Competitive Strategies Applied by Finnish Timber Carriers Following Deregulation

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The present study examines the success of timber carriers and the factors involved in their success immediately following deregulation. In Finland in 1991 the timber trucking sector was deregulated. Means testing was changed to suitability testing, which meant that the Ministry of Transport and Communications, provincial authorities and the trucking association could no longer regulate the entry of new entrepreneurs to the sector. The present research material contains two successful enterprise groups. In the strategically more successful group, good results were obtained with a moderate labour input by the entrepreneurs. The strategic position of this group was considered to be successful because the operating hours of the trucks were fairly high but the work loads imposed on the entrepreneur remained reasonable. The profitability of these enterprises was so good that it was possible to use hired labour to drive the trucks. The work load of close to half of the unsuccessful entrepreneurs had been large or extremely large. In some cases, the obvious reason for failure was their inadequate transportation rates. Others had seemingly satisfactory haulage rates when compared to the average, but still their enterprises performed poorly. In these cases, the explanation lay in the inefficiency of operations or excessive debts, the latter caused, for example, by earlier operations. The results of this study do not support the view that a lot of hard work generally means success in entrepreneurship. The results support the view that both entrepreneurs' work and management inputs have a significant impact on the success of the enterprise, and that high tariffs alone are not a guarantee of success.

Keywords timber carriers, competitive strategy, success factors, deregulation
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1 Introduction

According to the Finnish Statistical Yearbook of Forestry (Metsätilastollinen ... 1998), the 1997 turnover in the long-distance transportation sector amounted to about FIM 1526 million. About 80% of the Finnish forest industries' roundwood was delivered to the mills by trucks. Nearly all of the roundwood used by these industries spends some time on wheels during transportation. Truck transportation accounted for 62% of all transportation (measured as volume × distance, m^3 km). An average of 1357 timber trucks were in use that year. The share of rail transportation was 28% and that of water transportation 10%. Truck transportation will retain its share thanks to its speed, flexibility and inexpensiveness. Floating of timber and rail transportation are competitive only over long haulage distances, i.e. in excess of 200 kilometres.

Until 1991 timber transportation by trucks as a form of entrepreneurship was regulated in Finland by the practice of granting licenses. Since then, it has been considerably easier to set up a haulage enterprise, which are traditionally small-scale businesses. According to Mäkinen (1993) the average timber haulage enterprise in the early 1990s had 1.5 trucks and about 60% of the entrepreneurs were self-employed. They had an average of 1.2 customers, i.e. they usually had one customer and the relationship with that one customer had lasted for about 18 years. This relationship, too, changed in the early 1990s when the new competition legislation forbade nationwide agreements concerning remuneration and rates. Since then, every entrepreneur has negotiated the rates directly with the customer.

Mäkinen (1993) studied the competition strategies of timber carriers in the 1980s, a period when regulation was still in effect. Those enterprises, which were able to optimise their degree of capacity utilisation with respect to their customers' transportation needs, had the most successful strategy. Enterprises of this kind were able to transport their customers' timber and at the same time optimise the utilisation of their capacity. They achieved their best business result with an average of 3200 operating hours. However, the optimal number of hours varied from enterprise to enterprise, and consequently no reference value can be presented as to what the desirable target level might be. The operating environment of every enterprise was different, and therefore the optimum in capacity utilisation also varied for reasons such as geographical location, size of enterprise, number of employees, and number of trucks.

Following deregulation a questionnaire study was carried out in 1994 among the same enterprises (Mäkinen 1997a). Of the enterprises studied in 1989, approximately every fifth one had gone out of business by 1994. The main reason was diminished profitability or reduced demand. The average profitability of these enterprises had not undergone significant weakening, but the difference between good and poor enterprises increased. The results of the 1994 questionnaire revealed the difficulty of measuring strategic variables capable of explaining success by means of a mail questionnaire. The response per cent was also low.

In the United States, regulations affecting the trucking sector were eased considerably in 1980. Research in this field both before and after deregulation revealed that profitability in the general freight sector (or less-than-truckload sector) was extremely poor (Rakowski 1988) and fairly clear-cut competition strategies were found to explain the success of the few successful enterprises (Corsi et al. 1991). According to Rakowski (1988), mergers took place in this sector thereby reducing the number of enterprises. Even though the objective in deregulation was to promote competition and to do away with barriers to entry, the need for major capital inputs continued to prevent the entry of new operators into the general freight sector, as opposed to special freight.

Corsi et al. (1991) conducted a study on the strategies employed by motor haulage enterprises engaged in the general freight sector before and after deregulation. According to the spokesmen of these enterprises, geographical concentration was the best strategy during the regulation years. Since deregulation, the best strategy has been differentiation. The enterprises which had not changed their strategy were the ones that had been best able to cope with the changed competition environment. In other words, enterprises which had differentiated their services before deregula-

tion did best in the freer markets. Adhering to cost advantages as a strategy in the freer markets proved to be the worst alternative, and because most operators used this strategy it led to a debilitating price war. Grimm et al. (1993) studied the factors determining changes in the strategy of transportation enterprises in the general freight sector. A study by Feitler et al. (1998) looked at changes in strategy and profitability over a period of eighteen years. They observed that changing strategic behaviour usually led to improved profitability. This study included observations from more than two periods, which was not the case in the study by Corsi et al. (1991). Corsi et al. (1992) studied the effect that deregulation had on the structure of the management teams in haulage enterprises and on the differentiation of tasks.

Corsi and Grimm (1989) studied changes in the strategies and performance of enterprises in the truckload general freight sector before and after deregulation. It was found that the majority of the enterprises adopted new strategies on entering the freer competition environment, but this change in itself was not a sure guarantee of success. Some of the changes in strategy led to better results and some to worse. Stephenson and Stank (1994) also studied the profitability strategies of truckload firms. They found four strategies exhibiting statistically significant differences between all the Most Successful Firms and Other Firms. Three of these four strategies were as following: 1) To acquire more information and understanding of the changes in firm's operating environment, 2) To increase the firm's market share, and 3) To seek out transportation sectors subject to less regulation. These three strategies were of greater importance to the Most Successful Firms than to the Other Firms. The fourth strategy "To improve personal sales efforts" was important to the Other Firms. The explanation to this was that "personal sales efforts" in the enterprises doing well were already well established. The enterprises in question were considerably larger than Finnish timber carrier enterprises.

Lambert et al. (1993) studied the customer strategies of carriers. They noticed that shippers usually employ the services of what may be called a core carrier, which attends to most of the carrying and which usually provides better terms. According to Lambert et al. (1993), customers considered that the quality of the service was more important than low rates. This implies that customers were willing to pay more for a service which perceived to be good. In actual fact, the core carrier's rate was the lowest because of the large volume involved. The savings achieved from dealing with large volumes were apparently greater than the losses caused by lower tariffs.

The purpose of the present study was to find out what the success strategies of timber haulage enterprises operating in Finland were immediately after deregulation, i.e. in 1992–1995.

2 Material and Methods

A systematic sample of 5% was taken of the 781 timber carriers active in 1996. The sample consisted 39 enterprises, and the owners of 26 of them agreed to being interviewed. This meant a response per cent of 67. The study was conducted in the form of personal interviews using a questionnaire as a support medium.

An 8-page questionnaire including 73 questions was drawn up for the interviews. The questions were constructed to provide information concerning the functionary of each enterprise, the level of its operations, and of the competitive instruments used. The entrepreneurs were also asked to make available their accounting details (financial statements) for the years 1992–1995. All but one of the interviewees complied with this request.

The financial statements obtained were adjusted in accordance with the instructions of a body engaged in enterprise research (Yritystutkimuksen tilinpäätösanalyysi ... 1995). Where necessary, salary expenditures have been added to allow for the entrepreneurs own hours of work. On average, these additional salary expenditures amounted to 18.2% of the turnover. An hourly salary adjustment of FIM 70.33 was applied in this study. The basic hourly wage was FIM 48.71 with a 5% supplement for the use of a crane. Social security costs were estimated at 37.5% on the assumption that the entrepreneur's pension contributions had been paid. The results of the analysis have been published elsewhere (Mäkinen 1997b).

Success in the present study was measured

in terms of the economic result achieved by the enterprises and their strategic position. An enterprise's economic result depicts its absolute success. Strategic position, however, describes success now and in the future (Lahti 1983). A good economic result has meant the realisation of the potential implied by the strategy. The factors related to strategic position which were used in the present study were first described in a study by Mäkinen (1993). The following factors signify a good strategic position:

1. The business has a sound financial history, which includes good profitability and, as a result, excellent solidity.
2. The business has good resources. These include a proper fleet (of vehicles), skilled employees and an innovative management, as well as sufficient solidity as defined above. The business, therefore, has the ability to realise its potential effectively and to actively seek new solutions.
3. The business has good relations with the customers. These include growing markets which are open to competition and in which opportunities for differentiation also exist.

In order to examine the enterprises' success factors, the successful enterprises' competition strategies and the strategic groups, it was necessary to rank the enterprises (see Mäkinen 1993). The adjusted financial statements described above provided a good starting point for such ranking.

Financial results for 1994 and 1995 were used to search for successful businesses on the basis of four indicators. The method employed a single figure, the sum value, to indicate the value of the business. The indicator for the business is divided by the annual median for the sector multiplied by one hundred. The resulting figures were added, except that the relative debts were subtracted. It was therefore possible to rank the businesses in order of excellence. The indicators used were the percentage figures for operating surplus, net income, equity ratio, and the proportion of total indebtedness of turnover. These four indicators were considered to measure both the profitability and the financial solidity of the business with sufficient reliability.

The variety of methods used in the study of strategies and strategic groups is considerable (see Thomas and Venkatraman 1988). There are numerous methods for operationalising strategies; however, none of them has found generally acceptance (see Mäkinen, 1993). The purpose of the present study was to determine whether the same type of competition strategy works after deregulation as has worked before it. The term competition strategies used here refers to Porter's (1985) generic strategies, i.e. differentiation, cost advantage and focus. This study sets out to measure two competition strategies:

The competition strategy of cost-weighted focus is operationalized as follows:

1. Optimisation of costs. The costs are optimised by optimal capacity utilisation. Consequently, the costs proportioned to the turnover will be at their lowest and the enterprise's profit margin will be at its highest. This kind of an operation relation (operation expenditures/operation revenues) has been used commonly in measuring the success (performance) of enterprises in the truck transportation sector (Corsi et al. 1991). In the present study it is assumed that the entrepreneur knows the optimal capacity utilisation rate for his business. This rate was determined during the interview. Any deviation from the real capacity utilisation rate means lower profitability.
   The realised capasity utilisation rate is compared to the one aimed at, which is taken to be the absolute value. From the point of view of the optimisation of costs, it is immaterial whether the aim is exceeded or fallen below. Above all it is a question of allocating the resources in the best way, optimising the use of the vehicles and labour from the standpoint of the enterprise as a whole.
   Geographical concentration is measured as the second competition strategy.
2. Concentration, i.e. geographical location. The less unnecessary driving there is for the trucks, the closer to the optimum the location of the enterprise is with respect to the beginning and end points of any given haulage contract. The proportion of unnecessary driving affects costs.

$$\text{Concentration} = \frac{\text{km} / \text{m}^3}{\text{Average driving distance}}$$

km = number of kilometres driven in a year, km
m^3 = volume of timber trucked in a year, m^3
Average driving distance = average driving distance, km

In this model, the kilometres driven annually are divided by the volume of timber transported. The numerator indicates how far a particular cubic metre of timber has been transported. However, since the distances involved in the jobs varied for the carriers, the figure has to be divided by the mean driving distance to make the enterprises commensurable with regard to this parameter.

Both of these competition strategies are realised in the form of a cost advantage. In other words, these competition strategies explain the economic success of the enterprises, their strategic position and their relatively lower total costs. The two competitions strategies were tested as hypothesis of this study.

The cluster analysis method introduced by Ward (1963) was used in this study. This method is designed to optimise the minimum variance within clusters. This objective function is also known as the within-groups sum of squares or the error sum of squares (ESS). The formula for the error sum of squares is:

$$\mathrm{ESS} = x_i^2 - \left(\sum x_i\right)^2 / n$$

where x_i is the score of the i^{th} case. At the first step of the clustering process, when each case is in its own cluster, the ESS is 0. The method works by joining those groups or cases that result in the minimum increase in the ESS. The method tends to find or create clusters of relatively equal sizes and shapes as hyperspheres (Aldenderfer and Blashfield 1984). In this study the cluster analysis was used only to find the groups of successful and unsuccessful enterprises. No tests were used to decide the number of groups or to test the statistical differences between the groups because number of observations was only 24.

3 Results

3.1 Economically Successful Enterprises

Ten enterprises were considered to have been successful and all of them had positive sum values. Their parameters are now compared to the average enterprise.

	1992	1993	1994	1995
	Turnover, FIM 1000 FIM, average			
All enterprises	1146	1195	1314	1429
Successful ones	1410	1497	1678	1884
Difference, %	23	25	28	32

The successful enterprises' average turnover was distinctly greater than that of the average enterprise in each of the years included in the investigation, and this difference increased by a several per cent each year. Growth among the enterprises forming the sample was accounted for by the successful enterprises. In other words, the enterprises that grew were successful or that growth was the key to success. In 1995, the turnover of the successful enterprises was about a third larger than that of the average enterprise. The standard deviation of the turnover was distinctly greater for the successful enterprises. The enterprises with the smallest turnover were not among the successful enterprises, whereas the successful enterprises belonged to the largest enterprises almost without exception. Consequently, turnover did not explain success.

Next, net income is examined on average values. The net income for the enterprises as a whole was negative each year and there were no clear signs of improvement. The successful enterprises showed positive net income except for the year 1992 when they were a little below zero; 1994 was the best year and 1995 was also good. The difference was nearly 10% in favour of the successful enterprises; i.e. in terms of the results for 1995 it was about FIM 130 000.

	1992	1993	1994	1995
	Net income, %, average			
All enterprises	–8.1	–5.0	–2.0	–6.1
Successful ones	–0.1	1.1	5.0	3.1
Difference, %	8.0	6.1	7.0	9.2

With respect to the enterprises' relative indebtedness, the differences were not very large. In 1995, however, the difference rose to about 13%. The average year model of the trucks owned by the successful enterprises was 92.8 while the average for the whole material was 92.5; i.e. the difference was not explained by the amount invested. In 1995, the total turnover of the enterprises increased by 4.0% and that of the successful

Table 1. The main expenditures of the average enterprises and of the successful ones.

Cost type	Average enterprise				Successful ones			
	Average share of turnover, %							
	1992	1993	1994	1995	1992	1993	1994	1995
Labour costs	32.8	33.6	33.7	35.3	31.1	32.7	32.4	33.6
Capital costs	24.1	19.2	17.6	19.6	20.8	18.2	17.2	17.4
Fuels and lubricants	21.1	23.7	23.6	22.6	20.9	23.2	23.6	21.8
Maintenance and repairs	10.9	10.9	9.6	10.9	9.6	9.6	7.9	9.0
Tyres	3.7	3.3	2.6	2.8	4.1	3.5	2.2	2.8
Total	92.6	90.7	87.1	91.2	86.5	87.2	83.3	84.6

enterprises by 7.9%. The total amount of debts increased in both groups, but distinctly more for the enterprises as a whole as did also relative indebtedness.

	1992	1993	1994	1995
	Total debts/turnover, %			
All enterprises	40	39	38	46
Successful ones	34	37	33	33
Difference, %	6	2	5	13

Table 1 shows the relationship of the main expenditures to turnover in the case of the average enterprises and the successful enterprises. Labour costs accounted for about one-third of the turnover and they are over 1% higher in the average enterprises. Fuels and lubricants constituted the second largest expenditure. In an earlier investigation (Mäkinen 1993), this position was held by capital costs.

The 4-year averages of the main expenditures and their differences are given in Table 2. The largest differences occurred in Labour costs, Capital costs and Maintenance and repairs, which varied between 1% and 2%. No difference was found in Tyre costs and the difference in Fuels and lubricants was very small. The difference in total costs was 5%: a fairly large difference.

3.2 Close-up of Successful Enterprises

The average age of the successful entrepreneurs when interviewed was 48 years, while the average age for all the entrepreneurs was half a year older. The corresponding length of entrepreneurial experience were 18 and 21 years respectively. The enterprise form distribution was as follows:

Table 2. The 4-year averages of the main expenditures and their differences between the average enterprises and of the successful ones.

	Average enterprises	Successful ones	Difference
	Average share of turnover, %		
Labour costs	33.8	32.4	1.4
Capital costs	20.1	18.4	1.7
Fuels and lubricants	22.7	22.4	0.3
Maintenance and repairs	10.6	9.0	1.6
Tyres	3.1	3.1	0
Total	90.4	85.4	5.0

Enterprise form of successful enterprises	Number of enterprises
Self-employed	1
General partnership	1
Limited partnership	7
Limited liability company	1

Limited partnerships formed the majority; 46% of the whole material were of this enterprise form and it was also the enterprise form of clearly successful enterprises. The self-employed entrepreneurs were the least successful of the enterprises, only one out of six being classified as successful. On average, successful enterprises had two trucks while the average enterprise had 1.6 trucks, but there was no difference in average truck age between these groups. One of the successful enterprises had just one customer, a medium-

Table 3. Estimates of single factors explaining success.

Independent variable	Estimate, a	Estimate, b	R-square	F	p
Productivity	–1107.1	3.666	0.172	4.56	0.044
Optimisation of capacity utilisation	7.152	–476.6	0.027	0.61	0.442
Truck operating hours	–407.4	0.080	0.040	0.92	0.346
Concentration	–400.9	5854.4	0.018	0.42	0.525

Table 4. The attributes in the single-variable division of good and poor enterprises of the sample.

Group	Enterprises, number	Economic result	Turnover in 1995, FIM 1000	Solvency ratio %	Truck operating hours	Number of trucks	Work hours by entrepreneur
				Average			
Good	10	585	1884	35	3501	2	3980
Poor	14	–553	1104	10	3713	1.2	2576

sized sawmill, another one had three large customers, and yet another had one large customer and one small one. The remaining seven had only one large customer each.

3.3 Success Factors

3.3.1 Single Factors Explaining Success

The ability of individual variables to explain variation in the economic result, i.e. variation in the sum value, was studied using regression analysis. The following variables possessed some explanatory value:

- Productivity explained 17% of the variation in the economic result. Productivity is used here to refer to the Finn marks earned per truck operating hour.
- Optimisation of capacity utilisation (hypothesis 1), explained only 2.7% of the variation in the sum value. In an earlier study (Mäkinen 1993), this variable explained 24% of the variation in the economic result.
- The actualised truck operating hours explained only about 4% of the variation in the economic result.
- The variable indicating the degree of concentration (hypothesis 2) explained only 1.8% of the variation in the economic result.

The corresponding model and parameters are presented in the following equation and in Table 3.

$$y = a + b \cdot x_{1 \ldots 4}$$

where:

y = Economic result
x_1 = Productivity
x_2 = Optimisation of capacity utilisation
x_3 = Truck operating hours
x_4 = Concentration

In the light of the above results, both of the hypotheses of this study can be discarded. In a previous study (Mäkinen 1993), target-oriented operation and concentrating together explained about 37% of the variation in the economic result. No such explanation was found in the present material, and so the factors of success are to be found elsewhere.

The following strategic variables were employed in cluster analysis: enterprises' turnover in 1995, a variable indicating the economic result i.e. the sum value of the years 1994 and 1995, solvency ratio % in 1995, deviation in capacity utilisation, productivity, number of trucks, truck operating hours, hours worked by entrepreneur, age of enterprise, entrepreneur's years in business, number of competitors, number of customers, duration of customer relationship, and a variable depicting concentration.

Successful and not-so-successful enterprises were divided into groups of their own, and grouping was then continued by seeking common factors, Table 4.

Turnover was distinctly larger for "Good" enterprises. Hours worked by the entrepreneur

Table 5. The attributes of the successful enterprises.

Group	Enterprises, number	Economic result	Turnover in 1995, FIM 1000	Solvency ratio %	Truck operating hours	Number of trucks	Work hours by entrepreneur
				Average			
Others	9	597	1478	35	3532	1.6	3691
Large enterprise	1	473	5535	44	3223	6	6580

Table 6. The attributes of the less successful enterprises.

Group	Enterprises, number	Economic result	Turnover in 1995, FIM 1000	Solvency ratio %	Truck operating hours	Number of trucks	Work hours by entrepreneur
				Average			
"Run-of-the-mill"	8	615	1491	30	3061	1.6	3547
"Beaver"	1	454	1374	75	7300	1	4850

Table 7. The division of the "Run-of-the-mill" group.

Group	Enterprises, number	Economic result	Turnover in 1995, FIM 1000	Solvency ratio %	Truck operating hours	Number of trucks	Work hours by entrepreneur
				Average			
RM1	3	853	861	36	2292	1.3	4166
RM2	2	405	2814	30	3007	3	4176
RM3	3	517	1240	23	3867	1	2507

was about 1400 hours more for the "Good" enterprises than the poor ones.

3.3.2 Successful Enterprises: the Enterprises' Goals and the Means to Achieve Them

When using the same variables as in the single-variable analysis, two groups were obtained at first with one 'group' containing just a single, large enterprise. The differences isolating this one enterprise from the rest were in turnover, truck operating hours and work hours by entrepreneur. In the large enterprise, the entrepreneur made a huge work input, but his trucks were used less during the year than the trucks in the other group. The success of the large enterprise was based to a large extent on the work hours put in by entrepreneur. The enterprise's goals were good customer relationships, replacement of ageing equipment, and retaining the existing amount of work. The means employed were good truck deals and adhering to contracts.

The nine enterprises in the other group were further divided, but here, too, one enterprise formed a 'group' of its own; being differentiated by its financial solidity (Solvency ratio %). It had just one truck, much driven, and high work hours by the entrepreneur formed a major contribution to the firm's success. The enterprise's goal was to get by. There were no means available for reaching this goal and long-term plans included switching over to the general freight sector.

The "Run-of-the-mill" group could be divided into three smaller groups. These groups are referred to by the numbers "RM1", "RM2" and "RM3" because it was difficult to distinguish between them by names. The most successful among these was group RM1, in which the enterprises were small as regards turnover and truck operating hours when compared to the others, but work hours by entrepreneur were high. Here, too, good results were obtained through hard work. Group RM3 was the only one where good results had been obtained through moderate work hours by entrepreneur. The enterprises in group RM3 had just one truck each and they had been driven quite a lot and partly by hired labour. Group RM2 was composed of enterprises with three trucks and their success was also partly based on the entrepreneur's considerable work contribution.

The customers of enterprises belonging to

Table 8. The attributes of the poor enterprises.

Group	Enterprises, number	Economic result	Turnover in 1995, FIM 1000	Solvency ratio %	Truck operating hours	Number of trucks	Work hours by entrepreneur
				Average			
Small enterprises	10	–640	859	11	3093	1.1	1766
Large enterprises	4	–334	1718	6	5264	1.5	4600

Table 9. The attributes of the large enterprises.

Group	Enterprises, number	Economic result	Turnover in 1995, FIM 1000	Solvency ratio %	Truck operating hours	Number of trucks	Work hours by entrepreneur
				Average			
L1	3	–370	1205	11	5552	1	4653
L2	1	–224	3255	–9	4400	3	4441

Table 10. The attributes of the small enterprises.

Group	Enterprises, number	Economic result	Turnover in 1995, FIM 1000	Solvency ratio %	Truck operating hours	Number of trucks	Work hours by entrepreneur
				Average			
S1	4	–411	865	–8	3552	1	1632
S2	2	–157	1431	–22	3909	1.5	596
S3	2	–474	776	29	3204	1	3230
S4	2	–1750	354	67	1249	1	1740

group RM1 were a large firm in the case of two of the enterprises and a medium-size woodworking enterprise in the case of one. The enterprises belonging to group RM3 had only a large firm as their customer, as did those belonging to group RM2. There was no common policy within or between the groups as regards goals, means to achieving them or long-term planning. Workplace orientation, however, was mostly evident in goal setting.

3.3.3 Unsuccessful Enterprises

In section 3.3.1 (Table 4), the enterprises were divided into "Good" and "Poor" groups. The fourteen enterprises allocated to the "Poor" or "unsuccessful" group were further divided. The large enterprises had turnovers double those in the small enterprises group. The trucks in the larger enterprises were subject to a lot of driving and the entrepreneurs, too, put in a lot of work. However, their economic results were still poor.

The group Large enterprises were further divided into two groups, which are referred to as L1 and L2. One fairly large enterprise with three trucks stood out from among the others due to its size as well as solvency ratio. This enterprise had only one large firm as customer. The customers in group L1 were two different large firms and a medium-sized sawmill. These enterprises in group L1 were not similar in regard to their goals, means or planning. Both groups made heavy use of their trucks and the entrepreneurs worked long hours.

Similarly, the group containing smaller enterprises was divided into four sub-groups referred to as S1 to S4. The worst of these was group S4, in which average turnover was small and the level of operations was too small to generate profits. The group's solvency was still high, and therefore if the level of operations could be increased the economic result would most probably improve quite quickly. The group's customers were one large and a medium-sized enterprise. Particularly in the latter case, it could prove difficult to improve the level of operations if the wood consumption of the medium-sized enterprise remained modest. Turnover in groups S1 and S3 was more than twice that of group S4. In group

S3, the entrepreneur's work hours were double those in group S1, while the solvency ratio was 37% lower than in group S1. Thus, profitability in group S1 could perhaps be easily improved by increasing the entrepreneur's work contribution. The customers of the enterprises belonging to group S1 were all the biggest forest-industry companies and the Forest and Park Service. The customers of group S3 were a large company and a local forest management association. The turnover in group S2, which was the best of these poor enterprises, was fairly high, but the entrepreneur's work contribution was modest. If this could be increased, the result would most probably improve, too. The group's customer was a large firm.

3.4 Is Poor Profitability Due to Low Tariffs?

The enterprises which did poorly were mainly of three kinds: 1) Enterprises in which immense amounts of work were done; 2) Enterprises with insufficient orders to achieve profitability; and 3) Enterprises in which the entrepreneur's work contribution was fairly modest.

Why then did hard-working entrepreneurs fail to achieve success? Was it because of tariffs being too low? Operative inefficiency? Or what? These entrepreneurs are found in groups L1, L2 and S3. The solidity of group S3 was of a fairly high level and so the group's poor economic result was caused by poor profitability and partly from too small a turnover. Poor profitability, however, can be caused by inefficient operation or inadequate tariffs. The rates charged by the average enterprise amounted to FIM 30.40 per m^3, the volume of timber transported amounted to 46 988 m^3, and the average transportation distance was 89 km.

The effect of tariffs can be examined by means of a simple linear model:

$$\text{Tariff (FIM per m}^3\text{)} = 17.2 + \text{average driving distance} \cdot 0.164,$$

where $R^2 = 42.0$ and $F = 15.9$, $p = 0.0006$

Assuming that the net income of an enterprise has to be zero or some positive value, it follows then that the tariff is at least on the minimum

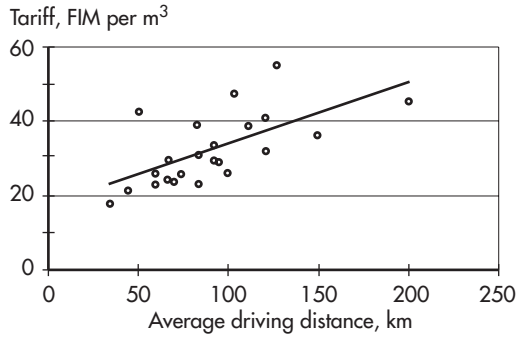

Fig. 1. Transportation tariff as a function of average driving distance.

level from the point of view of good profitability. The average net result in 1995 was –6.1% and the corresponding turnover amounted to FIM 1 429 080. Thus, for the net income to be zero, an additional FIM 87 174 of revenues would be needed. When this is added to the enterprise's turnover and the sum is divided by the volume of timber carried by the enterprise, the resulting figure is the rate which should be paid to the average enterprise in order that the profits would amount to zero. The rate obtained is FIM 32.3 per m^3, i.e. the rate should be higher by FIM 1.90 per m^3. This would mean an extra 6.2% for the average enterprise.

The above result indicates the need for raising the haulage rate. When comparing the tariff charged by a particular enterprise to the raised tariff over the enterprise's driving distance, it becomes apparent whether the tariff is too low or the enterprise is operating inefficiently. The tariffs of the enterprises belonging to group S3 were FIM 25.6 per m^3 (average driving distance being 75 km) and FIM 21.2 per m^3 (45 km). With the average driving distance 75 kilometres, the model gives FIM 29.5 per m^3 as the rate and for 45 kilometres the rate is FIM 24.6 per m^3. When a raise of 6.2% is added to these, the rates obtained are FIM 31.3 and FIM 26.1 per m^3. The first enterprise's rate should be raised by FIM 5.7 per m^3 and that of the other enterprise by FIM 4.9 per m^3. The poor profitability of the enterprises belonging to group S3 was thus caused largely by the low tariffs. The tariffs were calculated on the basis of their 1995 turnover and the volumes

of timber transported. The latter information has not been as reliable as the former in all of the cases, and so these calculations should be seen as being approximate rather than absolutely accurate.

The rate charged by the only enterprise in group L2 was FIM 40.7 per m^3 and the average driving distance was 120 km. According to the model, the raised tariff should be FIM 39.2 per m^3 in accordance with the average enterprise. In other words, the rate was sufficient for achieving zero net income when compared the average enterprise in this study. The poor profitability of the enterprise was due to operational inefficiency. The enterprise, the only one in its 'group', had three trucks and they were in heavy use.

The tariffs charged by the enterprises in group L1 were FIM 24.6 per m^3 (67 km), FIM 29.1 per m^3 (89 km), and FIM 39.1 per m^3 (85 km). According to the model, the corresponding rates (when raised) should be FIM 29.9 per m^3, FIM 33.8 per m^3, and FIM 33.1 per m^3. The first and the second enterprises' rates were FIM 5.3 and FIM 4.7 per m^3 short of the model's rate, whereas the third enterprise's rate was FIM 6.0 per m^3 in excess of the model's rates. Thus, two enterprises had rates that were too low, while the operations of one enterprise were inefficient and this was the cause of its poor profitability.

Summarising, it can be concluded that some of the entrepreneurs who worked hard themselves and whose enterprises did poorly, had to put up with low rates while others ran their enterprises inefficiently.

The entrepreneur's work contribution was fairly modest in groups S1 and S2. More personal involvement would have most probably improved their profitability, particularly if it were accompanied by reducing the number of hired drivers. Whether increasing the entrepreneur's involvement could have been possible is another matter, however.

4 Discussion

The results of this study do not support the view that a lot of hard work generally means success in entrepreneurship. The work input of the entrepreneurs was large or very large in nearly half of the unsuccessful enterprises. In some of the cases, the obvious reason was too low tariffs, while others, though charging satisfactory rates according to the average assessment, still ended up with poor economic results. The reason must then lie in the inefficiency of operations or excessive debts, e.g. due to past circumstances. This result supports the view that both entrepreneurs' work and management inputs have a significant impact on the success of the enterprise, and that high tariffs alone are not a guarantee of success. Also Stephenson's and Stank's (1994) findings support the importance of management inputs. In times of regulation, the situation was different because the obstacles to new entrepreneurs entering the field were fairly high due to the assessments underlying the granting of licences. The tariffs were also determined by taking into account the costs accrued by enterprises already operating in the field. It was then possible for inefficiency to exist because the rates may have been determined on the basis of costs accrued by inefficient enterprises. With the deregulation and price competition adopted after 1991, these inefficient enterprises either gradually went out of business or continued with modest success; the results of the present study support these developments.

The criteria for a good strategic position is first and foremost good economic success (Mäkinen 1993). The second is related to the enterprise's resources, and the third to customer relations. Success can also be examined from the point of view of the enterprise's interest groups (Mäkinen and Selby 1999). When this is done, it is necessary to take into account matters such as the success criteria of the entrepreneur, of the enterprise, of the customers, and of society.

When all of the aforementioned criteria were taken into account with respect to the enterprises in the present study, two groups stood out from among the rest. In the more successful of the two, the enterprises were small in terms of their turnover and the number of truck operating hours when compared to the others, but the numbers of work hours done by the entrepreneurs were high. Good results were achieved through hard work. However, because the number of truck operating hours was rather small compared to the other

groups, the success of these enterprises was partly based on a good state of solvency, but their strategic position may not have been the best possible as regards customer relations. The entrepreneurs in this group had to work extremely hard in relation to the number of truck operating hours. The group consisted of three enterprises, two of them had a large firm as their customer and one had a medium-sized woodworking enterprise as its customer.

The good results in the second group were achieved through moderate work inputs by the entrepreneurs. Each of the group's three enterprises had just one truck and it was in heavy use. Part of the driving was done by hired labour. These enterprises had a large firm as their customer. The strategic position of the enterprises in this group was deemed good because the truck operating hours were at a fairly high level without, however, meaning that an unreasonable work load was imposed on the entrepreneur. Indeed, the profitability of these enterprises was so good that it was possible to use hired labour.

In a previous study looking at the strategies employed by timber carriers (Mäkinen 1993), target-oriented operation and concentrating together explained about 37% of the variation in economic results. The present material does not point to a similar explanation, the factors of success are now different. The observations made in the course of the study did not support the strategy, the strategy valid in a regulated environment no longer explains success once deregulation is introduced. This being the case, the competition strategy of the most successful group remained somewhat obscure, although the results of this study point to a cost advantage achieved through efficient operation and management. This is supported by the observation that the entrepreneur's work contribution has been quite reasonable. Behind this success there may also be the contribution of professional staff, whose efficiency or motivation were not determined in this study. According Corsi et al. (1991) the best strategy in general freight sector after deregulation has been differentiation. Rakowski (1988) found out that mergers took place in LTS-sector after deregulation. This finding supports cost advantage strategy although it includes concentration and more barriers to entry which was originally not the purpose of deregulation. Stephenson and Stank (1994) studied profitability strategies of truckload firms after deregulation. They found that three strategies were important for successful firms. One of them was close to Porter's (1985) focus strategy. In this study, the customer of the most successful group was one specific large firm. This may be a case of customer focus when viewed from a strategic angle, but then again it may be just a coincidence.

The significance of enterprise growth was not the subject of special interest in this study. For example, if growth has been at a suitable point, the result of the enterprise has been a little better. However, when an enterprise is on the threshold of growth, at which point more staff, equipment or managerial skills on part of the entrepreneur are required, the degree of success may be rather modest for quite some time.

Lambert et al. (1993) observed that motor carriers do not reach the standard of service that their customers would like to see them reach. Therefore, their advice is that these enterprises should benchmark themselves against both customers and their competitors. Since customers fail to get everything they want, it opens up possibilities for core carriers and others to gain a more lasting competitive edge by meeting the customers' demands. In Finland, the most important customer for timber transportation enterprises accounted for an average of 97% of their turnover, i.e. these enterprises are totally dependent on a single, large customer. As this is an indication of customer focus, it would be important to know whether the standard of service sought by the customers is realised in transportation. On the other hand, the customers of timber carriers often hold more or less dominating positions on the market, and consequently it could be supposed that the standard of service they demand is actually delivered. On the other hand because the transportation enterprises are small in Finland, one cannot talk of core carriers in connection with timber transportation by trucks in the service of the four leading customers. In the case of SME industry, such a situation could easily come about.

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