Which success factors drive profitability of privately owned wineries?

Maximilian Iselborn
Geisenheim University, Germany
University of Gießen, Germany
Maximilian.Iselborn@hs-gm.de

Simone Loose
Geisenheim University, Germany
Ehrenberg-Bass-Institute, University of South Australia, Adelaide
Simone.Loose@hs-gm.de

Abstract:

Purpose - The study aims to identify and assess the importance of success factors that drive economic profit of privately owned wine business.

Design/methodology/approach - Value added profitability, the degree to which a winery can compensate its internal and external stakeholders, was chosen as measure for economic success. Financial statements of 189 privately held wine businesses in Germany were collected and thirteen financial and structural key figures were calculated as mean over five years. Five economic success factors were identified by means of factor analysis and the degree to which they can discriminate between four groups of low and high value added profitability is assessed with analysis of variance and multiple discriminant analysis.

Findings - Five success factors are identified of which four significantly discriminate between different groups of economic success. Quality management, family-to-land ratio and profitability and efficiency are the most important factors for economic business success of privately held wine businesses besides financial structure. Avenues to validate and extend the framework of success factors for privately held wine businesses are outlined.

Practical Implications - Economically successful wineries benefit from scale and leverage effects - they are significantly larger (hectare size), externally source specialised input factors such as employing external labour and realise higher revenue per litre through higher wine prices and better market positions.

Keywords: Wine business performance, success factors, SME business management

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1. Introduction

Privately held direct selling wine businesses are an integral part of German wine production, accounting for nearly a third of the German wine growing acreage of about 100.000 ha. They are characterized by private ownership, small-scale operations and low market share. Besides competition from the large import market share of about fifty percent these family businesses also face strong competition from two other main German wine producers, wine co-operatives and wine cellars which have more access to scale and synergetic effects. While larger businesses can invest in technology, assets and skilled labour to create comparative advantage, small businesses have to deal with their restricted capital and labour endowments {Laforet, 2006 #13}. Nevertheless, small sized wineries show a large dispersion in economic success and reasons for these differences are not well understood {BMEL, 2015 #1}.

Privately held wine businesses undergo structural change where wine businesses with acreage below 5 ha are losing production and market share. Business succession is another current economic threat where earnings from the wine business ought to provide sufficient income to compensate two family generations to make a succession worthwhile. For a company to be sustainable in the long run and to be attractive for business succession, all internal and external stakeholders need to be compensated. It is therefore of interest to examine, which factors drive profitability of privately held wine businesses. We aim to identify success factors and to understand their relative importance for economic success and competitiveness from analysing financial statements of privately held wine business in Germany. Thereby this research synthesises so far distinct research streams in economic wine business performance.

2. Literature Review

The examination of firm performance has a longstanding history in management research {Richard, 2009 #4} and there exists a large variety in the measurement of different business performance constructs {Murphy, 1996 #6}. Likewise studies in the agribusiness sector focused on different aspects of economic success and use different measurements for its operationalisation {Dautzenberg, 2005 #8;Theuvsen, 2010 #3;Diez-Vial, 2011 #9;Nehring, 2014 #5;Gellynck, 2015 #11} but so far there is no study analysing comprehensive success factors. Similar research in the wine sector is rather scarce. One stream of research focused on analysing relationships between banks and wine businesses and effects on their financial structure {Cadot, 2006 #7;Cadot, 2011 #2}. These studies concluded a strong relationship between financial structure and business scope. For instance, compared to wine growers wine producers were found to require more debt capital and had bigger sized businesses.

A second stream of wines business research analysed financial statement information and related it to single financial or economic indicators. {di Montezemolo, 2006 #10@@author-year;Di Montezemolo, 2006 #10} related financial profiles of Italian wines to key figures from financial statements and identified the business model and business size as the main model for competitiveness. Larger companies had higher performance in terms of profitability, growth and financial capacity. {Iselborn, 2014 #12@@author-year} analysed different components of wine business income and derived the measure of value added profitability (VAP) and compare it between different German wine growing regions and different wine business sizes on a descriptive level.

Existing studies in wine business performance largely focused on relationships between few financial and structural figures and performance indicators. Jointly they suggest that small wineries have to ensure high productivity and efficiency concerning their production, financial structure and marketing activities to achieve economic success but it is unclear to what degree these components differ in their impact on economic success. Therefore there is a need to better understand holistic success factors and to finally derive a comprehensive model about success related factors in wine business research. This explorative study aims at identifying underlying (latent) success factors from a large set of financial and structural data that can discriminate between economically successful and unsuccessful wine businesses and allows an assessment of the relative importance of different drivers of economic success.

3. Empirical measure of economic success in privately held wine businesses

Overall, (wine) business success is a construct consisting of financial and non-financial goals {Etzioni, 1964 #14; Corkindale, 2003 #15}. However, sufficient economic performance has to be obtained to attain non-financial goals, such as esteem and reputation. We therefore make the assumption that reaching financial goals is a necessary condition to achieve non-financial goals, such as satisfaction, personal achievement or self-realization.

Sufficient business performance can be defined as the economic value that covers internal and external financial interests {Iselborn, 2014 #12}. It includes the compensation of contractual (external) and residual (internal) income. Thereby contractual income addresses employees, creditors and landlords of a lease, while residual income is distributed to the entrepreneurial family. According this definition sufficient economic value added is given when the achieved operating income within a specific period equals the value added required to cover opportunity costs such as imputed costs of lease, interest costs and entrepreneurial salary. Value added profitability (VAP) as therefore defined as follows:

VAP = Operating income / Required economic value added

Where:

Operating income = Expenditures (Personnel, Lease, Interest) + *Profit*
Required economic value added = Expenditures (Personnel, Lease, Interest) + *Entrepreneurial salary + Cost of Lease + Cost of Equity*

When dividing the operating income by the required economic value added the quotient represents the compensation level. A quotient of 100 % indicates that businesses are able to compete successfully through comprehensive compensation of internal and external interest groups. Their profit fully compensates the opportunity costs. Contrary, a quotient <100% indicates insufficient economic success and a quotient >100% signals that the wine business is able to accumulate profit as assets for future investments.

4. Data and Methodology

This study limits to privately owned wineries in the private legal form (personal companies & business partnerships) that are owned and managed by the entrepreneurial family, where the, main source of income and at least 80% of the turnover stem from sales of wine bottles.

Data was collected from annual financial statements over a five year period between the fiscal years 2008/09 and 2012/13 from 189 wine businesses, representing 945 financial statements. Wine businesses were asked to provide additional information about labour endowment and surface under vines in each of the observed years. We calculated nine selected key figures as mean over a five year period. The figures contain information related to factor endowment, accounting ratios, structure, and efficiency and productivity figures. Additionally, we calculated imputed costs for lease, bounded equity and an entrepreneurial salary. All figures and calculations were drawn from official statistics from *The Federal Ministry of Food and Agriculture*, Germany {BMEL, 2015 #1}.

The total number of 189 wine businesses was split into four success groups according their value added profitability (VAP), see Table 1. First an ANOVA is conducted to describe the success groups by nine selected performance and structural figures. To identify latent success factors explorative factor analysis with varimax rotation was conducted with key structural and financial figures selected and reduced after correlation analysis. Finally ANOVA and multiple discriminant analysis were used to examine which factors separate the observed success groups.

5. Results and Discussion

In a first step the four success groups are described by typically used key financial statement figures (see Table 1).

Table 1: Comparison of success groups (SG)

Variables	**SG1** VP ≥ 130% n = 44	**SG2** 100% ≤ VAP < 130% n = 54	**SG3** 75% ≤ VAP < 100% n = 59	**SG4** VAP < 75% n = 31	**F** n = 188	**Sig.**
VAP (%)	1.56^{A}	1.14^{B}	0.89^{C}	0.62^{D}	321.12	0.000
Profit per ha (€)	15327.77^{A}	9031.88^{B}	6455.38^{C}	5634.18^{C}	51.38	0.000
Turnover per ha (€)	47819.59^{A}	41756.74^{AB}	36433.54^{BC}	32666.03^{C}	10.42	0.000
Production costs per ha (€)	33318.07	33027.94	30504.92	29001.91	1.18	0.319
Revenue per litre	5.87^{A}	5.098^{AB}	4.83^{B}	4.65^{B}	4.57	0.004
Yield per ha (hl)	77.25	73.08	73.19	68.28	1.62	0.186
Size (ha)	16.21^{A}	12.2^{AB}	12.32^{B}	7.71^{C}	8.31	0.000
Family labour per ha	0.17^{B}	0.17^{B}	0.20^{B}	0.31^{A}	12.07	0.000
Labour per ha	0.29	0.29	0.26	0.23	1.48	0.221

Note: Tukey-B post hoc test, factor levels with different superscript are different at p-value < 0.05

It is not surprising that the variable VAP used to delimitate the groups is highly significantly different. Strong differences can also be found for profit and turnover per ha, which are significantly higher for the economically successful groups SG1 and SG2. These two groups achieve higher profits and turnover per ha and hold a greater estate size and are characterised by a better family-land-ratio. Thus, less family labours manage and cultivate more wine growing area compared to the less successful groups. Production costs that are the remainder of profit after deducting other costs are not different between the groups. There are two main factors that affect a wine business' turnover, the yield per ha and the revenue per litre, reflecting the price at which the wine is sold at the market. We could not observe significant differences for yield per ha but differences for revenue per litre and size suggest that successful wine businesses are efficacious in both producing wine quality and marketing their wine and have sufficient scale effects. Observed differences for family labour per ha are also

related to scale or leverage effects but labour endowment with employees is relatively similar between the groups.

Results from the explorative factor analysis are shown in Table 2. Kaiser-Mayer-Olkin criteria (0.63) and Bartlett's test (0.000) record acceptable quality for factor analysis. Factors with Eigenvalue > 1 were extracted after varimax rotation. A five factor solution was found that account for 86 % of variance, all communalities were > .70.

Table 2: Success factors - explorative factor analysis of selected key figures

	Factor Loadings					
	1 Profitability & Efficiency	2 Quality Management	3 Size	4 Financial Structure	5 Production Endowment	Commu-nality
Return on equity (%)	.81					.92
Return on investments (%)	.86					.88
Total efficiency (%)	-.84					.95
Production efficiency (%)	-.81					.93
Material expenditures per ha (€)		.90				.87
Personnel expenditures per ha (€)		.79				.82
Turnover per ha (€)		.91				.76
Area under cultivation (ha)			.87			.83
Family labour per ha			-.88			.89
Asset coverage (%)				-.91		.88
Debt ratio (%)				.91		.90
Assets per ha (€)					.89	.83
Depreciation per ha (€)					.81	.74
Eigenvalue	3.373	3.053	2.411	1.328	1.023	11.19

Factor 1 represents capital profitability in terms of equity and debt capital investments as well as production efficiency. While return on equity represents the relationship between capital investments and a achieved profit, total and production efficiency assess the ratio of input of production factors and production output. Therefore this factor is named *Profitability and Efficiency*. The fact that both material and personnel expenditures as well as turnover highly load on the same **Factor 2** suggests that businesses with more (less) turnover also have higher (lower) expenditures. This seemingly surprising finding suggests that higher turnover can be achieved when specialised input of material and personal is rather bought externally (resulting in expenditures) than generically produced internally by the entrepreneur. Therefore factor 2 is named *Quality Management*. **Factor 3** embodies the *Size* effect (cf. Table 1) and can be interpreted as a family-land ratio. **Factor 4** represents the *Financial structure* of a wine business, an increase of debt reduces asset coverage. However, steady investments are crucial for the maintenance of assets and new operations and therefore a high debt ratio might potentiate economic success. **Factor 5** loaded by asset intensity and asset related depreciation stands for *Production Endowment*, where, high assets per ha signal comprehensive investments in production facilities.

To examine the discriminatory power of the four identified success factors in classifying the businesses in our sample into the four success groups we conduct a multiple discriminant analysis. To discriminate between four groups three functions were calculated and results from the first function with the highest explanatory power are shown in Table 3. Overall the results of the discriminate analysis suggest that four out of the five identified success factors are highly successful in discriminating between the four success groups. Using the success

factors 85.1 % of the businesses were correctly classified, squaring this correlation indicates that 79 % of the dependent variable is explained and groups are highly significantly separated (Wilks-Lambda 0.19, χ^2 = 297.12, p<0.001). This suggests that four of the five identified success factors are highly discriminative in grouping wine businesses in success groups according their value added profitability.

The standardised coefficients and F-Values suggest that factor 2 "Quality Management" is by far the most important success factor in discriminating between VAP groups followed by factor 3 "Size", factor 4 "Financial Structure" and factor 1 "Profitability and efficiency". Factor 5 "Production Endowment" was not significant in discriminating between the success groups.

Table 3: Multiple canonical discriminant function

Success factors		Stand. coefficients	Wilks-Lambda	F-Value	p
1	Profitability and efficiency	.54	.94	3.46	.017
2	Quality management	1.20	.39	94.45	.000
3	Size	.80	.86	9.41	.000
4	Financial structure	-.31	.92	4.69	.003
5	Production endowment	.22	.97	0.95	.420

Notes: Eigenvalue = 3.68; Percent of variance explained = 97.8%; Canonical correlation= 0.89, Wilks-Lambda = 0.19; χ^2= 297.12; p= .000, Percent of correct classification: 85.1%

To better understand how the four success groups differ in the success factors identified an ANOVA was conducted and results are displayed in Table 4.

Table 4: Comparison of success groups (SG) and success factors (SF)

Success factors		**SG1** VP ≥ 130% n = 44	**SG2** 100% ≤ VAP < 130% n = 54	**SG3** 75% ≤ VAP < 100% n = 59	**SG4** VAP < 75% n = 31	F	p
						n = 188	
1	Profitability and efficiency	$.29^{A}$	$.14^{AB}$	$-.16^{AB}$	$-.35^{C}$	3.46	0.02
2	Quality management	1.22^{A}	$.12^{B}$	$-.48^{C}$	-1.03^{D}	94.45	0.00
3	Size	$.44^{A}$	$.11^{A}$	$-.05^{A}$	$-.71^{B}$	9.42	0.00
4	Financial structure	$.05A^{B}$	$-.31^{A}$	$-.02^{A}$	$.51^{B}$	4.69	0.00
5	Production endowment	.22	-.10	-.04	-.06	0.95	0.42

Note: Tukey-B post hoc test, factor levels with different superscript are different at p-value < 0.05

Success groups are strongest differentiated in Factor 2 "**Quality Management**", where more successful groups have higher turnover and externally bought input (staff, material). Accordingly, having a high site-specific turnover under consideration of material and personnel expenditures is critical for economic success. High site-specific turnover can be achieved through simultaneous optimization of wine price (affecting revenues per litre) and site-specific yield per ha (affecting total revenue). High market prices is likely to be a result of a strong market position achieved through marketing activities and the usage of profitable distribution channels such as cellar door and specialty retail stores. When maximising site-specific yield per ha a winery has to consider the effect on wine quality, which deteriorates at too high yields, and has to comply with European maximum wine yield regulations.

Factor 3 "**Size**" is the second strongest discriminator and particularly the group with lowest VAP (SG4) has a poor family-land ratio while the more successful groups attain a better family-land-ratio and benefit from leverage and degression effects. Accordingly, successful entrepreneurial families are able to manage and cultivate a greater business with less family labour endowment than the less successful. This is consistent with findings from {Di Montezemolo, 2006 #10} who showed that greater size increases financial performance.

Profitability and Efficiency (Factor 1) are relevant for economic success, since small businesses are limited by their production capacity. Accordingly, both capital (investment of equity and debt capital effecting financial efficiency) and production factors (affecting production efficiency) have to be treated highly efficient to generate sufficient value added. Economically successful business (SG1 and SG2 in Table 4) show positive factor values for profitability and efficiency, while negative signs for less successful businesses (SG3 and SG4) implicate lower capital efficiency and poorer input-output ratios of production factors.

Finally, Factor 4 representing a wine businesses' **Financial structure** is the third strongest discriminator. Here we observe a very interesting non-linear effect, where the least successful and the most successful groups have lower asset-coverage and accordingly higher debt. Contrary both middle success groups hold lower debt. This surprising finding for SG1 might be related to the fact that successful estates have to steadily invest into business growth, while unsuccessful businesses primarily raise capital to ensure liquidity. Further research is needed to validate this. Results agree with previous findings from {CADOT, 2006 #7} as well as {Cadot, 2011 #2} who stressed financial gaps and loan contracts in wine entrepreneurship.

6. Conclusions

This study synthesized research into economic business success of wine businesses by exploring success factors from a comprehensive set of financial and structural data. Five success factors were identified of which four significantly discriminate between success groups based on value added profitability.

Quality management reflecting a business' market position and viticultural yield was by far the most important success factor and so far has received little attention in economic business research for wineries. This success factor suggests that successful businesses are both able to attain higher prices and yield per ha. Future research in economic business performance should therefore also include businesses' marketing and viticultural activities. Size effects, profitability and efficiency as well as financial structure are other success factors identified in our sample of German wineries. These three factors partially agree with previous research but their relative importance for economic success was so far unclear.

There are several avenues for future research. The discriminant ability of success factors should be externally validated out-of sample both for German and international wine businesses. Our sample size was too small to allow for a hold-out sample. Also differences in the legal framework (e.g. maximum yield regulations) between wine growing countries (e.g. old world vs. new world) should be examined, which will likely provide insights into the economic efficacy of yield restrictions. The number and scope of variables included into the framework should be extended to allow a better understanding of important factors, such as Quality Management.

7. Literature

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