# DETERMINATION OF PRIORITIES OF BUYERS REGARDING VALUE CONTRIBUTING CHARACTERISTICS OF FARM LAND IN THE STELLENBOSCH DISTRICT, SOUTH AFRICA

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**Abstract**

*The use of the comparable sales method to value farm properties requires that professional valuers must think like a typical buyer of farm properties in a particular area. The Stellenbosch district, located on the periphery of the Cape Metropole, is a famous wine-producing area. The typical buyer is sophisticated and wealthy: someone for whom lifestyle could probably be just as important as the income generating capacity of the wine estate. A variety of site and situational factors have to be considered by the valuer: some of which are easily identifiable and quantifiable, where others are more elusive. This study aimed to identify and order the more important motivations as perceived by typical buyers in order to provide guidelines to valuers. An empirical study was done to determine buyers' and property characteristics, and buyers' ratings of possible motivations for buying land in Stellenbosch. Factor analysis provided a hierarchy of motivations. Terroir is the dominant site factor and the most important motivation, followed by location relative to Cape Town, the aesthetic beauty of the property, accessibility of the property, potential for new/more vineyards, meso-climate and the status of the "address".*

## 1. INTRODUCTION

The comparable sales method is commonly used to determine the market value of farm land. It is based on the rationale of substitution: informed buyers will not pay more for a particular farm than it costs them to buy comparable substitute properties (Barlowe, 1978:328). In applying the comparable sales method, the professional valuer has to think like the typical buyer and seller. Looking at the current real estate market for indications of the actual going market value of the property they value, the professional valuer needs to know which value contributing characteristics should be taken into account to compare the subject property (the property to be valued) with the transaction

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properties (sold properties providing value guidelines for the valuation process). The valuer should also know which characteristics should carry relatively more or less weight.

The Stellenbosch farm land market is more complex than, for instance the small grain producing areas in the western and southern parts of the Western Cape. In these areas, land quality for small grain production is still the major land price determinant. Consequently, land prices are still more or less in line with the productive value of the land (cf. Lombard, 1993 for a description of a decision support model for the evaluation of farm land transactions in the western and southern parts of the Western Cape and Dunford *et al*, 1985:11 for a categorization of rural land price determinants). The Stellenbosch district is situated on the periphery of the Cape Metropolitan Area and is well known for its wine estates. The wine estates provide an income, status and a rural lifestyle, with land prices exceeding the productive value of the land by far.

General proximity to major population centers and the presence of aesthetically attractive natural landscapes are attributes geographically associated with farm land price increases. This proximity factor as a situational or location factor refers to the cost at which inputs are transported to the farm and products are transported to the market, as well as the cost and ease with which an owner living on the farm can visit the metropole or tourists can visit the farm. Where situational factors increase in importance as land price determinants, this happens at the expense of site factors such as climate and soils which traditionally have helped to explain farm land prices (Archer & Lonsdale 1997:399; Anderson 2001:11). At the same time, there is a growing awareness in South Africa of the influence of *terroir* on the quality of wine, following the strong *terroir* awareness found, for instance, in Burgundy, Bordeaux and other famous wine-producing areas in France. For instance, the Joint International Conference on Viticultural Zoning with the theme: "*Meeting zoning requirements from a terroir and grapevine perspective*" has been held in Cape Town from 15 – 19 November 2004, organized by The South African Society for Enology and Viticulture (SASEV). The effects of different *terroirs* on wine character have been scientifically verified (Saayman, 1977; Conradie *et al*, 2002). The importance of zoning and demarcation of areas of origin is accepted by the wine industry. Zoning is already well developed (Saayman, 1998) and strongly supported by ongoing research (Carey, 2001; Carey, Archer & Saayman, 2002).

Terroir refers to the interaction of climate, topography and soils determining grape and wine quality. These site factors are major land price determinants in the famous wine-producing regions of the northern hemisphere and can therefore be expected to be of increasing importance amongst farm land

buyers in Stellenbosch. Given the presence of such a variety of land price determinants, a study was done to determine which factors play a greater or lesser role in farm land price formation in Stellenbosch. The aim was to provide at most an ordinal scale indicating the more important motivations as perceived by farm land buyers to provide a guide for professional valuers operating in the Stellenbosch area.

## 2. INCREASING *TERROIR* AWARENESS

"*Terroir* is a concept widely used by the French to express what American viticulturalists see as the ecology or physical geography of the vineyard site, including its local climate, topography, soil, subsoil and biotic associations. Plant vigour and fruit composition are functions of the interaction of these ecosystem components with the vine genome" (Elliot-Fisk, 1993:67). *Terroir* is defined as an existing (often still unknown) relationship/interaction between the natural environmental factors - climate, topography and soil - which have the potential (also often unknown) to induce a specific character into an agricultural product (not necessarily wine) (Saayman, 1995 in Bohmrich, 1996:45). A variety of translations and definitions of *terroir* exist, but uniqueness, origin, persistence, specificity and personality are at the very heart of the notion of *terroir*. This notion comprises the varied facets of "nutrient", "space", "slogan", and "conscience" *terroirs* as shown in Figure 1 (Vaudour, 2002:119).

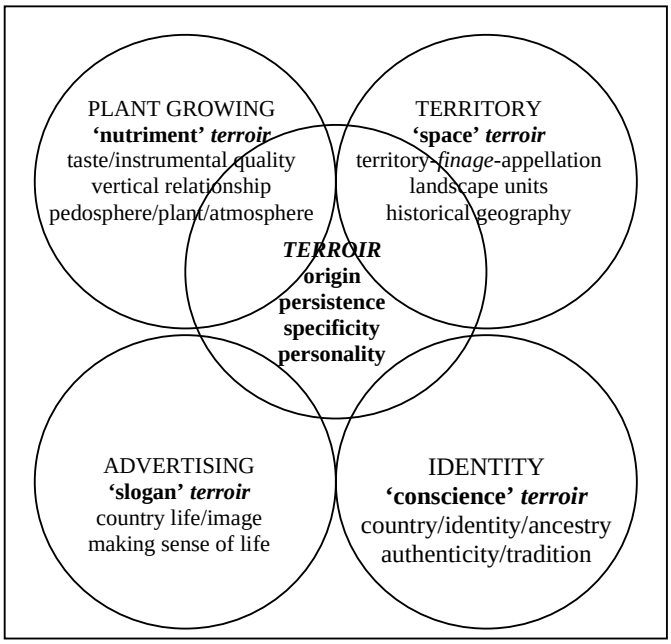


**Figure 1: A typology of *terroir***

*Source*: Vaudour (2002:119)

Boundaries of geographic areas seen as producing better and/or distinctive wines were made in Tokay in 1700's, in 1716 in Tuscany and in 1756 in the Douro Valley. These prototype appellations have surprising validity even now and reflected the common wisdom as to the advantages of certain wine-growing conditions over others. The classification of the leading wine properties of Bordeaux based on land market values was established in 1855, although attempts started as early as 1815. This classification, combined with other elements - such as permissible grape variety, vine density, pruning, yield and alcoholic strength - provided the criteria for the delimitation of vineyards in France in terms of the laws known as *Appellation d'Origine Controlee* (AOC) in the 20th century (Bohmrich, 1996:34). Despite critique from some members of the Australian wine-industry that the AOC system is merely a creature of the 20th century as a response to fraud and abuse in the wake of *phylloxera*, rather than to any particular viticultural imperative, and the notion that the AOC contributes mainly to marketing, the Australian Label Integrity Programme has most of the essential ingredients of the AOC. While they are cautious of a simplistic dichotomy between the influence of soil and climate, climate is regarded to be of greater importance than is soil type (Halliday, 1993:19). In Australia, climate is also regarded as the *terroir* component with the greatest influence on wine quality, causing rapid growth in the 1990's of new super-premium cool-climate regions (Anderson *et al* 2001:11; Schamel & Anderson 2001:21).

There seems to be consensus that although much has been learned about the natural causes of the flavours in wine, the components of *terroir* interconnect to form a highly complex enigma which has so far defied complete solution. Until now, *terroir* has been to a large extent an ideological confrontation. On the one hand are "*terroirists*": they have a vested interest and wield the concept as a weapon on the world market to assert that European classics are permanently superior. On the other hand are modernists: these are mainly from the New World and they reject what they perceive to be bogus scientific arguments which serve to perpetuate a marketing advantage (Bohmrich, 1996:43).

It is against this background that this study focused specifically on the *terroir* awareness of buyers of land for wine-grape and wine-production in the Stellenbosch area. This represents the higher quality wine-producing areas in South Africa where differences in wine flavours are expected to be judged more seriously and thus the assumed causal *terroir* factors should also enjoy more attention.

## 3. STUDY AREA AND DATA

### 3.1 Survey

A survey was done in the Stellenbosch district as demarcated by the South African Deeds Office. Respondents were identified as private buyers or representatives of companies, trusts or closed corporations who have bought land in the Stellenbosch district from 1999 to April 2004. Only arm's length transactions were studied. The Deeds Office's monthly records provided only buyers' names without any further contact detail. Only a limited amount of contact information was obtained from the Wineland District Municipality: the new address list for the recently introduced municipal tax system which also covers non-urban properties was still not completed. Most of the buyers were identified by locating the farm or farm portion(s) on a map via its farm and portion number(s) obtained from the Deeds Office records. This was done by means of a Geographic Information System (GIS) containing a map of the Stellenbosch district with farm boundaries, roads and other landmarks. An identified property was then visited to make an appointment with the buyer for an interview. This *modus operandi* made it possible to interview 29 buyers of farms and mostly larger smallholdings. Smallholdings are often bought to plant vineyards as part of a rural lifestyle, thus it was expected that *terroir* could also play a role in the decision to buy a smallholding.

### 3.2 Characteristics of land buyers and properties

Of the 29 respondents, 21 described themselves as active or retired businessmen. Five were winemakers, of which four were already involved in wine-grape production and wine marketing. Only three buyers were fulltime farmers, of which one bought his farm in Stellenbosch to start with wine-grape production, intending to proceed to wine-making later. Table 1 gives more background information on the farming experience and intentions of the respondents.

Table 1 show that about half of the number of respondents had some farming experience, mostly on a part-time basis, before buying their farm or smallholding in Stellenbosch. Wine-grape production, mostly with the intention to add value via wine-making, was clearly a far more popular motive to buy land in Stellenbosch rather than to produce fruit. In cases where buyers were not confident about their own *terroir* knowledge to judge a farm in order to buy it or to plan vineyard establishment after the transaction, they have consulted *terroir* experts.

**Table 1: Characteristics and land-use intentions of buyers of farms and smallholdings in Stellenbosch district**

| Characteristic/Intention | Number of respondents | % of respondents |
|---|---|---|
| Formal training in viticulture (including some short courses) | 7 | 24 |
| Formal training in horticulture | 3 | 10 |
| General farming experience | 15 | 52 |
| *Terroir* expert consulted for decision to buy property | 16 | 55 |
| *Terroir* expert consulted for vineyard establishment | 14 | 48 |
| Intention to produce wine-grapes | 17 | 59 |
| Intention to produce fruit | 3 | 10 |
| Intention to produce wine | 15 | 52 |

*Note*: N = 29.

Table 2 provides some more information on buyers' farming background, judgement of own *terroir* knowledge and their perception of the *terroir* knowledge of professional valuers and estate agents often involved in the decision to buy a farm or smallholding. The generally limited experience in grape and fruit production was sufficient to sensitize buyers about the complexity of *terroir* and the necessity to obtain support from *terroir* experts when they had to evaluate a farm before buying it, or when they had to select which wine grape cultivars for the various parts of the farm. The few local *terroir* experts have a soil science – viticulture background and ample experience in monitoring the performance of different wine grape cultivars on various climate-terrain-soil combinations.

**Table 2: Descriptive statistics on the buyers**

| Parameter | Valid N | Mean | Median | Mini-mum | Maxi-mum | Std Dev |
|---|---|---|---|---|---|---|
| Years experience in grape production | 29 | 5 | 0 | 0 | 45 | 10 |
| Years experience in wine-production | 29 | 5 | 0 | 0 | 42 | 10 |
| Years experience in fruit production | 29 | 4 | 0 | 0 | 35 | 8 |
| Number of properties considered before transaction | 28 | 3 | 2 | 0 | 12 | 3 |
| Number of transactions studied before buying the property | 29 | 5 | 3 | 0 | 25 | 6 |
| Buyer's judgement of own knowledge of *terroir** | 29 | 6 | 6 | 1 | 10 | 3 |
| Judgement of professional valuer's knowledge of *terroir** | 8 | 4 | 3 | 1 | 9 | 3 |
| Judgement of estate agent's knowledge of *terroir* * | 23 | 4 | 5 | 1 | 10 | 3 |
| Influence of *terroir* expert on decision to buy the property* | 19 | 6 | 7 | 0 | 10 | 3 |

*Note*: * = Measurement on a 10 point scale where 1 indicates the low extreme and 10 the high extreme.

Table 3 gives the average price paid for the properties, as well as the size, the land use and other possible value contributing features of the properties.

**Table 3: Descriptive statistics and buyers' perceptions of the characteristics of farms and smallholdings**

| Parameter | Valid N | Mean | Median | Mini-mum | Maxi-mum | Std Dev |
|---|---|---|---|---|---|---|
| Price paid for fixed property (excluding VAT) (R) | 29 | 7558705 | 3699500 | 667000 | 30200000 | 7493325 |
| Total area of property bought (ha) | 29 | 32 | 13 | 2.1 | 123 | 37 |
| Area of property under vineyards at date of sale (ha) | 29 | 10 | 4 | 0 | 55 | 16 |
| Area land suitable for further vineyard establishment (ha) | 29 | 13 | 5 | 0 | 80 | 23 |
| Area land listed under an irrigation scheme (ha) | 29 | 17 | 7 | 0 | 80 | 21 |
| Area land unsuitable for agricultural production (ha) | 29 | 11 | 4 | 0 | 50 | 16 |
| Average age of existing vineyards (years) | 28 | 7 | 5 | 0 | 38 | 9 |
| Average age of existing fruit orchards (years) | 29 | 3 | 0 | 0 | 15 | 5 |
| General condition of existing vineyards* | 18 | 5 | 5 | 1 | 10 | 3 |
| General condition of existing fruit orchards* | 12 | 6 | 7 | 1 | 9 | 3 |
| Historical character of the homestead on the property* | 15 | 3 | 1 | 0 | 10 | 3 |
| Floor space of homestead ($m^2$) | 26 | 253 | 250 | 0 | 700 | 205 |
| General condition of the homestead* | 20 | 5 | 5 | 1 | 10 | 2 |
| General condition of the wine-cellar* | 3 | 7 | 6 | 4 | 10 | 3 |
| Floor space of other buildings ($m^2$) | 28 | 435 | 225 | 0 | 2000 | 514 |
| General condition of the other buildings* | 22 | 5 | 5 | 1 | 10 | 2 |
| Total area of rentable houses/cottages on the property ($m^2$) | 24 | 72 | 0 | 0 | 480 | 150 |

*Note*: * = Measurement on a 10 point scale where 1 indicates the low extreme and 10 the high extreme.

## 3.3 Motivations for buying farm land

Table 4 shows buyers' ratings on a 10 point scale of the importance attached to possible motivations for buying their properties.

**Table 4: Descriptive statistics on possible motivations for buying the properties***

| Parameter | Valid N | Mean | Median | Mini-mum | Maxi-mum | Std Dev |
|---|---|---|---|---|---|---|
| Appreciation of property value** | 29 | 6 | 7 | 1 | 10 | 2 |
| Income from grapes and/or wine at date of sale | 20 | 2 | 2 | 0 | 5 | 1 |
| Potential for new/more vineyards (potential income from grapes and/or wine)** | 23 | 7 | 8 | 1 | 10 | 3 |
| Income from fruit at date of sale | 10 | 2 | 1 | 1 | 7 | 2 |
| Potential income from fruit | 10 | 3 | 1 | 1 | 9 | 3 |
| Lifestyle** | 27 | 7 | 8 | 1 | 10 | 2 |
| Rental income from houses/cottages at date of sale | 12 | 3 | 2 | 0 | 7 | 3 |
| Potential rental income from houses/cottages | 15 | 3 | 2 | 0 | 8 | 3 |
| Tourism income generated at date of sale | 18 | 3 | 1 | 0 | 8 | 3 |
| Potential tourism income** | 27 | 5 | 6 | 0 | 10 | 3 |
| Aesthetic beauty of the property** | 29 | 8 | 8 | 4 | 10 | 1 |
| Status of the "address" of the property** | 29 | 7 | 8 | 2 | 10 | 2 |
| Accessibility of the property** | 29 | 8 | 8 | 3 | 10 | 2 |
| Location of the property relative to Cape Town** | 29 | 7 | 7 | 1 | 10 | 2 |
| Privacy provided by the property | 29 | 7 | 7 | 3 | 10 | 2 |
| Existing vineyards on the property at date of sale | 15 | 4 | 3 | 1 | 8 | 3 |
| Existing fruit orchards on the property | 9 | 1 | 1 | 1 | 1 | 0 |
| Potential/planned fruit orchards on the property | 5 | 5 | 5 | 1 | 10 | 5 |
| Potential/planned wine-cellar on the property | 15 | 4 | 8 | 1 | 10 | 7 |
| Existing wine-cellar on the property | 3 | 4 | 2 | 1 | 8 | 4 |
| Existing homestead on the property | 21 | 5 | 5 | 1 | 8 | 3 |
| Historical value of the existing homestead on the property | 4 | 6 | 6 | 1 | 9 | 4 |
| Size of the existing homestead on the property | 18 | 4 | 3 | 0 | 9 | 3 |
| Value contribution of the other buildings on the property | 22 | 4 | 4 | 1 | 9 | 3 |
| Number of guest houses/cottages on the property | 24 | 1 | 0 | 0 | 6 | 2 |
| Number of rentable houses/cottages on the property | 26 | 1 | 0 | 0 | 8 | 2 |
| Meso-climate of the area** | 29 | 7 | 7 | 0 | 10 | 2 |
| Slopes of the land of the property** | 29 | 7 | 8 | 2 | 10 | 2 |
| General aspect of the land of the property** | 29 | 8 | 8 | 1 | 10 | 2 |
| Soils of the land of the property** | 29 | 7 | 8 | 1 | 10 | 2 |
| General t*erroir* of the property** | 29 | 8 | 8 | 1 | 10 | 2 |

*Notes*:
* = Measurement on a 10 point scale where 1 indicates the low extreme and 10 the high extreme.
** = indicates which variables were captured in the factors representing the main motivations to buy land in the Stellenbosch district (see Table 6).

## 4. RESULTS AND DISCUSSION

The "motivation" variables included in Table 4 were subjected to factor analysis in order to identify the major motivations for buying farm land in the Stellenbosch district. Factor analysis is a technique of multivariate analysis that describes the correlation pattern in a set of observable random variables in terms of a minimal number of unobservable or latent random variables called factors (Press, 1982:326). Maximum likelihood factor analysis was used in this study. A multiplicity of dimensions of buyer behavior, captured by the variables shown in Table 4, are "boiled down" to a few fundamental factors. These fundamental variables or factors are used to "explain" the observed data by detecting common traits or dimensions that underlie correlations between the variables. In essence, the analysis regroups the data into patterns represented by the factors to identify major forces shaping an outcome, in this case motivations to buy land in the Stellenbosch district. The relative size of the eigenvalues and the percentage of total variance explained by the factors as given in Table 5 show the hierarchy of motivations why buyers bought land in Stellenbosch. Factor 1 accounts for 36.75 percent of the total variance, Factor 2 for 18.02 percent and all six factors together account for 87.67 percent of the total variance.

**Table 5: Percentage and cumulative eigenvalues and variance of the six dominant factors indicating the relative influence of motivations for buying land in the Stellenbosch district**

| Factor | Eigenvalue | % Total variance | Cumulative eigenvalue | Cumulative % |
|---|---|---|---|---|
| **1** | 5.14 | 36.75 | 5.14 | 36.75 |
| **2** | 2.52 | 18.02 | 7.67 | 54.77 |
| **3** | 1.63 | 11.61 | 9.29 | 66.38 |
| **4** | 1.07 | 7.66 | 10.37 | 74.05 |
| **5** | 0.97 | 6.94 | 11.34 | 80.99 |
| **6** | 0.94 | 6.69 | 12.27 | 87.67 |

A variable's loading on a factor as given in Table 6 shows the size of the correlation between the variable(s) and the factor. The names of the factors were derived from the variables correlating highly with the factor.

Table 6 shows that Factor 1 (*Terroir* and visible components of *terroir*) correlates highly with the variable "*Terroir*" and with each of the following components of *terroir*, namely "Slope", "Aspect" and "Soil". The latter three variables represent the more visible components of *terroir*. The visibility of these components is a possible reason for influencing buyers' decision to buy more strongly than "Meso-climate" captured in Factor 5, which accounts for

only 6.94 percent of total variance. Meso-climate can be seen as the modification of the macro-climate by the slope and aspect and is often called the "vineyard climate".

**Table 6: Factor loadings indicating the variables strongly related to the factors representing main motivations for buying land in the Stellenbosch district**

| | Factors | | | | | |
|---|---|---|---|---|---|---|
| **Variables** | **Factor 1** *Terroir* **and visible compo-nents** | **Factor 2 Location** | **Factor 3 Income gene-rating potential** | **Factor 4 Monetary and non-monetary returns** | **Factor 5 Meso-climate** | **Factor 6 Status of the "address"** |
| Appreciation of property value | -0.29 | 0.13 | 0.03 | ***0.81*** | -0.31 | 0.19 |
| Lifestyle | -0.21 | -0.23 | -0.02 | ***-0.85*** | -0.25 | 0.02 |
| Potential tourism income | 0.13 | 0.14 | ***0.85*** | 0.07 | -0.07 | -0.05 |
| Aesthetic beauty of property | 0.44 | ***0.80*** | -0.06 | 0.09 | 0.01 | 0.06 |
| Status of the "address" | 0.17 | 0.29 | -0.13 | 0.11 | -0.02 | ***0.90*** |
| Accessibility of property | 0.25 | ***0.72*** | 0.05 | 0.21 | 0.12 | 0.22 |
| Location relative to Cape Town | -0.12 | ***0.87*** | 0.31 | 0.11 | -0.06 | 0.10 |
| Potential for new/more vineyards (potential income from grapes and/or wine) | 0.45 | 0.17 | ***0.76*** | 0.01 | -0.00 | -0.15 |
| Meso-climate | 0.32 | 0.15 | -0.17 | 0.09 | ***0.81*** | -0.09 |
| Slope | ***0.90*** | 0.20 | 0.23 | 0.14 | 0.20 | -0.02 |
| Aspect | ***0.89*** | 0.21 | -0.02 | -0.18 | 0.21 | -0.11 |
| Soil | ***0.89*** | -0.04 | 0.16 | 0.05 | 0.02 | 0.28 |
| *Terroir* | ***0.93*** | 0.18 | 0.22 | -0.02 | 0.09 | 0.12 |

*Note*: Factor loadings in italics indicate which variable(s) correlate(s) significantly with a particular factor.

Factor 2 is called the "Location" motivation for buying land in Stellenbosch. This factor includes the contributions of accessibility of the property in terms of the road infrastructure in Stellenbosch and accessibility from Cape Town – both of importance to a businessman visiting Cape Town regularly for work whilst enjoying a more rural lifestyle in Stellenbosch. The fact that some 72 percent of the respondents were businessmen commuting regularly to Cape Town and that they were prepared to pay a premium for the aesthetic beauty of the property to add to their satisfaction of a rural lifestyle clearly played an important role.

Factor 3 indicates that despite the considerations mentioned above for Factor 2, the income generating potential of the property is still an important motivation, albeit from wine-grape and/or winemaking or from supplying tourism services like bed and breakfast and/or wine-tasting and meals.

Factor 4 is an aggregation of the influence of two contrasting considerations, namely value appreciation for capital gains and enjoying a rural lifestyle while operating as a businessman, implying regular commuting to the Cape Metropole.

Factor 6 as the status of the Stellenbosch "address" accounts for the lowest percentage of total variance, namely 6,69 percent. In most cases the respondents were a bit hesitant and appeared even a bit shy to acknowledge the importance of status of the "address" as a motivation to buy the property. A survey method which provides complete anonymity to respondents might have resulted in a higher level on the hierarchy for the "Status" factor.

With reference to the variables not included in the factors (see Table 4), it is obvious that current income from older, and what are often perceived as less respectable vineyards and orchards (see Table 3), played an insignificant role in the decision to buy the farm or smallholding. Buyers who intended to establish new vineyards had to add to the land price the cost of clearing, preparing and planting land at an average cost of R105,000 per hectare in addition to the waiting cost until the new vineyards start generating a positive contribution to the farm's cash flow. The desire to put their own stamp on the landscaping and farm planning, including vineyards planted according to *terroir* guidelines, in order to exploit the potential wine-grape and wine income and/or tourism income, clearly carried more weight.

It is noteworthy that the "Privacy" variable does not form part of the Location factor. Some of the properties covered by the survey which attained relatively high prices per hectare are located near the top end of valleys, providing outstandingly beautiful settings and views on the mountains and the lower lying landscapes, as well as very limited pedestrian and vehicle traffic. It was expected that privacy could also be a major consideration in the selection of properties. The fact that the "Privacy" variable did not form part of the six factors indicates that valuers could pay less attention to privacy enhancing features of a farm or smallholding.

The building infrastructure on the property did not feature as an important value contributing consideration. Neither the existing homestead, wine-cellar or income generating rentable houses or guest cottages emerged as serious considerations when buying the property. While it is generally believed that a historic Cape Dutch homestead on a wine-farm makes a significant contribution to the market value of the property, the fact that only four respondents of the 29 regarded the existing homestead on their property as of

historic value probably explains why this variable was not captured in one of the factors.

## 5. CONCLUSIONS AND IMPLICATIONS

The factor analysis provides a hierarchy of the value contributing features of farm properties in Stellenbosch, namely:

1) *terroir*. Looking at the position of *terroir* and its components in the hierarchy of motivations, it is clear that site factors still have a major influence in the decision to buy farm land in Stellenbosch. The emphasis on *terroir* necessitates that professional valuers valuing land in Stellenbosch and, for that matter, wine-farms in other districts, should obtain a more thorough understanding of the nature and impact of *terroir* on wine-grape production so as to be able to judge the *terroir* appropriateness of existing vineyards on a property to be valued. The valuer need not become a *terroir* expert, but should have a basic knowledge to be at least able to discuss the *terroir* of properties with a *terroir* expert.

2) location relative to Cape Town (which is also relevant for comparing a subject property being valued and transaction properties with significant different distances from Cape Town).

3) aesthetic beauty of the property. Although this factor is difficult to get a grip on, it cannot be ignored. Valuers will have study the influence of aesthetic characteristics on buyer behavior by regularly discussing with buyers their aesthetic considerations relevant for particular properties. More research to identify general guidelines about how aesthetic characteristics play a significant role is recommended.

4) accessibility of the property for the owner, for tourists and for farm-input deliveries and farm-output shipments. Buyers' perceptions on the accessibility of a wine-estate for tourists may change with a clearer understanding of how tourists perceive a drive along a narrow road to a wine-farm at the top of a beautiful valley. The drive itself may probably contribute to the satisfaction derived from visiting the property for wine-tasting, buying wine and/or having a meal.

5) potential for new/more vineyards (potential income from grapes and/or wine) as determined by (a) the percentage of land suitable for permanent crops. The quality of existing vineyards in terms of cultivar choice according to sound *terroir* principles and the general condition of the

vineyards will determine to what extent planted land will be valued higher than bare land. If the *terroir* requirements are not met, the value contribution of the existing vineyards for the buyer may be low or even negative.

6) The meso-climate. This results from the influence of the topographic characteristics captured in Factor 1 on the macro-climate and location relative to the False Bay coast. These determine, *inter alia,* the exposure to the sea-wind which in turn enhances grape quality via cooling of the vineyards. *Terroir* experts regard meso-climate as the primary criterion for selecting a suitable area, to be followed by selection according to soil quality. If more farm properties nearer to the coast had been available for sale so as to allow selection primarily based on distance from the coast due to its influence on meso-climate, then the typical buyer could have attached more weight to meso-climate as a motivation for buying the specific property. More research on the influence of distance from the coast as a determinant of meso-climate on land values within the Stellenbosch district and other wine-grape producing districts seems to be needed.

7) The status of the "address". Even within the Stellenbosch district different areas carry a different status. Valuers should be aware of the difference in status when comparing the subject property with transaction properties situated in different areas. A wide variety of value contributing features combined with a limited number of sales of farms in especially the better areas makes it difficult to quantify the impact of status via cross-sectional analysis.

Although the variables "Appreciation of property value" and "Lifestyle" captured in Factor 4 are important motivations for buying farmland, they cannot safely be described as value contributing characteristics of the fixed property *per se* as these motivations have more to tell about the personal motivations of the buyer. They were nevertheless included to provide a wider perspective of buyer behavior in the farm land market.

The list of factors above provides a hierarchy of motivations of farm land buyers in the Stellenbosch district as a guide for professional valuers operating in the Stellenbosch area. The study also illustrates the general value of factor analysis to reduce a multiplicity of dimensions of buyer behaviour to a few fundamental factors that can be used as guidelines when comparing a property to be valued with properties recently sold in an area.

**ACKNOWLEDGEMENT**

The services of the Centre for Statistical Consultation at the University of Stellenbosch are recognized for statistical advice and computations.

**REFERENCES**

**Anderson K (2001)**. *Where in the world is the wine industry going*? CIES Discussion Paper 0101. Centre for International Economic Studies, Adelaide University.

**Anderson K, Norman D & Wittwer G (2001)**. *Globalization and the world's wine markets: Overview*. CIES Discussion Paper 0143. Centre for International Economic Studies, Adelaide University.

**Archer JA & Lonsdale RE (1997)**. Geographical aspects of US farmland values and changes during the 1978-1992 period. *Journal of Rural Studies* 13(4):399-413.

**Barlowe R (1978)**. *Land resource economics: The economics of real estate*. Prentice Hall, New Jersey.

**Bohmrich R (1996)**. *Terroir*: Competing perspectives on the roles of soil, climate and people. *Journal of Wine Research* 7(1):33-47.

**Carey V (2001)**. *Spatial characterisation of natural terroir units for viticulture in the Bottelaryberg-Simonsberg-Helderberg winegrowing area*. MScAgric Thesis, University of Stellenbosch, RSA.

**Carey V, Archer E & Saayman D (2002)**. *Identification of natural terroir units for viticulture: Stellenbosch, South Africa*. Proceedings of the IVth International Symposium on Vitivinicultural Zoning, 17-20 June, Avignon, France.

**Conradie WJ, Carey V, Bonnardot V, Saayman D & Van Schoor LH (2002)**. Effects of different environmental factors on the performance of Sauvignon blanc grapevines in the Stellenbosch/Durbanville districts of South Africa. I. Geology, soil, climate, phenology and grape composition. *South African Journal of Enology and Viticulture* 23(2):78-91.

**Dunford RW, Marti CE & Mittelhammer RC (1985)**. A case study of rural land prices at the urban fringe including subjective buyer expectations. *Land Economics* 61(1):10-16.

**Elliot-Fisk DL (1993)**. Viticultural soils of California, with special reference to the Napa Valley. *Journal of Wine Research* 4(2):67-78.

**Halliday J (1993)**. Climate and soil in Australia. *Journal of Wine Research* 4(1):19-35.

**Lombard JP (1993)**. *'n Stogastiese besluitnemingsmodel vir die evaluering van landbougrondtransaksies in die Wes- en Suid-Kaap*. Unpublished PhD Dissertation, University of Stellenbosch, Stellenbosch.

**Press SJ (1982)**. *Applied multivariate analysis: Using Bayesian and Frequentist methods of inference*. Robert E. Krieger Publishing Company, Malabar, Florida.

**Saayman D (1977)**. *The effect of soil and climate on wine quality*. Proceedings of the International Symposium on the Quality of the Vintage, 14-21 February, 1977, Cape Town, RSA, pp 197-208.

**Saayman D (1995) in Bohmrich R (1996)**. *Terroir*: Competing perspectives on the roles of soil, climate and people. *Journal of Wine Research* 7(1):33-47.

**Saayman D (1998)**. *The development of vineyard zonation and demarcation in South Africa*. Atti del Simposio Internazionale 'Territorio & Vino', 19/24 Maggio, 1998, Siena, Italia, pp 35-42.

**Schamel G & Anderson K (2001)**. *Wine quality and varietal, regional and winery reputations: Hedonic prices for Australia and New Zealand*. CIES Discussion Paper 0103. Centre for International Economic Studies, Adelaide University.

**Vaudour E (2002)**. The quality of grapes and wine in relation to geography: Notions of *terroir* at various scales. *Journal of Wine Research* 13(2):117-141.