

Crowdfunding in the Wine Industry*

Olivier Bargain^a, Jean-Marie Cardebat^b and Alexandra Vignolles^c

Abstract

Crowdfunding has recently emerged as a novel way of financing new ventures. It coincides with a growing interest in wine as an investment good and with a search for new funding opportunities by wine makers. In this study, we examine potential investors willing to engage in wine crowd-funded projects and the kind of revenue that would attract them. We presented an original survey where respondents were asked about their wine consumption and purchase, their knowledge about crowdfunding, their relation to the internet, their investment and project related to wine crowdfunding, and their expectations concerning the returns from this type of contribution. Our results suggest that among all forms of crowdfunding, the donation/voluntary contribution side driven by intrinsic motivation is likely to remain marginal compared to crowdfunding as an investment or a form of early purchase. (JEL Classifications: G11, G12, G21, L17, L66)

Keywords: crowdfunding, investment, wine industry.

I. Introduction

For an entrepreneur, crowdfunding consists of raising external funding from a large audience (the “crowd”), whereby each individual provides a small amount of funding instead of soliciting large funds from a small group of professional parties such as banks, venture capitalists, or business angels (Belleflamme, Lambert, and Schwienbacher, 2014; Lambert and Schwienbacher, 2010). Crowdfunding involves an open call through established platforms on the internet to directly interact with the crowd. The provision of financial resources either takes the form of a donation,

* We would like to thank the Editor and an anonymous referee for many useful suggestions that have helped to improve the paper.

^a Bordeaux University, LAREFI, Campus Pessac rue Léon Duguit 33068 Pessac, France; e-mail: olivier.bargain@u-bordeaux.fr.

^b Bordeaux University, LAREFI, Campus Pessac rue Léon Duguit 33068 Pessac, France; and INSEEC Business School; e-mail: jean-marie.cardebat@u-bordeaux.fr.

^c INSEEC Business School, Hangar 19 – Quai de Bacalan 33300 Bordeaux, France; e-mail: avignolles@inseec.com.

or comes with the promise of some form of reward (future in kind rewards and/or voting rights).

This phenomenon has recently emerged as a novel way of financing new ventures and has become a prominent funding source. For instance, more than €16 billion has been raised annually in the United States, and this market is expected to grow to more than €34 billion by 2022.¹ Approximately €150 million were invested in France in 2014 and €300 million in 2015.² Crowdfunding was first used for small-scale projects in the music and movie industry and has been mainly associated with cultural projects. While its cultural dimension is still significant today, the growing popularity of crowdfunding has led to ventures in other domains (e.g., biotechnology, video games, etc.).

The cultural and financial dimensions of crowdfunding also apply to the wine industry. First, wine can be seen as a cultural good. According to Marks (2011), wine possesses cultural value as it embodies creativity, conveys some symbolic meaning, and reflects, at least potentially, some form of intellectual property. Additionally, for almost two decades, there has been a growing interest in wine as an alternative investment asset (Fogarty, 2007; Fogarty and Sadler, 2014; Sanning, Shaffer, and Sharratt, 2008); at the same time, wine makers have been searching for new opportunities. Apart from traditional and general crowdfunding platforms (e.g., IndieGogo, KickStarter, Ulule), specific platforms dedicated to the wine industry have emerged (e.g., Fundovino, Naked Wines, Wine Funding). Some, like Wine Funding, are dedicated to large projects (several million euros) and to investors aiming at significant returns. Others, like Fundovino, specialize in smaller-scale projects for which the main motivation pertains less to financial rewards than to cultural and human dimensions. This mix of potential funders attracted by both culture and investment returns makes the wine sector well-suited for crowdfunding activities.

Yet, little is known about if and how crowdfunding can be effectively used in the wine industry. Models of crowdfunding (Agrawal, Catalini, and Goldfarb, 2011, 2014) usually focus on different motivations: pure donation, reward based, or investment strategies motivated by the gain of equity shares. While wine crowdfunding may fit several of these definitions, it is not clear which crowdfunding models will shape the future of the wine sector (Mollick, 2014). In particular, the question of which investors are willing to crowdfund wine crucially depends on the type of revenue that attracts them. This study is one of the first to present the problem

¹ According to Forbes, in comparison, the venture capital industry invests an average of €30 billion each year <http://tinyurl.com/hpn73oz>.

² According to the “Financement Participatif France” (<http://financeparticipative.org/>), French association of crowdfunding professionals, and Compinnov (<http://www.compinnov.com/>) a company dedicated to start-up funding.

and to suggest tentative answers in the light of existing knowledge on crowdfunding and on the wine industry.

We start with a brief review of the literature on wine consumption and financing followed by a discussion on how crowdfunding is entering the wine industry. In particular, among all forms of crowdfunding (Agrawal, Catalini, and Goldfarb, 2011, 2014), we discuss why the donation/voluntary contribution side of crowdfunding, driven by intrinsic motivation, will probably remain marginal compared to crowdfunding as an investment (lending/equity models) or early purchase by the public (reward model).

Then, we illustrate this point using an original dataset based on interviews with individuals from all continents on their wine consumption and purchase patterns, their knowledge about crowdfunding, their relation to the internet, their investments and projects related to wine crowdfunding, and their expectations concerning the “reward” from this type of contribution. We address the following questions: What is the profile of the people willing to invest in wine crowdfunding? What kind of revenue could attract them? More generally, we discuss how the public could help to assess wine quality, to finance the sector, and to diversify the way wine is sold.

The salient outcome is that people giving money expect a reward, the pure gift to the wine maker remaining a marginal motivator. This result is consistent with theoretical findings in Strausz (2016). Typically, the reward takes the form of equity, which confirms the potential of a lending- or equity-based model of wine crowdfunding. The crowdfunding participants also report interest in kind rewards in the form of wine goods or services, which points to an opportunity for wineries seeking to make early sales (at least one year ahead of future production).

II. The Potential for Crowdfunding in the Wine Industry: A Review

Since 2000 wine consumption has changed dramatically. Global consumption has continuously risen but with marked differences across regions of the world. It has increased particularly in countries where wine was not previously popular, as symbolized since 2000 by the sharp increase of wine consumption in China. Wine has become a global product with increased consumption by non-experts and especially by the young urban generation more acquainted with internet tools and more likely to use crowdfunding platforms (Cardebat, 2017; Millwood et al., 2013, for a large study in China). By contrast, consumption in the traditional wine-producing countries is falling (France, Italy, and Spain). Different reports from the International Organization of Vine and Wine (IOVW) illustrate the fact that these countries move from traditional daily consumption of average wines to more occasional consumption of higher-quality wines or wines to which they feel culturally connected. Since the mid-2000s, marketing has evolved toward story telling (Mora and Livat, 2013) and digital marketing, that is, a presence and activity on the main social

networks (Szolnoki et al., 2014), with an attempt to build a closer link between the producer and the consumer.

In this sense, crowdfunding appears as a natural channel to put consumers and producers in contact (Fiore, 2016). The search for authenticity and a variety of new experiences also increase consumers' willingness to pay for wines with a story, be it about the owner, the estate, or the "terroir" (Beverland, 2005; Moulard, Babin, and Griffin 2015). In particular, the notion of terroir has been officially defined by UNESCO in 2005 as "delimited geographical area defined by a human community which constructs in the course of its history a lot of distinctive cultural characteristics, collective knowledge and practices that are founded on a system of correlation between natural environment and human factors. [...]" In this way, the terroir notion is a synthetic expression of the many dimensions that characterize the new generation of consumers in general, and those likely to take part in crowdfunding in particular. Indeed, this trend in authenticity and the consumption of terroir wines is consistent with the philosophy behind wine crowdfunding and its recent success.

Besides the slight increase in global wine demand for consumption, investment in fine wine as an asset has become increasingly common in the last decade (see the overview by Storchmann, 2012). This trend is reflected in the rise of financial tools pertaining to fine wine markets—for instance, the introduction of global wine indices such as Liv-ex—and the multiplication of investment funds (Cardebat et al., 2017). Following the seminal articles of Krasker (1979) and Jaeger (1981), numerous articles have also documented the return of fine wine investments, and many explained the rise in wine investment from the apparent higher returns expected of fine wines, their low volatility and the low correlation with other assets, which makes them an interesting tool for portfolio diversification. In particular, Dimson, Rousseau, and Spaenjers (2015) have estimated the annual real return of wine at 5.3% over 1999–2012 (4.1% in net value), which is in line with previous assessments by Ashenfelter (2008), Burton and Jacobsen (2001), and Jones and Storchmann (2001). According to CAPM analyses by Sanning, Shaffer, and Sharratt (2008), Masset and Henderson (2010), and Masset and Weisskopf (2010), fine wines seemed to exhibit abnormally higher returns compared to bonds or equities during the end of the 1990s and especially during the 2000s, while they showed comparable returns in the 1980s and early 1990s (Burton and Jacobsen, 2001; Fogarty, 2006). Several studies find evidence that wine returns are uncorrelated with financial assets (Fogarty, 2010; Kourtis, Markellos, and Psycholoyios, 2012; Masset and Henderson, 2010).³

³ Sanning, Shaffer, and Sharratt (2008) in their CAPM and three-factor model estimate a beta coefficient—reflecting the exposure to market risk—that is not statistically significant. Hence, investors would greatly benefit from the inclusion of fine wines in their optimal portfolios. This message has been largely relayed in the financial press explaining the success of wine investment funds since the mid 2000s (Cardebat et al., 2017).

Yet, some studies paint a less rosy picture. The absence of correlation between fine wine and equity returns has been recently questioned (Dimson, Rousseau, and Spaenjers, 2015, exhibit large correlation, ranging from 0.57 to 0.73 depending on the period). Lucey and Devine (2015) also discuss problems of illiquidity, which lead to difficulties surrounding the valuation of fine wines. Masset and Weisskopf (2014) analyze the performance of several wine investment funds. They conclude with disappointing results for investors. Cardebat et al. (2017) point to the high volatility of the price of fine wines on the auction market and reject the law of one price.

Therefore, recent research shows yields have more moderate results than the enthusiastic view of earlier studies: investing in wine would be riskier and perhaps less lucrative than expected. These conclusions coincide with events such as the burst of the iconic Bordeaux wine bubble in September 2011, which resulted in prices falling by nearly 50% (see Liv-ex Bordeaux Legend Index). Overall, it is legitimate to question the future of wine as an investment asset and, in this context, to explore alternative mechanisms to finance the wine sector. Crowdfunding might play an important role in this respect, which motivates our prospective work in this article. The development of wine crowdfunding is introduced hereafter and illustrated by episodes such as the “Domaine de Chanzy” initiative of 2015.⁴

Crowdfunding is “an open call, essentially through the internet, for the provision of financial resources either in form of donation or in exchange for some form of reward and/or voting rights in order to support initiatives for specific purposes” (Lambert and Schwienbacher, 2010). Several models of crowdfunding are usually defined as: “donation based,” “reward based,” “lending/debt/equity” models (Agrawal, Catalini, and Goldfarb, 2011, 2014).

Crowdfunding began as a *donation-based funding model*, where funders donate in a collaborative goal-based process in return for products, perks, or rewards. In the “donation” crowdfunding model, investors in early-stage entrepreneurial ventures tend to be local (Florida and Smith, 1993; Mason, 2007; Zook, 2002). The important role of family and friends (F&F) as a source of capital has been emphasized. Non-F&F investors rely on search engines and recommendation systems provided by the crowdfunding platform (Agrawal, Catalini, and Goldfarb, 2011) and, most often, are part of a community sharing values or tastes (Agrawal, Catalini, and Goldfarb, 2011; Belleflamme, Lambert, and Schwienbacher, 2014).⁵ Whether wine crowdfunding will continue to follow this pattern is an open question.

⁴Burgundy vineyard “Domaine Chanzy” is about to be the first company to use a crowdfunding platform to launch its initial public offering (IPO), which should open the door for different types, possibly non-institutional investors, to have access to purchasing shares in this new way. See <http://www.ftseglobalmarkets.com/news/domaine-chanzy-uses-seedrs-crowdfunding-for-aim-ipo.html>.

⁵This makes donation in the wine sector quite different from the warm glow motive sometimes described in the literature (Harbaugh, 1998). For recent theoretical developments and additional reference on the economic literature on donation and the contribution of crowdfunding, see Deutsch, Epstein, and Nir (2015).

Other models are also in line with opportunities offered by crowdfunding to wineries around the world. In the *reward-based model*, crowdfunding comes in exchange for wine goods (bottles or vouchers) or services (oenotourism) related to the wine sector. In this way, it can be seen as a retail form of a forward market, for example, as a generalized version of the Bordeaux “en primeur” system of early sales that reduces the costs and the uncertainty of the commercialization process. The desire for diversification in new investment opportunities underlies the *debt/equity model* supported by some crowdfunding platforms where businesses seeking capital sell ownership stakes online in the form of equity or debt. This model is unlike the donation model in that individuals who fund projects become owners or shareholders and have a potential for financial return. As yet, it is not clear how crowdfunding wine will evolve. The rest of this study aims to shed some light on these three broad motives and on their potential to support the wine sector.

III. Empirical Evidence on Wine Crowdfunding

A. Data and Basic Statistics

We illustrate the potential development of the wine crowdfunding phenomenon using an original tailor-made survey that was conducted on the internet between November 2014 and March 2015. Through the snowballing method, 721 people from a professional social network (LinkedIn) participated in taking the survey. Of the 721 participants, 430 responded to the questionnaire (a participation rate of 59.6%). Respondents were not compensated for their participation. They were composed of wine drinkers from all five continents. We investigate hereafter the representativeness of the survey. While we hope that the main traits of the sample match at least the average statistics of wine drinkers, we are aware of the limitations of our survey. Blank and Lutz (2017) suggest that no social media platform is representative of the general population and that LinkedIn is likely to be used more frequently by people with higher incomes and working in knowledge-intensive sectors such as management, marketing, higher education, and consulting (Van Dijck, 2013). This said, the population with a potential interest in crowdfunding is also a select group with characteristics that may correlate higher incomes and education, and almost all crowdfunding takes place on social media. We further discuss these points in the Conclusion.

Our sample is small but original in the way that it combines information on habits regarding wine consumption and purchase, knowledge about crowdfunding, experience and interest in wine crowdfunding, relation to the internet, investments and projects related to wine crowdfunding, and expectations concerning the “rewards” from this type of contribution. Hereafter, all monetary values are converted in 2015 euros.

Our preliminary statistical analysis describes the profile of the respondents. Table 1 reports their age, gender, country of origin, frequency of wine purchase, wine expenditure per month, factors that influence their wine purchase, and where

Table 1
 Respondents' Profile

<i>Basic Characteristics</i>	<i>Mean</i>	<i>Std. Dev.</i>		
Male (%)	44.2	49.7		
Age	34.4	12.0		
Region (%)				
Europe	66.1	Asia / Oceania	3.7	
North America	28.9	Africa	1.3	
Wine Consumption / Purchase				
<i>Consumption Frequency (%)</i>		<i>Monthly Purchase in € (%)</i>		
Never or almost never	1.8	Less than 5	4.6	
A few times per year	7.7	5 to 10	11.2	
Once a month	22.5	10 to 15	15.5	
Several times a month	41.6	15 to 20	18.2	
Several times a week	26.5	20 to 50	32.2	
		above 50	18.4	
<i>Frequency of Purchase (%)</i>		<i>Supermarket</i>	<i>Wine Shop</i>	<i>Winery</i>
Never or almost never	18.4	11.2	32.8	81.6
Sometimes	33.7	45.7	45.3	13.6
Often	26.5	29.3	15.1	3.7
Very often	21.4	13.8	6.8	1.1
<i>Future Intention to Use Internet for Wine Purchase (%):</i>		<i>More Frequently</i>	<i>Same as Now</i>	<i>Less Frequently</i>
		31.5	23.0	45.5

Continued

Table 1
Continued

<i>Basic Characteristics</i>	<i>Mean</i>	<i>Std. Dev.</i>
Purchase influencing factors		
Bottle design/label	22.8	Grape variety 36.3
Brand	21.4	Journalist's advice 3.3
Price	59.1	Medals/ratings 20.4
Previous experience	50.1	Story of the estate 7.4
Friend's advice	38.7	Wine advisor 16.4
Important elements about winery		Sources of information
Biodynamic/organic	24.7	Colleagues 40.2
Its history	36.8	Educational courses 22.0
Wine-making techniques	27.4	Friends/family 77.1
Wine quality	83.2	Magazines 22.9
Ratings from expert	19.7	Websites 27.2
Location	33.3	Social media platforms 13.0
Number of observations:	457	

Source: Authors' calculations.

they get information about wine. Note that we shall use several of these variables in the estimations.

First, [Table 1](#) shows that men consume less wine than women, which is in line with marketing research (the market research firm Canadian reports that men make up about 41% of consumption by volume; this number is 44% according to our sample). Although European consumers are overrepresented (66%) in the sample, followed by North American (29%), this only reflects the unequal distribution of wine consumption in the world (a bit more than 63% in Europe and more than 20% for the United States and Canada, in 2013, according to the IOVW).

As can be seen in the second section of [Table 1](#), the sample is essentially composed of wine drinkers, who are more likely to crowdfund wine. A small fraction reports not drinking or almost never drinking (1.8%); however, it is important to record these observations as they may nonetheless have some connection with the wine world (appreciation of *terroir*, giving wine gifts, etc.). Very regular drinkers represent 26.5% of all drinkers, which is close to the 23% of frequent drinkers reported by the World Health Organization for 2016. The peak of the distribution of monthly wine purchases is in the €20–50 category, and the mean is just above €30 per month. Purchases are made often or very often in supermarkets (48% of the respondents) while internet wine shopping remains more marginal. (It is occasional or frequent for 18% of the sample.) The correlation matrix ([Table 2](#)) shows that purchasing in wine shops and wineries is complementary (wine lovers use both), while those buying frequently in supermarkets are of a different clientele. (Supermarket shopping turns out to be a clear substitute to wine shop and winery shopping.)

We also ask a question about using the internet to purchase wine: In the future do you think you will use the internet more often as a buying tool for wine? Maybe surprisingly, only a small majority of respondents (54.5%) seem in favor of using the internet at least as much as in the past for purchasing wine. In the last section of [Table 1](#), we observe that among all factors influencing purchases, price and individual experience are the ones cited by the majority of respondents. The quality of the wine is the main factor of importance when characterizing wineries. Two sources of information regarding wine purchase decisions are predominantly cited: friends/family (77%) and colleagues (40%).

In [Table 3](#), simple estimations help to further sketch a profile of the interviewees. We first report in column (1) the results of an interval regression, which accounts for the fact that the dependent variable is interval censored. In this model, we use dependent variables for intervals, which are the numbers of purchases in the year, so the coefficients are not directly comparable to column (1). Results are nonetheless similar in terms of signs and statistical significance, and also very close to those from an ordinary least squares (OLS) regression (unreported). For the type of shopping, column (2) reports the results of a Zellner SURE estimation procedure, ignoring the discrete nature of the dependent variable.

Table 2
Correlation Matrix

	Supermarket	Wine Shop	Winery	Internet
Supermarket	1			
Wine Shop	-0.3206	1		
Winery	-0.2653	0.1805	1	
Internet	-0.0924	0.1434	0.1582	1

Source: Authors' calculations.

Results confirm that purchase frequency of wine increases with age (significant in column (1)), which can simply reflect the fact that older consumers demand more quality and/or are wealthier. The difference in taste may be consistent with the fact that they purchase wine less often at the supermarket and more often directly from the winery. North American customers tend to go to wine shops simply because wine is not sold in supermarkets in many U.S. states. Men and Asian customers tend to buy wine more frequently on the internet than other consumers.

In [Figure 1](#), we first report information about personal knowledge in general, not wine-specific crowdfunding. Only a third of the sample has not heard of a crowdfunding platform, which is consistent with the people unable to cite any type of crowdfunding platform.

The majority of the other respondents declare having limited or some knowledge about crowdfunding (a relatively uniform distribution of knowledge scores between 2 to 7 on a 1–10 scale.); half of them can cite one or two crowdfunding platforms. We report answers to the specific question “Which crowdfunding platforms have you heard of?” and show how the number of platforms cited is distributed. Some of the well-known generalist crowdfunding platforms are often mentioned, for instance, Kickstarter or Ulule (two of the top 10 platforms according to the global rankings published on crowdfundingpr.wordpress.com) or MyMajorCompany and KissKissBank Bank for Europe and France in particular. Some wine-dedicated platforms are also cited, notably Fundovino and Naked Wines.

The last graph in [Figure 1](#) shows that around a third of the sample has already made a donation for a crowdfunding project. Hence, the sample is composed of three groups of almost equal size: those who have never heard about crowdfunding, those who have heard of it without donating, and those who know and have made a donation. Among the donors, around 70% have given less than €20 or between €20 and €50. The mean (median) donation among donors is €35 (87).

In [Figure 2](#), we address more specifically the interest of respondents in wine crowdfunding and their potential investment behavior. Recall that the questionnaire is internet-based, which reduces interviewer bias, that is, interviewees do not feel obliged to answer in any particular way to “please” the interviewer. The top-left graph shows that around a quarter are not interested in participating to wine

Table 3
 Respondents' Wine Consumer Profile

<i>Dependent Variable</i>	(1)	(2)			
	<i>Purchase Frequency</i>	<i>Frequency at Supermarket</i>	<i>Frequency at Wine Shop</i>	<i>Frequency at a Winery</i>	<i>Frequency on Internet</i>
Male	3.630 (4.625)	-0.075 (0.091)	0.014 (0.081)	0.151* (0.080)	0.142*** (0.053)
Age	0.453** (0.203)	-0.017*** (0.004)	-0.002 (0.004)	0.014*** (0.003)	0.001 (0.002)
America	-28.621*** (5.340)	-0.522*** (0.105)	0.283*** (0.094)	-0.210** (0.093)	-0.008 (0.062)
Asia/Oceania	-10.255 (12.134)	0.077 (0.239)	0.092 (0.213)	-0.131 (0.211)	0.277** (0.140)
Constant	2 constants	2.286*** (0.142)	1.426*** (0.127)	0.486*** (0.125)	0.123 (0.083)
Observations	457	457	457	457	457
R2		0.126	0.020	0.045	0.026

(1) is estimated by interval regression to account for interval censored dependent variable (the dependent variables are the number of purchases per year: we use 0 for "never," assume 3–6 times a year for "a few times a year," 12 for "once a month," assume 2–5 times a month x 12 for "several times a month," and assume 2–7 times a week x 52 for "several times a week").

(2) is estimated by Zellner SURE estimation procedure, ignoring the discrete nature of the dependent variable.

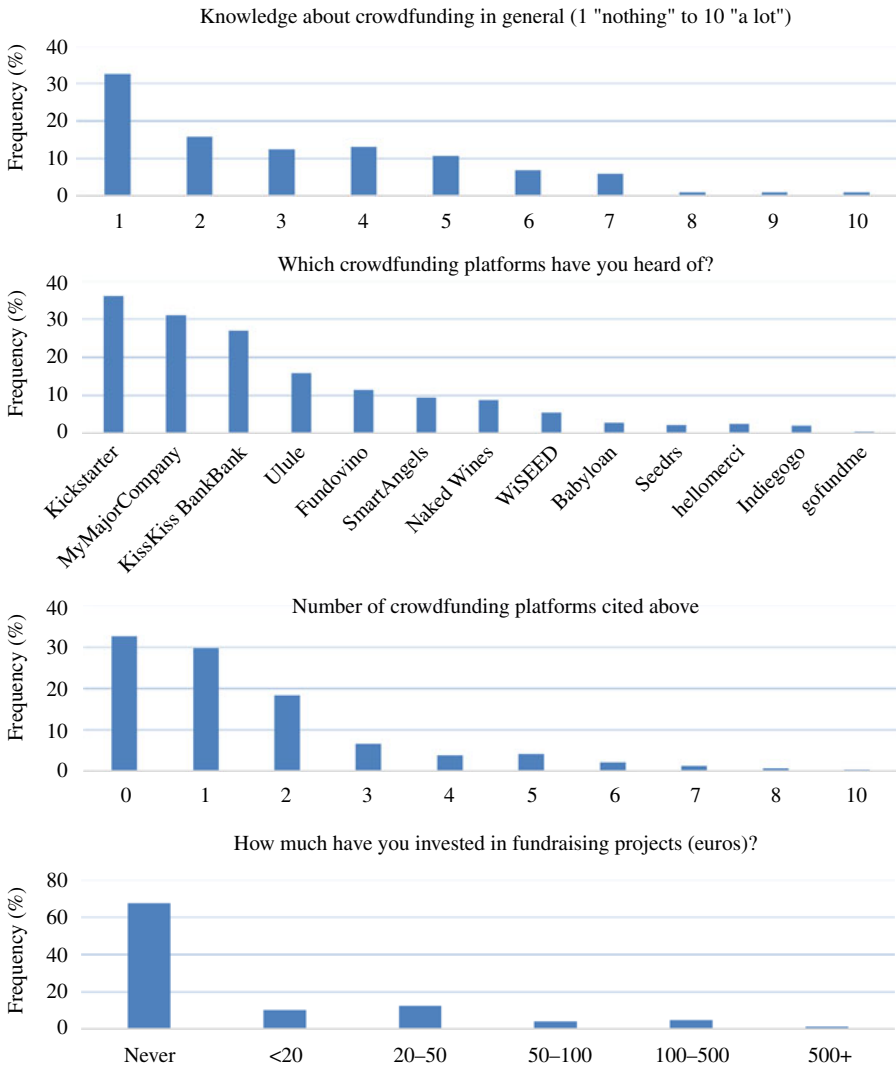
Standard error in parentheses.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

America includes Canada and the United States, Asia/Oceania includes Asia, Australia and the rest of Oceania, the omitted region is Europe.

Source: Authors' calculations.

Figure 1
Respondents' Crowdfunding Knowledge and Experience



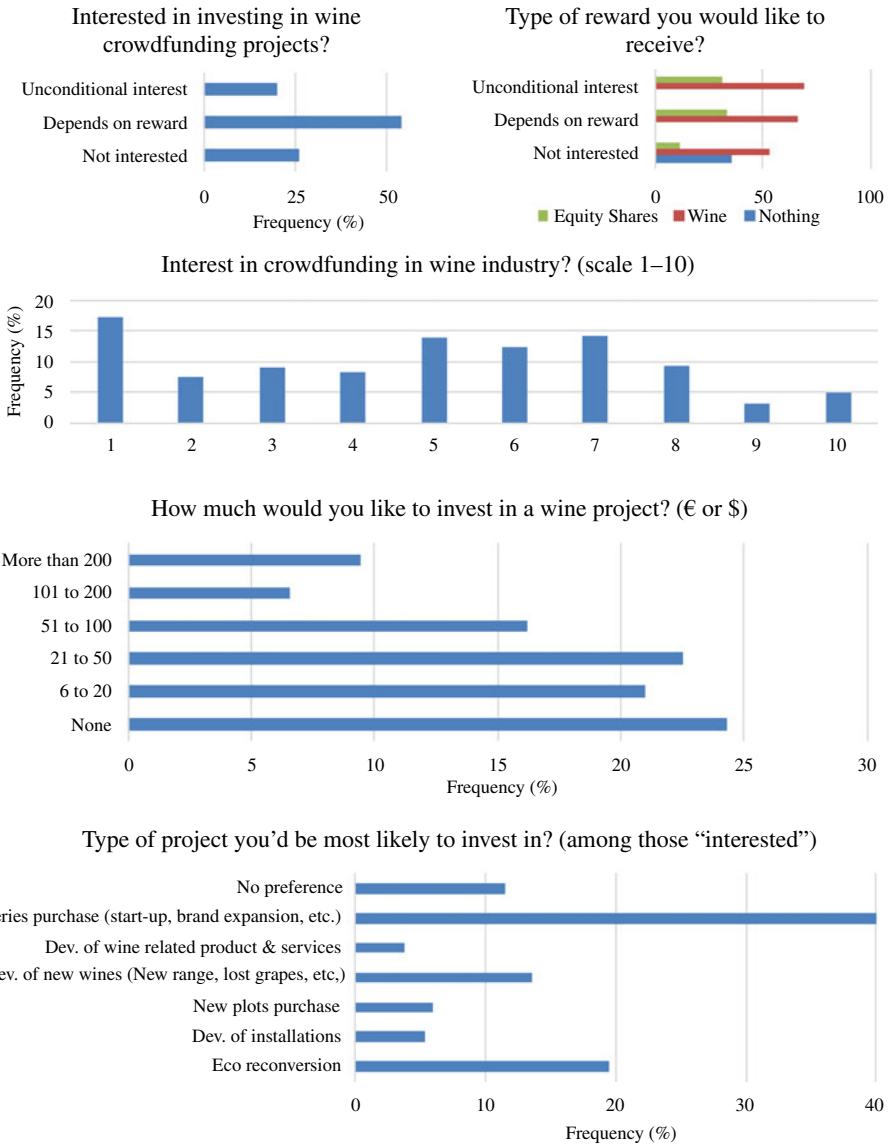
Source: Authors' calculation based on the professional social network survey collected for this study.

funding via crowdfunding platforms. Yet a majority would donate only conditionally on the type of reward that could be expected.⁶ For those interested, the top-right

⁶Unreported cross-tabulation show that the proportion of people not interested in wine crowdfunding goes up to 28% for those who have never invested in any project. It goes down to 21% for those that have already donated.

Figure 2

Respondents' Wine Crowdfunding Intentions



Source: Authors' calculations.

graph shows that around two-thirds of the sample are interested in rewards in the form of goods and services (accessories, bottles, discount vouchers, other wine related products, etc., categorized under “wine” in the top-right graph). The rest

would prefer equity shares. These proportions are similar for those who expect a reward and those who declare to have unconditional interest.

In the second graph, we report the statistics from a general question about personal interest in wine crowdfunding. It shows a relatively uniform distribution among scores 3–10. Scores 1 and 2 can be interpreted as “no interest,” which represents around a quarter of the sample as previously reported. This is also the proportion of people answering “zero” to the question on “How much would you like to invest in a wine project?” in the third graph. Around 44% would make contributions between €6 and €50 while less than 10% would invest more than €200. According to the last graph, around 40% of the potential contributors would support the acquisition of wineries, start-up wineries, brand acquisition, or expansions of small successful projects. The other projects they would be interested in are organic/eco reconversion and the development of new wines (new varieties of wines, revival of “lost” grapes, etc.).

B. Estimations

We now suggest a series of simple regressions that aim to shed light on potential wine crowdfunders or backers. This exercise remains descriptive but allows us to control for basic individual characteristics and additional information on wine consumption or relation to the internet.

In [Table 4](#), we start with the actual investment in crowdfunding projects (other than wine), as previously described in [Figure 1](#). Columns 1–6 report probit estimation using a dummy indicating if the person has already funded a project. Columns 7–9 show estimates of the amount of contribution made, obtained from a two-stage Heckman procedure using knowledge about crowdfunding platforms as instrument. (FIML estimations give very similar results.) This knowledge is indicative of a person’s effort to understand the functioning of these investment devices, which contributes to the propensity to actually invest. (F-tests of the first-stage probit estimation, indicated at the bottom of [Table 4](#), pass the conventional level of 10, so we can reject that platform knowledge is a weak instrument.) We believe that this instrument can be deemed exogenous because a person’s information about these platforms essentially explains her ability to use them but not the way she will use them, and in particular the amount of investment she could make. Note also that the Inversed Mills Ratio (IMR) reported at the bottom of [Table 5](#) has no significant impact on the second-stage estimation, indicating that there may not be selection bias on the amount of past investments.

We can summarize the main results as follows. We see that North American respondents have engaged significantly more in crowdfunding—there is minimal evidence that they also made larger contributions. Both the knowledge score (1–10) and the number of platforms cited by the respondent are positively correlated with the investment probability. These variables are not used in the estimations of funding levels since

Table 4
Actual Investment in Crowdfunding Projects (Not Wine Specific)

<i>Dependent Variable</i>	<i>Past Investment (Dummy)</i>						<i>Past Invested Amount</i>		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Male	0.065 (0.130)	0.054 (0.131)	-0.038 (0.135)	0.043 (0.133)	0.095 (0.132)	0.088 (0.136)	66.093*** (21.509)	51.557** (20.073)	51.221** (21.565)
Age	-0.008 (0.006)	-0.008 (0.006)	-0.008 (0.006)	-0.004 (0.006)	-0.008 (0.006)	-0.004 (0.006)	0.569 (0.984)	0.471 (0.908)	0.898 (0.961)
America	0.668*** (0.146)	0.670*** (0.146)	0.835*** (0.154)	0.912*** (0.157)	0.692*** (0.148)	0.952*** (0.160)	34.094 (29.658)	52.376* (27.683)	27.379 (29.092)
Asia/Oceania	0.273 (0.333)	0.253 (0.335)	0.384 (0.339)	0.519 (0.343)	0.305 (0.333)	0.574* (0.344)	88.504 (54.919)	74.151 (50.722)	66.699 (53.796)
Freq: internet		0.074 (0.111)						79.036*** (17.108)	
Knowledge			0.160*** (0.032)						
# Platforms				0.204*** (0.039)		0.210*** (0.039)			
Reward: equity					-0.178 (0.150)	-0.256* (0.156)			70.902*** (25.269)
Constant	-0.604*** (0.204)	-0.614*** (0.205)	-1.149*** (0.236)	-1.181*** (0.238)	-0.562*** (0.207)	-1.139*** (0.240)	35.751 (61.686)	-1.799 (57.679)	6.477 (58.800)
IMR							-8.745 (43.805)	7.922 (40.703)	0.623 (41.975)
First-stage F-statistic							26.1	25.7	26.6
Obs. main eq.	457	457	457	457	457	457	122	122	122
Obs. selection eq.							457	457	457

Probit estimation marginal effects in columns 1–6, two-stage Heckman procedure estimates in for columns 7–9 using knowledge about crowdfunding as instrument (the IMR and the first-stage F-test on the instrument are reported).

Standard error in parentheses.

*** p < 0.01, ** p < 0.05, * p < 0.1.

America includes Canada and the United States, Asia/Oceania includes Asia, Australia and the rest of Oceania, the omitted region is Europe. “Freq: internet”: Frequency of purchase using internet; “Knowledge”: 1–10 score about knowledge on crowdfunding; “# Platforms”: number of crowdfunding platforms cited by the respondent.

Source: Authors’ calculations.

Table 5
Interest in Wine Crowdfunding Projects

<i>Dependent Variable</i>	<i>(1)</i>	<i>(2)</i>	<i>(3)</i>	<i>(4)</i>	<i>(5)</i>	<i>(6)</i>	<i>(7)</i>	<i>(8)</i>
	<i>Would you be interested in investing in a wine crowdfunding project? (1 = yes, 0 = no)</i>							
Male	0.235* (0.137)	0.184 (0.140)	0.207 (0.139)	0.171 (0.141)	0.180 (0.144)	0.177 (0.144)	0.125 (0.165)	0.183 (0.177)
Age/10	-0.386*** (0.0575)	-0.362*** (0.0585)	-0.387*** (0.0578)	-0.365*** (0.0587)	-0.330*** (0.0598)	-0.328*** (0.0599)	-0.245*** (0.0673)	-0.269*** (0.0753)
America	-0.207 (0.152)	-0.227 (0.155)	-0.203 (0.153)	-0.222 (0.155)	-0.0781 (0.160)	-0.105 (0.168)	-0.493*** (0.189)	-0.485** (0.209)
Asia/Oceania	0.0907 (0.374)	-0.109 (0.376)	0.00702 (0.381)	-0.141 (0.380)	0.0211 (0.383)	0.00301 (0.384)	0.420 (0.505)	0.457 (0.518)
Wine purchase (amount/10)	0.0882*** (0.0301)	0.0734** (0.0308)	0.0678** (0.0315)	0.0609* (0.0320)	0.0474 (0.0327)	0.0459 (0.0328)	0.0524 (0.0372)	0.0721* (0.0401)
Increasing use of internet		0.590*** (0.166)		0.525*** (0.171)	0.474*** (0.176)	0.478*** (0.176)	0.412** (0.192)	0.394* (0.206)
Freq. purchase via internet			0.341** (0.149)	0.226 (0.155)	0.171 (0.156)	0.174 (0.156)	0.00510 (0.161)	-0.0214 (0.175)
# platforms					0.213*** (0.0562)	0.206*** (0.0576)	0.202*** (0.0673)	0.199*** (0.0714)
Investment dummy						0.0897 (0.173)	-0.00283 (0.187)	-0.0557 (0.200)
Reward: nothing (a)							-2.659*** (0.437)	-3.065*** (0.494)
Reward: equity shares (a)							0.548*** (0.196)	0.539*** (0.208)
Pseudo R-squared	0.120	0.146	0.131	0.150	0.183	0.183	0.366	0.414
	<i>What do you think of crowdfunding in wine industry? Answers from 1 (not interested) to 10 (very interested)</i>							
Male	0.780*** (0.237)	0.603*** (0.231)	0.694*** (0.236)	0.568** (0.231)	0.564** (0.223)	0.555** (0.223)	0.445** (0.214)	0.476** (0.217)
Age/10	-0.681*** (0.106)	-0.589*** (0.104)	-0.673*** (0.105)	-0.592*** (0.103)	-0.501*** (0.101)	-0.496*** (0.101)	-0.350*** (0.0969)	-0.393*** (0.101)

America	-0.881*** (0.276)	-0.897*** (0.267)	-0.856*** (0.274)	-0.881*** (0.267)	-0.504* (0.264)	-0.602** (0.274)	-1.018*** (0.265)	-0.894*** (0.278)
Asia/Oceania	-0.690 (0.615)	-1.057* (0.597)	-0.871 (0.611)	-1.131* (0.597)	-0.679 (0.580)	-0.733 (0.581)	-0.586 (0.551)	-0.542 (0.561)
Wine purchase (amount/10)	0.164*** (0.0513)	0.120** (0.0502)	0.118** (0.0529)	0.0976* (0.0517)	0.0745 (0.0499)	0.0707 (0.0499)	0.0696 (0.0471)	0.0787 (0.0481)
Increasing use of internet		1.431*** (0.251)		1.312*** (0.259)	1.222*** (0.250)	1.229*** (0.249)	1.115*** (0.236)	1.089*** (0.240)
Freq. purchase via internet			0.660*** (0.212)	0.380* (0.214)	0.224 (0.208)	0.232 (0.208)	0.0611 (0.197)	0.0273 (0.201)
# platforms					0.387*** (0.0650)	0.365*** (0.0669)	0.318*** (0.0635)	0.294*** (0.0645)
Investment dummy						0.346 (0.257)	0.297 (0.244)	0.230 (0.247)
Reward: nothing (a)							-2.600*** (0.405)	-2.613*** (0.414)
Reward: equity shares (a)							0.679*** (0.241)	0.610** (0.243)
Constant	6.644*** (0.376)	6.104*** (0.375)	6.635*** (0.372)	6.144*** (0.375)	5.240*** (0.392)	5.204*** (0.392)	5.054*** (0.374)	4.409*** (0.696)
R-squared	0.164	0.222	0.182	0.227	0.285	0.288	0.370	0.397
Control for purchase det.	No	No	No	No	No	No	No	Yes
Observations	457	457	457	457	457	457	457	457

Upper panel: probit marginal effects. Lower panel: linear regressions.

Standard error in parentheses.

*** p < 0.01, ** p < 0.05, * p < 0.1.

America includes Canada and the United States, Asia/Oceania includes Asia, Australia and the rest of Oceania, the omitted region is Europe. (a) Omitted category: "reward: wine." Variable name: "freq. purchase via internet": frequency of wine purchase using internet; "# platforms": number of crowdfunding platforms cited by the respondent; "investment dummy": equal 1 if ever engaged in crowdfunding.

Source: Authors' calculations.

crowdfunding knowledge is used to instrument positive donations. The frequency of purchases on the internet is correlated with the invested amounts. Finally, those who are interested in equity shares also tend to have a lower probability to take part in a crowdfunding investment but also give a larger donation in case they do invest.

We now use information on the respondents' willingness to invest in wine through a crowdfunding platform, as well as their expectations concerning the rewards from this type of contribution. In Table 5, we first run a simple probit estimation on a dummy derived from the question, "Would you be interested in investing in a wine crowdfunding project?" (upper panel). We also compare it to linear regressions from the question, "What do you think of crowdfunding in wine industry?" (lower panel), with answers in a 1–10 scale going from "not interested" (score 1) to "very interested" (score 10), and used as a continuous variable for linear estimations.

Being male hardly affects the probability of investing in wine crowdfunding (the effect is significant only in model 1). Regarding age, results are very consistent between the two types of information: wine crowdfunding appeals more to younger investors. There is minimal evidence that Europeans (the omitted category) show more interest, especially compared to North Americans. There is also some indication that the probability of participating in wine crowdfunding is positively related to wine purchases—but crowdfunding in wine might not be exclusively related to intrinsic motivation and might not be reserved for wine drinkers.

We find a strong correlation with the intention to increase one's internet use in the future. There is also a logical and very significant relationship between potential investment behavior and knowledge about crowdfunding *in general*, proxied here by the number of platforms known by the respondent (alternative estimations using the 1–10 knowledge score give very similar results).⁷ A dummy for past investment in crowdfunding projects does not significantly come up. Yet, it is likely to be correlated with both internet use and crowdfunding knowledge. When the latter types of controls are taken out, past contribution in non-wine crowdfunding becomes a statistically significant factor influencing investment interest (unreported).

Finally, we introduce dummies for expectations regarding returns of crowdfunding in the wine business. We find a clear pattern whereby those interested in equity shares appear more willing to crowdfund the wine industry compared to the reference group, that is, those expecting returns in the form of wine product or services. Those who do not want any particular reward have a smaller propensity to contribute. The last column additionally controls for taste heterogeneity, using the variety of wine purchase determinants listed at the bottom of Table 1. Results are robust to this inclusion.

⁷We also tested whether or not investment depends on the knowledge of wine-dedicated platforms like Fundovino and Naked Wines (unreported estimations) while controlling for general knowledge about crowdfunding. This was not the case—which confirms that general interest in crowdfunding, rather than interest in wine or in wine projects, seems to predominantly matter.

Table 6
Potential Investment in Crowdfunding Projects

<i>Dependent Variable</i>	<i>(1)</i>	<i>(2)</i>	<i>(3)</i>	<i>(4)</i>	<i>(5)</i>	<i>(6)</i>	<i>(7)</i>	<i>(8)</i>
	<i>The person would invest a positive amount in wine projects (1 = yes, 0 = no)</i>							
Male	0.217 (0.138)	0.181 (0.140)	0.183 (0.140)	0.164 (0.141)	0.0967 (0.144)	0.0377 (0.157)	0.0296 (0.167)	0.0351 (0.167)
Age/10	-0.361*** (0.0579)	-0.343*** (0.0587)	-0.364*** (0.0584)	-0.351*** (0.0592)	-0.351*** (0.0593)	-0.264*** (0.0649)	-0.304*** (0.0718)	-0.301*** (0.0718)
America	-0.109 (0.156)	-0.125 (0.156)	-0.117 (0.157)	-0.126 (0.157)	-0.261 (0.164)	-0.790*** (0.189)	-0.752*** (0.201)	-0.747*** (0.201)
Asia/Oceania	0.121 (0.382)	-0.00186 (0.383)	0.0312 (0.397)	-0.0416 (0.395)	-0.112 (0.404)	0.0750 (0.477)	-0.0176 (0.484)	-0.0347 (0.483)
Wine purchase (amount/10)	0.0990*** (0.0308)	0.0892*** (0.0312)	0.0759** (0.0322)	0.0715** (0.0325)	0.0631* (0.0330)	0.0641* (0.0358)	0.0659* (0.0376)	
Wine purchase/10 x reward: none								0.0531 (0.0645)
Wine purchase/10 x reward: wine								0.0464 (0.0469)
Wine purchase/10 x reward: equity								0.0724 (0.0943)
Increasing use of internet		0.358** (0.160)		0.248 (0.166)	0.253 (0.168)	0.214 (0.181)	0.270 (0.194)	0.277 (0.195)
Freq. purchase via internet			0.467*** (0.164)	0.406** (0.168)	0.395** (0.171)	0.432** (0.172)	0.365** (0.178)	0.374** (0.180)
Past investment amount					0.00386*** (0.00144)	0.00343** (0.00153)	0.00327** (0.00155)	0.00336** (0.00159)
Reward: wine (a)						1.273*** (0.188)	1.327*** (0.204)	1.320*** (0.293)
Reward: equity shares (a)						1.234*** (0.220)	1.327*** (0.236)	1.229*** (0.365)
Control for purchase det.	No	No	No	No	No	No	Yes	Yes

Continued

Table 6
Continued

<i>Dependent Variable</i>	<i>(1)</i>	<i>(2)</i>	<i>(3)</i>	<i>(4)</i>	<i>(5)</i>	<i>(6)</i>	<i>(7)</i>	<i>(8)</i>
	<i>The person would invest a positive amount in wine projects (1 = yes, 0 = no)</i>							
Observations	457	457	457	457	457	457	457	457
	<i>Amount the person would invest in wine projects</i>							
Male	14.75** (6.809)	14.66** (6.818)	13.17** (6.713)	13.38** (6.716)	10.91* (6.609)	2.511 (6.185)	0.966 (6.137)	-0.115 (6.024)
Age	1.294* (0.684)	1.286* (0.684)	1.146* (0.674)	1.164* (0.674)	1.002 (0.663)	1.419** (0.626)	1.378** (0.614)	1.648*** (0.571)
America	2.150 (7.193)	2.078 (7.198)	2.590 (7.082)	2.840 (7.085)	-4.219 (7.135)	-15.04** (6.899)	-9.869 (6.996)	-8.874 (6.986)
Asia/Oceania	3.905 (15.98)	3.492 (16.06)	-1.925 (15.79)	-0.943 (15.84)	-5.443 (15.58)	-9.003 (14.47)	-9.671 (14.32)	-10.01 (14.37)
Wine purchase (amount)	0.505*** (0.195)	0.504*** (0.195)	0.398** (0.194)	0.394** (0.194)	0.399** (0.191)	0.329* (0.178)	0.279 (0.176)	
Wine purchase x reward: none								0.0570 (0.249)
Wine purchase x reward: wine								0.154 (0.179)
Wine purchase x reward: equity								0.231 (0.236)

Increasing use of internet	1.702 (6.677)			-5.329 (6.804)	-4.250 (6.682)	-5.272 (6.190)	-5.046 (6.111)	-5.048 (6.121)
Freq. purchase via internet		21.61*** (5.517)	22.76*** (5.712)	19.58*** (5.671)	16.08*** (5.300)	16.17*** (5.281)	16.26*** (5.327)	
Past investment amount				0.169*** (0.0391)	0.147*** (0.0363)	0.152*** (0.0362)	0.150*** (0.0362)	
Reward: wine (a)					16.27** (6.606)	16.49** (6.591)	12.87 (9.410)	
Reward: equity shares (a)					57.62*** (6.768)	56.85*** (6.673)	50.08*** (10.81)	
IMR	-82.50** (35.20)	-81.40** (35.46)	-73.36** (34.72)	-76.31** (34.91)	-64.82* (34.38)	-71.49** (31.96)	-76.00** (31.41)	-90.35*** (29.02)
Control for purchase det.	No	No	No	No	No	No	Yes	Yes
Observations	457	457	457	457	457	457	457	457
R-squared	0.106	0.107	0.139	0.140	0.171	0.279	0.321	0.320

Upper panel: probit marginal effects. Lower panel: interval linear regressions on amount categories: less than 5 euros, 6–20, 21–50, 51–100, 101–200, 200+ (R-squared from linear regressions on imputed amounts using mid-points of each category), including Heckman correction from first stage probits.

Standard error in parentheses.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

America includes Canada and the United States, Asia/Oceania includes Asia, Australia and the rest of Oceania, the omitted region is Europe. (a) Omitted category: “reward: none.” Variable name: “freq. purchase via internet”: frequency of wine purchase using internet; “# platforms”: number of crowdfunding platforms cited by the respondent; “investment amount”: amount invested in (not wine related) crowdfunding.

Source: Authors’ calculations.

Beyond the simple propensity to invest in wine using crowdfunding, we also investigate the factors that possibly relate to the amount people are ready to invest. [Table 6](#) shows the results of regressions based on the answer categories (less than €5, €6–20, ..., €200+), using almost the same series of covariates as in [Table 4](#). The upper panel reports results from a probit estimation on a dummy for whether or not the person would like to invest a positive amount (the extensive margin). The lower panel presents interval regressions on the amount categories, including Heckman corrections.⁸ Unreported linear estimations using the midpoint of each category to impute an explicit monetary value (e.g., €13 for the €6–20 category) yield very similar results to the latter, and R-squared from these linear regressions are reported at the bottom of [Table 5](#).

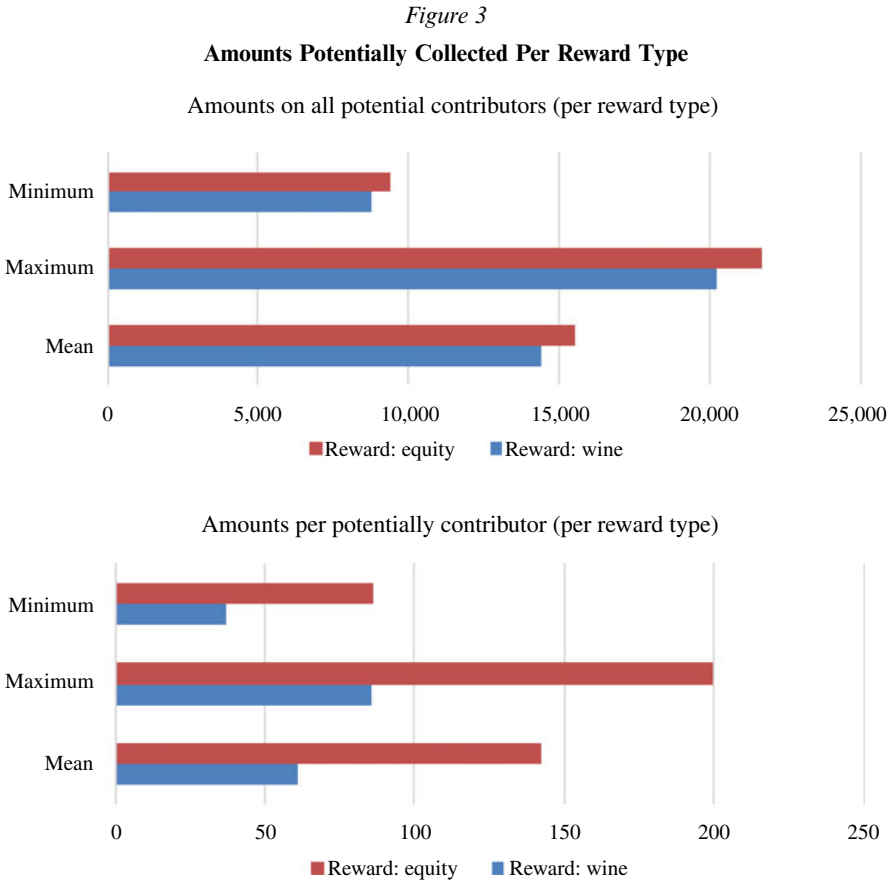
To some extent, results in the upper part of [Table 6](#) (probability to invest a positive amount) mirror those in the upper [Table 5](#) (propensity to invest), for instance, with a negative effect of age. Yet the role of some variables appears more firmly here than it did in the “interest” questions of [Table 5](#), notably the positive effect of wine consumption (amount of wine purchase), the frequency of purchase on the internet, and the amount of past investment in general crowdfunding projects (i.e., other than wine-related). The reward dummies—here rewards in wine or equity—are both very significantly and positively correlated with the probability to invest.

Moving to the intensive margin (lower part of [Table 6](#)), we observe that men seem to be associated with higher amounts of contributions, as they were for general crowdfunding (last columns of [Table 4](#)), and consistently have higher-interest scores (lower part of [Table 5](#)). Yet, this effect disappears when rewards are introduced in estimations. The potential contribution tends to increase with wine consumption, the frequency of internet wine purchase, and past investment amounts in general crowdfunding. Most interestingly, the reward dummies significantly increase the investment level. Hence, those who do not want any particular reward, that is, the reference group in this specification, are associated with lesser chances to invest but also lesser levels of potential investment.⁹

If we look closer at the respective role of rewards in wine versus equity, we do not find significant differences regarding the probability to invest (upper part of [Table 6](#)). Yet, consistently with [Table 5](#), those interested in equity shares are inclined to make

⁸ We run a first stage probit on the dummy for positive amounts, using the 1–10 score about knowledge on crowdfunding platforms as instrument and the different controls of each second-stage equation. Standard errors reported in [Table 6](#) are bootstrapped. We also indicate IMR coefficients at the bottom of the table, which seem to indicate a selection effect. (Those who are more likely to participate would also tend to give less.) To check the degree of potential bias, we have rerun our interval regressions without IMR. Results, available from the authors, are reassuring: While the magnitude of the effects change in some places, the sign and significance is almost identical to the results reported in the lower panel of [Table 6](#). Most importantly, our conclusions on the absolute and relative role of rewards in wine versus equity are unchanged.

⁹ This is again in line with the alternative dependent variables used in [Table 6](#) and reminiscent of findings for crowdfunding in general in [Table 5](#).



Source: Authors' calculations.

much larger investments compared to those interested in wine products or services. Indeed, the lower panel of [Table 6](#) shows that in models 6–8, the difference in coefficients is large and highly significant (with $p < 0.01$). This result echoes what we saw in [Table 4](#) regarding crowdfunding in general: those interested in equity shares are ready to finance larger amounts. Notice two robustness checks in the last columns: we control for taste heterogeneity using the variety of wine purchase determinants (model 7), and we also interact wine purchased amounts with the three categories of reward (model 8). Results are broadly unchanged. (We note that the impact of rewards in goods on crowdfunding amounts becomes insignificant when controlling for purchases.)

Finally, using the upper or lower bound of each contribution category (the mid-point value), we impute to each respondent a level of contribution in order to calculate the minimum or maximum (average) contribution of the sample. Note that by construction, we use only 76% of respondents ready to make a positive contribution.

Results are reported in the upper panel of [Figure 3](#). It turns out that those interested in equity shares, even though they represent only a third of the potential contributors, contribute slightly more than the persons motivated by returns in wine goods and services. Another way to see this is to calculate the minimum, maximum, and mean contributions per respondent. Potential investors interested in winery shares contribute 2.3 times more than those expecting wine rewards.

IV. Conclusion

Our study examines how crowdfunding may support the development of the wine sector in terms of financing and purchase modes. While crowdfunding is born from the idea of local, relatives- or community-based projects prone to non-profit contributions, the expansion of crowdfunding in the wine industry may not follow the same pattern and may require more direct returns to investors.

Using an original survey, we investigate the possible factors influencing wine crowdfunding. Regarding the propensity to invest, we find that internet use and general interest in crowdfunding, rather than interest in wine or in wine projects, seems to predominantly matter. Turning to levels of contribution, larger amounts are found among male investors and those who do have an interest in wine.

More specifically, we also aimed to discriminate between the two main concrete returns for wine crowdfunding—in kind rewards versus equity—in relation to the size of the contribution while controlling for individual characteristics. It turns out that larger funding amounts coincide with the expectation of returns in the form of equity while smaller amounts may correspond to reward in goods. Very small contributions would simply coincide with pure donations. Results broadly confirm this pattern and appear to be in line with general crowdfunding behavior.

The correlation between the amount of funding and the expected return has interesting implications for the development of wine crowdfunding. Imputed amounts show that total funding is relatively balanced between those who expect wine products or services (two-thirds of the potential contributors, giving smaller amounts) and those who expect company shares (one-third of the potential contributors, giving larger amounts). The first group coincides with crowdfunding as a kind of retail forward market, allowing customers to diversify the way they purchase wine and providing them with a “futures” market for wine. The second group comprises the hard investors, who may be attempting to diversify assets.

This study was a first attempt to characterize the nature of wine crowdfunders. Our empirics relied on a small internet-based survey which is possibly biased in several ways. In particular, if LinkedIn users are effectively richer than other potential crowdfunders, our results would be biased since higher income means overoptimistic levels of investment. We have argued that potential crowdfunders in wine might themselves belong to a higher income and more educated group of the

population. Yet this should be better demonstrated. Results are nonetheless appealing in the sense that the profile of potential investors is stable to the inclusion of many individual characteristics related to internet use, wine consumption, and experience and knowledge in crowdfunding. Further work should aim to collect more general data on this issue and further analyze the increasing role of the crowd in the wine market.

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