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Crowdfunding in Wine

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

Abstract

Crowdfunding has recently emerged as a novel way of financing new ventures. This 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 first suggest a brief review of the literature on wine and finance as well as on how crowdfunding is entering the wine sector. In particular, we question who are the potential investors willing to engage in wine crowdfunded projects, and what kind of revenue could attract them. To go further, we also exploit an original survey where interviewees are 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. We 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 - a retail form of the “en primeur” sales. More generally, we ask how the public can help finance this sector and diversify the way wine is sold.

JEL Classifications: G11, G12, L17, G21, L26

Keywords: crowdfunding, wine sector, alternative assets

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I. Introduction

Crowdfunding consists for an entrepreneur in raising external funding from a large audience (the “crowd”), where each individual provides a small amount, instead of soliciting large funds from a small group of professional parties like banks, venture capitalists or business angels (Lambert and Schvienbacher, 2010; Belleflamme et al., 2014). Crowdfunding involves an open call via established platforms on the Internet to directly interact with the crowd. The provision of financial resources takes either the form of donation or comes in exchange of some form of reward (future product and/or voting rights).

This phenomenon has recently emerged as a novel way of financing new ventures and has become a prominent sector. For instance, more than \$16 billion are raised annually in the US, and this market is expected to grow over \$34 billion,¹ around \$150 million in France in 2014 and 300 million in 2015². Crowdfunding was first used for rather small-scale projects in the music and movie industry. Lately, the growing popularity of crowdfunding has led ventures in other domains (e.g. biotechnology, gaming, culture) to rely on this new funding source, so that the scope of crowd-funded projects has increased.³ Interestingly, its development coincides with a growing interest in wine as an investment good (Fogarty, 2007, Fogarty et al. 2014, Sanning et al. 2008) and with a search for new funding opportunities by wine makers. Apart from traditional and generalist crowdfunding platforms (e.g., KickStarter, IndieGogo, Ulule), specific platforms dedicated to the wine industry have emerged (e.g., Naked Wines, Fundovino), reflecting both the growing interest for wine as an investment good and as a cultural good (Marks, 2011).

Yet, little is known about whether and how crowdfunding can be effectively used in the wine sector. Models of crowdfunding (Agrawal et al., 2011, Agrawal 2013) usually insist on different motives: pure donation, reward based or investment strategies motivated by the gain of equity shares. While wine crowdfunding may enter several of these definitions, it is not clear which models will shape the future of this sector (Mollick, 2014). In particular, the question of which investors is willing to crowdfund wine crucially depends on the type of revenue that can attract them. This study is one of the first posing the problem and suggesting tentative answers in the light of existing knowledge on crowdfunding and on the wine industry.

We start with a survey that comprises a brief review of the literature on wine and finance followed by a discussion on how crowdfunding is entering the wine sector. In particular, among all forms of crowdfunding (Agrawal et al., 2011, Agrawal 2013), 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 on individuals from all continents interviewed on 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 “rewards” from this type of contribution. We address the

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” and Compinnov

³ 47% French people have declared their willingness to invest in an equity-based crowdfunding platform (source: Think Institute, Lendopolis and “Ordre des Experts Comptables”, January 2015)

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 can 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 are awaiting for a reward, the pure gift to the wine maker remaining marginal. This result is coherent with theoretical findings in Strausz (2016). The reward takes especially the form of equity, which confirms the potential of a lending/equity based model of crowdfunding in wine. They also report the interest for rewards in the form of wine goods or services, which convey the existence of an opportunity for wineries seeking to make early sales (pre-sale at least one year ahead of their future production). If these preliminary results are confirmed, crowdfunding could become a kind of “super en primeur” system.

II. The Potential for Crowdfunding in the Wine Sector: a Review

Wine Consumption. The global wine market for wine has experienced a continuous rise before the crisis then a moderate but steady growth over the past five years (+3.7% in value and +1.8% in volume in 2014, according to the Wine Global Organization, OIV). A slight increase is expected for the next years (cf. MarketLine Global Wine report, 2015). Per capita consumption of wine still varies very strongly from country to country. As expected, the highest consumption is observed in regions where wine has been part of the culture for centuries and where viticulture is well developed, as in France or Italy (yearly per capita consumption of around 43 liters), while it is more modest in countries where the climate is not appropriate for wine production or where religious norms forbid alcohol consumption (for instance, less than 0.01 liters yearly in Indonesia). Nonetheless, European markets show a lower increase (Compound Annual Growth Rate – CAGR – of 1.6%) compared to emerging markets like the Asia-Pacific market (which grows with a CAGR of 12.4%). Concerning wine distribution, supermarkets and hypermarkets are the leading distribution channel, accounting for a 46.4% share of the total market volume while the on-trade accounts for 28.7%, specialist retailers for 14.1%, convenience stores for 4.5% and other channels (ex: direct winery sales) for 6.4% (cf. Wine Market Council, 2014). Online purchases enter this last category and represent a still limited means of wine distribution worldwide.

Wine and Finance. Besides the slight increase in global wine demand for personal consumption, investment in fine wine as an asset has become more and more common in the last decade. This trend can be observed through the rise of financial tools pertaining to fine wine markets, for instance the global wine indices such as LIV-EX, and the multiplication of investment funds. The main reason for this growing rising in wine investment is the high expected returns and the low volatility offered by fine wines. Since the seminal articles of Krasker (1979) and Jaeger (1981), numerous papers have documented the high return of fine wine investments. Dimson et al. (2015) estimate the annual real return of wine at 5.3% over 1899-2012 (4.1% in net value). This estimation is in line with previous researches from Ashenfelter (2008) or Burton and Jacobsen (2001) on a shorter and more recent period. According to CAPM analyses such as Sanning et al. (2008) or Masset and Henderson (2010) or Masset and Weisskopf (2010), fine wines seemed to exhibit abnormally higher returns compared to bonds or equities during the 1990's and 2000's while they showed comparable returns in the 1980's and 1990's, according to Burton and Jacobsen (2001) and Fogarty (2006). There is also a relative consensus to consider that wine returns are uncorrelated with

financial assets. Hence, investing in fine wines would appear as an interesting tool for portfolio diversification (Kourtis et al., 2012; Fogarty, 2010; Masset and Henderson, 2010).⁴

More recent studies paint a less rosy picture. The absence of correlation between fine wine and equity returns has been reconsidered recently. Dimson et al. (2015) exhibit higher correlation (0.57 to 0.73, depending on the period considered) between wine and equity. Lucey and Devine (2015) also discuss problems of illiquidity, which lead to difficulties surrounding the valuation of fine wines (see Cardebat et al., 2016). Masset and Weisskopf (2014) analyze the performance of several wine investment funds and conclude at disappointing results for investors. Therefore, recent research seems to balance the enthusiastic view of earlier studies: investing in wine would be more risky and less lucrative than expected.⁵ This raises the question about the future of wine as an investment asset. The conjecture we make here is that investments will keep on raising but their nature will change. A likely evolution is the move from investments in wine bottles to investments in land/real-estate or wine oriented project. The crowdfunding might play a major role in this new trend, as illustrated by the “Domaine de Chanzzy” initiative in 2015.⁶

Crowdfunding in Wine. 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 now usually defined (Agrawal et al., 2011, Agrawal 2013): “donation based”, “reward based”, “lending/debt/equity” models.

The birth of crowdfunding has come through the donation-based funding model, where funders donate via a collaborative goal based process in return for products, perks or rewards. In ‘donation’ crowdfunding, investors in early stage entrepreneurial ventures tend to be local (Florida and Smith, 1993; Zook, 2002; Mason, 2007). The important role of family and friends (F&F) as source of capital has been emphasized (Parker, 2009). Non-F&F investors need to rely on the search engine and recommendation systems provided by the crowdfunding platform (Agrawal et al., 2011) and, most often, be part of a community sharing values or tastes (Belleflamme et al., 2014; Agrawal et al.2011).⁷ Whether wine crowdfunding will continue to follow this pattern is an open question.

The other models are also in line with the opportunities offered by crowdfunding to wineries around the world. The reward-based model corresponds to the aim of numerous wineries: to generalize the Bordeaux “en primeur” system. This system consists in early sales of Bordeaux wine and can be seen as a forward market reducing the costs and the uncertainty of the

⁴ Sanning et al. (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 2000’s (Cardebat et al. 2016).

⁵ This also corresponds to the burst of the iconic Bordeaux wines bubble in September 2011, which had resulted in prices falling by near 50% (see LIV-EX Bordeaux Legend index).

⁶ Burgundy vineyard ‘Domaine Chanzzy’ 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-chanzzy-uses-seedrs-crowdfunding-for-aim-ipo.html>

⁷ This 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 et al. (2015).

commercialization process. Crowdfunding in exchange of wine goods (bottles, vouchers) or services (oenotourism) related to the wine sector can be seen as a retail form of the “en primeur” sales.

The diversification in new investment opportunities underlies the debt/equity model supported by some of the crowdfunding platforms, where businesses seeking capital sell ownership stakes online in the form of equity or debt. In this model, individuals who fund become owners or shareholders and have a potential for financial return, unlike in the donation model. As yet, it is not clear how crowdfunding in wine will evolve. The rest of this study aims to shed some light on these three broad motives and on the potential of each of them to support the wine sector.

III. Empirical evidence on wine crowdfunding

III.1 Data and Basic Statistics

Data. We illustrate the potential development of the wine crowdfunding phenomenon using an original dataset. It draws from an internet survey of 430 individuals from all five continents, conducted between November 2014 and March 2015. The survey has been emailed individually to the professional and personal networks of the researchers. Respondents were recruited through a snowballing method and were not compensated for their participation. People 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 “rewards” from this type of contribution. All monetary values are converted in 2015 euros.

Consumer profiles. Our preliminary statistical analyses first describe the profile of the interviewees. **Table 1** reports their age, gender, country of origin, frequency of wine purchase, amount spent on wine per month, factors that influence their wine purchase and where they get information about the wine. We shall use several of these variables in the estimations that follow. For now, we can acknowledge the fact that European consumers are overrepresented, followed by North American. Note however that this pattern reflects the unequal distribution of wine consumption in the world, with a bit more than 63% accruing to Europe and more than 20% for the US and Canada (International Organisation of Vine and Wine, 2013).

Table 1: Respondents' profile

Basic characteristics		Mean	Std. Dev.	
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				
Consumption frequency (%)		Monthly purchase in € or \$ (%)		
Never or almost	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	
Frequency of purchase (%) via:	Supermarket	Wine Shop	Winery	Internet
Never or almost	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
Intention to use internet for wine purchase (%):		more than today	same	less
		31.5	23.0	45.5
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	
Experience	50.1	Story of the estate	7.4	
Friend's advice	38.7	Wine advisor	16.4	
Important elements about winerie		Sources of information		
Biodynamic/Organic	24.7	Colleagues	40.2	
Its history	36.8	EducationalCourses	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	
# observations:	457			

Our sample is small but original in the way it combines wine purchase habits, modes and criteria with direct questions on experience and interest in wine crowdfunding. The sample is composed of wine drinkers, mainly but not exclusively. As can be seen in the second section of the table, a great heterogeneity exists, from people who drink very occasionally (9.5 never or less than a few times a year) to very regular drinkers (26.5%). The peak of the distribution

of monthly wine purchase is the €20-50 category, and the mean is just above €30 per month. Purchases are made often or very often at the supermarket for 48% of the interviewees while internet wine shopping remains more marginal (it is occasional or frequent for 18% of the sample).

A question on the use of Internet (“In the future do you think you will use internet more often as a buying tool for wine”) is also asked. Maybe surprisingly, only a small majority of respondents (54.5%) seems in favor of using internet at least as much as in the past for wine purchase. In the last section of the table, we observe that among all factors influencing purchases, price and individual experience are the ones cited by a majority of people. The quality of the wine is the main factor of importance when characterizing wineries. Two sources of information regarding wine purchase are predominantly cited: friends/family (77%) and colleagues (40%).

In **Table 2**, simple linear regressions help to sketch a profile of the interviewees. Expenditure on wine increases with age, yet purchase frequency does not, which can simply reflect the fact that older consumers demand more quality and/or are wealthier. The different in taste may be consistent with the fact that they make wine purchase less often at the supermarket and more often at the wineries directly. North American customers tend to go to wine shops simply because wine is not sold in supermarkets in many US states. Men and Asian customers tend to buy wine on internet more frequently.

Table 2: Respondents' wine consumer profile

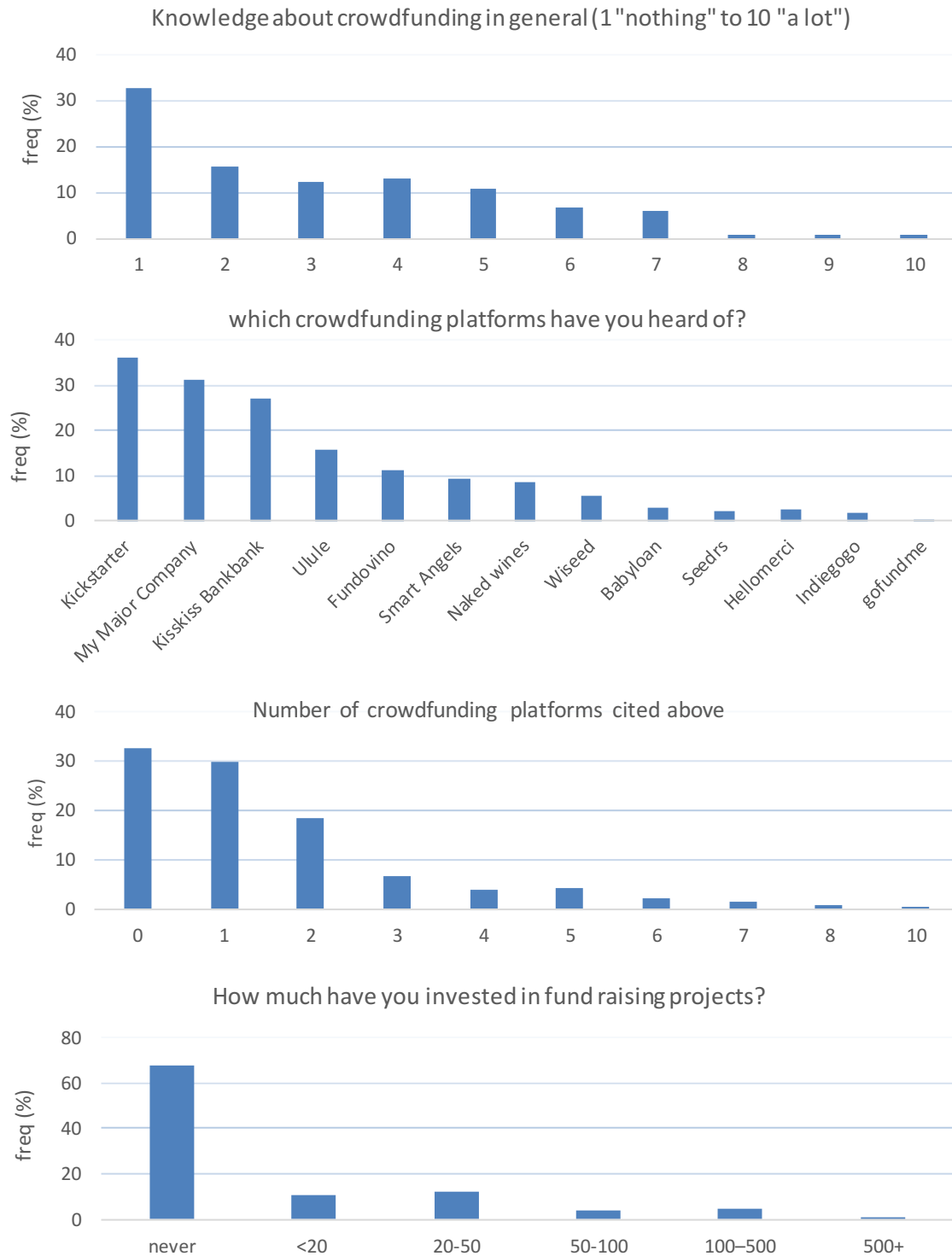
	(1)	(2)	(3)	(4)	(5)	(6)
dep. var:	monthly purchase	purchase frequency	freq at supermarket	freq at wine shop	freq at a winery	freq on internet
male	3.510 (2.172)	0.035 (0.089)	-0.075 (0.091)	0.014 (0.081)	0.151* (0.081)	0.142*** (0.053)
age	0.360*** (0.095)	0.004 (0.004)	-0.017*** (0.004)	-0.002 (0.004)	0.014*** (0.004)	0.001 (0.002)
america	4.937* (2.520)	-0.521*** (0.103)	-0.522*** (0.106)	0.283*** (0.095)	-0.210** (0.093)	-0.008 (0.062)
asia	-0.026 (5.722)	-0.224 (0.235)	0.077 (0.240)	0.092 (0.215)	-0.131 (0.212)	0.277** (0.141)
Constant	15.537*** (3.397)	2.842*** (0.139)	2.286*** (0.142)	1.426*** (0.127)	0.486*** (0.126)	0.123 (0.084)
Observations	457	457	457	457	457	457
R-squared	0.059	0.055	0.126	0.020	0.045	0.026

Std. Err. in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Knowledge about Crowdfunding and Funding Experience. In **Figure 1**, we first report information about personal knowledge on general, not wine-specific crowdfunding. Only a third of the sample has never heard of this system, which is consistent with the number of person not able to cite any crowdfunding platform. The majority of the other respondents declare having limited or some knowledge about it (a relatively uniform distribution of knowledge scores on a 1-10 scales between scores 2 and 7). Half of them can cite one or two crowdfunding platforms. We report answers to a specific question about “which 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 platforms in the top 10 according to the global ranking published on crowdfundingpr.wordpress.com) or My Major and Kisskiss Bankbank for Europe and France in particular. Some wine-dedicated platforms are also cited, notably Fundovino and Naked Wines.

Figure 1: Respondents' crowdfunding knowledge & experience



The last graph 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:

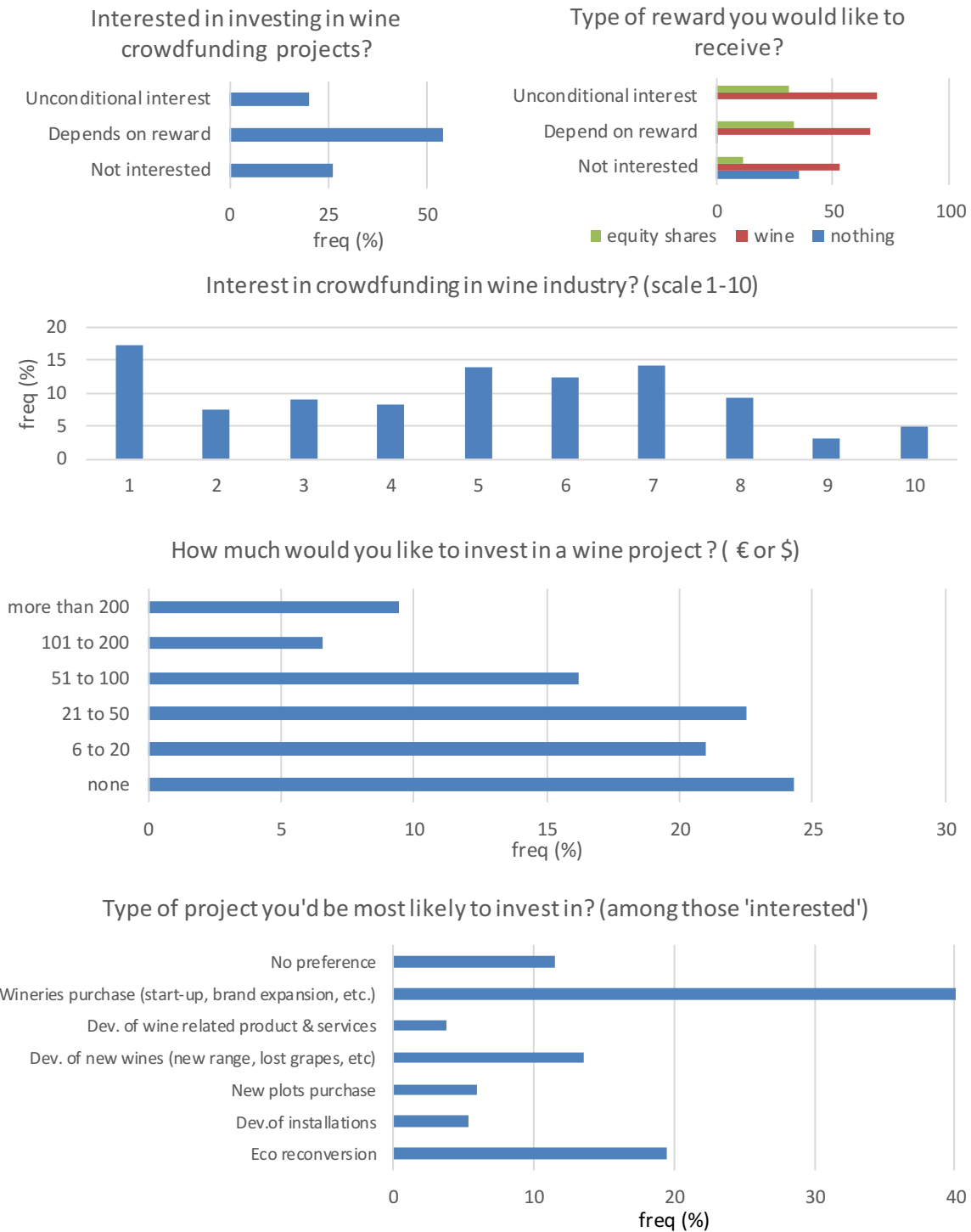
those who never heard about crowdfunding, those who have heard of it without donating, those who knows and have made a donation. Among the donors, around 70% have given less than €20 or between 20 and 50. The mean (median) donation among donors is €35 (87).

Stated Preferences about Wine Crowdfunding. In **Figure 2**, we address more specifically the interest of respondent for wine crowdfunding and their potential investment behavior. Recall that interviews are internet-based, which reduces interviewer bias, i.e. interviewees do not feel obliged to answer in any particular way to ‘please’ the interviewer. Around a quarter are not interested in participating to wine funding via crowdfunding platforms. A bit more than a half would donate conditionally on the type of reward that can be expected. Unreported 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 have already donated.

A majority of respondent are interested in rewards in the form of wine goods and services (bottles, discount vouchers, accessories, other wine related products, etc., categorized under “wine” in the top-right graph). Stated preferences according to the potential investment decision show contrasted answers. Would they invest in wine crowdfunding, those a priori not interest would do it for nothing in more than a third of cases. This illustrates the fact that pure voluntary donation occurs for local project initiated by relatives or friends – a situation which is not experienced by respondents to this survey, leading to their apparent lack of interest. For others, there is a small advantage for rewards in the form of wine products or services versus reward in the form of equity shares among those who declare to be unconditional interested.

A general question on interest in wine crowdfunding shows a relatively uniform distribution among scores from 3 to 10. Scores 1 and 2 can be interpreted as ‘no interest’, which represents around a quarter of the sample as reported above. This is also the proportion of people answering ‘zero’ to the question on “How much would you like to invest in a wine project?”. Around 44% would make contributions between €6 and €50 while less than 10% would invest more than €200. Among potential contributors, around 40% 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 bio/eco reconversion and the development of new wines (new range of wines, revival of ‘lost’ grapes, etc.).

Figure 2: Respondents' wine crowdfunding intentions



III.2 Estimations

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

Past Crowdfunders. In **Table 3**, we start with the actual investment in crowdfunding projects (other than wine), as previously described in Figure 1. We regress either a dummy indicating if the person has already funded a project (linear probability model) or the amount of contribution he/she made (in the group of former contributors, i.e. without zeros). We see that North American respondents have engaged significantly more in crowdfunding and for larger amounts. Asia also tends to invest in larger amounts (significant effect in all specification when zeros are included).

Consistently, both the knowledge score (1-10) or the number of platforms cited by the respondent are positively correlated with the investment probability. The latter factor, however, seems to be slightly more relevant as the R2 increases a little more. This is even more so when it comes to funding levels, whereby only the number of crowdfunding platforms is statistically significant.

Finally, we include dummies on whether the rewards from potential crowdfunding investment in the wine sector should take the form of wine products and services (“wine”) or some shares in the winery (“equity”), the omitted variable being “nothing”. Interestingly, while those who have already participated in crowdfunded projects are more likely to prefer wine products, those who tend to finance larger amounts are more interested in equity shares.

Table 3: Actual investment in crowdfunding projects (not wine-specific)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
dep. var:	investment dummy						investment amount					
male	0.024 (0.041)	0.021 (0.041)	-0.006 (0.040)	0.015 (0.040)	0.030 (0.042)	0.009 (0.041)	23.769*** (7.497)	20.471*** (7.460)	21.800*** (7.559)	22.815*** (7.440)	21.153*** (7.617)	18.522** (7.642)
age	-0.002 (0.002)	-0.002 (0.002)	-0.002 (0.002)	-0.001 (0.002)	-0.001 (0.002)	-0.000 (0.002)	-0.117 (0.326)	-0.150 (0.322)	-0.099 (0.326)	0.041 (0.328)	0.043 (0.336)	0.099 (0.336)
america	0.227*** (0.048)	0.227*** (0.048)	0.261*** (0.047)	0.281*** (0.047)	0.196*** (0.050)	0.254*** (0.049)	40.782*** (8.696)	40.971*** (8.586)	43.031*** (8.765)	46.405*** (8.827)	35.287*** (9.098)	41.099*** (9.231)
asia	0.086 (0.108)	0.080 (0.109)	0.112 (0.105)	0.148 (0.106)	0.111 (0.108)	0.166 (0.105)	35.272* (19.746)	28.858 (19.579)	36.926* (19.720)	41.553** (19.691)	34.805* (19.759)	34.696* (19.706)
freq: internet		0.022 (0.036)				-0.003 (0.035)		23.149*** (6.510)				19.460*** (6.630)
knowledge			0.049*** (0.010)			0.031** (0.013)			3.187* (1.782)			0.049 (2.341)
# platforms				0.063*** (0.012)		0.038** (0.016)				6.449*** (2.172)		4.915* (2.912)
reward: wine					0.154*** (0.055)	0.146*** (0.054)					14.990 (10.085)	12.265 (10.030)
reward: equity					0.018 (0.054)	-0.004 (0.052)					20.470** (9.812)	14.235 (9.813)
Constant	0.272*** (0.064)	0.269*** (0.064)	0.110 (0.070)	0.107 (0.069)	0.120 (0.088)	-0.065 (0.091)	8.602 (11.722)	5.759 (11.602)	-1.841 (13.071)	-8.244 (12.934)	-10.875 (16.083)	-22.086 (16.980)
Observations	457	457	457	457	457	457	457	457	457	457	457	457
R-squared	0.048	0.049	0.101	0.106	0.067	0.135	0.069	0.094	0.075	0.087	0.078	0.111

Linear regressions (linear probability models for 1-6). Std. Err. in parentheses. *** p<0.01, ** p<0.05, * p<0.1. "freq: internet": frequency of wine purchase using internet; "knowledge": 1-10 score about knowledge on crowdfunding; "# platforms": number of crowdfunding platforms cited by the respondent.

Participation to Wine Crowdfunding and Reward-based Incentives. We now use information on the interest that respondents may show in crowdfunding wine projects, as well

as their expectations concerning the “rewards” from this type of contribution. In **Table 4**, we first run simple probit estimation on a dummy derived from the question “Would you be interested in investing in a wine crowdfunding project?” (lower panel). We also compare it to linear regressions using the 1-10 score from the question “What do you think of crowdfunding in wine industry?”. Results are broadly consistent between the two types of information.

There is a clear age effect: wine crowdfunding appeals more to younger investors. North American respondents tend to give lower score regarding their interest for crowdfunding in the wine sector (yet this is only mildly true when using the investment interest dummy). There is also mild evidence that the probability to participate to wine crowdfunding is strongly related to wine purchase behavior – crowdfunding in wine might not be exclusively related to intrinsic motivation and correlated with tastes. There is however a strong correlation with the intention to increase one’s internet use in the future. There is also a 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). We have also tested whether 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 matter predominantly. A dummy for past investment in crowdfunding project does not come up significantly. 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 crowdfunding other than wine becomes a statistically significant factors influencing investment interest.

Finally, we introduce dummies for expectations regarding returns to crowdfunding in the wine business. There is a clear pattern whereby those interested in equity shares appear more willing to crowdfund the wine industry compared to the reference group, i.e. 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.

Table 4: Interest in wine crowdfunding projects

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Interested in investing in wine crowdfunding (dummy)								
dep. var:								
male	0.0720*	0.0552	0.0628	0.0513	0.0516	0.0508	0.0360	0.0499
	(0.0415)	(0.0417)	(0.0416)	(0.0417)	(0.0408)	(0.0409)	(0.0470)	(0.0479)
age	-0.0119***	-0.0110***	-0.0119***	-0.0110***	-0.00956***	-0.00951***	-0.00708***	-0.00739***
	(0.00178)	(0.00178)	(0.00178)	(0.00178)	(0.00176)	(0.00176)	(0.00198)	(0.00212)
america	-0.0661	-0.0712	-0.0641	-0.0693	-0.0229	-0.0309	-0.153**	-0.144**
	(0.0499)	(0.0500)	(0.0496)	(0.0499)	(0.0475)	(0.0505)	(0.0621)	(0.0663)
asia	0.0272	-0.0342	0.00215	-0.0446	0.00607	0.000870	0.102	0.102
	(0.109)	(0.122)	(0.116)	(0.125)	(0.109)	(0.111)	(0.0996)	(0.0915)
wine purchase (amount)	0.00273***	0.00222**	0.00208**	0.00184*	0.00137	0.00133	0.00151	0.00198*
	(0.000929)	(0.000934)	(0.000967)	(0.000968)	(0.000948)	(0.000953)	(0.00108)	(0.00110)
increasing use of internet		0.163***		0.146***	0.127***	0.128***	0.111**	0.101**
		(0.0408)		(0.0430)	(0.0431)	(0.0431)	(0.0483)	(0.0495)
freq. purchase via internet			0.105**	0.0683	0.0496	0.0504	0.00147	-0.00589
			(0.0453)	(0.0465)	(0.0451)	(0.0451)	(0.0465)	(0.0480)
# platforms					0.0617***	0.0597***	0.0583***	0.0546***
					(0.0156)	(0.0160)	(0.0187)	(0.0189)
investment dummy						0.0255	-0.000818	-0.0155
						(0.0486)	(0.0540)	(0.0561)
reward: nothing (a)							-0.801***	-0.848***
							(0.0518)	(0.0385)
reward: equity shares (a)							0.142***	0.132***
							(0.0439)	(0.0443)
R-squared from linear prob.	0.141	0.163	0.150	0.166	0.189	0.190	0.391	0.421
Interested in wine crowdfunding (1-10 score)								
male	0.780***	0.603***	0.694***	0.568**	0.564**	0.555**	0.445**	0.476**
	(0.237)	(0.231)	(0.236)	(0.231)	(0.223)	(0.223)	(0.214)	(0.217)
age	-0.0681***	-0.0589***	-0.0673***	-0.0592***	-0.0501***	-0.0496***	-0.0350***	-0.0393***
	(0.0106)	(0.0104)	(0.0105)	(0.0103)	(0.0101)	(0.0101)	(0.00969)	(0.0101)
america	-0.881***	-0.897***	-0.856***	-0.881***	-0.504*	-0.602**	-1.018***	-0.894***
	(0.276)	(0.267)	(0.274)	(0.267)	(0.264)	(0.274)	(0.265)	(0.278)
asia	-0.690	-1.057*	-0.871	-1.131*	-0.679	-0.733	-0.586	-0.542
	(0.615)	(0.597)	(0.611)	(0.597)	(0.580)	(0.581)	(0.551)	(0.561)
wine purchase (amount)	0.0164***	0.0120**	0.0118**	0.00976*	0.00745	0.00707	0.00696	0.00787
	(0.00513)	(0.00502)	(0.00529)	(0.00517)	(0.00499)	(0.00499)	(0.00471)	(0.00481)
increasing use of internet		1.431***		1.312***	1.222***	1.229***	1.115***	1.089***
		(0.251)		(0.259)	(0.250)	(0.249)	(0.236)	(0.240)
freq. purchase via internet			0.660***	0.380*	0.224	0.232	0.0611	0.0273
			(0.212)	(0.214)	(0.208)	(0.208)	(0.197)	(0.201)
# platforms					0.387***	0.365***	0.318***	0.294***
					(0.0650)	(0.0669)	(0.0635)	(0.0645)
investment dummy						0.346	0.297	0.230
						(0.257)	(0.244)	(0.247)
reward: nothing (a)							-2.600***	-2.613***
							(0.405)	(0.414)
reward: equity shares (a)							0.679***	0.610**
							(0.241)	(0.243)
Constant	6.644***	6.104***	6.635***	6.144***	5.240***	5.204***	5.054***	4.409***
	(0.376)	(0.375)	(0.372)	(0.375)	(0.392)	(0.392)	(0.374)	(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 (R2 from linear prob. model). Lower panel: linear regressions. Std. Err. in brackets. *** p<0.01, ** p<0.05, * p<0.1. (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.

Contribution Levels and Reward-based Incentives. Beyond the simple propensity to invest in wine via crowdfunding, we also investigate the factor that possibly relate to the amount people are ready to invest. **Table 5** shows the results of ordered logit estimations on the increasing categories (less than €5, €6-20, ..., €200+), using the almost same series of covariates as in Table 4. Unreported linear estimations using the midpoint of each category to impute an explicit monetary value (ex: €13 for the €6-20 category) yield very similar results. R-squared from these linear regressions are reported at the bottom of Table 5. For robustness checks, **Table 6** presents the same type of estimation when excluding the zeros (the quarter of respondent not interested in wine crowdfunding), i.e. using contribution categories starting with €6-20 and up to €200+.

Among basic characteristics, men and younger respondents seem to be associated with higher amounts of contributions. These effects disappear when rewards are introduced in estimations on the full sample in Table 5 (the age effect remains significant when focusing on positive contributors in Table 6). Contrary to the propensity to invest, the amount potentially invested now systematically increases with wine consumption (amount of wine purchase) – we come back to this point - but also with the frequency of wine purchase over the internet. This is true whether zeros are included or not. As expected, knowledge (number of platforms cited or, alternatively and unreported, the 1-10 knowledge score) plays only at the extensive margin (contributing or not). Past investment in crowdfunding projects (other than wine-related) has no role here when using the investment dummy (unreported). The specification of Tables 5/6 rather makes use of past investment amounts, which display a positive and significant relationship with declared amounts regarding potential investments in wine crowdfunding.

Most interestingly, the reward dummies – here rewards in wine or equity – are both very significantly and positively correlated with the contribution level in Table 5. Hence, those who do not want any particular reward, i.e. the reference group in this specification, are associated with smaller levels of contribution. As for the propensity to contribute, those interested in equity shares are inclined to make larger contributions compared to those interested by wine product or services. Still in Table 5, the difference in coefficients is indeed statistically significant in models 7, 8 and 9 ($p < 0.02$). Controlling for taste heterogeneity (model 8) does not change the results. In Table 6, we use only equity rewards since contributors hardly declare ‘no reward’ as an option. The reference group is therefore those interested in wine goods and services: again, equity-financing generates higher potential contributions. Finally, in both tables, we also interact wine purchased amounts with the three categories of reward (model 9). It appears that the very positive association between wine purchase and contributions to wine crowdfunding stems from those interested in rewards in the form of wine goods.

Finally, using the upper or lower bound of each contribution category (resp. the midpoint value), we impute to each respondent a level of contribution in order to calculate the min or max (resp. average) contribution of the sample. Note that by construction, we use only the 76% of respondent 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 min, max, mean contributions per respondent. Potential investors interested by winery shares contribute 2.3 times more than those expecting wine rewards.

Table 5: potential investment in crowdfunding projects

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
dep. var:	Amount the person would invest in wine projects								
male	0.339*** (0.100)	0.321*** (0.101)	0.304*** (0.101)	0.299*** (0.102)	0.296*** (0.102)	0.242** (0.103)	0.122 (0.106)	0.119 (0.108)	0.142 (0.110)
age	-0.0153*** (0.00454)	-0.0144*** (0.00459)	-0.0153*** (0.00456)	-0.0149*** (0.00461)	-0.0128*** (0.00467)	-0.0129*** (0.00468)	-0.00330 (0.00488)	-0.00587 (0.00508)	-0.00490 (0.00513)
america	-0.0877 (0.117)	-0.0893 (0.117)	-0.0737 (0.117)	-0.0748 (0.117)	0.00537 (0.120)	-0.120 (0.125)	-0.494*** (0.132)	-0.424*** (0.139)	-0.405*** (0.139)
asia	0.110 (0.259)	0.0707 (0.261)	0.0113 (0.261)	0.000989 (0.262)	0.101 (0.265)	0.000239 (0.267)	-0.0188 (0.275)	-0.0712 (0.281)	-0.102 (0.283)
wine purchase (amount)	0.0136*** (0.00222)	0.0132*** (0.00224)	0.0117*** (0.00229)	0.0116*** (0.00229)	0.0111*** (0.00230)	0.0109*** (0.00231)	0.0101*** (0.00236)	0.00991*** (0.00242)	
wine purchase x reward: none									-0.0406*** (0.0115)
wine purchase x reward: wine									0.00974*** (0.00277)
wine purchase x reward: equity									0.00160 (0.00443)
increasing use of internet		0.154 (0.109)		0.0553 (0.113)	0.0338 (0.114)	0.0460 (0.114)	-0.0303 (0.116)	-0.0175 (0.118)	0.0156 (0.118)
freq. purchase via internet			0.332*** (0.0929)	0.320*** (0.0962)	0.291*** (0.0970)	0.258*** (0.0983)	0.241** (0.0991)	0.247** (0.102)	0.262** (0.102)
# platforms					0.0853*** (0.0298)	0.0750** (0.0302)	0.0632** (0.0305)	0.0497 (0.0313)	0.0528* (0.0314)
investment amount						0.00273*** (0.00069)	0.00237*** (0.00068)	0.00252*** (0.00071)	0.00246*** (0.00070)
reward: wine (a)							1.177*** (0.156)	1.178*** (0.160)	0.537*** (0.204)
reward: equity shares (a)							1.496*** (0.148)	1.513*** (0.151)	1.209*** (0.228)
Control for purchase det.	No	No	No	No	No	No	No	Yes	Yes
Observations	457	457	457	457	457	457	457	457	457
R-squared	0.106	0.107	0.139	0.140	0.140	0.171	0.279	0.321	0.320

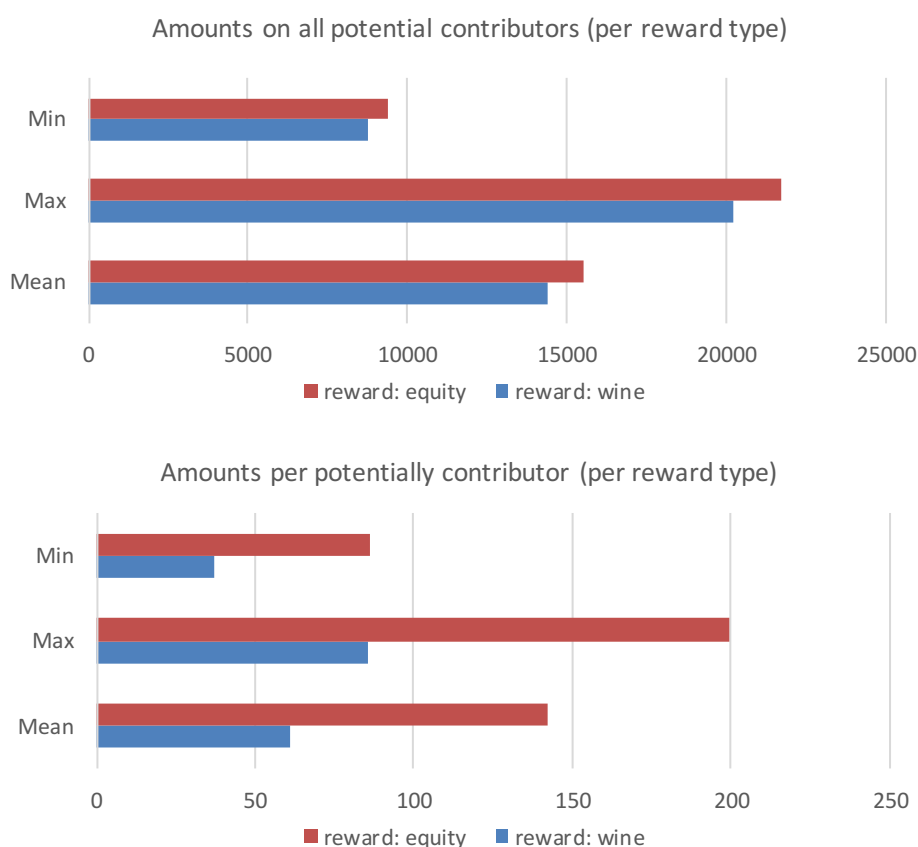
Ordered probit on amount categories: less than 5 euros, 6-20, 21-50, 51-100, 101-200, 200+ (R-squared from linear regressions on imputed amounts using mid-points of each category). Std. Err. in brackets. *** p<0.01, ** p<0.05, * p<0.1. (a) Omitted category: "reward: none". Variable name: "freq. purchase 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.

Table 6: potential investment in crowdfunding projects (positive contributions)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
dep. var:	amount the person would invest (on subgroup interested by crowdfunding)								
male	0.342*** (0.115)	0.349*** (0.116)	0.309*** (0.116)	0.322*** (0.117)	0.322*** (0.117)	0.276** (0.118)	0.140 (0.120)	0.116 (0.123)	0.107 (0.124)
age	0.0202*** (0.00582)	0.0200*** (0.00585)	0.0199*** (0.00583)	0.0192*** (0.00586)	0.0206*** (0.00593)	0.0196*** (0.00596)	0.0218*** (0.00601)	0.0211*** (0.00623)	0.0218*** (0.00618)
america	-0.0758 (0.138)	-0.0751 (0.138)	-0.0626 (0.138)	-0.0591 (0.138)	-0.00250 (0.143)	-0.111 (0.147)	-0.255* (0.150)	-0.121 (0.159)	-0.149 (0.161)
asia	-0.0403 (0.286)	-0.0297 (0.287)	-0.117 (0.287)	-0.0976 (0.288)	-0.0309 (0.291)	-0.0856 (0.293)	-0.252 (0.296)	-0.321 (0.306)	-0.299 (0.307)
wine purchase (amount)	0.0120*** (0.00258)	0.0122*** (0.00260)	0.0105*** (0.00265)	0.0107*** (0.00266)	0.0105*** (0.00266)	0.0102*** (0.00267)	0.0105*** (0.00268)	0.00945*** (0.00275)	
wine purchase x reward: none									-0.0213 (0.0147)
wine purchase x reward: wine									0.00833*** (0.00289)
wine purchase x reward: equity									0.00163 (0.00475)
increasing use of internet		-0.0525 (0.120)		-0.138 (0.124)	-0.147 (0.124)	-0.132 (0.125)	-0.113 (0.125)	-0.0792 (0.129)	-0.0639 (0.129)
freq. purchase via internet			0.258** (0.102)	0.287*** (0.105)	0.273*** (0.106)	0.236** (0.107)	0.189* (0.109)	0.185 (0.114)	0.238** (0.113)
# platforms					0.0499 (0.0321)	0.0396 (0.0325)	0.0333 (0.0327)	0.0263 (0.0339)	0.0319 (0.0340)
investment amount						0.00244*** (0.000774)	0.00222*** (0.000776)	0.00245*** (0.000816)	0.00227*** (0.000810)
reward: equity shares (a)							0.862*** (0.133)	0.900*** (0.136)	0.977*** (0.227)
Control for purchase det.	No	No	No	No	No	No	No	Yes	Yes
Observations	338	338	338	338	338	338	338	338	338
R-squared	0.139	0.139	0.168	0.172	0.172	0.204	0.288	0.338	0.335

Ordered probit on amount categories: 6-20, 21-50, 51-100, 101-200, 200+ (R-squared from linear regressions on imputed amounts using mid-points of each category). Std. Err. in brackets. *** p<0.01, ** p<0.05, * p<0.1. (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.

Figure 3: Amounts potentially collected per reward type



Conclusion

Our study has questioned how crowdfunding could support the development of the wine sector, both in terms of financing and purchase modes. While crowdfunding is born from the idea of local, relatives- or community-based projects prone to no-profit contributions, the expansion of crowdfunding in the wine industry may not follow the same pattern and requires more direct returns to investors.

Using an original survey, we investigate this question and explore the possible factors influencing potential crowdfunding in wine. 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 matter predominantly. Turning to levels of contribution, larger amounts are found among older (wealthier) investors and those who do have an interest for wine.

More specifically, we also aimed to discriminate between the two main concrete returns for wine crowdfunding – wine goods/services versus equity – in function of the size of the contribution while controlling for individual characteristics. The intuition is that more important funding coincides with the expectation of returns in the form of equity while smaller ones may correspond to reward in goods. Very small contributions would simply coincide with pure donations. Results broadly confirm this pattern.

This correlation between the amount of funding and the expected return has interesting implications for the development of crowdfunding in wine. Imputed amounts show that total funding is relatively balanced between those who expect wine products or services (two-third

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 coincide with crowdfunding as becoming a kind of retail “en primeur” system, 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 possibly attempt 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. 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 in (and knowledge about) crowdfunding. Further work should nonetheless 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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