# How successful are German wine enterprises?

## - A value added & business profit based analysis -

**Maximilian Iselborn**
*Geisenheim University, Germany*
Maximilian.iselborn@hs-gm.de

**Matthias Mend**
*Bayrisches Staatsministerium für Ernährung, Landwirtschaft und Forsten, Germany*
Matthias.Mend@stmelf.bayern.de

**Abstract**

*Purpose* - This study examined the value added profitability and business profits of direct selling wine enterprises by combining empirical data and imputed costs of German wine enterprises through eight different growing areas.

*Design/methodology/approach* - Enterprises were observed by using annual financial statements over a three-year period. Business assessment calculations were conducted to calculate key figures that examine business profits and value added profitability. Calculations included imputed costs (imputed costs of lease, imputed costs of interest, imputed costs of entrepreneurial salary) to observe compensation of input factors by given market prices. Moreover, differences between growing areas and estate structure were analysed using chi-squared analysis and non-parametric tests.

*Findings* - The study reveals that small-sized wineries compensate input factors by business profits rather than by imputed market prices. Thus, entrepreneurs use business profits to compensate income of non-salaried family employees, entrepreneurial risk and intangible input factors as innovative capacity of the entrepreneur. Furthermore business profits are the central investment and savings unit of the entrepreneurial family. Results show that business performance of direct selling wineries correlated with the size of estates, while growing areas do not show any significant impact on the business performance.

**Key words:** small and medium-sized enterprises, wineries, success factors, entrepreneurship

## 1. Introduction

Historically the German wine business is differentiated into three forms of producers, cultivating a total surface of nearly 100,000 hectares and producing a volume of 9.1m hectolitres of wine (2012) (BMELV, 2013). Producers can be distinguished into wine estates that sell wine in bulk, estates that produce grapes and sell raw materials to co-operatives or wine estates which hold the whole value chain, including bottling and sales (BMELV, 2013). Taking the whole EU (27), the overall value of production was €14bn (2012) of which the German value of production is €1.17bn (2012), an 8% share of the total EU production value (BMELV, 2013).

With an average standard output of approximately €143,000 among the aforementioned producers (BMELV, 2013) and an average employment of less than 10 employees per estate, German wine estates are categorized by small and medium-sized enterprises, more precisely as microenterprises (EU, 2003). Furthermore most enterprises are family-owned and are run as non-corporations such as individual companies or as business partnerships. Thus, individual companies and business partnerships are delimited by two central criteria (Kuhlmann, 2007). Individual companies and business partnerships are run by entrepreneurs who have the task of business governance as well as the role of bearer of the business, while the governance of corporations is driven by a management board (Kuhlmann, 2007). Generally the overriding corporate objective of a business is to be competitive in the long run by maximizing profit (Wöhe, 2008). Accordingly, a successful business is one that reaches its objectives (Richter, 1969; Grabatin, 1981; Göbel, 2003). To reach the overriding corporate objective, businesses have to combine land, labour and capital in the most efficient way. However, businesses are confronted with several challenges that are typified by the coalition approach that shows that business results are often determined by more than one decision-maker (Hungenberg, 2002; Macharzina/Wolf, 2010). We focus on the economic interests and objectives of non-corporations to measure the success of German wine enterprises. With respect to Kuhlmann, interest groups of businesses are defined as all those who:

- supply the business with capital
- participate in the decision making process and governance
- take the risk of the business
- benefit from the business profit

To sum up the four criteria and to project them to non-corporations in wine (grape) producing estates by using an entrepreneurial approach, entrepreneurs invest their equity, are responsible for decision-making and governance, they take the whole risk as they are liable without limitations (with their personal assets) and they potentially benefit from the business in the form of entrepreneurial profit (Kuhlmann, 2007). Inversely entrepreneurs have to compensate land, labour and capital by sufficient added value. Figure 1 shows the distribution of minimum operating income to generate the value added profitability that is necessary to compensate the invested production factors.

**Figure 1**

Operating income, minimum operating income and value added profitability
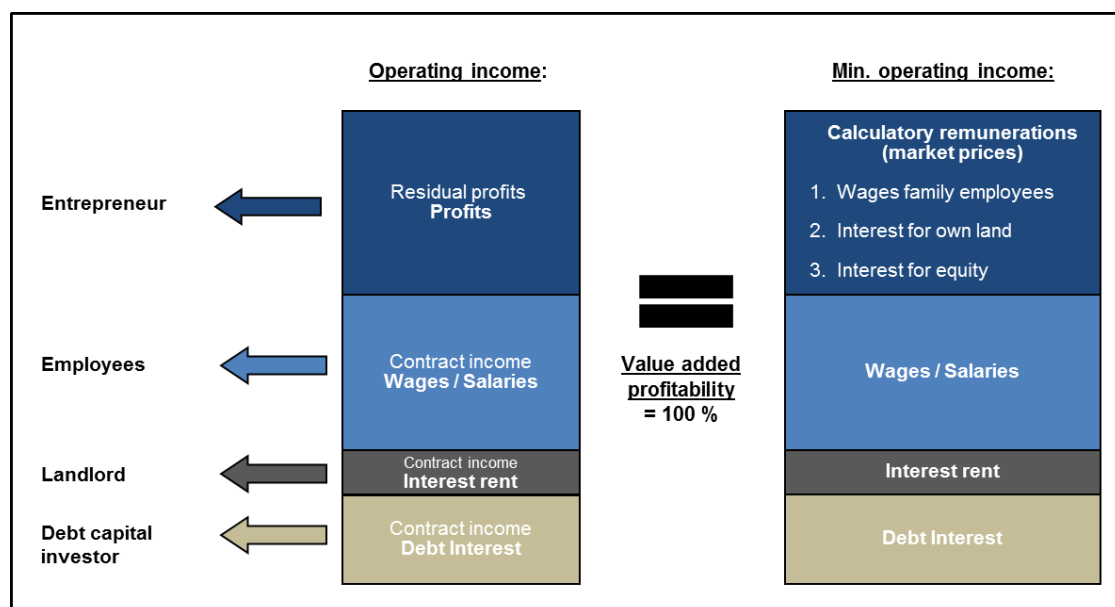
Source: Kuhlmann, 2007



Figure 1 shows that the minimum value added profitability, which is the quotient of value added and the minimum operating income, has to be 100%. Correspondingly a value added profitability of 100% is the exact value that compensates all input factors. The success of an entrepreneur running a non-corporation is shown by their residual profits. Several studies in the wine business reveal that the main objective of (family) entrepreneur-run estates is the acquisition of sufficient family income to equal the income of the non-salaried family members who run the business (Leimbrock 1984; Matheus 1994; Drosse 1995; Kost 2002; Göbel 2003; Mend 2010). Referring to the results it is necessary to observe the residual income from different points. Individual companies and business partnerships use the business profits (residual profits) to compensate manpower of the entrepreneur and invested

equity, including agricultural production land (Kuhlmann, 2007). Microenterprises that are solely run by an entrepreneurial family compensate the executive and operative manpower of the entrepreneur and the family, while contractual income is no longer required (Kuhlmann, 2007). Respectively, if the business is run without debt capital and rent for agricultural land, the profit is equivalent to the value added (Kuhlmann, 2007). According to this theoretical approach the agricultural enterprise is seen as a production unit excluding non-operative profit revenues and non-operative expenditures (Reisch/Knecht, 1995).

Apart from the compensation of land, labour and capital that equals a value added profitability of 100%, entrepreneurs have to acquire a value greater than 100% to reach the overriding corporate objective, being successful in the long run. Thus, entrepreneurs have to invest in their business to compensate for inflation and overall economic growth which enables organic growth by equity accumulation (Reisch/Knecht, 1995). Furthermore entrepreneurs invest human assets as personal traits such as innovation ability, creativity (Holdregger, 1998; Euchner, 2000) and the risk-taking of the business (Haupt 1997; Hamer, 2001) that have to be compensated for by entrepreneurial profits (Schneider, 2001). It follows that the success of wine (grape) producing enterprises is given with respect to the compensation of all invested (intangible) assets. Based on this approach the value added profitability can be used as a measure of success in the case of competitiveness. Figure 2 enhances minimum operating income from figure 1 by entrepreneurial profits with respect to value added profitability.

**Figure 2**

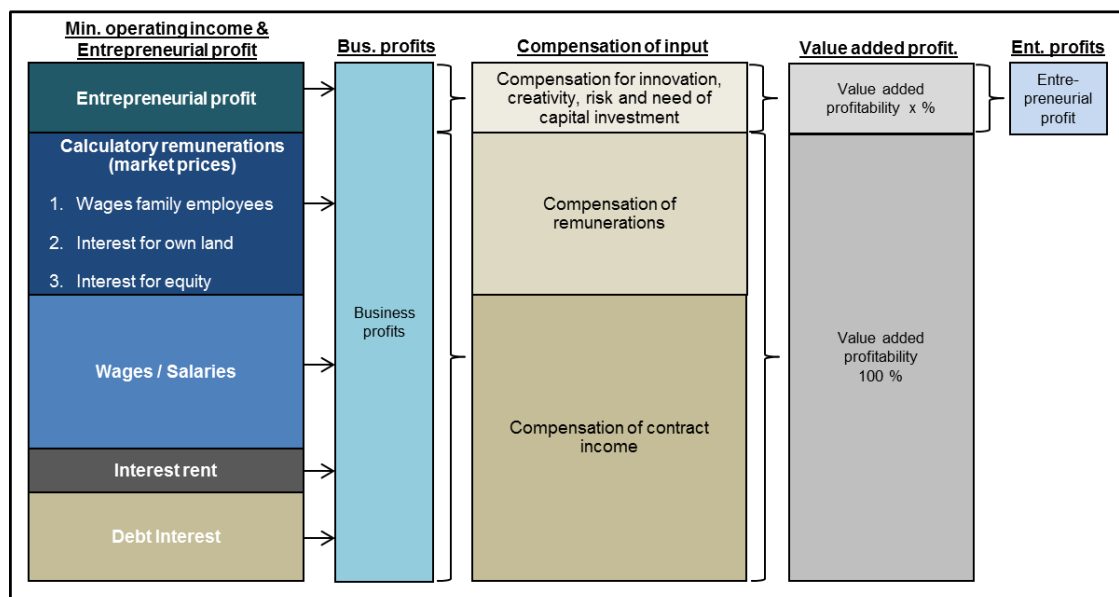Entrepreneurial success with respect to added value

Figure 2 shows that successful entrepreneur-run enterprises have to aim for a value added profitability greater than 100%. If the value added profitability in individual companies and business partnerships is greater than 100%, the business attains an entrepreneurial profit. Thus, the profit compensates the entrepreneurial manpower in the case of risk and innovation, while investments (savings) for business growth can be implemented to ensure competitiveness in the long run (Kuhlmann, 2007). Taking the aforementioned coherences we could conclude that the higher the total value added, the higher the compensation of each input factor will be, or if the input factors are compensated by market prices, the higher the entrepreneurial profit will be (Kuhlmann, 2007). As far as we know less empirical research has been conducted on the competitiveness and income distribution of German wine enterprises. Based on this, we set value added profitability, business profits and entrepreneurial profit as the central units for success to examine the question if German direct selling wine enterprises are competitive and if estates are able to compensate input factors by market prices.

## 2. Material and Methods

Data was collected by using annual financial statements of German direct selling wineries through eight different wine growing areas over a three year period. A similar framework was used in success factor research by Dautzenberg/Petersen 2005 and Schultze 2008, who examined success factors of agricultural enterprises. Business structure was categorized by enterprises that hold the whole value chain, including production and sales of wine. Subsequently, the success of wineries is not limited to the production side (expenditures), since success is also determined by generated revenues as a result of marketing activities. Enterprises had to be individual companies or business partnerships, such as GbR[1] and the managed agricultural land had to be less than or equal to 2.5 hectares to ensure that wine production was the main source of income. Thus, the greater the limitation of the wine estate structure, the higher the comparability of the enterprises success is (Drosse, 1994). Annual financial statements were analysed by calculation of business assessment over a three-year mean to compensate for agricultural volatility such as fluctuations in yield caused by external factors.

The data included a sample of 261 enterprises varying in size between 2.52 hectares in the

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[1] GbR (Gesellschaft bürgerlichen Rechts): Civil law association

Mosel area to 55.11 hectares in the Pfalz. The financial years included 08/09, 09/10 and 10/11. Standard deviation and minimum and maximum figures show that the enterprises underlie a strong dispersion regarding their size between and within the growing areas. The median shows that the biggest enterprises were in the Pfalz with an area under vines in production of 55.11 hectares, whereas the smallest enterprise was observed in Baden with 2.52 hectares of vines in production. Both Kolmogorov-Smirnov and Shapiro-Wilk tests show that the data is not normally distributed. Table 1 gives a precise overview of the data.

**Table 1**

Overview of data

| Direct selling enterprises | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Direct selling enterprises** | n = 261; mean size under vines cultivated 12.16 ha | | | | | | |
| **Financial statemens** | financial years 08/09, 09/10, 10/11 | | | | | | |
| **Wine estates per growing region** | | | | | | | |
| **Growing area** | **Total** | **%** | **Mean size (ha)** | **Median size (ha)** | **Standard deviation** | **Min.** | **Max.** |
| Pfalz | 64 | 24.5% | 17.20 | 14.37 | 10.12 | 4.55 | 55.11 |
| Rheinhessen | 58 | 22.2% | 15.27 | 13.60 | 7.85 | 4.21 | 35.60 |
| Franken | 30 | 11.5% | 9.18 | 7.69 | 5.25 | 3.33 | 28.69 |
| Baden | 30 | 11.5% | 12.22 | 8.66 | 10.15 | 2.52 | 54.01 |
| Mosel | 28 | 10.7% | 6.05 | 5.61 | 2.34 | 3.01 | 12.00 |
| Würrtemberg | 19 | 7.3% | 12.13 | 10.55 | 7.45 | 4.14 | 38.64 |
| Nahe | 17 | 6.5% | 11.72 | 9.59 | 6.65 | 6.31 | 34.71 |
| Rheingau | 15 | 5.7% | 13.51 | 11.31 | 9.65 | 3.24 | 35.67 |

## 3. Results

The following chapter summarizes the results of the success of wine enterprises with respect to calculated key figures and statistics. First, business assessment was calculated to get an overview of the value added profitability of wine growing estates. Thereafter statistical analysis was conducted to examine differences between influencers on performance.

### 3.1 Value added profitability of German wineries

Table 2 shows calculated key figures for all the data in column 2. Data was divided into positively (column 3) and negatively (column 4) performing estates measured by value added performance. Overall 261 estates were examined, of which 32% received a positive value added profitability and 68% a negative valued added profitability. Imputed key figures were calculated by market prices to examine if businesses compensate input factors by market prices. Imputed key figures are imputed costs of lease[2], imputed costs of interest[3] and imputed

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[2] Imputed costs of lease: €1000 per ha area under vines cultivated (own property)

costs of entrepreneurial salary[4]. Imputed key figures can be interpreted as opportunity costs, such as lost interest for lease by the winery using its own land for production. The imputed costs of interest is interest for tied-up equity and imputed costs of entrepreneurial salary is the value of income that a non-salaried family employee can earn in alternative employment. Column 2 displays the overall performance of German wineries, measured by value added profitability (value added / minimum operating income). Thus, the total value added from all wineries amounts to €205,720.69 and the minimum operating income to €221,205.02. Deriving from the quotient of both figures, the overall value added profitability is 93% and hence is negative. It follows that most businesses are not able to compensate their input factors by calculated imputed market prices since a value added profitability of 100% is not achieved.

**Table 2**

Value added profitability and entrepreneurial profit

| Value added profitability and entrepreneurial profit | | | |
|---|---|---|---|
| Key figures | All enterprises (n = 261) | Pos. value added prof. (33 %) | Neg. value added prof. (67 %) |
| (+) Lease expenses | €9,444.27 | €11,189.62 | €8,939.31 |
| (+) Interest expenses | €13,202.08 | €15,902.63 | €11,581.57 |
| (+) Personnel expenses | €87,809.91 | €113,813.65 | €70,937.59 |
| (+) Business profits | €95,246.42 | €182,853.55 | €56,549.19 |
| (=) Value added | €205,720.69 | €323,759.45 | €148,025.64 |
| (+) Lease expenses | €9,444.27 | €11,189.62 | €8,939.31 |
| (+) Interest expenses | €13,202.08 | €15,902.63 | €11,581.57 |
| (+) Personnel expenses | €87,809.91 | €113,813.65 | €70,937.59 |
| (+) Imputed costs of lease | €10,683.55 | €13,152.47 | €10,680.49 |
| (+) Imputed costs of interest | €35,890.38 | €40,622.67 | €38,482.22 |
| (+) Imputed costs of entrepren. salary | €64,174.83 | €62,498.19 | €70,039.10 |
| (=) Min. operating income | €221,205.02 | €257,179.24 | €210,660.27 |
| Value added profitability | 93.00 % | 125.89 % | 70.28 % |
| Entrepreneurial profit | -€15,484.33 | €66,580.21 | -€62,607.63 |
| Family employees | 1.84 | 1.79 | 2.01 |
| Area under vines in production (ha) | 12.20 | 14.76 | 12.42 |

Column 3 shows that 33% of the estates received a value added profitability of 125.89%. Estates show an average positive entrepreneurial profit of €66,580.21. Compared to the complete data (column 2), businesses show that there are fewer non-salaried family employees and simultaneously estates have a 2.34 hectare greater average area of vines in production. Column 4 shows that 68% of the whole database received a value added profitability of less than 100%. Thus, two-thirds of the examined enterprises hold an average value added profitability of 70.28%. Consequently, estates reveal a negative average

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[3] Imputed costs of interest: (3.5 / 100 × (Equity opening balance sheet + Equity closing balance sheet/2))

[4] Imputed costs of entrepreneurial salary: €35,000 per not-salaried family employee

entrepreneurial profit of -€6,607.63. Compared to positive performing businesses, negative performing estates had 0.22 more non-salaried family employees that have to be compensated by imputed costs of entrepreneurial salary. 0.22 non-salaried employees correspond to €7,700 of additional compensation per business. In table 2, the data shows that successful businesses recorded a business profit of €323,759.45, while negative performer recorded €148,052.64 and hence successful businesses earned a business profit that was more than 100% higher, though the size of the winery differed by merely 2.34 hectares.

The value added profitability between the selected growing areas was calculated to examine differences in economic success with respect to the growing area. Table 3 gives an overview of the different growing areas and key figures calculated. The data shows eight different groups. Group sizes vary between 15 (Rheingau) and 65 (Pfalz) estates. Overall, non-salaried family employees vary from 1.26 (Rheingau) to 2.36 (Württemberg). A comparison of value added profitability with respect to the growing areas show that the Rheingau area receives a value added profitability of greater than 100% and hence a successful performance. However, seven of eight areas reveal a negative value added profitability performance.

**Table 3**

Value added profitability by growing area

| Value added profitability and entrepreneurial profit | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Growing areas | Baden | Franken | Mosel | Nahe | Rheingau | Pfalz | Rheinhessen | Württemberg |
| Key figures | n = 30 | n = 30 | n = 28 | n = 17 | n = 15 | n = 65 | n = 58 | n = 19 |
| (+) Lease expenses | €4,541.47 | €10,507.00 | €2,915.97 | €4,363.13 | €10,654.65 | €13,463.10 | €8,670.10 | €20,438.78 |
| (+) Interest expenses | €15,485.23 | €17,878.20 | €5,301.91 | €7,647.85 | €22,056.37 | €15,062.63 | €9,678.31 | €12,506.16 |
| (+) Personnel expenses | €134,539.31 | €55,649.47 | €26,108.47 | €69,028.73 | €157,387.93 | €106,486.91 | €63,621.93 | €89,656.49 |
| (+) Business profits | €93,673.32 | €80,352.73 | €54,691.31 | €93,536.68 | €120,929.52 | €109,259.60 | €105,590.23 | €104,082.00 |
| (=) Value added | €248,239.33 | €164,387.41 | €89,017.65 | €174,576.39 | €311,028.47 | €244,272.24 | €187,560.58 | €226,683.42 |
| (+) Lease expenses | €4,541.47 | €10,507.00 | €2,915.97 | €4,363.13 | €10,654.65 | €13,463.10 | €8,670.10 | €20,438.78 |
| (+) Interest expenses | €15,485.23 | €17,878.20 | €5,301.91 | €7,647.85 | €22,056.37 | €15,062.63 | €9,678.31 | €12,506.16 |
| (+) Personnel expenses | €134,539.31 | €55,649.47 | €26,108.47 | €69,028.73 | €157,387.93 | €106,486.91 | €63,621.94 | €89,656.49 |
| (+) Imputed costs of lease | €7,340.23 | €4,796.63 | €6,057.65 | €11,728.96 | €13,770.03 | €17,209.89 | €12,434.63 | €12,130.41 |
| (+) Imputed costs of interest | €46,119.92 | €25,581.94 | €16,302.30 | €32,918.99 | €30,994.40 | €46,084.54 | €48,459.55 | €40,661.36 |
| (+) Imputed costs of entrepren. salary | €60,736.68 | €67,830.00 | €55,062.50 | €53,714.71 | €44,100.00 | €73,984.53 | €75,499.13 | €82,471.05 |
| (=) Min. operating income | €268,762.83 | €182,243.25 | €111,748.80 | €179,402.37 | €278,963.38 | €272,291.59 | €218,363.66 | €257,864.25 |
| Value added profitability | 92.36% | 90.20% | 79.66% | 97.31% | 111.49% | 98.71% | 85.89% | 87.91% |
| Entrepreneurial profit | -€20,523.50 | -€17,855.84 | -€22,731.15 | -€4,825.98 | €32,065.09 | -€28,019.36 | -€30,803.09 | -€31,180.83 |
| Family employees | 1.74 | 1.94 | 1.57 | 1.53 | 1.26 | 2.11 | 2.19 | 2.36 |
| Area under vines in production (ha) | 12.23 | 9.18 | 6.06 | 11.73 | 13.77 | 17.21 | 15.28 | 12.13 |

The results show that entrepreneurs compensate input factors by business profits rather than by imputed market prices. Thus, we conclude that business profits are the economic source for most enterprises reaching the overriding corporate objective of being competitive in the long run. As a consequence, business profits have to compensate wages for non-salaried

family employees, interest for their own land and equity as well as for entrepreneurial risk, creativity and innovational strength of the entrepreneur. Furthermore business profits are the source of capital accumulation and compensation of inflation.

## 3.2 Business profits of German wineries

As businesses received an average negative value added profitability, business profits are the main source for compensation and thus we will examine business profits. To get a comparable measure of performance, average revenues, expenditures and business profits were calculated and considered by area of vines in production. Figure 3 gives an overview of the success by area with respect to business profits, expenditures and revenues per hectare.

**Figure 3**

Business profits, revenues and expenditures per hectare



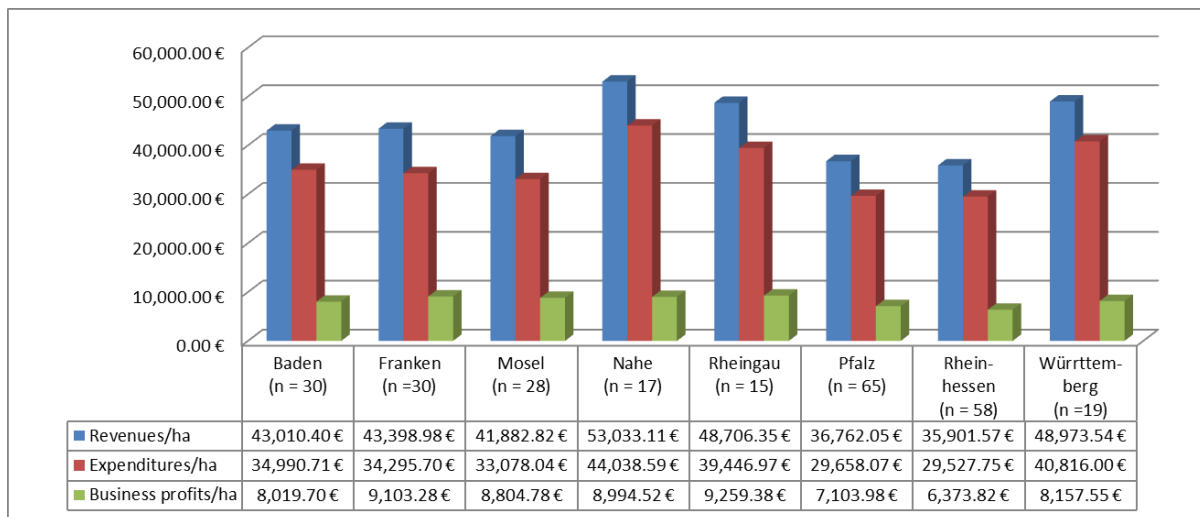| | Baden (n = 30) | Franken (n =30) | Mosel (n = 28) | Nahe (n = 17) | Rheingau (n = 15) | Pfalz (n = 65) | Rhein-hessen (n = 58) | Württem-berg (n =19) |
|---|---|---|---|---|---|---|---|---|
| ■ Revenues/ha | 43,010.40 € | 43,398.98 € | 41,882.82 € | 53,033.11 € | 48,706.35 € | 36,762.05 € | 35,901.57 € | 48,973.54 € |
| ■ Expenditures/ha | 34,990.71 € | 34,295.70 € | 33,078.04 € | 44,038.59 € | 39,446.97 € | 29,658.07 € | 29,527.75 € | 40,816.00 € |
| ■ Business profits/ha | 8,019.70 € | 9,103.28 € | 8,804.78 € | 8,994.52 € | 9,259.38 € | 7,103.98 € | 6,373.82 € | 8,157.55 € |

Figure 3 shows that the most successful businesses measured by business profits per hectare are located in the Rheingau (€9,259.38/ha) and Nahe (€9,103.28/ha). Rheinhessen (€6,373.82/ha) and Pfalz (€7,103.98/ha) are the weakest performers in the collected data sample. In addition, business profits per hectare from Rheinhessen and Pfalz differ most from other areas. Since the data is not of a normal distribution and the data shows that there is no variance, homogenity, groups were clustered to examine significant differences between growing areas and business performances per hectare by using cross tabs and chi-squared analysis. Table 3 shows the areas examined segmented through four different groups of business profits per hectare.

**Table 4**

Business profits with respect to growing area

| Growing area / Business profits/ha | | Baden | Pfalz | Rhein-hessen | Rhein-gau | Franken | Mosel | Württem-berg | Nahe | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| €0 - €2,999 | % of group | 13.2% | **34.2%** | 21.1% | 2.6% | 10.5% | 10.5% | 5.3% | 2.6% | **100.0%** |
| | % of total | 2.0% | 5.2% | 3.2% | .4% | 1.6% | 1.6% | .8% | .4% | **15.3%** |
| €3,000 - €5,999 | % of group | 12.9% | **32.3%** | 27.4% | 4.8% | 6.5% | 6.5% | 4.8% | 4.8% | **100.0%** |
| | % of total | 3.2% | 8.0% | 6.8% | 1.2% | 1.6% | 1.6% | 1.2% | 1.2% | **24.9%** |
| €6,000 - €8,999 | % of group | 5.7% | 20.8% | **28.3%** | 7.5% | 9.4% | 9.4% | 9.4% | 9.4% | **100.0%** |
| | % of total | 1.2% | 4.4% | 6.0% | 1.6% | 2.0% | 2.0% | 2.0% | 2.0% | **21.3%** |
| ≥ €9,000 | % of group | 12.5% | **18.8%** | 14.6% | 5.2% | 16.7% | 14.6% | 9.4% | 8.3% | **100.0%** |
| | % of total | 4.8% | 7.2% | 5.6% | 2.0% | 6.4% | 5.6% | 3.6% | 3.2% | **38.6%** |
| **Total** | % of total | **11.2%** | **24.9%** | **21.7%** | **5.2%** | **11.6%** | **10.8%** | **7.6%** | **6.8%** | **100.0%** |

Table 3 shows that the Pfalz accounts for the highest share within the first two groups and the last group of business profits per hectare. The share of the Pfalz within the groups decreases with an increase in profits per hectare. With respect to table 3, both Pfalz and Rheinhessen show that their high share per group is related to their high number of enterprises in the sample. However, we can derive from table 4 on an accumulated level, that the share of more successful growing areas is related to the range €6,000 – €8,999 and the range ≥ €9,000, while less successful growing areas lie mainly in the ranges €0 – €2,999 and €3,000 – €5,999.

**Table 5**

Accumulated business profits with respect to growing area

| Business profits/ha | Baden | Pfalz | Rhein-hessen | Rheingau | Franken | Mosel | Württtem-berg | Nahe | Total |
|---|---|---|---|---|---|---|---|---|---|
| **€0 - €5.999** | 5.2% | 13.3% | 10.0% | 1.6% | 3.2% | 3.2% | 2.0% | 1.6% | **40.2%** |
| **≥ €6.000** | 6.0% | 11.6% | 11.6% | 3.6% | 8.4% | 7.6% | 5.6% | 5.2% | **59.8%** |

Table 4 outlines the first two and the last two ranges from table 3 on an accumulated level. Thus, 40.2% of the overall sample received a business profit per hectare that was ≤ €5,999, while 59.8% received a profit of ≥ €6,000. The less successful enterprises located in the areas Baden, Pfalz and Rheinhessen show that the distribution of business profits per hectare is nearly similarly distributed through both ranges, whereas more successful areas show that most of their enterprises lie in the bracket ≥ €6,000. Chi-squared and Kruskal-Wallis tests were applied to observe differences between growing areas with respect to the performance cluster per hectare. However, both results state that there are no significant differences between growing areas and business profits per hectare. Subsequently, the data does not reveal a relationship between the growing area and the success of enterprises, measured by business profits per hectare. Next coherences between business profits per hectare and the

area under vines in production were examined. Table 5 shows business profits with respect to the size of the enterprises.

**Table 6**

Business profits with respect to size of enterprises

| Size of enterprises | Bus. profits/ha | €0 - €2,999 | €3,000 - €5,999 | €6,000 - €8,999 | ≥ €9,000 | Total |
|---|---|---|---|---|---|---|
| 0 - 14.99 ha | % of group | 12.00% | 22.30% | 20.60% | **45.10%** | **100.00%** |
|  | % of total | 8.40% | 15.70% | 14.50% | 31.70% | **70.3%** |
| 15 - 34.99 ha | % of group | 20.00% | **32.30%** | 23.10% | 24.60% | **100.00%** |
|  | % of total | 5.20% | 8.40% | 6.00% | 6.40% | **26.10%** |
| 35 - 59.99 ha | % of group | **44.40%** | 22.20% | 22.20% | 11.10% | **100.00%** |
|  | % of total | 1.60% | 0.80% | 0.80% | 0.40% | **3.60%** |
| Total | % of total | **15.30%** | **24.90%** | **21.30%** | **38.60%** | **100.00%** |

Table 5 states that 70.3% of the whole data sample had a size of ≤ 14.99 ha. Within this group 45.10% received a business profit per hectare of ≥ €9,000. 32.30% in the range of 15 – 32.99 ha received a profit of €3,000 – 5,999 and in the group ≥ 35 ha, 44.40% received a profit that was ≤ €2,999. Thus, the data shows that there is an inverse relationship between business profits per hectare and the estate structure, measured by the area under vines in production. The Kruskal-Wallis test states that business profits per hectare is unequal through different size clusters (p-value < 0.05). The Chi-squared test (Pearson`s chi-squared = 16.28) states that there is a weak significance relationship (Cramer V = 0.18) between the size of area under vines and the size of business profits per hectare (p-value < 0.05).

## 4. Discussion and Conclusion

By using a value added perspective, this study found that two-thirds of the sample of direct selling wineries did not compensate their input factors by assumed imputed market prices. However, to evaluate success of enterprises, several points have to be discussed. Results reveal that either assumptions of imputed market prices were overrated and consequently calculations have to be adjusted by using lower market prices, or entrepreneurs compensate their tangible and intangible input factors by business profits rather than by imputed figures such as entrepreneurial profits. Taking the first issue of overrated market prices, we can also interpret that living costs of entrepreneurial families are below market prices. Corresponding, lower (imputed) family income for non-salaried family employees might be required. This argument is supported by the fact that entrepreneurs profit from synergies in their business as they generally live on their estates and other business assets are used for private use. Thus, a imputed mark-up has to be integrated in the calculation. Second, imputed costs of interest that

was calculated as an alternative investment of tied-up equity, is overrated by 3.5% as profitability of tied-up equity might be of a lower interest rate. Annual financial statements show that a high percentage of equity in wineries is bound in fixed assets, like buildings and production facility and thus evaluation of fixed assets differs between enterprises. Third, imputed costs of interest for lease might be overrated by an average value of €1,000 per hectare. However, €1,000 per hectare is approximately the average rate of lease that can be obtained as owner of land. The research also showed that there are slight differences between the growing areas and business profits per hectare. Nevertheless, chi-squared analysis and Kruskal-Wallis test stated that there is no significant difference between the growing areas and business profits per hectare. Based on figure 3, similar profits per hectare were obtained in all the growing areas since businesses with high expenditures per hectare simultaneously receive higher revenues. Thus, growing areas with higher expenditure compensated for the expenditure with higher revenues and as a consequence variability in business profits per hectare is balanced out. The research also showed that there is a concentration of most successful businesses, measured by business profits per hectare, with respect to the size of enterprises. Enterprises that range from $\leq 14.99$ ha obtained the highest business profits per hectare. Furthermore research reveals that there is a significant inverse relationship between the size of the estates and their performance per hectare, stated by chi-squared analysis and Kruskal-Wallis test (p-value $< 0.05$). This relationship might be traced back to the fact that the bigger the size of area under vines in production, the more capital-intensive the production of wine referring to personnel expenditure is. Thereby, capital-intensive production can overcompensate potential degression effects.

This research contributes to success factor research of small enterprises and has several limitations. The data collected is not representative of the particular growing areas, since there is a strong dispersion between and within different growing areas. In addition group sizes per growing area vary and data is not normally distributed. Thus, standard deviation shows that the sizes of enterprises is highly variable when measured by area under vines in production. Furthermore, based on the sample, the methodology is limited to descriptive statistics and non-parametric tests. Deriving from these results, further research should be conducted to examine differences with a focus on the structure of enterprises, rather than on wine growing areas.

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