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An Outlook of Dental Practices – Drivers, Barriers and Scenarios

ABSTRACT

A dental care reform in 2001–2002 changed the operational environment of the private dental industry in Finland. Our study aimed to describe and analyse practice performance and specify determinants of competitive advantages of private dental practices. In addition, we analysed the outlook of the Finnish dental practices. Twelve managers from the biggest dental practices were interviewed. Financial data for years 2000–2005 were collected from the hundred biggest practices, including revenues and key financial ratios. The performance and revenue growth of the studied practices was strong throughout the study period. Intensity of competition was described as weak. Instead, professional ambitions were said to drive the development of services. Ageing of the workforce and labour shortage were the major obstacles to growth. The reform was not found to have major impact on dental practices. One key reason for this was the PDS's inability to digest the grown demand. External pressures will be needed to spur the industry with small firm size to seek for scale advantages.

Key words: *dental care, private practice, industry analysis, Finland*

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1 INTRODUCTION

Dental care reform in 2001–2002 changed the operational environment of private dental practices in Finland. Principally, it stimulated the demand for dental services in both the private and the public sector. Following the reform, the roles of both provider sectors are changing.

In 2005, there were 1890 private dental practices with 4194 employees (dentists and dental nurses) in Finland. Total revenue of the industry was Euro 390 million. This corresponded to 49 % of the total revenues of all private medical practices (Statistics Finland 2006a). Most of the dental practices were self-employed practitioners who worked either at their own solo practices or rented premises from a joint practice. Bigger practices as well as practice chains were few. The market leader and the only nationwide chain in Finland had a market share of 17 %. Locum firms, which were renting health care professionals for public dental service (PDS) units, were a new business concept in the dental care market.

Recently, the competition authorities of, for example, Ireland, the United Kingdom and Sweden have carried out market studies on their private dental care markets (Office of Fair Trading 2003; Odlander & Fridh 2004; The Competition Authority 2005). Our study was motivated by a shortage of research on the private dental care practices in Finland. No comprehensive industry analysis of the Finnish dental practices has previously been presented, though, for example, Vasara and Mäkelä (2002) studied the structure of the dental laboratory industry in Finland. Mikkola et al. (2005) compared the Finnish provision of private dental services with UK and Sweden. Tuominen and Palmujoki surveyed how dentists perceived competition among dental practitioners and, on the other hand, between dentists and dental technicians (Tuominen & Palmujoki 2000; Tuominen 2002). They also found that the attitudes of dentists towards marketing were very conservative (Tuominen & Palmujoki 2001).

According to a review of the international literature on the business of dental care practices, the number of studies was found to be limited. Using a Porterian framework, Hughes et al. (1996) attempted to analyse the business of dental practices in the USA. Studies of the economics of dental care were reviewed by, for example, Sintonen and Linnosmaa (2000). According to several studies, markets for dental services were characterised by imperfect competition (Kushman & Scheffler 1978; Grembowski et al. 1988; Grytten & Sorensen 2000). Much of the earlier research on dental care markets has focused on the impact of the established dentistry's pursuit to limit competition and create entry restrictions to the profession (Maurizi 1974; Shepard 1978; Conrad & Emerson 1981; Conrad & Sheldon 1982; Conrad & Sheldon 1984; Fraundorf 1984; Freund & Shulman 1984). Another research line has focused on the implications of demand inducement, which stems from the information asymmetry between the customer and the service provider (Birch 1988; Grytten et al. 1990; Sintonen & Maljanen 1995).

The aim of our study was to perform an industry analysis of private dental care in Finland. Specifically, we aimed to describe and analyse dental practice performance and specify determinants of the competitive advantages of the private dental practices. In addition, we focused on analysing the outlook of the dental practices – their strengths, weaknesses, opportunities and threats – in the short- and long-run. The effect of the dental care reform in 2001–2002 on the performance of the 100 biggest practices during 2000–2005 was also evaluated.

2 BACKGROUND

2.1 Finnish dental care delivery system and the role of government

In most EU countries dental care services are, contrary to other medical services, largely in the hands of private practitioners (Krawitz & Treasure 2004). The dental care delivery system in the Nordic countries is different. Typical for the Nordic model is a fairly large public sector with salaried personnel and the state having a central role in the guidance and supervision of dental care (Widström & Eaton 2004). The private sector is complementary to the public sector. In Finland municipalities run the Public Dental Service (PDS), which operates through health centres and is financed by national and local taxation and patient fees. The cost to patients of attending private care is also partly subsidised by National Health Insurance (NHI**)** organised by the Social Insurance Institution (SII, Kela). The NHI is financed by taxation and employers' and employees' social security contributions.

The Finnish dental care system was recently (in 2001–2002) subject to a major reform. Age restrictions limiting adults' access to the PDS and subsidised private dental care were abolished. Before the reform, only younger adults (born in 1956 or later) and some special needs groups had access to the PDS or had refunds from NHI for basic care[1] with private dentists. Most other adults were excluded from the system and assumed to use private dental services and cover the costs themselves. The health political aims of the reform were to improve access to dental services for adults, to promote equity in use of services and to diminish the economic barriers to utilisation of dental services based on need. The reform challenged both care provision sectors; as access to public services was to be improved and patient costs in the private sector were to be lowered the demand for care increased considerably in both sectors (Widström et al. 2002; Widström & Pietilä 2003).

The care guarantee legislation of 2005 introduced further obligations to the PDS. The aim of the care guarantee was to improve access to all public health services including dental care services. The legislation should have led to shorter waiting lists and faster access to public care.

1 Basic care does not include prosthetics or orthodontics.

The demand for private services was to a certain extent also induced by public producers. Due to long waiting lists and lack of personnel in a number of the PDS units, the public producers, that is municipalities, bought services from private dentists to comply with their legal obligations. Some PDS units again directed patients to private dentists. Thus the reform of the dental care provision system in 2001–2002 introduced, at least in theory, a competitive situation between the private and public sectors. Before the reform, the markets were clearly shared between the two sectors as the private sector provided care for middle aged and elderly adults and the public sector for children, younger adults and special needs groups.

Government policies influence the private sector also through educational policy. During the deep economic recession in early 1990's the number of unemployed dentists increased suddenly. When this redundancy of labour coexisted with improved dental health of young Finns the government decided to cut down the intake of dental students to universities. This was done by discontinuing dental education at two (Turku and Kuopio) of the four universities training dentists in 1994. Turku was reopened in 2004 partly due to increased demand for dental care by adults as a result of the dental care reform and partly due to ageing and increasing retirements of dental professionals.

3 DATA AND METHODS

The data was collected by interviews of dental practice managers and supplemented with publicly available register data collected by Statistics Finland, Asiakastieto credit register, the Finnish Dental Association and the Social Insurance Institution (SII).

Data for the 100 largest dental practices was collected from Asiakastieto. The focus in the choice of the study data was on large practices, because data on performance indicators was not available for small practices or it was missing during different years. The ranking was based on revenues in 2003 and it consisted of income statement, accounting period, location and a set of financial ratios. The data covered the time span of 2000–2005. Practices with missing data were excluded and the final data covered 49 practices. Aggregate data concerning the entire industry was collected from Statistics Finland. Data on the NHI reimbursements was collected from the SII. Data on the number of private dentists were from the Finnish Dental Association.

The effect of the dental care reform and the introduction of the care guarantee on performance indicators were tested with panel data regressions. The panel data covered 294 observations (49 practices, 6 years) for each variable. The idea of the statistical test was to find out if the reform year and the year of the introduction of care guarantee deviated from the other years. In the test volume, profitability and solidity were explained with a linear growth trend, reform, and care guarantee. The reform and the care guarantee were Dummy-variables in the tests. The practice

code was used as a stratification variable in the regressions based on standard panel data fixed effects models. The statistical tests were used because of large standard deviations between performance indicators of large practices when the averages were calculated (Table 2).

Out of the 20 largest practices measured by revenue, 12 executive directors were chosen to be interviewed during 2004–2005. Largest practices were selected over smaller ones because we wanted to collect views of industry wide themes. While carrying out the interviews we found that the data started to saturate, which indicated that the number of interviews was sufficient. Geographical diversity was taken into account in the sample selection. Revenues of the interviewed practices varied between Euro 0.7 and 63 million and the number of employees was in the range of 12 and 945 in 2004. We also interviewed the manager of dental services in one of the locum firms.

All the managers we contacted agreed to participate in the study. The interviews followed a semi-structured form that was constructed using Porter's models for industry analysis (Porter 1980; Porter 1990). Porter's diamond model, that we applied in our analysis, is a self-reinforcing system of determinants (factor conditions, demand conditions, related and supporting industries, firm strategy, structure and rivalry) that create the national environment in which firms are born and learn how to compete. Issues discussed in the interviews included the structure and the development of the dental care industry, business concepts, competitive conditions and the future outlook of the industry. The discussion of the results was based on the ideas Porter had found to be a prerequisite for a successful business activity and for creation of the competitive advantages of the industry (Porter 1990).

Using our application of the diamond model (Figure 1), the advantages and disadvantages of the dental care industry were outlined. The results of interviews were reported and summarised using a combination of the diamond model and SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis. SWOT-analysis was used to perceive the future scenarios of the industry.

4 THE PERFORMANCE OF THE DENTAL PRACTICES AND DENTAL CARE INDUSTRY 2000–2005

Our definition of dental practice includes both single location and multi-location firms. There were three types of practice in the dental care industry: 1) Practices that rented premises for self-employed private practitioners; 2) Practices that employed all or part of the dentists working at the practice, and; 3) Self-employed private practitioners that worked at their own practice or rented premises from the two other types of practices. Unit size was typically small, while in the sample of 49 out of 100 largest practices 78 % had revenue below Euro 1 million in 2005 (Figure 2). The revenue of the market leader was Euro 66.7 million in 2005 while the combined revenue

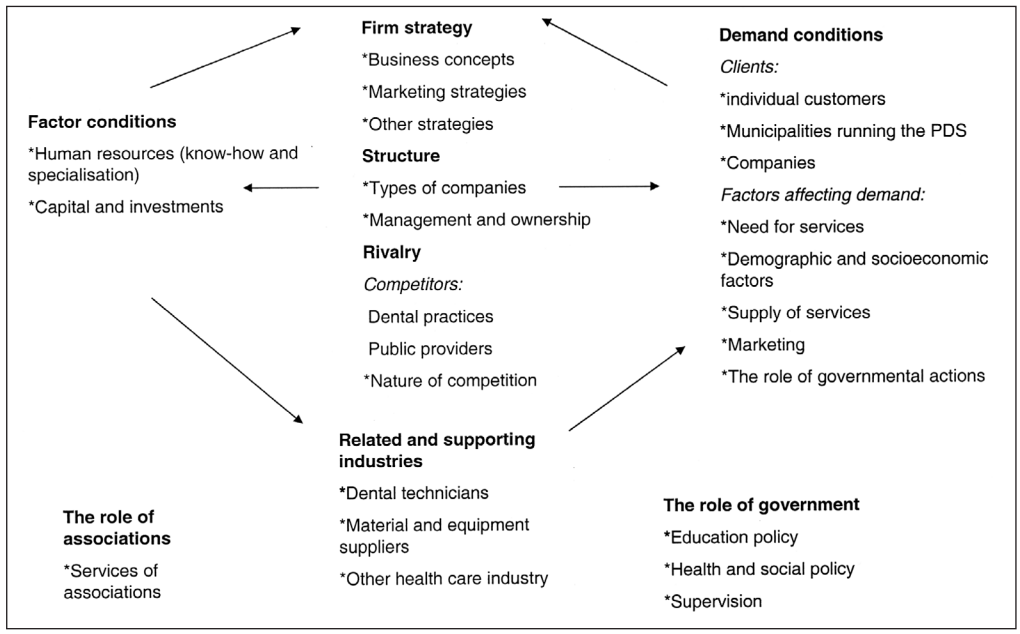

FIGURE 1. An application of Porter's diamond model to analyse the dental care industry.

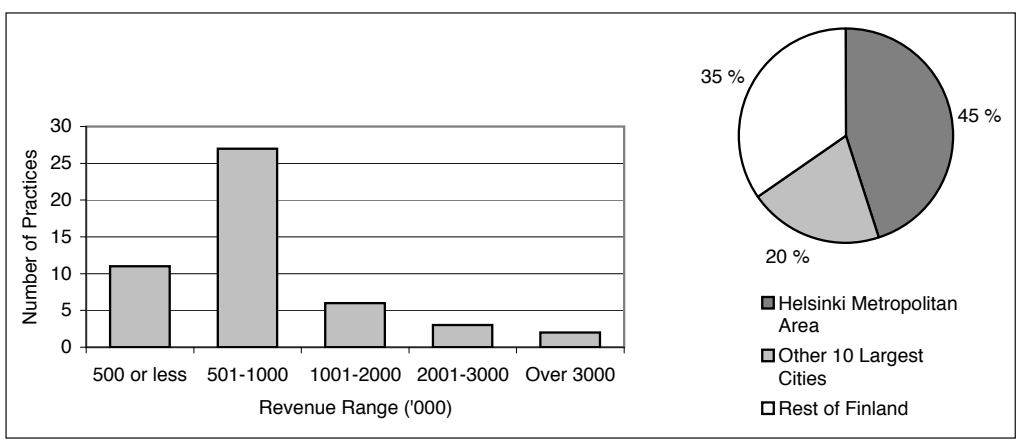

FIGURE 2. 100 largest dental practices according to revenues and location in 2005 (N=49).

of the other 48 large practices was Euro 44.5 million. The majority of the practices were located in 10 of the biggest cities, especially in the Helsinki metropolitan region. In Finland, a great majority of the private dentists work in bigger cities and especially in cities where dental education is given.

We studied the industry as a whole and the 100 largest practices as a group. In addition, we studied the market leader separately as it was a considerably larger practice than the rest of the sample combined. Table 1 illustrates the key figures of the industry 100 largest practices and the market leader in 2000–2005.

4.1 Volume and productivity

Between 2000 and 2005 the growth of the industry's aggregate revenue was +36.4 %. The inflation-adjusted growth of the industry revenue was +16.2 % and +3.1 % per annum. Statistic Finland's price index of private dental services was used in inflation adjustment. The index increased +17.3 during the period. Prices of private dental care grew more than the consumer prices (+5.6 %) and also slightly more than the prices for medical services (+14.7 %). In other words, the price increase of dental care services explained approximately almost half of the growth of the industry's aggregate revenue (Table 1).

The average inflation-adjusted revenue of the largest practices increased +24.5 %, which was faster than the industry growth. The growth was at its highest in 2005. In all likelihood, the supply of prosthetic care given mainly in the large practices with specialists explained the faster growth of revenue compared to the whole industry. Contrary to expectations, the reform did not have a significant effect on the revenue growth. According to a statistical test, the first year after the reform (2003) or the year of the care guarantee (2005) did not deviate from a linear growth trend (Table 2).

During the study period the revenue of the market leader grew slower than the average revenue of the other large practices and it was also slower compared to the industry aggregate. However, the market leader succeeded in utilising the reform better than other large practices on average. On the other hand, the growth of the market leader has decelerated in recent years (2004–2005) (Table 1).

The average productivity of a private dentist seemed to have increased. Between 2000 and 2005 the inflation-adjusted revenue per private dentist increased by +32.5 % and the number of full-time private dentists decreased –8.5 %. The growth in the revenue per dentist implies that the number of customers per dentist had increased, or the treatment profiles had changed toward more expensive treatments**.** The decrease in the number of private dentists is likely due to new recruitments in the PDS (Table 3).

4.2 Profitability and solidity of the biggest practices

Return on invested capital (ROIC) suggested that the large practices were profitable throughout the period of analysis. The average ROIC varied in the range of 25 % and 33 % reaching its lowest point in 2004 and its peak in 2000–01 (Table 1). One explanation of the high profitability was

TABLE 1. Key figures of the dental care industry, largest practices and the market leader (Source: Asiakastieto, Statistics Finland).

	2000	2001	2002	2003	2004	2005	Change 2000–2005
Industry							
Aggregate revenue ('000)	335,552	342,752	349,160	368,371	381,229	390,063	+16.2%
Annual change		+2.1%	+1.9%	+5.5%	+3.5%	+2.3%	
Price Index (2000=100)	100	104.6	106.9	110.3	114.2	117.3	+17.3%
Largest Practices (N=49)							
Average revenue ('000)*	748	790	832	845	862	931	+24.5%
Annual change		+5.6%	+5.3%	+1.6%	+2.0%	+8.0%	
Standard deviation %	56.0%	59.5%	66.5%	66.3%	79.4%	104.1%	
Average ROIC	32.5%	32.5%	28.9%	30.5%	25.4%	29.4%	–9.5%
Standard deviation %	78.3%	61.8%	75.5%	87.6%	106.5%	88.8%	
Average operating profit %	11.9%	12.5%	12.1%	13.5%	13.1%	14.2%	+19.3%
Standard deviation %	87.9%	95.4%	97.3%	93.2%	101.4%	95.2%	
Average Equity Ratio	55.4%	55.5%	56.5%	56.1%	56.9%	58.7%	+6.0%
Standard deviation %	45.4%	45.3%	44.5%	44.8%	44.1%	42.4%	
The Market Leader							
Revenue ('000)	60,454	60,560	58,312	64,518	64,856	66,723	+9.4%
Annual change		0.2%	–3.7%	10.6%	0.5%	2.9%	
ROIC	23.0%	20.6%	13.8%	20.2%	22.1%	20.4%	–11.3%
Operating profit %	13.3%	12.9%	8.7%	13.0%	15.5%	14.2%	+6.8%
Equity ratio	86.5%	87.0%	88.7%	88.5%	85.6%	89.9%	+3.9%

All Euro-denominated figures were adjusted with the price index for dental services.
Revenue values are in Euro 1000.

TABLE 2. Results of the statistical tests on the effects of the health political reforms (N = 49).

Independent variable	Dependent variables		
	Trend Coefficient	Reform Coefficient	Care guarantee Coefficient
Revenue	Significant ($p < 0.05$)	Insignificant	Insignificant
ROIC-%	Significant ($p < 0.05$)	Insignificant	Insignificant
Operating Profit-%	Insignificant	Insignificant	Insignificant
Equity Ratio	Insignificant	Insignificant	Insignificant

Insignificance refers to statistical insignificance of coefficients ($p > 0.10$)

TABLE 3. Changes in numbers of private dentists and revenues per dentists. Number of part-time dentists is an approximation.

	2000	2001	2002	2003	2004	2005	Change 2000–2005
Full-time private dentists	2083	2046	2040	1983	1920	1906	–8.5 %
Annual change		–1.8%	–0.3%	–2.8%	–3.2%	–0.7%	
Part-time private dentists	710	500	500	500	500	470	–33.8 %
Revenue per dentists ('000)	137.6	149.3	152.5	165.0	175.7	182.2	+32.5%
Annual change		+8.5%	+1.0%	+8.4%	+6.5%	+3.8%	

Source: Finnish Dental Association, Annual reports 2000–2005.

that the owners were usually active dentists who can gain tax advantage from a lower salary and higher dividend income. The market leader had a ROIC a little above 20 % during the study period with the exception of year 2002 when its ROIC decreased to 13.8 %. The drop in profitability was coincident with the drop in revenue. Another measure of profitability, operating profit percentage, indicates also a good average level of profitability throughout the period. The average operating profit percentage varied in the range on 11.9 % and 14.2 % for the large practices. In the statistical test the years 2003 or 2005 did not deviate from a linear growth trend (Table 2).

The average equity ratio remained above 50 % throughout the study period (Table 1). The financial standing of the large practices seemed to be very good. It is noteworthy that the market leader had an exceptionally high equity ratio (above 85 %) during the period.

4.3 NHI reimbursements

The share of the reimbursed care[2] was 67.4 % of the aggregate industry revenues in 2005 indicat-

2 Reimbursed care refers to care items whose recipient is entitled to NHI reimbursement. The actual reimbursement is the amount of NHI subsidy received by the customer.

ing that majority of the sales volume came from basic care. NHI reimbursement's share of the industry revenues increased from 14.4 % in 2000 to 23.5 % in 2005 (Table 4).

The reimbursement per care item is based on list prices decided by the SII. These list prices remained quite stable throughout the study period and therefore the reimbursement per recipient can be used as an indicator of the average amount of basic care item per patient. This amount increased only +2.4 % between 2000 and 2005. It seems that the amount of basic treatment per patient did not differ much between those customers that were entitled to the subsidy before the reform and those to whom the reform gave this benefit. Therefore, the growth in aggregate industry revenue cannot be explained with growth in basic care per patient. The new volume is likely to have come either from new patients or an increase in prosthetic treatments or other non-reimbursed care. While the industry's aggregate revenue kept growing the sum of NHI reimbursed care – mainly basic care – decreased after 2003. This indicates that growth of the dental care industry after 2003 has been fuelled by the production of prosthetics and other non-reimbursed care.

5 DETERMINANTS OF COMPETITIVE ADVANTAGE OF DENTAL PRACTICES

5.1 Factor conditions

The practice managers reported that there was a shortage of dentists and competition for a skilled workforce, which limited growth of the business. They had found that young dentists and especially females with a family were risk averse and in many cases preferred working for the PDS, which offered better welfare benefits (e.g. maternity leave) than the private sector. Moreover, the interviewees felt that undergraduate dental education favoured working in the PDS and gave inadequate business skills.

A majority of the managers reported that the productivity between individual dentists varied significantly and that it would be possible to make the production processes in dental care more efficient. They saw that a lack of business skills among professionals hindered the development of more profitable services and of more efficient ways to produce them. The interviewees estimated that professional ambitions and interests drove innovations and development in care production more than remuneration.

The dental practices interviewed were typically owned by 1 to 5 active self-employed dentists. Family connections in ownership were common. The managers argued that the dental care business was difficult to comprehend for others than dentists, which could explain the lack of outside ownership. However, in the managers' opinion, new technology and larger practice sizes might require and also attract external investors in the future.

TABLE 4. NHI reimbursed care and NHI reimbursements in 2000–2005 (Source: SII, Statistics Finland).

	2000	2001	2002	2003	2004	2005	Change 2000–2005
NHI reimbursed care ('000)	107.381	154.806	184.993	266.225	271.338	262.725	+144.7%
NHI reimbursed care / aggregate industry revenues	32.0%	45.2%	53.0%	72.3%	71.2%	67.4%	
NHI reimbursement ('000)	48.438	62.974	71.240	99.004	97.558	91.481	+88.9%
Annual change		+30.0%	+13.1%	+39.0%	–1.5%	–6.2%	
NHI reimbursement / aggregate industry revenues	14.4%	18.4%	20.4%	26.9%	25.6%	23.5%	
Average NHI reimbursed care per recipient	229	247	262	262	264	259	+13.1%
Average nominal NHI reimbursement per recipient	87.9	89.4	91.9	91.7	92.3	90.0	+2.4%

NHI reimbursed care and NHI reimbursements were adjusted with the price index for dental services and their values are in Euro 1000.
Average reimbursed care was adjusted with the price index for dental services.
Average nominal NHI reimbursement was not adjusted because the reimbursement per care item was decided by the SSI and it was not affected by the the changes in the price of dental care.

5.2 Demand

The dental care practices interviewed had three customer groups: individual consumers, municipalities and employee benefit purchasers. The interviewees estimated that 70–95 % of the customers were individual consumers. A typical dentist was said to have a fixed clientele of between 500–1000 customers. Some municipalities (e.g. Helsinki) supplemented their own dental care production with purchases from private practices and sometimes rented workforce from the locum firms. The locum firm interviewed had a pool of about 50 dentists. The share of municipalities' purchases from the revenues of the dental practices interviewed varied between 5 %–40 %. Some firms offered their employees dental care benefit comparable to occupational health services. The share of employee benefit purchasers of the revenues of the interviewed dental practices varied between 5 %–15 %.

According to the managers, present demand conditions were favourable for the dental care business. The most interesting customer segment was said to be the well-to-do adults between 30 and 65 years, who 'appreciated good health and were motivated to invest in their teeth'. In addition, the practices were interested in customers needing comprehensive care and complicated treatments (often prosthetics). The mangers stressed that 'they do not select customers' but that a practice's service portfolio has an effect on the customer base. Also, the practice locations were usually chosen with a target customer segment in mind. The majority of customers were included in a recall system, that is, a dentist contacted the customer at certain regular intervals, usually once or twice a year.

The managers reported that it was impossible for a customer to actually assess the clinical quality of the treatment given.[3] Thus, the interviewees believed that such visible quality indicators as fast access, painless treatment, good hygiene and friendly service were the most important criteria influencing the customers' experience of quality. The interviewees believed that further development of aesthetic and other technically advanced services would open new business opportunities among well-informed and well-paid adults.

The managers estimated that the dental care reform in 2001–2002 had had a positive impact on the demand for their services among individual customers and also among municipalities. They expected the care guarantee legislation, introduced in 2005, to strengthen municipalities' role as customers as the public sector has the responsibility to organise care for all patients in need of treatment. The managers also believed that other institutional customers, mainly firms with well-paid and highly educated staff would offer dental care benefits to their employees to a greater extent in the future.

3 Clinical quality refers to the quality assessed with medical standards.

Most interviewees claimed that instead of advertising, recommendations of friends and relatives paid an important role in the choice of a dentist or a dental practice. Traditionally, the dental profession has an ethical code, which restricted the forms of advertising. Most managers felt that these traditional rules were obeyed. However, the current demand for services was so strong that there was no need to invest in advertising.

5.3 Related and supporting industries

Prosthetic devices found to be produced usually in co-operation with independent dental technical laboratories. Few practices had a technical laboratory of their own or a laboratory as a subsidiary. Dentists selected laboratories using established practices and high quality of work as the primary criteria. Competitive tendering processes between the laboratories were not usual, as dentists did not consider dental technician work as a cost item, because, it was charged separately to the customers.

Two major suppliers shared the equipment and material markets. In addition, dental implants were supplied by several smaller firms. The interviewees reported that chances to promote competition between the dominant suppliers were weak. A few practices had purchased equipment or materials abroad. A couple of practices co-operated in purchases of materials and equipment. The managers recognised that further co-operation in purchasing could potentially provide cost savings. Generally, co-operation with other health care companies and other industries was rare.

5.4 Strategies

The business concept of most of the larger practices was twofold, as they offered dental care for their customers and premises to self-employed dentists. The dominant strategy among the practices interviewed was to offer a broad selection of dental care services to adults. The service portfolio included basic dental care, more advanced treatments and various specialist services. The larger practices offered a broader range of specialist services. The interviewees mentioned that 'the most profitable treatments were plastic (white) fillings and prosthetics'. Most practices stressed the concept of 'fast access to top class services'. This and special, mostly prosthetic, treatments distinguished the private clinics from the PDS. However, the differentiation was still a marginal strategic choice among larger practices.

The business concept of the locum firm interviewed was to offer workforce for hire and offer outsourcing services to the PDS. For its own employees, the locum firm offered flexible working hours with a competitive salary.

A personal long-term dentist-patient relationship combined with a recall system was the most common strategy to keep customers satisfied, according to all the interviewees. Also, this

strategy was said to differentiate private care from the PDS. Some practices had plans to give up the personal dentist-patient relationship and instead establish a practice-patient concept, which meant that a customer could be treated by any of the dentists working at the practice.

Modest announcements in newspapers and directories (e.g. yellow pages) were the primary means of advertising. However, there were also differences in marketing strategies. For example, the marketing strategy of the market leader was very conservative but some competitors used more aggressive marketing efforts and a broader selection of media, for example, TV and special catalogues. One firm had marketing co-operation with a retail trade firm. Branding was not considered important by most of the managers. Still, some of the managers forecasted a greater role for brands in the future. Also, the significance of the internet as a marketing tool was expected to increase.

5.5 Structure and management

The most common way to enter the industry was to acquire an existing practice with a good reputation and list of customers. The managers saw that the greatest risks in establishment of a new practice related to initial investments in infrastructure and building a customer base. Most interviewees believed that solo-practices would be a dying form of dental care provision, and the role of joint practices would continue to grow stronger. According to their outlook, the industry will consolidate further and the average unit size will increase as the owners of solo practices retire. Some of the managers saw chain formation as a possible future scenario and some practices were actively making strategies in that direction. A few managers mentioned that they had been asked to join a chain.

Bigger unit size was expected to offer scale advantages in marketing and purchasing as well as facilitate the supply of special services. Managers also pointed out that in a joint practice dentists can share information and stay up-to-date on professional developments. In addition, the bigger customers (municipalities and employee benefit purchasers) were thought to prefer contracts with larger practices rather than with small ones.

Of the 13 managers interviewed, four were professional managers with a business education and nine were dentists. The latter practiced dentistry besides to their managerial tasks. Larger sized units were expected to require leaders with better management skills and business education. Some of the dental practices interviewed were not interested in growth, because it would require more administrative staff and management efforts.

The locum firm reported that some dentists bored with the management of the PDS, low salary and other unsatisfactory working conditions were willing to work for locum type practices. The special strength of the locum firms was said to be a flexible organisation with strongly motivated dentists, compared to the PDS.

5.6 Rivalry

The great majority of the managers we interviewed said that their price lists were not influenced by the pricing decisions of other practices. Price competition was noticed only during the deep economic recession in the beginning of 1990s. Managers stated that dental practices compete on service selection and quality. Marketing was seen more as means of spreading information about service selection rather than as a competitive weapon.

Most interviewees felt that competition had only a slight impact on their businesses. The collegial spirit of solidarity between the dentists restricted competition. The recent dental care reform was not felt to have changed the competitive conditions. The managers reported that the increased demand for dental services due to the reform was more likely to decrease than increase competition between practices.

Half of the interviewees considered the PDS units as partners or clients, the other half viewed them as competitors. As partners the PDS referred patients for specialist treatments to the private practices, but this was also done because of long waiting lists in the PDS. In the provision of basic care, many interviewees considered the PDS as a competitor. They stressed that the lower prices of the PDS skewed the dental care market. The interviewees also pointed out that before the dental care reform the markets were more clearly shared, so that the private sector served mainly adults and the PDS mainly children and young adults. They felt uncertain about the future role of the PDS and the distribution of tasks between sectors in the new situation where even older adults could use the PDS.

Competition for contracts with municipalities running the local PDS units was more clearly observed than competition over consumers. According to the law, municipalities have to arrange competitive tendering processes between practices when purchasing services. The managers felt that customer relationships with municipalities were more risky than with individual customers, because of the annual competitive tendering processes and probable rapid changes because of them. Because the business was traditionally based on long term customer-relationships, a possible discontinuity of an agreement with a municipality could be difficult to compensate to the same volume with new consumers. In addition, some of the practices avoided contracts with the municipalities, because they did not want to offer the same services for different patients at different prices. It was mentioned that different pricing had caused confusion among patients at some clinics.

The locum firm manager reported that they faced very little competition with their contracts with the municipalities, but competition for a competent workforce between the PDS and private practices was felt to be tough. The manager believed that the competition for the municipalities' contracts will increase in the future, because some foreign locum firms, for example from Estonia and Hungary, were interested in entering the Finnish dental care market.

5.7 Associations and the role of the government

The interviewees praised the Dental Associations for well organised continuing education for dentists. Most of the practices followed the references of the Finnish Dental Association on cost development and adjusted their prices accordingly. The Dental Association was mentioned to have a price list calculator service where practices could print a price list by giving an initial price for one common treatment item. A few practices belonged to another association called the Finnish Dental Practices which promoted the interests of 13 dental practices. The association organised, among others things, purchases of equipment and material for their members.

The Finnish Dental Association was criticised for its double role in representing both private and public dentists, and also representing both employees and employers. The managers felt that in recent years the Dental Association had failed to lobby dental care services to become occupational health services. The interviewees thought that some of the conventions were old-fashioned. For example, the Dental Association paid too much attention to the advertising of the dental care practices.

The managers had various expectations of the role of the government. For example, in their opinion, the levels of the NHI reimbursement for customers were kept too low. Also, the role of the PDS should be more clearly defined and separated from the private sector. The interviewees were unanimous about the need for robust education policy with sufficient student intake and a need to maintain high quality in dental education.

6 OUTLOOK OF DENTAL PRACTICES

6.1 Strengths

According to Porter, to enhance competitive advantage a production factor has to be highly specialised to an industry's particular needs. Work motivation and skills improvement are also essential to competitive advantage (Porter 1990). The particular strength of the dental care industry was highly educated and skilled professionals. Professional ambitions were quoted as the driving force for development instead of monetary compensation. However, the private dentists working for a fee for service clearly faced more powerful economic incentives than their salaried colleagues in the PDS. The dominant 'small business ideology', little bureaucracy and family connections in ownership also strengthened these incentives.

The established practice of a recall system with personal dentist-patient relationships was an efficient strategy to induce demand for dental care services. Recall systems seemed to compensate for the otherwise very conservative marketing efforts. At least in theory the recall system gave the dentists an opportunity to adjust the demand, because customers were not able to evaluate their care need as well as the dentist. Increased demand created by external factors, for

example the dental care reform supported the industry. Prompt access to care and an image of a high quality of services were probably the most important assets in the competition with the PDS that struggled with demand peak and long queues due to the dental care reform. The care guarantee legislation of 2005 further increased the demands on the PDS care.

According to Porter, to promote competitive advantage, home-based suppliers deliver the most cost-effective inputs in an efficient and preferential way. Moreover, the advantage of supporting industries was based on close working relationships (Porter 1990). An obvious strength of the dental care industry was the close co-operation between dental care practices and dental technicians and laboratories.

There was no particular position for trade organisations in Porter's original model. However, the economic theory of cartels suggests that medical associations have an important task in limiting competition between their members in order to keep their members' incomes high. They also serve as a partner in negotiations with public authorities (Zweifel & Breyer 1997). The Finnish Dental Association, for example, assisted in the price-setting decisions of the practices. The medical professions have traditionally taken a restrictive stand against competition among their members. This has been justified with arguments related to professional ethics and harmful effects of competition. It seemed that the strong collegial spirit and shared professional rules limited competitive behaviour also in the Finnish dental care industry.

6.2 Weaknesses

Interviewees stressed that labour shortage was one of the major barriers in the growth of the dental care industry. Reasons for this shortage were the decrease in student intake since the mid-1990s, as well as the increasing retirement of ageing dentists and new recruitments into the PDS. However, the labour shortage phenomenon is controversial, as Finland has internationally a high dentist to inhabitant ratio and the system should – at least in theory – have been able to digest the reform inflated demand.

Labour shortage could however be a true problem for larger practices, because it could lead to excess treatment room capacity. Companies were competing for workforce, as they needed to have rent-income to cover fixed costs. From the viewpoint of individual dentists the labour shortage increased the demand for the services and might become a problem only when a solo practice was to be sold, for example due to retirement, and no buyers would exist. Another controversial issue was the low number of customers per dentists while there seemed to be excess demand for services.

The interviewees' solution for the labour shortage was that more dentists should be trained, though in the short-run, increased student intake cannot solve the labour shortage. Other methods could be more effective, for example, increasing productivity, modernising the task sharing be-

tween dentists, dental hygienists and dental nurses and importing a workforce from other European countries.

The lack of business skills, particularly in marketing and management, were among the weaknesses of the industry. Traditionally conservative attitudes towards marketing were still dominant and supported by the interviewees, even though some willingness to modernise them was also presented. Still, dental care was so profitable that further commercial skills were not acutely needed in the prevailing business environment.

Finnish equipment and material suppliers, for example in the digital dental care technology, have been considered to be competitive in the international markets (Talouselämä 2005). In the national dental equipment and material markets the prominent suppliers in fact dictated prices, according to the interviewees. However, the lack of negotiation power was not a strong enough incentive to seek foreign suppliers.

According to Porter, the presence of strong local rivals is a final and powerful stimulus to the creation and persistence of competitive advantage (Porter 1990). Insignificant competition was a dominant feature of the dental care industry. The lack of competition between practices made the dental care industry less dynamic and kept the focus on the protection of the old structures, conventions and incentives rather than on continuous development and innovations. Labour shortage – or competition for workforce – could have been expected to push the larger practices to develop the services they offered to dentists. A Porterian interpretation of the consequences of weak competition would be vulnerability of the industry against sudden competitive pressures.

According to Porter, sophisticated, demanding buyers are the best promoters of competition. They create pressures for practices to meet high standards, to improve, to innovate and to upgrade into more advanced segments (Porter 1990). In the dental care industry the dentists had a considerable information advantage compared to their customers. Customers could only evaluate services based on speed and pleasantness of the service, but they were not able to gauge the quality of the core service: the clinical quality of care. Nevertheless, there was no interest group or customer organisation that would represent the customers of dental care.

Porter suggests that successful government policies create an environment in which practices can gain competitive advantages without directly involving government in the process. Alternatively the government could create stringent standards for service production and customer safety to pressure practices to improve quality, upgrade technology and provide features that respond to consumer and social demands (Porter 1990). In the dental care industry, the governmental SII gave price-subsidies for consumers of privately produced basic dental care. The price-subsidies for basic care might hinder the differentiation of the services or the differentiation of the practices. The government has not taken any significant measures that would promote competition between the private practices. The dental care reform and the care guarantee legislation

may have increased the competition between the private and public sector, but not competition between private practices.

6.3 Opportunities

The managers of the practices believed that dental care practices will be larger in the future. Still, we found that there were little serious attempt to seek scale advantages among the large practices. Scale advantages would however be attainable, for example, in purchases. Larger practices would have an opportunity to influence their suppliers' technical efforts and even 'serve as test sites for R&D work' accelerating the pace of innovation. Real scale advantages would require that dentists in practices would co-ordinate their treatment processes and use of materials.

Larger practices would have better opportunities to sign contracts with municipalities and the firms purchasing occupational benefits. Larger practice size could lower the risk that is related to one or a few big customers with short contract periods. A larger size could also give better opportunities to expand to international dental care markets. For example, the business concepts of hiring premises and producing and controlling high technology dental service processes could be potential export products.

Larger practice size could be turned into an advantage in the highly competitive labour market. Managers pointed out that in bigger units, dentists had access to the latest technology and chances to consult frequently with colleagues, which supports professional development. In bigger units, it would also be more optimal to leave the administrative tasks to business professionals. If the willingness of young dentists to take entrepreneur risks was lowered, the large practices could offer more variety in risk sharing between the practice and individual dentists. Some practices already offered a salary as an optional form of remuneration to dentists.

The growing demand for dental care and especially the demand for advanced treatments definitely opens opportunities for private dental care providers. According to epidemiological studies (Suominen-Taipale et al. 2004), young adults' dental treatment needs are relatively low, but the middle aged and the elderly are in great need of comprehensive care and various prosthetic devices. In this sector the potential threat of PDS is even lower than in basic care.

6.4 Threats

A non-dynamic industry adjusted to luxury demand conditions could be vulnerable were the operational environment to change. This was last observed at the time of deep economic depression (1991–1993) when private consumer demand decreased. This even led to unemployment among dentists.

In the future, political decisions on health – especially concerning the regulation and resources of the PDS, the NHI reimbursements and the education of new dentists – could have a

considerable impact on the success of the dental care industry. Ageing of the workforce was the most realistic threat in the dental care industry.

The demand for private basic services may decrease if the government and municipalities allocate additional resources to the PDS or create economic incentives that increase the efficiency of the PDS. During the study period, the PDS had a considerably lower fee schedule compared to private practices. A number of municipalities had major problems in facing the reform inflated demand, which lead to relatively long waiting lists. When the initial demand peak settles down and the waiting times become shorter, the PDS could turn out to be a real rival to private practices. The threat to the PDS would be most relevant for the small practices that offered the same services as the PDS, mainly basic care.

In the future, a larger part of the demand for private care could also be channelled through the PDS as public purchases. The PDS as a large and better informed customer could force private practices to cut prices.

The idea of PDS as a competitor is not straightforward given that the PDS's goal is in a broad sense to fulfil its legal obligations rather than to seek profit. While the PDS is financed mainly from the municipal budgets – only some 15 %[4] of its working costs were covered by customer charges in 2005 – it has little incentive to actually compete for customers.

Changes in the NHI reimbursements for private services could have similar effects while they would affect the price gap between public and private services. Decreasing the NHI reimbursement could force the industry to cut prices if the customers chose to use the PDS. It could also lead to concentration of non-reimbursed special care or high-end care to less price-sensitive customers. The effect of changes in the NHI reimbursements cannot be separated from the question of PDS capacity. If the PDS will have capacity to treat customers according to the care guarantee obligations, the customers have a real opportunity to choose between private and public provider. Currently the private provider would not compete with price while the customer's share of the bill of basic care was approximately 65 % of the price in 2005.

The expansion of the EU might bring foreign competitors to the Finnish dental care markets, which would challenge local dental practices. For example, in Sweden there are already practices which hire dentists from Poland and offer cheaper services. Foreign competitors might challenge the traditional pricing and marketing practices and create a competitive pressure that forces the Finnish private practices to reconsider their strategies.

The SWOT-analysis of dental practises is summarised in Table 5.

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TABLE 5. SWOT-analysis of the private dental practices.

	STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS
Factor conditions	Highly educated and specialised workforce Compensation based on performance of a dentist	Shortage of workforce Dental education PDS-oriented Inadequate business skills	Improvement of business education during undergraduate education More benchmarking of production processes among small practices Capital from external investors	An ageing workforce Young female dentists prefer the PDS
Demand	Increasing demand Recall system popular Services highly appreciated by customers Public subsidation of treatments	Lack of marketing skills Dentist Association restricts marketing	Well-paid and informed consumers Aesthetic and other special services Municipalities and companies as new customers	New and old customers start to use the PDS
Related and supporting industries	Co-operation with dental technicians and laboratories feasible	Lack of competition Few instrument importers	Promoting competition by alliances Unifying the use of material and equipment More co-operation with other industries	
Firm strategy Business concepts and marketing	Fast access Top class services The ideology of small scale entrepreneur Personal dentist-patient relationship appreciated	Lack of brands Lack of business skills	New innovative treatments Product differentiation Brands More visible advertising	
Firm structure	Little bureaucracy	Small practices with ageing workforce Lack of management skills	Chaining small practices or building bigger practices	Ageing workforce
Rivalry	No price-competition Quality competition	Little competition		The PDS Foreign practices
Associations	Strong Dental Association delivers services: e.g. price recommendations	The association represents both public and private sector and both employees and employers	Separate associations of private practices	

7 DISCUSSION

The effect of the reform

The study period (2000–2005) was successful for the private dental care industry in terms of growth and practice profitability. Our key finding was that dental care reform 2001–2002 did not have a major effect on the growth of revenues and other performance indicators. The market leader utilised the reform better than other large practices. Perhaps the scale advantages and resources of the large chain practice were an advantage in the fast utilisation of the demand peak. The lack of effect in the private sector was mainly due to the PDS's inability to digest the increased demand and to become a real alternative to the private practices. The reform did not reallocate the demand from the private sector to the cheaper PDS but instead it awoke potential customers with dental care needs to seeking a service they had not sought previously.

In other words, instead of the private dental care industry and its entrepreneurs, those consumers who were using the private services before the reform without subsidies got the best utility from the reform. The reform was a direct monetary subsidy to well-to-do consumers who, according to previous studies, use private services. Epidemiological studies have shown clear pro-rich inequities in the use of private dental services (Poutanen & Widström 2001; Nguyen & Häkkinen 2004).

Larger dental practices in the future?

Our study focused on analysing the larger dental practices. One of our major results that came from the interview study was that the private practice sizes were still expected to grow in the future. The change of generation of dentists will be the most probable way to increase the practice size. The younger dentists were assumed to prefer to work in larger joint practices instead of traditional solo ones, because of the lower investment risk and other scale advantages of larger practices. Our study found also statistical evidence that the larger practices will probably perform better in the future. During our study period (2000–2005) the larger practices had grown faster than the other private dental care industry. This growth could be explained with the wider service portfolio and especially with the supply of prosthetic treatments. The concentration on special services and high technology, in combination with new aesthetic services, would be a strategic choice available to larger practices and to be taken seriously. The PDS was also less of a threat in the field of special services.

However, changes in the practice size will be relatively slow and the practices will generally still be small with the exception of the single nationwide chain. One explanation for this could be that the market leader as a practice chain had already employed most of those dentists interested in joining a chain or a larger practice. Dentistry has traditionally been a small scale

business with a high level of professional independence. Moreover, a lack of management skills was a growth barrier for the practices. Otherwise though, the industry was so profitable that there were no reasons for instant major changes in the structure of the industry. In spite of the optimistic opinions of the interviewees, it seems that external home-based or foreign pressures will be needed to speed up the industry to find scale advantages. In addition to the performance improvement and increasing supply within the PDS, such pressures could be the entry of foreign competitors to the dental care market or the emergence of outside investors willing to invest in dental practices. These pressures could lead to a reconsideration of the conservative strategies and attitudes that dominated the industry.

The municipalities as customers could also be a source of external pressure. According to a study on the PDS, big cities had increased or planned to increase their service purchases from private practices (Vesivalo et al. 2006). However, the share of purchases made only 3 % of the total running costs of the PDS in 2003 (Widström et al. 2005). On the other hand, the care guarantee legislation increased and will increase the outsourcing of primary outpatient care, including dental care services in the next few years (Pekurinen et al. 2007).

How to solve the labour shortage?

The present labour shortage was reported by the practice managers as a threat to the success and performance of the private dental practices. The statistics showed also the downward trend in the number of dentists in the private sector (Table 4). Growth of labour hiring by locum firms indicated that also the PDS had difficulties in recruitment. The higher student intake does not solve the problem of labour shortage in the short-run. However, private practices could attract young dentists with better incentives than the PDS. In addition to better financial rewards, the private practices could offer better working conditions, welfare benefits and arrange special guidance and education. However, such efforts are not traditional in a branch based on small scale entrepreneurship and with expectations that the PDS will first provide the basic training. Also, the promotion of a business skills component in undergraduate education could be advantageous from the industry point of view. New attitudes and innovations are needed to solve the problem of labour shortage.

How to promote competition?

Our study showed that competition was very limited in the market for dental care services. Still, competition could make the dental care industry more dynamic. Well-informed consumers could be the most powerful promoters of competition between practices. Several studies indicate that the consumers of health care are typically uninformed and need a third party to keep an eye on prices and the quality of private health care services. This is also true in dental care services. The

information asymmetry between the consumer and the provider, the recall lists being the main marketing tool and the relatively small grouping of clients on these lists (also verified by statistics on patients treated privately related to numbers of practitioners) warrants risks for over-treatment and unnecessary costs for well-selected consumers. From the viewpoint of customers, a more liberal and visible marketing might provide more information on dental services, and especially on their prices. At present there seems to be no patient organisation interested in dental care and the consumer organisations' role is weak.

As a third party financier, the state should be more interested in the outcome of care provided in relation to its costs. The SII, which in reality represents the state as the financier, could create so-called 'yardstick competition', supervising the interests of consumers and publicly benchmark prices and quality of private dental care services.

The Ministry of Social and Health Affairs regulates both the public and private sectors and defines the major health political goals to be achieved. At the moment these goals highlight equal access to dental services (independent of age, income, residence, etc.), treatment based on medically or odontologically defined needs and cost containment. The PDS will not be a full competitor of the private practices as long as it has a formal and moral responsibility for the health policy goals and special needs groups. The PDS is also responsible for the implementation of the care guarantee legislation. In the Finnish dental care provision system the private care providers have been given a relatively free hand in establishing their practices and organising and managing the delivery of care. The fact that only the PDS is made responsible for organising care for the whole population, inclusive of special needs patients and non-profitable clients, for example, gives the private sector incentives to skim the cream.

From the viewpoint of society, the better effectiveness of dental services (better oral health with reasonable resources) and an efficient mix of public and private dental service provision could be a national competitive advantage. In an ideal case, private dental care practices, which are very profitable on average, would be so successful that they would be able to expand into foreign markets. However, as long as we have an uncompetitive home-market, excess demand and a labour shortage, this does not seem likely. We also need more research to examine ways to improve the public health aspect, which should be relevant also in privately produced dental services.

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