

RELATIONS BETWEEN FIRM RESULTS, FIRM PROPERTIES AND MANAGEMENT ABILITIES OF THE MARKET GARDENER ON POT PLANT NURSERIES IN THE NETHERLANDS

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Abstract

Firm results are rather different between pot plant nurseries producing in the same circumstances. We analyzed the relationship between the "firm climate" (the firms properties, the social factors and the personal properties of the manager of the firm) and the firm results on 29 nurseries. Firm size is highly related with farm results. Important firm properties are the level of equipment, the solvability and the choice of species. Important social factors are: The contact with colleagues concerns the technical side of the production, his family is less involved in the firm and they attach less value to the advice of external advisers. Analysis of the personal properties resulted in two successful kinds of people: a. The hard working growing expert with commercial abilities, b. the exact working, intelligent leader. The "firm climate" factors give an additional insight into the differences in firm results and behaviour of pot plant growers. It is important to distinguish between the following aspects of the firm leader: entrepreneurship (external relations), management (internal relations) and expert (in the field of the production). Further research in this field is necessary, especially research into the relationship between the personal properties of the gardener and success determining factors.

1. Introduction

The horticultural area of Lent is located in the centre of the Netherlands. It is well known for its pot plant nurseries. Reerds (1987) analyzed the economic results of 36 of these nurseries. The average results are lower than that of the average of comparable firms elsewhere in the Netherlands. The standard deviation is large. Good firms in Lent do even better than good firms in other parts of the country. Especially differences in return are correlated with differences in results. Analysis of bookkeeping results gives only a part explanation of these differences. Factors behind the bookkeeping data seem to play an important role. This complex of factors is called the "firm climate". It consists of the firm characteristics, the social factors and the personal characteristics of the manager of the firm. The purpose of this research is to analyze the relationship between management factors and differences in firm results. To that end the connection between firm results, firm characteristics, social factors and some psychological factors related to management are analyzed.

2. Method

Reerds (1987) looked at the economic results of 36 nurseries. The bookkeeping was used to trace the economic factors with an influence on the success of the firm. This success is measured as "firm income (of the gardener)" and as "(labour income) of the gardener". The firm

income of the gardener is the resulting paying for his own labour, his own capital and his efforts as an entrepreneur. The labour income of the gardener is the firm income of the gardener less the enumeration for own capital (calculated minus payed interest). The labour income eliminates differences in financial position of the gardener. The results are given per firm or per square metre glasshouse. On 29 out of the 36 nurseries an inquiry was taken to analyze the management in relation to the financial results. Linear regression and factoranalysis are used to investigate the relations between the factors.

2.1 The management model.

Management can be defined as "all operational actions used to realize the goals of the gardener" (Boon, 1988). Also Alleblas (1988) does not make a distinction between entrepreneurship and management. This is a practical solution for the normal small horticultural holdings where only one person, the gardener performs all the jobs. The definition of management at firms is so wide that it includes the entrepreneurship. Mok (1987) states that entrepreneurship and management are quite different. Entrepreneurship stresses the external relations of the firm, management the internal organisation. Management is about the internal entrepreneurship (Mok, 1987, 19). In practice it is difficult to distinguish between the two functions. Both are inter-related and have relationship with the professional skills in their effects on the firm results. We used a management model (table 1) of de Soomer et al. (1986). In this model Professional skills relate to the knowledge of the product. Management concerns the effective and efficient use of production factors labour and capital. Management includes organizing the production, planning of labour, use of capital goods, renewing of capital goods and choice of production methods. Entrepreneurship relates to external relations. The most important aspect in our situation is the sensitivity for the market value of the product, acceptance of the challenge in producing for the market and the preparedness to accept the risks involved.

According to our model the relevant variables concern the firm (equipment and production plan), the social aspect (personnel affairs, external relations and internal relation firm - family) and psychological aspects (of the gardener himself). The gardeners were asked to value their own capacities and qualities. Boon (1988) attempted to complete the model with the result of the inquiry.

2.2 Limitations.

Before discussing the results it is good to realise that our situation has some important limitations. There is only a modest place for the psychological variables. Firstly there is only a small sample of people in the inquiry (N=29). Therefore results have to be interpreted with care. Secondly personal characteristics are measured by simple statements in the form of self judgement. The psychology has valid inquiries to measure the personal characteristics. In this research the personal characteristics were characterised by just one word. So we do not pretend to have more than a simple view on these aspects. The third limitation is that the answers were given on a three point scale: "good", "moderate" and "bad". So there were less possibilities for differentiation. There is a danger that some answers are influenced by the desire to create a good overall performance.

3. Results

The average firm income in the period 1983 till 1985 fluctuates between Dfl. 150.000 negative and Dfl. 285.000 positive. Total firm

revenues per square metre and total firm costs per square metre are not correlated with the firm results per square metre. Firm income is highly related with farm size (Reerds, 1987). The relationship found is: $\text{firm income (Dfl/firm)} = -41465 + 18628 * \text{farm size (1000 m}^2 \text{ glass/firm)}$. Firms smaller than 2200 square metre have a negative firm income according to this formula. This relationship captures 40% of the differences in firm results. In the next part we will study the relationship between the firm results and the firm characteristics, the social aspects and the psychological aspects on the basis of the given management model.

3.1 Firm characteristics.

The level of equipment and the production plan have the highest correlation with the labour income of the gardener per square metre (table 2). They declare 44% of the variance in labour income per square metre ($p=.001$).

As to the choice of crops it turns out that firms without Pelargonium, Primula and/or Begonia in their production plan have better firm results. These "traditional" products are not bad in themselves, the demand is large but the net margin is small. Therefore these products can be produced better by large firms. In our area, Lent, the average firm is small: 5096 square metre compared to the national average of 6000 square metre. On a small firm a different production plan is necessary. Early new varieties will have a positive influence on firm results.

As to the level of equipment firms with a climate computer and mechanical irrigation system do well. Not all modern systems have the same positive influence. There is some optimal level of modern equipment depending on the farm characteristics, financial situation, personal characteristics and social qualities of the entrepreneur. The equipment level is neutral in principle, just like the choice of crops. The concept becomes a meaning in combination with a certain firm type and a certain type of entrepreneur. Most authors use the concept "modern" as an addition of all modern equipment of a firm. Alleblas (1984) also stresses the relationship between "modern" equipment and firm results.

Solvability (net worth as percentage of total assets) plays an important role in the explanation of differences in results (table 3). The difference between the labour income and the firm result is the margin between the calculated interest for all assets and the payed interest on loans. This is the margin that can be seen as the enumeration for the own capital of the firm. A high solvability results in a low amount of payed interest and a larger interest margin. There is also a relationship with the level of equipment. A high level of equipment means high investments, depreciation and book values of the assets.

Opposite to the very positive correlation of 0.80 between solvability and firm income there is a negative correlation of -0.36 between solvability and labour income. This emphasises the importance of the interest margin in the firm income and shows that there is a negative relationship between solvability and labour income. This is due to the fact that a group of older farmers on smaller nurseries attempt to reach a acceptable firm result by a large labour effort. A correlation analysis within groups of firms with a different solvability gave some interesting results. The firm income is determined by the equipment level and the interest margin on the firms with the highest solvability (>50%). The effect of the interest margin is

due to the large part of own capital. The effect of equipment level can be seen as the rentability of investments as far as they are profitable without a negative effect on the solvability. In the second group (solvability between 30% and 50%) there is a different quotient between firm income and labour income in comparison with the first group. This is influenced by the equipment level and the production plan. Their effect on the labour productivity is greater than their effect on the rentability of their own capital. In this group there is only a limited effect of the interest margin. On firms with a solvability lower than 30 % there is a negative effect of the interest margin. Firm income cannot be improved by a production plan or equipment level. Firm results are bad and continuity is doubtful. These groups are formed by smaller older firms with a low equipment level. Some younger entrepreneurs of this type of firm try to improve it by a large input of labour, but this has insufficient results. The only solution is an increase in own capital input, but that is beyond the influence of a entrepreneur on a firm with a bad rentability.

3.2 Social factors within the firm.

The social factors are divided into attitudes regarding the family, personnel, colleague and other external relationships. The family of the more successful entrepreneur is considered less and used more as a fixed and continue labour source for the firm. They are only incidentally used (table 4a). One of the objectives of the successful gardener is the good atmosphere within his firm. His personnel is somewhat older and his labour force is limiting in some periods. Probably he used family labour in those periods (table 4b). For a successful entrepreneur the relationship with colleagues is merely not emotionally based. One does not talk about all affairs, but limits the subjects to growing subjects which have their benefits for the firms results (table 4c). It is remarkable that the valuation of advice of several services and agencies has a negative correlation with the firms results (table 4d). Firms with good results attach less value to advice and in fact use less services than others. It is possible that their need for advice is less because they are already running well. It might mean that the better firms judge advice and services as no longer meaningful for the own firms interest. It is not sure that the expert is right and the entrepreneur wrong in advance if his advice is valued less by the more successful entrepreneur. It is also possible that his advice is more suitable for firms with a lower result. Further research is necessary to clear up this question.

Summarizing we can say that gardeners with better firm results bring their family less into the action. They restrict their contact with colleagues to growing subjects. Most significant is that they have a lower valuation for the advice of extension, experimental station, bank, and so on.

3.3 Psychological aspects.

The gardeners were asked to value themselves on a number of qualities and capacities connected directly or indirectly with their way of running the firm. These capacities and qualities can be subdivided into individual attitudes, leadership capacities and leadership skills. Factor analysis was used to research the relationship between the variables used to reflect the skills and capacities. This resulted in eight relevant "factors". A factor conveys a connection between the variables. Two "factors" contained the firm results. The firm results were positively influenced by the factor "hard working expert in crop growing with commercial abilities" ($r=0.37$, $p=0.05$) and by the factor

"the accurate working, intelligent leader" ($r=0.33$, $p=0.09$). The first gardeners describe themselves as industrious, expert, commercial, motivated and not administrative. They grow more products, use former experience, invest with own capital, talk less to colleagues about all affairs, are less devoted to a good atmosphere in the firm and involve the family less frequent in the firm. These connections give a rather conservative impression of this type of entrepreneur. The second gardeners describe themselves as clever, accurate and with leadership capabilities. They find the bank important for their firm, find more that unoccupied space in the warehouse is due to the supplier, value good atmosphere less important as the goal of the firm and use their family more incidentally.

4. Discussion

This research among gardeners of Lent delivers two remarkable conclusions which fit into our distinction between management and entrepreneurship. They stress the importance of entrepreneurship and that we should be careful with the meaning of management. These conclusions concern the variables "production plan" and "equipment level". Equipment level is seen as a management decision and production plan as a entrepreneur decision according to our definitions.

Equipment level concerns the purchase and use of technical advanced equipment and production resources with a positive influence on the firms results. In our research it turns out that the prediction value of equipment level for the firms results decreases if the influence of equipment level is researched at constant solvability. The correlation coefficient is no longer significant then. Our conclusion therefore is, that equipment level in itself is it no real factor in declaring the firm result. The gardener with an insufficient solvability is not able to bring his equipment level onto the desired level even if he would like to do so. Equipment level contributes to the firm results only if solvability (an entrepreneurship aspect) is on the appropriate level.

The second important conclusion concerns the prediction power of the choice of the production plan ($r=0.59$, $p=0.001$). The entrepreneur has to estimate whether there is a demand for his product and at which moment he will offer his products to the market. The production plan as a factor in declaring the firm results is determined by the sensitivity of the market and is a typical entrepreneur aspect. The most important contribution to the firm result per square metre is given by the entrepreneur quality "choice of production plan". The variation in management and professional qualities is probably too low to have much influence on the firm results per square metre. Possibly education and extension have contributed to this levelling out of management and professional qualities. Education and extension might have payed less attention to the field of entrepreneurship.

Relations with the personnel and use of family labour are correlated with the labour income of the entrepreneur m^2 . They can be seen as management aspects while the attitudes to external relations are more entrepreneur properties. The psychological characters "hard working expert in crop growing with commercial abilities" and "the accurate working, intelligent leader" are set up by entrepreneur qualities, management aspects and professional knowledge. The connected attributes: motivation, enthusiasm for work, intelligence, and accuracy can be seen as the personal qualities that steer and drive the professional qualities, management and entrepreneurship.

Our research was intended to give a first insight in "firm climate"

as important factor in declaring the firms results and behaviour. A simple method and inquiry was used to give a quick view of the subject. The results stress the connection mentioned. Therefore it is recommended that to pursue this research with the intention of investigating the attributes of professional skills, management and entrepreneurship in relationship to the firms results and in interaction to the characteristics of a horticulture centre in more detail with more advanced methods.

5. Conclusions

The added factors give an additional insight in the differences in firms results and behaviour of pot plant growers. It is important to distinguish between the following aspects of the firm leader : entrepreneurship (external relations), management (internal relations) and expert (in the field of the production). Further research in this field is necessary to research the relationship between the personal properties of the gardener and success determining factors.

References

- Alleblas, J., 1988. Management in de glastuinbouw een zaak van passen en meten. Onderzoeksverslag 34, Landbouw Economisch Instituut, Den Haag.
- Alleblas, J., 1984. Analyse van het management in de glastuinbouw. Landbouw Economisch Instituut, Den Haag.
- Boon, I., 1988. Management van Lentse potplantenbedrijven. Doctoraalverslag, Department of Farm Management, Agricultural University, Wageningen.
- Mok, A.L., 1987. Kwaliteit van de arbeid in de landbouw. Inaugurele Rede. Agricultural University, Wageningen.
- Reerds, G.J., 1987. Haalt Lent 1995? Doctoraalverslag, Department of Farm Management, Agricultural University, Wageningen.
- Soomer, K.L.P. de & A.J.M. Slijkerman, 1986. Sociaal-psychologische determinanten van ondernemerschap in de glastuinbouw. Department of Psychology, Agricultural University, Wageningen.

Table 1. The management model of de Zoomer and Slijkerman.

ATTRIBUTES	ASPECT	SKILLS
Knowledge	Professional skills	knowledge of product, soil, diseases, glass house climate
Organisation	Management	Effective and efficient organisation of labour and equipment
Sensitivity	Entrepreneurship	Taxation of the demand for the product and the possibilities of the environment (in the near future)

Table 2. The connection between firm properties and labour income of the gardener per square metre (N=29).

	r	p
Level of equipment	0.59	0.001
Cropping pattern	0.59	0.001
Expansion investments in 1986	0.38	0.049

Table 3. The connection between firm income per square metre and some financial firm data.

Financial firm property	r	p
solvability	0.80	0.0001
depreciation fixed assets	0.38	0.04
payed interest	-0.53	0.003
interest margin	0.83	0.0001

Table 4. The connection between the labour income of the entrepreneur per square metre and several attitudes

a. Family relationship to the firm		
	r	p
Family assists with planning	-0.44	0.018
Working hours of family in firm	-0.44	0.018
Family is daily involved in firm	-0.38	0.045
Family is a constant employee	-0.57	0.003
Family is incidental an employee	0.52	0.008
b. Relationship with the personnel		
	r	p
tasks are given by word	0.40	0.035
find good atmosphere important	0.38	0.045
age fixed labour force	0.43	0.024
are there always enough labourers if needed	-0.41	0.028
c. Relationship with colleagues		
	r	p
all firm affairs are discussed with colleagues	-0.52	0.005
growing subjects are discussed with colleagues	0.45	0.017
quality is an important aspect if the entrepreneur looks at other nurseries	-0.39	0.047
d. Relations with other external relations		
	r	p
asks others for advice	-0.59	0.001
find advice and extension important	-0.53	0.003
will change auction in future	-0.45	0.019
find experimental station important	-0.43	0.022
find advice of the bank important	-0.42	0.024
involve bank in planning	-0.41	0.029
find suppliers important	-0.38	0.053
suppliers assist at planning	-0.39	0.042