Indeed, there are several markets that, like the market for Champagne grapes, rely on 'block booking' norms (Kenney and Klein, 1983). In such markets (e.g., diamonds, movies, commodities, insurance, mortgages), goods are sorted into categories to be sold in blocks to buyers at fixed prices. This paper shows that membership in tight geographic communities, by facilitating the enforcement of fixed pricing norms, provides a mechanism that prevents the market from unraveling.

2. Theory

2.1. Geographic Proximity and Vertical Relations

A large body of work has examined the relationship between physical proximity and the likelihood of transacting. Starting with Tinbergen (1962), economists studying the 'gravity equation' have reported that trade volumes decline with the distance that separates two parties. Closer to my study's focus is strategy research reporting that the likelihood of two actors interacting decreases with geographic distance (Agarwal and Hauswald, 2010; Chakrabarti and Mitchell, 2013; Coval and Moskowitz, 1999; Ragozzino and Reuer, 2011; Sorenson and Stuart, 2001), even in small spaces such as office buildings (Catalini, 2017) or meeting rooms (Chown and Liu, 2013). When considering vertical relations, this work emphasizes two key mechanisms.

One mechanism, which has been extensively discussed in industrial economics, is *transportation costs*. Geographical proximity helps optimize the supply chain in business-to-business relations by facilitating access to inputs and minimizing transportation costs. This is especially valuable when inputs are available from a limited number of sources and/or cost more to transport than does the final product (Isard, 1949). Dealing with remote suppliers may not be profitable if distance costs outweigh savings in production costs (Disdier and Head, 2008). This mechanism underlies some seminal economic explanations for industrial agglomerations (Weber, 1909). For instance, it helps explain why steel manufacturers tend to locate near iron ore reserves.

The second mechanism is that geographical proximity—in addition to its effect on the transportation costs of inputs—reduces *information and communication costs*. Example findings include these, from a wide variety of fields: international management scholars describe the 'liability of foreignness' (Zaheer, 1995); research on venture capital and equity markets document a strong 'home bias' (Coval and Moskowitz, 1999; Sorenson and Stuart, 2001); and M&A studies document that remote buyers, as compared with local buyers, are at greater risk for adverse selection (Chakrabarti and Mitchell, 2013, 2016; Ragozzino and Reuer, 2011; Reuer and Lahiri, 2014). A thread that runs through these diverse studies is geographic distance serving as a proxy for information asymmetries (Akerlof, 1970). Traveling is both costly and time consuming, and distance is known to distort 'soft,' context-specific information (Almeida, Dokko, and Rosenkopf, 2003; Audia, Sorenson, and Hage, 2001; Jaffe, Trajtenberg, and Henderson, 1993). Coordinating, monitoring, and transferring complex information all rely on relatively frequent and face-to-face interactions (Catalini, 2017). By increasing the cost of face-to-face interactions, distance decreases exchange-based proximity; it hinders the development of embedded exchange relations that would otherwise promote trust and reciprocity between buyers and suppliers (Elfenbein and Zenger, 2013; McEvily, Perrone, and Zaheer, 2003). It is hardly surprising that, the less information actors can collect about potential partners, the greater the associated transaction costs and so the lower probability of actors engaging in a transaction.

It is only natural to wonder whether these two mechanisms not only structure contact between actors but also affect the outcomes resulting from that contact (e.g., Catalini, 2017; Chown and Liu, 2013), including price setting. While they do not study the role of space per se, some sociologists have examined how embedded relations can affect pricing by contributing to the governance of interactions between sellers and buyers, as when the exchange of private information helps improve service or reduces transaction costs (Bidwell and Fernandez-Mateo, 2010; Fernandez-Mateo, 2007; Uzzi, 1999; Uzzi and Lancaster, 2004). Among scholars who have explicitly considered the role of space, some have examined the performance implications of physical proximity in terms of return on investment. On the one hand, some have found that weaker information asymmetries enable higher returns on investments in local companies than in more distant ones (Coval and Moskowitz, 2001). On the other hand, nonlocal investments have been shown to outperform local ones, although no straightforward mechanism has been proposed for this puzzling result (Chen et al., 2009). Scholars have also analyzed how space affects prices in credit markets. Some studies find that banks are able to extract higher loan prices from local borrowers than from distant ones (Agarwald and Hauswald, 2010). Yet other studies find that banks set higher loan prices for distant than for local borrowers to reflect the higher cost of acquiring information about the former (Belluci et al., 2013). In vertical relations, one may expect space to affect price setting by raising or lowering transaction costs, but few studies have examined this question empirically. A notable exception is Elfenbein and Zenger (2013), who suggest that physical proximity reduces information asymmetries and should therefore increase a buyer's willingness to pay (and thus the price) at industrial procurement auctions. However, their empirical results are not conclusive.

The lack of convincing evidence on this question may reflect the multifaceted nature of the concept of proximity. More specifically, recent work suggests that, when investigating how space structures relations, both proximity effects and *boundary* effects must be accounted for (Singh and Marx, 2013). These authors promote localized networks of individuals as a fruitful avenue for future research because such networks may explain important 'institutional differences' across space. In this paper, I follow suit and build on this intuition in proposing a new mechanism through which proximity affects the structuring of vertical relations and also price setting.

2.2. Community-Based Proximity and Social Control

My starting point is the idea that physical proximity is an antecedent to social proximity (Blau, 1977; Blau and Schwartz, 1984; Bossard, 1932; Lazarsfeld and Merton, 1954). Scholars have long noted that proximity facilitates the formation of strong personal relations (Festinger, Back, and Schachter, 1950; Marmados and Sacerdote, 2006). In other words, 'these distances which separate individuals are not merely spatial, they are psychical' (Park and Burgess, 1921: 164). Physical proximity provides multiple opportunities to interact in various roles: neighbors are likely to run into each other at local businesses or community events, and their children are likely to attend the same school (Carroll and Torfason, 2011). Such personal and multiplex ties (Gluckman, 1962; Verbrugge, 1979) help create and sustain the shared feeling of belonging to a community.

A community is defined by some combination of (relatively) small scale, boundedness, and strong ties among members (Marquis and Battilana, 2009)[2]. Economic geographers have defined a community as 'a wide variety of ways of grouping together with others with whom we share some part of our identity, expectations, and interests' (Storper, 2005: 34). Similarly, strategy scholars have referred to a 'local level of analysis corresponding to the populations, organizations, and markets located in a geographic territory and sharing, as a result of their common location, elements of culture, norms, identity, and laws' (Marquis and Battilana, 2009: 286). No definition precisely delineates the boundaries of a local community; 'the geographic scope of a community is an empirical question' (Aldrich, 1999: 300). However, there is a strong precedent for defining a community's physical bounds as a cluster of cities (Marquis and Battilana, 2009), a city (Stuart and Sorenson, 2003), a street (Grannis, 1998), or an organizational meeting point (e.g., a school; see Feld, 1982).

From this perspective, *community-based proximity* embodies a distinction between insiders and outsiders, between members of the community and strangers. Prior work suggests that such insider–outsider distinction might shape horizontal interfirm relations (Ingram and Inman, 1996); it might also shape market prices through these horizontal ties (Ingram and Roberts, 2000). In this paper, I propose that this insider–outsider distinction shapes transaction patterns and prices in the context of vertical relations also. This is because the insider–outsider distinction has obvious implications for social control, that is to say, the extent to which actors are able to enforce local norms through effective sanctions (Coleman, 1990).

As a baseline hypothesis, I expect that community-based proximity increases the likelihood that a buyer and a seller will transact with one another. This is because community members are expected to support each other and local organizations. Oftentimes, the underlying rationale is some real or perceived benefits for community members in terms of social cohesion along with boosting local economic development (McCaffrey and Kurland, 2013). The pressure to maintain regular interactions between members feeds back into the community's institutionalization (Marquis and Lounsbury, 2007).

[2] Note that, following Marquis and Battilana (2009), I focus on communities as geographic entities. While other conceptions have included elective communities that are geography-independent, I concentrate on the role of geography so as to effectively distinguish these processes from geography-independent processes.

Communities can benefit from establishing an identity tied to the specifics of their locale (Romanelli and Khessina, 2005), and sentiments of patriotism and emotional engagement with local organizations may also emerge (Cruz, Beck, and Wezel, 2017: 3). Research has shown that community members, in their role as consumers, tend to support local food producers (Weber, Heinze, and DeSoucey, 2008), local beer producers (Cruz et al., 2017), or local electricity producers (Liu and Wezel, 2014). As organizations, community members may also support their peers by favoring local versus distant supply relations; examples include the Scottish knitwear industry (Porac et al., 1995) or the northern California farm-to-table supply chain (Buck, Getz, and Guthman, 1997). In short, members of a community often feel some peer pressure to sell and buy local.

*Hypothesis 0 (H0)**:** The likelihood of a buyer and a seller transacting increases when they belong to the same community.*

Crucial to this paper's argument is the idea that actors may experience greater normative constraints on pricing when dealing with a member of their community than when dealing with a stranger. I propose that the enforcement of local norms is especially likely within the community, where people know each other and their families. Indeed, this type of social structure supports the application of effective sanctions against violators (e.g., Piskorski and Gorbatai, 2017): tight social relationships entail obligations and expectations that create leverage, which can be used for the purpose of developing such sanctions. Actors' ability to reciprocate in various capacities—as a neighbor, parent, or colleague—enhances the potential for norm enforcement. Furthermore, within circumscribed social realms, actors may become the subject of negative gossip if they deviate from local norms (Coleman, 1990). 'Gossip flourishes in close-knit, highly connected social networks but atrophies in loose-knit, unconnected ones' (Merry, 1984: 277). This matters because, in many contexts, gossip is an important element of enforcing norms (Coleman, 1990). In sum, belonging to the same community may affect price setting through variance in social control across community boundaries and the corresponding variance in actors' ability to enforce local price setting norms.

In the Champagne grape market (as described in what follows), as in a number of other markets (e.g., diamonds), a well-established norm is to price grapes in batches and according to their origin (i.e., cru). In other words, even if there is some variance in grape size, color, sweetness, or acidity within a cru, buyers are offered a fixed (averaged) price for that specific cru. As in other markets, this norm was established in part to prevent a Gresham's law phenomenon whereby sellers' revenues decline because of buyers' oversearching behaviors (Kenney and Klein, 1983). Yet as one would expect, this norm does not promote quality given that sellers have no monetary incentive to exert additional efforts in the vineyard: regardless of the quality of their work, they will receive the price corresponding to their grapes' cru. Some sellers might seek to deviate from this pricing norm and, whenever possible, to extract premium prices for their grapes. I propose that sellers are better able to bargain on price when they deal with strangers than with community insiders. More specifically, sellers can incorporate nonstandard information in their price; hence they can extract a premium for the quality of their work. Put differently, dealing with buyers from outside their community allows sellers to deviate from local pricing norms and thus derive more value from the exchange.

Hypothesis 1 (H1): Sellers charge lower prices to buyers who belong to their community than to buyers who do not.

3. The Market for Champagne Grapes

The Champagne area in France is precisely defined, and sparkling wine cannot be called Champagne unless it is made from the grapes grown in that region (Guy, 2007). Grapes are cultivated by growers (the sellers) and are sold to wine houses (the buyers, e.g., Bollinger), who use them to manufacture the eponymous sparkling wine. This market is a good research setting for a number of reasons, which I now describe. (For a discussion of the boundary conditions associated with the study of this market, please see section 9).

From an empirical perspective, it is difficult to study the effect of proximity on interfirm pricing because doing so requires access to proprietary longitudinal data on both price and exchange partners. This represents a significant empirical challenge, which is often cited as an explanation for the dearth of studies on price (Bidwell and Fernandez-Mateo, 2010; Elfenbein and Zenger, 2013; Ody-Brasier and Fernandez-

Mateo, 2017). A key research advantage of the Champagne grape market is the existence of fine-grained information about grape transactions, all of which are systematically recorded and verified by the professional association (le Comité Interprofessionnel du Vin de Champagne, CIVC) to ensure the grapes' exact origin and consequent grade for quality—as I shall describe in more detail. In other words, this market provides unusually reliable and detailed information about actors' physical locations, their exchange network, and transaction prices within exchange dyads over time.

Spatial economics has long studied the location choices of economic agents (Biscaia and Mota, 2012) and indicates that these decisions are seldom exogenous. Investigating the causal impact of proximity in vertical relations is therefore a considerable challenge: in contrast to undergraduate students in dormitory rooms (Sacerdote, 2001), random allocation across space is extremely rare for organizations (Ferguson and Snellman, 2016). In the absence of random allocation, strategy scholars often resort to such creative empirical strategies as quasi-exogenous relocation shocks (Catalini, 2017; Chown and Liu, 2013; Ferguson and Snellman, 2016). In Champagne, the location of buyers and sellers has remained fixed for decades, which reduces endogeneity concerns involving location decisions. On the demand side, Champagne historians and experts agree that original location decisions by wine houses were based on the availability of chalky soils, which made it possible to carve suitable cellars.[3] On the supply side, grape-growing businesses have remained in their current location since the last revision of the official quality scale about a century ago. Those quality ratings were based on a variety of factors including geology, microclimates, sun exposure, altitude, winds, and so forth. Although these characteristics do not entirely rule out endogeneity concerns, they confirm that decisions about location were made long before the current owners were in place.

The Champagne grape market is also a relatively conservative setting to examine how proximity affects transaction patterns and outcomes. First, Champagne is a small geographic area; it comprises only 30,000 hectares.[4] Transporting grapes across this area is therefore a small expense, especially in view of the

[3] http://maisons-champagne.com/fr/encyclopedies/histoire-du-champagne/deuxieme-partie-connaissance-du-champagne/chapitre-11-l-elaboration-du-champagne/article/les-caves

[4] This is about twice the size of the District of Columbia in the United States.

total price of grapes and Champagne wines.[5] It follows that the role of transportation costs is minimal in forming exchange relationships. Second, information about grape quality, as conveyed by official quality ratings, is easy to access and process at a distance; that convenience drastically reduces information asymmetries. Indeed, Champagne features a clear pricing norm: quality is measured on an official scale, which is exclusively based on grape origin (or cru). As explained by a grower whom I interviewed: 'It is pretty simple: we have an échelle des crus [quality scale]. So based on the cru, you know the quality of the grapes. Here, in this village, we're Grand cru. We're at the top; we get the best price.' There are about 300 crus in Champagne, all of which are rated between 80 and 100. These ratings serve as a pro rata system for determining the price of grapes. In other words, grapes are sorted into crus and sold in blocks at fixed prices.

The third reason this setting is a conservative one is that all transactions occur at the same time of year: immediately following the harvest, a two-week period that normally occurs in September. Grape growers are required to follow the official harvest dates for their cru; these dates are determined by the CIVC based on weather conditions and they are made available to all market actors. In 2009, for instance, growers were allowed to start the harvest between the 8th and the 21st of September, depending on the cru. Thus the potential effect of buyers' temporal (and spatial) search behavior on price is limited because the search period is necessarily short and prices are unlikely to adjust so quickly as to reflect changes in the availability of grape supply.

A key feature of this market, and one associated with an important boundary condition for the directionality of my predictions (please also see section 9), is an imbalance between supply and demand that gives grape sellers some pricing power. Over my observation period (2003–2009), the demand for grapes always exceeded their supply. On the supply side, a strict legal framework limits the amount of land that can be cultivated for wine production and the yield of the vines. Thus this region has already reached peak

[5] Grapes must travel in tank trucks with a capacity of 3, 5, or 9 marcs (about 80, 130, or 230 hectoliters). Interviews confirm that transportation costs are minimal as compared with grape prices: the maximum daily distance tank-truck drivers cover, which they casually refer to as 'un tour d'Aube,' is about 350 kilometers (220 miles). Yet a single tank truck (of 9 marcs capacity) represents nearly €250,000 worth of grapes (Champagne grapes are the most expensive in the world: over €5/kg in 2009, according to the CIVC).

production (Besse, Tegner, and Wilkins, 2006). Although some grape buyers have vineyards of their own (accounting for about a tenth of the vineyard area), French law makes it difficult for them to integrate vertically. As a result, grape buyers have low self-supply ratios and depend on independent grape sellers for the vast majority of their supplies. The grape sellers, however, are less dependent on buyers for distribution; the former can produce their own wine, and about 5,000 of these sellers currently do so. With the demand for Champagne booming over my observation period, these factors have rendered Champagne grapes an extremely scarce resource. In what industry observers refer to as a 'supply race,' grape buyers compete fiercely—regardless of grape location—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).

4. Methods

4.1. Data

First, I collected qualitative data during my fieldwork in the Champagne grape market. I conducted a total of 78 interviews whose subjects included 17 industry experts, 14 CEOs of Champagne houses, and 47 grape growers. These data are employed to complement my theorizing and quantitative analysis. Thus, I use interviews primarily to understand the institutional context and to establish face validity of the mechanism I am proposing.

Second, I collected quantitative data consisting of the contracts for 5,824 individual transactions between 54 grape buyers (Champagne houses) and 294 grape sellers (253 individual growers and 41 co-operatives) over the period 2003–2009. A transaction consists of an exchange—between buyer A and seller B—of a particular volume of grapes at a given quality grade and for a specified price (net of transportation charges, which are always paid by the buyer). These contracts were obtained from an agency that allowed me confidential access to their entire database. Agencies of this type complete the extensive paperwork required by the CIVC to trace and control the origin of all grapes exchanged.[6]

[6] In Champagne, 32 professionals work in this area: 13 work independently and 19 work in agencies. These six agencies represent about 80% of all volumes transacted. My data come from the largest of these six agencies.

I combined these transaction-level data with an additional data set on buyers and sellers that was assembled from public sources, which include: DIANE, a Bureau van Dijk database containing detailed financial information on French private and public companies; the National Registry of Trade of Companies, the official source of financial and legal information on French private and public companies; and the Guide Curien de la Champagne, a publication that provides detailed information about Champagne companies. The unit of analysis is the transaction, but there are measures at the levels of the dyad, seller, and buyer (please see below).

4.2. Estimation Strategy

To test the baseline hypothesis (H0)—and to check whether sellers are more likely to transact with a buyer who belongs to their community—I follow prior work (e.g., Sorenson and Stuart, 2001) and create an actor × actor matrix that represents all possible transaction dyads within a given year. I then use conditional logit models with seller fixed effects to estimate the probability of a transaction occurring as a function of my measures for community-based proximity. These models include, as covariates, measures for transportation costs, seller- and buyer-level controls, and year dummies; standard errors are clustered by seller.

To test H1—and to discover whether grape sellers charge lower prices to a buyer in their community—I use panel data estimation methods. Taking the seller's perspective, I include seller fixed effects, measures for dyadic transaction costs, seller- and buyer-level controls, and year dummies. This approach allows me to account for the seller's gender,[7] which previous work has identified as a source of variance in pricing behavior (Ody-Brasier and Fernandez-Mateo, 2017). I also add a dummy variable for each buyer because earlier research documented different buyers being charged different prices (Ody-Brasier and Vermeulen, 2014). In these models, the standard errors are clustered by both seller and buyer (Kleinbaum, Stuart, and Tushman, 2013).

According to their own estimates, this agency accounts for about 20 to 25 percent of the volumes exchanged in Champagne.

[7] Male and female sellers do not differ significantly in terms of geographic distance to their buyers ($p < 0.769$).

5. Measures

5.1. Dependent Variables

Transaction occurred. The first dependent variable is a dummy set equal to 1 if a transaction occurred between a buyer and a seller in a given year (and set to 0 otherwise). As mentioned previously, computing this measure requires that I create an actor × actor matrix representing all possible exchange dyads involving my data set's buyers and sellers in a given year.[8] When computationally possible, this is the preferred method for modeling partner selection (e.g., Sorenson and Stuart, 2001).

Price. In H1, the dependent variable is the final price (per kilogram) paid for grapes in each transaction observed over the study period, *net of transportation charges*. This average price per kilo in the sample is FRF 29.97 (about €4.57). For consistency I employ the same measure used by prior work in this area (Ody-Brasier and Fernandez-Mateo, 2017),[9] but my results do not change if instead I use the natural logarithm of *Price*.

5.2. Community-Based Proximity

What is a community? As already mentioned, the boundaries of a community are hard to fix (Marquis and Battilana, 2009). To capture community-based proximity, I therefore consider various boundaries that may separate members of a community from strangers: a cluster of cities (as in Marquis and Battilana, 2009), an organizational meeting point (Feld, 1982), a city (Stuart and Sorenson, 2003), and a street (Grannis, 1998).

Same canton. In France, cantons are legally defined clusters of small cities. Cantons matter for social control because they create opportunities to interact through shared administrative services, such as a common post office or police force. Using administrative data for all villages in my sample, I coded this variable 1 if the buyer and the seller belong to the same canton; it is coded 0 otherwise.

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[8] The number of observations in these models is therefore 110,418, as compared with only 5,824 in the models for predicting (actual) transaction prices.

[9] My observation window, which starts in 2003 for co-operatives, occurs just after France's conversion to the euro. To facilitate comparisons with prior work (Ody-Brasier and Fernandez-Mateo, 2017), I use the same currency (i.e., French francs) while also providing the euro equivalents.

Same school. Sociologists see some organizations, especially schools, as important meeting points (Feld, 1982); Coleman and Hoffer (1987), among others, observe that schools are central to social interaction and social control. People located in the same school district are likely to meet when picking up their children, at parent–teacher meetings, and/or at various school events. Using government data for the Région Académique Grand Est (i.e., the entire Champagne region), I created a map of all écoles primaires (i.e., schools for children between ages 2 and 11). I then computed the shortest driving distance between, on the one hand, each school and, on the other hand, each buyer and each seller. Because parents are legally required to school their children in the city where they reside,[10] this measure is a good proxy for shared school districts. It is coded 1 if the buyer and the seller share the same school and 0 otherwise.

Same village. Villages are small cities. Note that the city is, in the literature, the most often used boundary for a community (Marquis and Battilana, 2009). In Champagne, villages are a key unit of analysis. Not only do villages map onto specific crus, but archival data show that each Champagne village has a strong identity rooted in common history (Chauvé, 2004). I coded this variable as 1 if a buyer and seller are located in the same village and as 0 otherwise.

Same street. In the context of Champagne, streets might play a role in the formation of communities. Grannis (1998: 1530) considers the question 'what does it mean to be neighbors?' and highlights the role of shared streets; he finds that networks of neighborly relations emerge from 'who is down the street.' One may expect streets to play a stronger role in urban as compared to rural settings, but because I have the exact address of buyers and sellers, I created a variable coded 1 for dyads who share the same street and 0 for those who do not.

[10] This rule does not apply if parents choose a private school, but the latter account for only 14 percent of all schooled children between ages 2 and 11 in France.
(http://www.sciencespo.fr/liepp/sites/sciencespo.fr.liepp/files/Presentation_Monso_LIEPP.pdf).

5.3. Dyadic Transaction Costs

I now describe the measures used to account for *transportation costs* as well as *information and communication costs*, two well-documented mechanisms in the literature on how space may affect transaction patterns and outcomes.

Distance. This continuous variable captures transportation costs. Using detailed location data on grape buyers and sellers, I computed the driving distance (in kilometers) between them. For those in our sample, the average driving distance is only 27 kilometers (about 17 miles). It is worth mentioning that alternative measures, such as the Euclidean distance (i.e., 'as the crow flies') or the Haversine distance, yield similar results. Taking instead the natural logarithm of *Distance*—in order to account for possible nonlinearity (e.g., changes in transportation modes)—also yields comparable results.

Relation duration. Embedded exchange relations often develop as a response to significant information asymmetries. To capture exchange-based proximity between buyers and sellers—and, by extension, the level of information and communication costs—I follow prior work and measure relation duration: the cumulative number of years of the exchange relation between buyer and seller at the time of transaction. The sample average is about 3.5 years. Since the effect of relation duration is not linear, I took the natural logarithm of this measure. Note that dyads involving relatively distant partners (i.e., above the sample mean with respect to driving distance) do not differ significantly, in terms of relation duration, from dyads involving relatively close partners.

Past volumes exchanged. This variable also captures exchange-based proximity between partners and, by extension, the magnitude of information and communication costs. It is defined as the cumulative volume of grapes exchanged within a dyad (in thousands of kilos), and the sample average is about 214,000 kg. I took the natural logarithm of this measure to account for non-linear effects. With respect to this variable, too, dyads consisting of relatively distant partners are not significantly different from dyads of relatively close partners.

5.4. Control Variables

Seller unique ties is the number of buyers with which a seller transacts in a given year (irrespective of her number of transactions with each buyer).

Seller size is defined as the annual volume of grape sales (in thousands of kilos) made by a seller.

Buyer unique ties is the number of sellers with which a buyer transacts in a given year (irrespective of his number of transactions with each seller). Note that this measure likely underestimates the population's true mean given that (i) buyers, unlike sellers, often deal with multiple agencies and (ii) no reliable data on buyers' exchange relations are available outside my agency's sample. However, the large size of this agency (see footnote #6) and the fact that they work with all Champagne houses as well as with grape sellers from all over Champagne mitigate this concern. (A map of the sample's sellers and buyers is reproduced in the Appendix.)

Buyer size is defined as the volume, in thousands of kilos, of purchases made annually by a buyer. To construct this variable, I used data assembled from the Guide Curien de la Champagne and DIANE (since buyers often use several agencies, any measure based on a single agency would underestimate the total volume purchased annually by a Champagne house).

Buyer profitability is proxied by the buyer's annual return on assets. I include this variable because sellers could conceivably price-discriminate based on a buyer's profitability.

Grape quality measures the quality of grapes exchanged. Recall that it is officially recorded on a scale that ranges from 80 to 100. The same grower may sell grapes of different quality levels depending on where her plots of land are located.

Transaction volume is the volume exchanged (in thousands of kilos).

Share of annual volume is calculated as the volume of grapes that each transaction represents as a percentage of the total annual volume exchanged within the dyad. The value is equal to *Transaction volume* divided by the total annual volumes exchanged.

6. Results

Descriptive statistics, at the transaction level, are given in Table 1 for all variables.

—Insert Table 1 about here—

Results for the baseline hypothesis are displayed in Table 2. In line with prior work, I find that the driving distance between buyers and sellers has a negative effect on a seller's likelihood to transact with a buyer (Models 1–5). However, with the exception of Model 4, this effect is only marginally significant ($p < .100$) and its magnitude is small—which is not surprising given the setting's characteristics. In addition to low transportation costs (see footnote #5), my fieldwork reveals few logistical constraints on grape transportation. An interviewee explains: 'With today's technology, moût [grapes] can easily travel. And Champagne is not that vast anyway. So it [distance] is certainly not a factor I consider [...] Whether the truck drives 80 or 100 kilometers, it doesn't make much of a difference.'

In these conditional logit models, the proxies for information and communication costs (i.e., *Relation duration* and *Past volumes exchanged*) drop out since they perfectly predict the outcome. As mentioned earlier, one would not expect these costs to markedly shape transaction patterns since information asymmetries are limited. One of my interviewees sums up: 'No, it doesn't bother me at all [to deal with a distant partner]. And anyway, at the harvest, we go and see for ourselves how things are going. We see the grower and the grapes at the pressoir.'[11] Note that the French customs and excise agency is actively involved in Champagne grape transportation, which alleviates concerns about potential fraud, and in turn adverse selection. Interviews reveal that all tank truck drivers fill out paperwork that guarantees the safe transportation of grapes from point A to point B.[12]

The coefficients of interest for H0 are those for *Same canton* (Model 1), *Same school* (Model 2), *Same village* (Model 3), and *Same street* (Model 4). For completeness, Model 5 includes all four independent variables as covariates. Results indicate that a seller and buyer who are located in the same school district or in the same village are more likely to transact with each other. The magnitude of these effects is not trivial: the odds ratio for *Same school* is 3.42 ($p < 0.003$), and it is 1.78 ($p < 0.059$) for *Same village*. In contrast, being located in the same canton or on the same street does not significantly affect the

[11] Pressoirs are the machines used for crushing grapes and turning them into juice (moûts).

[12] For example, deliveries from Epernay to Les Riceys ('un tour d'Aube') must be completed within a 4 to 6 hour window.

likelihood of engaging in vertical exchange relations. At least in Champagne, then, the pressure to 'sell and buy local' operates at specific boundaries—namely, those reflecting agents who went to the same school (or whose children go to the same school) and/or who live in the same village.

—Insert Table 2 about here—

Results for the paper's main hypothesis (H1) are summarized in Table 3. Recall that the models are regressions of price on community-based proximity, with seller fixed effects and dummies for each buyer. A consistent result across all models is that neither driving *Distance* nor *Relation duration* or *Past volumes exchanged* significantly affects transaction prices (see Models 1–5). As suggested earlier, these results are not entirely surprising in the context of the Champagne grape market.

—Insert Table 3 about here—

The coefficients of interest in H1 are *Same canton* (Model 1), *Same school* (Model 2), *Same village* (Model 3), and *Same street* (Model 4). Once again, Model 5 shows all four independent variables simultaneously for completeness. A clear pattern in the results is that, regardless of the boundary chosen, prices are lower when sellers transact with a buyer from within their own community. Model 1 reveals that, when buyer and seller are located in the same canton, the price charged decreases by FRF 0.445 per kilogram ($p < 0.043$). Models 3 and 4 show that this effect persists when considering a buyer and a seller who are in the same village (a price decrease of FRF 0.453/kg, $p < 0.004$) or located on the same street (FRF 0.878/kg, $p < 0.011$). The effect is strongest when actors are located in the same school district (Model 2) with a price decrease of FRF 1.127 per kilogram ($p < 0.004$). For the average seller in the sample, this means that dealing exclusively with buyers from their own school district, as compared with dealing exclusively with outsiders, would result in an annual economic loss of nearly FRF 124,000 (€19,000). The magnitude of this effect may seem modest, yet one must bear in mind that the average grape-selling business is a small one. According to the CIVC, grape growers owned an average of 2.18 hectares each in 2009. Note that, in addition, this effect is not trivial from the buyer's perspective. For an average buyer in my sample, dealing exclusively with sellers in her own school district would yield annual savings of some FRF 8,048,000 (€1,226,900) as compared with dealing exclusively with outsiders. In sum, these results provide strong support for H1.

In additional analyses (available upon request), I examine the role of cutoffs based on distance between buyers and sellers instead of cutoffs based on community boundaries. In particular, I check for whether being relatively close or far from one another (as measured in percentiles of driving distance) had an independent effect on transaction prices. I find no statistically significant effect, which suggests—in line with my theorizing and prior work (e.g., Marx and Singh, 2013)—that 'institutional differences' across space play a role that is both independent of and in addition to the role of geographic proximity.

7. Alternative Explanations

7.1. Buyers' Search Behavior

One possible explanation for the pattern of results described here involves the search behaviors of buyers. It may be that buyers seek to balance (a) their preference for lower prices and local sellers with (b) the urgency of their need to purchase. If excess demand is high then the latter motivation may dominate, in which case the price is higher beyond community boundaries simply because it reflects buyers extending their search temporally (and hence also spatially) in a low-supply market.

As mentioned earlier, because all grape transactions occur during the harvest, the search period for buyers is a short one. It therefore seems unlikely that prices could adjust quickly enough to reflect changes in supply. However, the richness of my data allows me to examine formally the possibility that buyers struggle to secure the required amount of supplies and pay a higher price as a result of extending their search temporally (and spatially). In light of the excess demand, many sellers sign 'declarations of intent' to supply a given buyer for a number of years (five is the legal maximum number of years).[13] My data enable a distinction between one-off transactions, which occur outside a multiyear contract, and transactions that occurred within a (signed) multiyear contract. When buyers have secured a given amount of grapes from a given seller, it becomes improbable for the temporal and spatial search behaviors described previously to come into play. Therefore, if search behaviors were driving my results then one would expect these results

[13] Even when a seller signs a declaration for multiple years, prices are systematically renegotiated after each harvest.

to hold for one-off grape transactions but *not* for transactions that occurred within multiyear contracts between a buyer and a seller.

—Insert Table 4 about here—

I therefore split my sample and examine only those grape transactions occurring within a signed, multiyear contract. Results from this analysis are given in Table 4 and show that, for the most part, the effect of community-based proximity holds for transactions that occurred within a signed, multiyear contract: with the exception of *Same street* (Model 4)—the most restrictive geographic bound to define a community—all predictors remain negative and statistically significant (see Models 1–3): *Same canton* ($\beta = -0.507$, $p < 0.014$), *Same school* ($\beta = -0.904$, $p < 0.000$), and *Same village* ($\beta = -0.580$, $p < 0.001$). Therefore, results are not consistent with the notion of buyers 'struggling at the last minute' and agreeing to higher prices due to the urgency of their supply needs.

7.2. Buyers' Idiosyncratic Needs and Willingness To Pay

Another related explanation for my results may be that sellers merely use a buyer's outsider status as a proxy for her idiosyncratic needs and corresponding willingness to pay. It may be that sellers assume outsiders cannot source the grapes they need within their own community and thus have little choice but to search beyond community boundaries. I assess this possibility by conducting two sets of analyses. First, I exploit setting-specific factors. Namely, Champagne wines can be made only from three grape varietals: chardonnay, pinot noir, and/or pinot meunier. Each grape varietal is unequally planted across the vineyard area: in the Marne, the area where almost all grape buyers are located, the varietals chardonnay, pinot meunier, and pinot noir represented (respectively) 36.6 percent, 37.7 percent, and 25.6 percent of the total vineyard area in 2008 (CIVC, 2008). I therefore reason that if buyers purchase grapes at a distance because they are unable to source them locally, then the effect of community-based proximity on price should be especially strong for pinot noir grapes. However, the analyses reveal that the type of varietal purchased—in particular, pinot noir versus chardonnay and pinot meunier—does not significantly moderate the effect of community-based proximity on price (*Same canton* × *Pinot noir*: $\beta = 0.370$, $p < 0.180$; *Same school* × *Pinot noir*: $\beta = 0.163$, $p < 0.449$; *Same village* × *Pinot noir*: $\beta = 0.634$, $p < 0.403$).[14]

Second, I again exploit the data set's richness. My data include not only the final price of each transaction but also a breakdown specifying the price at which buyer and seller started negotiating as well as a series of premiums (i.e., in addition to the base price) that sellers may charge to buyers. The 'need premium' is charged by sellers for delivering specific types of grape. Because local pricing norms dictate that grape prices be determined by the quality scale, these premiums are very rarely charged to buyers; and when they are assessed, the amounts involved are relatively small. But suppose that my results are driven by sellers using a buyer's outsider status as a proxy for her idiosyncratic needs in terms of grapes. In that case, one would expect membership in the same community to decrease the likelihood that a seller charges a need premium. In fact, the conditional logit regression results (available from the author) show that community-based proximity does not significantly decrease the likelihood of charging this premium (*Same canton*: $\beta = -0.173$, $p < 0.615$; *Same school*: $\beta = -1.28$, $p < 0.825$; *Same village*: $\beta = -0.462$, $p < 0.228$).[15] The implication of these analyses is that sellers do not seem to use community membership as a signal for buyers' willingness to pay.

8. Teasing out the mechanism

I have proposed and found that sellers charge lower prices to buyers who are members of their community than they charge to outsiders. I argued that this surprising effect is due to sellers abiding by local normative constraints within their community—and thereby following the quality scale—yet feeling free to deviate from this norm when dealing with outsiders. I now turn to documenting this mechanism more precisely. Toward that end, I split the sample's sellers into two groups: individual grape growers and co-operatives. The intuition behind these analyses is that when 'persons interact as persons with others with whom they will continue to be in contact, as in a small community with high closure, they are subject to normative constraints, through sanctions [...] When persons are agents of corporate actors or of anonymous principals

[14] The interaction between *Same street* and *Pinot noir* cannot be computed owing to the small number of observations.
[15] Here again the small number of observations prevents calculation of the effect for *Same street*.

of such actors, they are no longer personal actors, but only agents. Thus they are largely freed from the responsibility for the actions they take' (Coleman, 1990: 570).

Unlike individual grape growers, who negotiate directly with their respective buyers, co-operatives pool grapes from various sellers whose identities remain unknown to buyers.[16] Because co-op members are anonymous, I expect co-operatives to experience fewer normative constraints when dealing with buyers from their community: buyers do not know which seller they are purchasing grapes from; their only point of contact is the co-operative director, who negotiates on behalf of anonymous co-op members. A co-operative director I interviewed explains: 'My job is to get the best possible price for our members. That's why the growers elected me; that's what they pay me for. It's my mandate, so it's nothing personal against the houses [...] Everyone understands that.' I therefore expect that co-operatives do not price-discriminate between community insiders and outsiders, from which it follows that boundaries should have no effect on the price charged by this type of seller. Results for these analyses are reported in Table 5. They show that individual grape growers offer lower prices to members of their community (see Models 1–4); in contrast, co-operatives do not seem to price-discriminate between neighbors and strangers (see Models 5–7).[17] The coefficients are not always significantly different in magnitude, but these results provide further support for the mechanism I am proposing.

—Insert Table 5 about here—

I have shown quantitatively that transacting with community outsiders allows sellers to charge higher prices, and I have argued that this is because sellers can deviate from established pricing norms, which results in a premium being paid for the quality of their work. My qualitative data tend to support this general pattern of results. Despite local pricing norms, my interviews with growers reveal a desire to deviate from the norm and, whenever possible, to incorporate new quality criteria into their pricing. An interviewed grower justified this position by pointing out the limitations of the cru specific, fixed pricing norm: 'More

[16] Conversations with a co-op director confirm that buyers are informed only about the official quality grade of the grapes purchased; they are given no information about the identity of sellers: 'They [a house] do not know who, here, is selling them 5 hectares. We are the intermediary between the house and the growers. Under no circumstance can they [the house] find out who the sellers are.'

[17] Note that *Same street* drops out in these analyses because no buyer in my sample is located on the exact same street as a co-operative from which she purchases grapes. Hence that effect cannot be estimated.

fundamentally, the system does not promote quality: everyone in the same cru gets the same price. That's not logical; it does not reward good work. Why put in a big effort? When you do sloppy work, why should you be paid the same as people who go the extra mile?' Another grower whom I interviewed laments: 'It is kind of discouraging because, if you go to any other wine region, buyers pay according to the quality of the grapes [...] In Champagne, you get the same price as everyone else [in the cru] as long as you do the minimum amount of work. Quality is not taken into account.' A grower also describes the resistance encountered when challenging the norm by proposing new quality criteria: 'We brought up the idea [of incorporating other quality criteria into the price of grapes] but we were told [by the professional association] that good viticultural practices are context specific. It's not objective. So you cannot measure it. It's too bad.' In private conversations, grape growers often justified deviating from the official quality scale by arguing that the latter does not adequately reward them for exerting more effort in the vineyard than their (cru) neighbors. One explains: 'Take the harvest this year: it was a bit more difficult than last year. With the weather we had over the summer, we had to get rid of more grapes because of Botrytis. I carefully sort through my grapes, then I see that my neighbor makes much less of an effort to sort through his. Of course it makes me pause.' He concludes: 'I don't think you should give the same price to people who do good work in the vineyard and to people who do poor work.'

9. Discussion and Conclusion

This paper makes several contributions to extant strategy research. First, it contributes to the growing literature on boundary effects within strategic geography. In particular, my results establish that community-based proximity affects not only the likelihood but also the *terms* of exchange transactions. Because fine-grained price data are difficult to obtain, this is (to my knowledge) the first study that documents this effect empirically in the context of vertical exchange relations. This matters because prices are of crucial importance in markets; they direct resource allocation and are a conduit for the appropriation of rents by market participants. Market efficiency hinges on prices fully reflecting available information, thereby enabling the valuation and commensurability of goods. This paper shows that economic actors may appropriate less value when transacting with members of their community than when transacting with outsiders. I explain this effect in terms of community-based proximity increasing normative constraints: in Champagne, sellers are compelled to abide by pricing norms within their local community, but they can deviate from those norms—and thereby extract greater value from their work—when the buyer is an outsider. In this way, a seller can receive higher prices for the same grapes grown from the same plot of land.

Second, the paper furthers our understanding of markets where products are sorted to be sold in categories. When there is some heterogeneity within product categories, sellers have an incentive to withhold undervalued products for a higher price and buyers have an incentive to search for undervalued products. If price differences are allowed within categories, then skimming off high quality occurs until the market collapses entirely. In other words, these attempts by sellers and/or buyers could cause the market to unravel. An example discussed by Kenney and Klein (1983) is De Beers' Central Selling Organization (CSO). These authors describe the CSO's selling procedure: buyers are invited to inspect the diamonds offered to them (at a nonnegotiable price), but—should they decide to reject the diamonds—they are removed from the list of invited customers. My paper suggests that, short of enjoying De Beers' monopoly power, tight communities can play a leading role in holding the market together. In other words, the social control exercised by community members can help explain why markets with such pricing norms do *not* unravel.

Finally, the findings reported here also complement strategy research on social networks by underscoring a significant downside to social relations. Most of this literature emphasizes the economic *benefits* of social networks, including studies on co-location (e.g., Krugman, 1991; Saxenian, 1994; Sorenson and Audia, 2000; Stuart and Sorenson, 2003). Entrepreneurs profit from interpersonal social networks that allow them to observe and explore opportunities within clusters (Sorenson and Audia, 2000); local networks facilitate knowledge spillovers among firms (Krugman, 1991; Saxenian, 1994). In contrast, my results demonstrate the economic *costs*—in the form of greater normative constraints—of transacting within one's community. I show how, under certain circumstances, social control within a community can act as a constraint on actors' profitability.

This result raises an intriguing question: Why would sellers still choose to transact with local instead of distant exchange partners? A simple explanation could be that grape sellers are not pure profitmaximizers (e.g., Scott Morton and Podolny, 2002; Ranganathan, 2017); they might enjoy doing their friends a favor. My qualitative data do not support this view. For instance, a seller I interviewed explains how he conceives of his exchange relation with a neighboring buyer: 'There is no prix d'ami [friend price]. The friendship gesture consists in my selling grapes to him. He gets grapes because he's a friend.' In contrast, the explanation I favored in this paper hinges on social control and peer pressure: community members are expected to support each other by 'buying and selling local'. The underlying rationale for this pressure is some real or perceived benefit for community members (McCaffrey and Kurland, 2013). The literature on social control offers a complementary explanation: it is conceivable that—in communities where people interact in many different roles (e.g., as colleagues, parents, etc.)—the norms of reciprocity (Coleman, 1990) make it possible for sellers to recoup some of the costs they incur when transacting with neighbors. Thus sellers may forgo more profitable exchanges with strangers knowing that local buyers will reciprocate in some other capacity. My qualitative data suggest that this is probably occurring in Champagne. For instance, one of the buyers I interviewed explains: 'He [a seller down the street] was in trouble because his pressoir broke down during the harvest. That's a huge issue: you can't just let the grapes sit on the vines until it's fixed; they have to be pressed within a few days. So I told him: don't worry, you can use mine. He usually uses his own, but I was happy to help. He's a neighbor; we must help each other.' In other words, profit-maximizing sellers may still choose to transact with local partners because the immediate loss they incur may be later offset in some other manner through reciprocity.

I shall close by describing the limitations of my research. I recognize that the French market for Champagne grapes is an idiosyncratic one. This setting features characteristics that make it an ideal testing ground for my proposed mechanism; I thus followed other scholars who have studied (perhaps) unusual settings because the latter allowed them to better isolate the mechanism of theoretical interest (e.g., Chown and Liu, 2013). However, there is a trade-off in terms of the generalizability and boundary conditions for my results. First, my proposed mechanism can operate only in settings where meaningful communities (and in turn, norms of behavior) exist. In this regard, minimal levels of residential stability are likely to play a role (e.g., Carroll and Torfason, 2011) —and even more so in settings where residence and workplace are one and the same for market actors. If actors were extremely mobile and residential turnover were high, then the social structure might be in such flux that no community emerges in the first place (Coleman, 1990). Hence the current decline in US residential mobility,[18] which is receiving much attention from scholars (e.g., Molloy, Smith, and Wozniak, 2014; Schulhofer-Wohl, 2011), suggests that community-based proximity could end up playing a growing role in patterns of exchange relations.

Second, an important boundary condition is that this market is *not* perfectly competitive; if it were, then sellers' ability to price-discriminate against community outsiders would be limited. However, this boundary condition may not actually be so limiting when one considers that market frictions are ubiquitous (Phlips, 1988; Rothschild and Stiglitz, 1976) and may result from local norms of behavior or other institutional features. I also remark that whether buyers or instead sellers enjoy some pricing power affects the directionality, but not the operation, of the mechanism proposed in this paper. I therefore believe that, in procurement markets where demand is fairly inelastic (e.g., some commodities such as oil and gas), this study's insights enhance our understanding of how communities shape prices by constraining sellers' behavior. Yet in settings where buyers have some pricing power, one might expect that sellers from within the community could charge higher prices than outsiders. In other words, the normative constraints might be transferred to buyers in settings where the pricing power is on the other side of the market. This open empirical question represents an interesting avenue for future research.

Lastly, my study does not explore possible interaction effects among the three mechanisms by which proximity shapes transaction patterns and price setting. Therefore, future research could fruitfully examine how these three mechanisms—transportation costs, information and communication costs, and community-based social control—might interact. In particular, scholars with access to relatively long time series on price might investigate whether exchange-based proximity between buyers and sellers moderates the effect of community-based proximity on price. For routine transactions, such as in Champagne, one may expect that exchange-based relations create variance in the level of constraint experienced by sellers with different buyers. As buyers and sellers learn more about each other over time, sellers may worry about deviating from the norm *even when* dealing with a buyer from a different community. This study represents

[18] https://www.census.gov/newsroom/press-releases/2016/cb16-189.html

a first but necessary step toward furthering our knowledge of how community-based proximity shapes prices in vertical relations.

REFERENCES

Agarwal S, Hauswald R. 2010. Distance and Private Information in Lending. *Review of Financial Studies* **23**: 2757-2788.

Akerlof G. 1970. The Market for Lemons: Qualitative Uncertainly and Market Mechanism. *Quarterly Journal of Economics* **84**: 488-500.

Alcácer J, Chung W. 2014. Location Strategies for Agglomeration Economies. *Strategic Management Journal* **35**(12): 1749-1761.

Alcácer J, Zhao M. 2016. Zooming In: A Practical Manual for Identifying Geographic Clusters. *Strategic Management Journal* **37**(1): 10-21.

Aldrich H. 1999. *Organizations Evolving*. Sage Publications: Thousand Oaks, CA.

Almeida P, Dokko G, Rosenkopf L. 2003. Startup Size and the Mechanisms of External Learning: Increasing Opportunity and Decreasing Ability? *Research Policy* **32**: 301-315.

Anderson JE, Van Wincoop E. 2004. Trade Costs. *Journal of Economic Literature* **42**(3): 691-751.

Audia PG, Sorenson O, Hage J. 2001. Tradeoffs in the Organization of Production: Multiunit Firms, Geographic Dispersion and Organizational Learning. *Advances in Strategic Management* **18**: 75-105.

Bellucci A, Borisov A, Zazzaro, A. 2013. Do Banks Price Discriminate Spatially? Evidence from Small Business Lending in Local Credit Markets. *Journal of Banking & Finance* **37**(11): 4183-4197.

Besse A, Tegner P, Wilkins S. 2006. Champagne: Play Premium Brands and Solid Financials. *Societe Generale Cross Asset Research*: Paris, France.

Bidwell M, Fernandez-Mateo I. 2010. Relationship Duration and Returns to Brokerage in the Staffing Sector. *Organization Science* **21**(6): 1141-1158.

Biscaia R, Mota I. 2013. Models of Spatial Competition: A Critical Review. *Papers in Regional Science* **92**(4): 851-871.

Blau PM. 1977. *Inequality and Heterogeneity: A Primitive Theory of Social Structure*. Free Press: New York.

Blau PM, Schwartz JE. 1984. *Cross-Cutting Social Circles: Testing a Macrosociological Theory of Intergroup Relations*. Academic: Orlando, FL.

Bossard JH. 1932. Residential Propinquity as a Factor in Marriage Selection. *American Journal of Sociology* **38**: 219-224.

Buck D, Getz C, Guthman J. 1997. From Farm to Table: The Organic Vegetable Commodity Chain of Northern California. *Sociologia Ruralis* **37**(1): 3-20.

Carroll GR, Torfason MT. 2011. Restaurant Organizational Forms and Community in the US in 2005. *City & Community* **10**(1): 1-24.

Catalini C. 2017. Microgeography and the Direction of Inventive Activity. *Management Science, Articles in Advance* 19 July: 1-17. https://doi.org/10.1287/mnsc.2017.2798 [31 August 2017].

Chakrabarti A, Mitchell W. 2013. The Persistent Effect of Geographic Distance in Acquisition Target Selection. *Organization Science* **24**: 1805-1826.

Chakrabarti A, Mitchell W. 2016. The Role of Geographic Distance in Completing Related Acquisitions: Evidence from US Chemical Manufacturers. *Strategic Management Journal* **37**(4): 673-694.

Chauvé Y. 2004. *100 Ans d'Unité Syndicale 1904-2014*. Syndicat Général des Vignerons De La Champagne: Épernay, France.

Chen H, Gompers P, Kovner A, Lerner J. 2010. Buy Local? The Geography of Venture Capital. *Journal of Urban Economics* **67**(1): 90-102.

Chown JD, Liu CC. 2015. Geography and Power in an Organizational Forum: Evidence from the US Senate Chamber. *Strategic Management Journal* **36**(2): 177-196.

CIVC. 2008. La vendange 2008 en Champagne. Résultats statistiques complets et détaillés.

Cohen AP. 1985. *The Symbolic Construction of Community*. Tavistock Publications: New York.

Coleman JS. 1990. *Foundations of Social Theory*. Belknap Press: Cambridge, MA.

Coleman JS, Hoffer T. 1987. *Public and Private High Schools: The Impact of Communities (Vol. 41)*. Basic Books: New York.

Coval JD, Moskowitz TJ. 1999. Home Bias at Home: Local Equity Preference in Domestic Portfolios. *The Journal of Finance* **54**: 2045-2073.

Coval JD, Moskowitz TJ. 2001. The Geography of Investment: Informed Trading and Asset Prices. *Journal of Political Economy* **109**(4): 811-841.

Cruz M, Beck N, Wezel FC. 2017. Grown Local: Community Attachment and Market Entries in the Franconian Beer Industry. *Organization Studies*. 08 June. http://journals.sagepub.com/doi/abs/10.1177/0170840617695357 [31 August 2017].

Disdier AC, Head K. 2008. The Puzzling Persistence of the Distance Effect on Bilateral Trade. *The Review of Economics and Statistics* **90**: 37-48.

Elfenbein DW, Zenger TR. 2013. What Is a Relationship Worth? Repeated Exchange and the Development and Deployment of Relational Capital. *Organization Science* **25**: 222-244.

Engel C, Rogers JH. 1996. How Wide Is the Border? *American Economic* Review **86**(5): 1112-25.

Feld SL. 1982. Social Structural Determinants of Similarity among Associates. *American Sociological Review* **47**(6): 797-801.

Ferguson JP, Snellman K. 2016. Firm Relocation and Spatial Mismatch: Evidence from Natural Disasters. Working paper, Stanford University.

Fernandez-Mateo I. 2007. Who Pays the Price of Brokerage? Transferring Constraint through Price Setting in the Staffing Sector. *American Sociological Review* **72**: 291-317.

Festinger L, Back KW, Schachter S. 1950. *Social Pressures in Informal Groups: A Study of Human Factors in Housing*. Stanford University Press: Palo Alto, CA.

Gluckman M. 1962. Les Rites de Passage. In *Essays on the Ritual of Social Relations*, Gluckman M (ed). Manchester University Press: Manchester. U.K.: 1-52

Grannis R. 1998. The Importance of Trivial Streets: Residential Streets and Residential Segregation. *American Journal of Sociology* **103**(6): 1530-1564.

Gulati R. 1999. Network Location and Learning: The Influence of Network Resources and Firm Capabilities on Alliance Formation. *Strategic Management Journal* **20**(5): 397-420.

Guy KM. 2007. *When Champagne Became French: Wine and the Making of a National Identity*. JHU Press: Baltimore, MD.

Hotelling H. 1929. Stability in Competition. *The Economic Journal* **39**(153): 41-57.

Ingram P, Inman C. 1996. Institutions, Intergroup Competition, and the Evolution of Hotel Populations Around Niagara Falls. *Administrative Science Quarterly* **41**(4): 629-658.

Ingram P, Roberts PW. 2000. Friendships among Competitors in the Sydney Hotel Industry. *American Journal of Sociology* **106**(2): 387-423.

Isard W. 1949. The General Theory of Location and Space-economy. *The Quarterly Journal of Economics* **63**(4): 476-506.

Jaffe AB, Trajtenberg M, Henderson R. 1993. Geographic Localization of Knowledge Spillovers as Evidenced by Patent Citations. *The Quarterly Journal of Economics* **108**: 577-598.

Jefford A. 2008. Champagne Power Struggle. *Decanter* 3 November. http://www.decanter.com/features/champagne-power-struggle-246903/ [31 August 2017].

Kenney RW, Klein B. 1983. The Economics of Block Booking. *The Journal of Law and Economics*, **26**(3): 497-540.

Kleinbaum AM, Stuart TE, Tushman ML. 2013. Discretion Within Constraint: Homophily and Structure in a Formal Organization. *Organization Science* **24**: 1316-1336.

Krugman PR. 1991. *Geography and Trade.* Leuven University Press and MIT Press: Leuven, Belgium and Cambridge, MA.

Lazarsfeld PF, Merton RK. 1954. Friendship as a Social Process: A substantive and methodological analysis. *Freedom and Control in Modern Society* **18**: 18-66.

Liu M, Wezel FC. 2014. Davids Against Goliath? Collective Identities and the Market Success of Peripheral Organizations During Resource Partitioning. *Organization Science* **26**(1): 293-309.

Marmaros D, Sacerdote B. 2006. How Do Friendships Form? *The Quarterly Journal of Economics* **121**: 79-119.

Marquis C, Battilana J. 2009. Acting Globally but Thinking Locally? The Enduring Influence of Local Communities on Organizations. *Research in Organizational Behavior* **29**: 283-302.

Marquis C, Lounsbury M. 2007. Vive La Résistance: Competing Logics and the Consolidation of US Community Banking. *Academy of Management Journal* **50**(4): 799-820.

Marshall A. [1920] 1947. *Principles of Economics: An Introductory Volume, 8th edition*. Macmillan and Co.: London, U.K.

McCaffrey SJ, Kurland NB. 2013. Promoting Ethical Consumption or Protecting Local Elites? Tensions in the US 'Buy Local' Movement. *Academy of Management Proceedings* **1**: 123

McEvily B, Perrone V, Zaheer A. 2003. Trust as an Organizing Principle. *Organization Science* **14**(1): 91-103.

McEvily B, Zaheer A. 1999. Bridging Ties: A Source of Firm Heterogeneity in Competitive Capabilities. *Strategic Management Journal* **20**(12): 1133-1156.

Merry S. 1984. Rethinking Gossip and Scandal. In *Toward a General Theory of Social Control,* Black D (ed). Academic Press: Cambridge, MA.

Molloy R, Smith CL, Wozniak AK. 2014. Declining Migration within the US: The Role of the Labor Market. NBER working paper 20065, National Bureau of Economic Research, Cambridge, MA. Available at: http://www.nber.org/papers/w20065.

Ody-Brasier A, Fernandez-Mateo I. 2017. When Being in the Minority Pays Off: Relationships Among Sellers and Price Setting in the Champagne Industry. *American Sociological Review* **82**: 147-178.

Ody-Brasier A, Vermeulen F. 2014. The Price You Pay: Price-setting as a Response to Norm Violations in the Market for Champagne Grapes. *Administrative Science Quarterly* **59**: 109-144.

Park RE, Burgess EW. 1921. Sociology and the Social Sciences. In *Introduction to the Science of Sociology*. University of Chicago Press: Chicago, IL: 54-55

Phlips L. 1988. *The Economics of Imperfect Information*. Cambridge University Press: Cambridge, U.K.

Piskorski MJ, Gorbatai A. 2017. Testing Coleman's Social Norm Enforcement Mechanism: Evidence from Wikipedia. *American Journal of Sociology* **122**: 1183-1222.

Porac JF, Thomas H, Wilson F, Paton D, Kanfer A. 1995. Rivalry and the Industry Model of Scottish Knitwear Producers. *Administrative Science Quarterly* **40**: 203-227.

Ragozzino R, Reuer JJ. 2011. Geographic Distance and Corporate Acquisitions: Signals from IPO Firms. *Strategic Management Journal* **32**: 876-894.

Ranganathan A. 2017. The Artisan and His Audience: Identification with Work and Price Setting in a Handicraft Cluster in Southern India. *Administrative Science Quarterly* **XX**: 1-31.

Reuer J, Lahiri N. 2014. Searching for Alliance Partners: the Effect of Geographic Distance on R&D Collaborations. *Organization Science* **25**: 283-298.

Romanelli E, Khessina OM. 2005. Regional Industrial Identity: Cluster Configurations and Economic Development. *Organization Science* **16**(4): 344-358.

Rothschild M, Stiglitz J. 1976. Equilibrium in Competitive Insurance Markets: An Essay on the Economics of Imperfect Information. *The Quarterly Journal of Economics* **90**(4): 629-649.

Sacerdote B. 2001. Peer Effects with Random Assignment: Results for Dartmouth Roommates. *The Quarterly Journal of Economics* **116**(2): 681-704.

Saxenian A. 1994. *Regional Advantage: Culture and Competition in Silicon Valley and Route 128*. Harvard University Press: Cambridge, MA.

Scherer F. 1984. Using Linked Patent and R&D Data to Measure Interindustry Technology Flows. In *R&D, Patents, and Productivity*, Griliches Z (ed). University of Chicago Press: Chicago, IL: 417-464.

Schulhofer-Wohl S. 2011. Negative Equity Does Not Reduce Homeowners' Mobility. NBER working paper 16701, National Bureau of Economic Research, Cambridge, MA. Available at: http://www.nber.org/papers/w16701.

Scott Morton FM, Podolny JM. 2002. Love or Money? The Effects of Owner Motivation in the California Wine Industry. *The Journal of Industrial Economics* **50**(4): 431-456.

Singh J, Marx M. 2013. Geographic Constraints on Knowledge Spillovers: Political Borders vs. Spatial Proximity. *Management Science* **59**(9): 2056-2078.

Sorenson O, Audia PG. 2000. The Social Structure of Entrepreneurial Activity: Geographic Concentration of Footwear Production in the United States, 1940–1989. *American Journal of Sociology* **106**(2): 424-461.

Sorenson O, Stuart TE. 2001. Syndication Networks and the Spatial Distribution of Venture Capital Investments. *American Journal of Sociology* **106**: 1546-1588.

Storper M. 2005. Society, Community, and Economic Development. *Comparative International Development* **39**(4): 30-57.

Stuart TE, Sorenson O. 2003. Liquidity Events and the Geographic Distribution of Entrepreneurial Activity. *Administrative Science Quarterly* **48**: 175-201.

Tinbergen J. 1962. *Shaping the World Economy—Suggestions for an International Economic Policy*. The Twentieth Century Fund: New York.

Uzzi B. 1999. Embeddedness in the Making of Financial Capital: How Social Relations and Networks Benefit Firms Seeking Financing. *American Sociological Review* **64**: 481-505.

Uzzi B, Lancaster R. 2004. Embeddedness and the Price of Legal Services in the Large Law Firm Market. *American Sociological Review* **69**: 319-44.

Uzzi B, Gillespie JJ. 2002. Knowledge Spillover in Corporate Financing Networks: Embeddedness and the Firm's Debt Performance. *Strategic Management Journal* **23**(7): 595-618.

Verbrugge LM. 1979. Multiplexity in Adult Friendships. *Social Forces* **57**: 1286-1309.

Wang L, Madhok A, Xiao Li S. 2014. Agglomeration and Clustering Over the Industry Life Cycle: Toward a Dynamic Model Of Geographic Concentration. *Strategic Management Journal* **35**(7): 995-1012.

Weber A. 1909. *Theory of the Location of Industries*. The University of Chicago Press: Chicago, IL.

Weber K, Heinze KL, DeSoucey M. 2008. Forage for Thought: Mobilizing Codes in the Movement for Grass-fed Meat and Dairy Products. *Administrative Science Quarterly* **53**(3): 529-567.

Zaheer A, Bell GG. 2005. Benefiting from Network Position: Firm Capabilities, Structural Holes, and Performance. *Strategic Management Journal* **26**(9): 809-825.

Zaheer S. 1995. Overcoming the Liability of Foreignness. *Academy of Management Journal* **38**(2): 341-363.

Table 1. Descriptive Statistics and Correlations (N = 5,824)

		Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Final price (FRF)	29.97	5.18															
2	Distance (km)	26.96	24.50	-0.06														
3	Same canton	0.04	0.20	0.07	-0.05													
4	Same school	0.01	0.09	0.07	-0.08	0.39												
5	Same village	0.02	0.13	0.06	-0.04	0.56	0.52											
6	Same street	0.00	0.03	0.02	-0.02	0.05	0.14	0.10										
7	Relation duration (log)	1.20	0.79	0.17	0.02	-0.02	0.00	-0.01	-0.03									
8	Past volumes exchanged (log)	4.60	1.29	0.09	0.03	-0.03	0.01	0.02	-0.03	0.72								
9	Seller unique ties	2.59	2.00	0.01	-0.09	0.02	-0.04	0.01	-0.01	0.05	0.05							
10	Seller size	104.40	117.70	-0.04	-0.04	0.02	0.00	0.04	-0.02	0.07	0.34	0.60						
11	Buyer unique ties	17.10	12.44	0.36	-0.01	-0.04	-0.07	-0.06	0.02	0.01	0.10	-0.06	0.00					
12	Buyer size	7484.52	9552.66	0.08	-0.09	-0.05	-0.04	-0.05	0.00	0.00	0.12	-0.04	0.07	0.47				
13	Profitability buyer	6.64	5.09	0.10	-0.06	-0.06	0.04	-0.02	0.00	0.02	0.09	0.02	0.10	0.35	0.53			
14	Quality (80-100)	90.00	6.25	0.36	-0.32	0.11	0.09	0.08	0.01	-0.02	-0.09	0.07	-0.05	0.03	-0.07	0.00		
15	Transaction volume	22.06	35.28	-0.13	-0.03	0.00	0.06	0.01	-0.01	0.04	0.28	0.01	0.36	-0.01	0.05	0.03	-0.05	
16	Share of annual volume	63.80	38.32	-0.21	-0.08	0.01	0.03	-0.01	0.02	-0.08	-0.29	-0.02	-0.16	-0.16	-0.09	-0.07	0.00	0.28

Table 2. Conditional logit models predicting the occurrence of a transaction

	Model 1	Model 2	Model 3	Model 4	Model 5
Same canton	0.215				0.051
	(0.183)				(0.209)
Same school		1.230**			0.915
		(0.418)			(0.501)
Same village			0.580		0.290
			(0.307)		(0.351)
Same street				1.155	0.906
				(0.877)	(0.798)
Distance	−0.003	−0.004	−0.003	−0.004*	−0.003
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Seller unique ties	0.308***	0.308***	0.308***	0.307***	0.309***
	(0.041)	(0.041)	(0.041)	(0.041)	(0.041)
Seller size	−0.000	−0.000	−0.000	−0.000	−0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Buyer unique ties	0.073***	0.073***	0.073***	0.073***	0.073***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Buyer size	−0.000	−0.000	−0.000	−0.000	−0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Profitability buyer	0.004	0.004	0.004	0.004	0.004
	(0.008)	(0.009)	(0.008)	(0.008)	(0.009)
Constant	−3.869***	−3.866***	−3.869***	−3.85***	−3.877***
	(0.086)	(0.087)	(0.086)	(0.086)	(0.086)
Ln σ^2u	−12.312	−12.093	−12.062	−12.318	−12.079
	(8,694.450)	(6,915.045)	(6,756.264)	(8,641.032)	(6,839.857)
N	110,418	110,418	110,418	110,418	110,418

Notes: All models include year dummies and seller fixed effects. Standard errors (in parentheses) are clustered by seller.

*p < 0.05, **p < 0.01, ***p < 0.001

Table 3. Seller fixed effects linear regressions predicting transaction prices

	Model 1	Model 2	Model 3	Model 4	Model 5
Same canton	−0.445*				−0.277
	(0.219)				(0.294)
Same school		−1.127**			−0.834
		(0.389)			(0.598)
Same village			−0.453**		−0.348
			(0.160)		(0.206)
Same street				−0.878*	0.294
				(0.347)	(0.377)
Distance	−0.002	−0.002	−0.002	−0.002	−0.002
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Relation duration	−0.259	−0.260	−0.271	−0.261	−0.268
	(0.290)	(0.291)	(0.292)	(0.293)	(0.291)
Past volumes exchanged	0.087	0.088	0.092	0.086	0.093
	(0.050)	(0.051)	(0.051)	(0.052)	(0.051)
Seller unique ties	−0.021	−0.021	−0.022	−0.022	−0.021
	(0.041)	(0.040)	(0.042)	(0.041)	(0.043)
Seller size	0.000	0.000	0.000	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Buyer unique ties	0.001	0.001	0.001	0.001	0.001
	(0.007)	(0.007)	(0.007)	(0.007)	(0.006)
Buyer size	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Profitability buyer	−0.008	−0.007	−0.007	−0.007	−0.007
	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
Quality	0.107***	0.107***	0.107***	0.107***	0.107***
	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)
Transaction volume	0.000	0.000	−0.000	0.000	−0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Share of annual volume	−0.005***	−0.005***	−0.005***	−0.005***	−0.005***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Constant	10.887***	10.851***	10.854***	10.848***	10.880***
	(1.792)	(1.799)	(1.796)	(1.797)	(1.794)
N	5,824	5,824	5,824	5,824	5,824

Notes: All models include year and buyer dummies. Standard errors (in parentheses) are clustered by seller and buyer.

*p < 0.05, **p < 0.01, ***p < 0.001

Table 4. Seller fixed effects linear regressions predicting transaction prices for multiyear contracts

	Model 1	Model 2	Model 3	Model 4
Same canton	−0.507*			
	(0.206)			
Same school		−0.904***		
		(0.252)		
Same village			−0.580***	
			(0.174)	
Same street				−0.348
				(0.305)
Distance	0.001	0.000	0.000	0.001
	(0.003)	(0.003)	(0.004)	(0.003)
Relation duration	−0.211	−0.203	−0.228	−0.207
	(0.151)	(0.151)	(0.154)	(0.151)
Past volumes exchanged	0.041	0.035	0.048	0.035
	(0.058)	(0.058)	(0.059)	(0.058)
Seller unique ties	−0.021	−0.022	−0.025	−0.023
	(0.042)	(0.043)	(0.044)	(0.043)
Seller size	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
Buyer unique ties	0.014	0.014	0.014	0.014
	(0.012)	(0.012)	(0.012)	(0.012)
Buyer size	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Profitability buyer	−0.038*	−0.038*	−0.038*	−0.038*
	(0.017)	(0.017)	(0.017)	(0.017)
Quality	0.102***	0.102***	0.102***	0.102***
	(0.022)	(0.022)	(0.022)	(0.022)
Transaction volume	0.000	0.001	0.000	0.000
	(0.002)	(0.002)	(0.002)	(0.002)
Share of annual volume	−0.007***	−0.007***	−0.007***	−0.007***
	(0.002)	(0.002)	(0.002)	(0.002)
Constant	22.302***	22.281***	22.299***	22.272***
	(2.025)	(2.030)	(2.020)	(2.031)
N	3,268	3,268	3,268	3,268

Notes: All models include year and buyer dummies. Standard errors (in parentheses) are clustered by seller and buyer.

*$p < 0.05$, ***$p < 0.001$

Table 5. Seller fixed effects linear regressions predicting transaction prices: growers vs. cooperatives

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Same canton	−0.591*				−0.243		
	(0.249)				(0.275)		
Same school		−1.423***				−0.295	
		(0.427)				(0.274)	
Same village			−0.541*				−0.245
			(0.239)				(0.294)
Same street				−1.423***			
				(0.427)			
Distance	−0.001	−0.001	−0.001	−0.001	−0.010	−0.010	−0.010
	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)
Relation duration	−0.302	−0.305	−0.336	−0.305	−0.039	−0.039	−0.039
	(0.207)	(0.206)	(0.209)	(0.206)	(0.140)	(0.140)	(0.140)
Past volumes exch.	0.053	0.048	0.065	0.048	−0.006	−0.006	−0.006
	(0.057)	(0.059)	(0.059)	(0.059)	(0.065)	(0.065)	(0.065)
Seller unique ties	−0.063	−0.063	−0.065	−0.063	0.022	0.022	0.022
	(0.039)	(0.037)	(0.039)	(0.037)	(0.067)	(0.067)	(0.067)
Seller size	0.001	0.001	0.001	0.001	−0.000	−0.000	−0.000
	(0.002)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)
Buyer unique ties	−0.003	−0.003	−0.003	−0.003	0.005	0.005	0.005
	(0.006)	(0.006)	(0.006)	(0.006)	(0.008)	(0.008)	(0.008)
Buyer size	−0.000	−0.000	−0.000	−0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Profitability buyer	−0.022	−0.021	−0.021	−0.02	0.002	0.002	0.002
	(0.012)	(0.012)	(0.012)	(0.012)	(0.014)	(0.014)	(0.014)
Quality	0.107***	0.107***	0.107***	0.107***	0.084	0.084	0.084
	(0.022)	(0.022)	(0.022)	(0.022)	(0.044)	(0.044)	(0.044)
Transaction vol.	0.001	0.002	0.002	0.002	0.000	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Share of annual vol.	−0.002	−0.002	−0.002	−0.002	−0.01***	−0.013***	−0.013***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.003)	(0.003)	(0.003)
Constant	10.347***	10.27***	10.267***	10.277***	13.761***	13.761***	13.758***
	(2.102)	(2.112)	(2.108)	(2.112)	(3.748)	(3.748)	(3.751)
N	4,330	4,330	4,330	4,330	1,494	1,494	1,494

Notes: All models include year and buyer dummies. Standard errors (in parentheses) are clustered by seller and buyer.

*p < 0.05, ***p < 0.001

Appendix. Map of Champagne grape sellers (red) and buyers (yellow)