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TESTING FOR PRICE LEADERSHIP AND FOR REPUTATION GOODS EFFECTS: SWEDISH DENTAL SERVICES

by

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Testing for Price Leadership and for Reputation Goods Effects: Swedish Dental Services[*]

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Abstract

Sweden deregulated the prices for dental services in 1999. Twenty-one Swedish county councils provide public dental services. They compete with 3000 small independent private firms. Public and private providers are subsidized by the government to an equal extent, but most of the costs are borne by the consumers. The private firms' price setting is strongly influenced by the county councils' prices after the deregulation, i.e. the county councils act as price leaders. Prices increased more in large markets, which is consistent with dental services being a reputation good. There was no effect of the dentist's gender on prices, but immigrant dentists increased their prices slightly less than native ones.

JEL Classification: I11, L11, L13
Keywords: dental services, price leadership reputation goods

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I Introduction

The removal of a price ceiling was the most important part of a reform of the regulation of the dental services industry in Sweden. The reform was implemented on January 1, 1999. Before the reform, the national government provided subsidies for dental treatments, conditional on the dentists not setting prices higher than the ceiling. In practice, all dentists charged the maximum price allowed. After the reform, the government subsidies were given regardless of the prices charged. About one third of the dentists in Sweden work for the public dental services provided by the 21 Swedish county councils (the local government at the county level) and the remaining two thirds for private firms. The National Social Insurance Board of Sweden collected the prices for all providers of dental services a few months after the reform. In this paper, I use these price data to test for price leadership, and the reputation goods effects model of Satterthwaite (1979). I also discuss whether the aims of the reform were fulfilled, and investigate the effects of the dentist's gender and immigrant status on prices.

The prices used before the price deregulation were intended to reflect the costs. The Swedish government was worried that the ceiling was serving as a focal point for implicit price collusion. In that case, a removal of the price ceiling could lead to increased competition and lower prices. The government also put forward a number of other reasons for deregulating the prices of dental services. The conditions for a deregulation were viewed as favorable as there was a surplus of dentists, which was supposed to curb price increases. The fact that a substantial fraction of the population was unwilling to pay for dental services at the regulated price was interpreted as an indication of high price elasticity among consumers. However, as will been seen below, this turned out to be a misconception. The county councils' public dental services which provides a large share of the dental services, is not allowed to price above costs. This was considered to also limit the price increases of private firms, as they compete with the county councils' public dental services. It was also noted that all organizations of providers favored a deregulation of prices. (I leave it to the reader to judge whether this is a convincing argument for deregulating prices from a consumer point of view.) Finally, if the outcome of the deregulation was not the desired, the government claimed that it would not hesitate to reintroduce regulated prices, see the Swedish Government (1998).

Private dental firms are usually very small, only employing one or a few dentists. The national government provides subsidies for dental services to both the county councils' public dental services and private firms, and consumers are free to choose between public and

private dental services. The subsidy covers about one third of the consumer costs, which were the same for both public and private dental services before the reform. After the reform, prices vary widely between providers of dental services, both among public and private providers. The county council sets prices for the public dental services in each county, which gives rise to regional price differences for public dental services between counties after the price deregulation. Market concentration is quite low which, in a standard model, would mean that a single firm would not be able to affect market prices to any large extent. On the other hand, the county council's public dental services are much larger than any private firm in each county, and its prices may therefore work as a focal point. Furthermore, the county councils' set prices in public sessions. A natural question is thus if the county councils' public dental services act as price leaders.

In the literature on price leadership, it is common to distinguish between three types of price leadership (Scherer and Ross, 1990). Dominant firm price leadership means that one firm, which is much larger than other firms, acts like a monopolist, by setting a monopoly price, after subtracting the supply of the small firms. The small firms' prices are then determined by the dominant firms' pricing decision. Dominant firm price leadership has received attention in several older empirical studies, see Schereer and Ross (1990), but less attention in recent studies. Collusive models of price leadership have, on the other hand, been the subject of several recent theoretical studies, see Deneckere and Konvenock (1992) and van Damme and Hurkens (2004); for the most recent references, see the latter study. Price leadership acts as a device to uphold price collusion in these models. The models assume strategic interaction between firms. In the Swedish dental care market, the county councils' public dental services is much larger than any of the individual private firms with which they compete, so *a priori*, it seems unlikely that the dental care market in Sweden would be characterized by collusive price leadership, since there is no sufficiently large private firm to interact strategically with the county councils' public dental services. Finally, there is barometric price leadership, where one firm collects information on costs and/or demand before other firms and thus lead price changes, in the sense that it sets its prices before other firms, but without being able to influence the prices. In this paper, I will investigate to what extent private firms follow the prices of their county council's public dental services and relate the findings to the theories on price leadership.

Dental services are a reputation good, where the main source of information about the quality of suppliers is other consumers. The buyer of dental services must actually consume the good to evaluate a dentist, or talk to someone with experience of the dentist. An increase

in market size may decrease price sensitivity among consumers in the reputation good model of Satterthwaite (1979), since it is harder to obtain information about a particular dentist if she only serves a small fraction of the market. Intuitively, if a consumer becomes dissatisfied with her dentist, it is harder to obtain references about another dentist in a large market. The most likely response in a large city when asking a friend whether a particular dentist is good is that the friend has never heard about her. In a small city, is easier to find people who can give references for a particular dentist.

Finally, the dental services industry shows a mix in gender and immigrant status of dentists, and I will investigate the effects of gender and immigrant status of dentists on prices.

II Data description

The price data collected by the National Social Insurance Board have several advantages. The Board requested prices from all providers of dental services and the response rate was high. In the large city counties of Stockholm, Västra Götaland and Skåne, the response rate was 59, 44 and 50 percent, respectively. In one other county, the response rate was 44 percent, in the remaining counties the response rates were all above 84 percent. The price changes in counties with a low response rate do not differ considerably from price changes in other counties, which indicates that sample selection bias is unlikely to be a severe problem. There are different latitudes (levels of difficulty) of treatments and some other variations in the exact definition of a treatment. A dentist has therefore studied all price lists on behalf of the Swedish National Social Insurance Board to ensure that prices are comparable. I have also chosen to study relatively standardized treatments to ensure that prices are comparable between dentists. In total, 1800 private firms responded and 61347 prices were reported, which allows an analysis of the effects of the price deregulation on different treatments and for different geographical areas. The municipality is known for most firms, and the county is known for all.

The market and regulation

The 21 county councils set the prices for public dental services independently in each county after the price deregulation. The government subsidies were related to consumers' costs before the price deregulation. After the reform, the subsidies from the national government were concentrated to "base care" such as standard examinations, prophylaxis, and emergency treatments, which is considered to contribute to long-run dental health. Prosthetic dentistry is

not subsidized after the deregulation, except for disabled or sick people. In this paper, I will only study base care treatments. Public and private providers of dental services receive the same subsidies.

[Table 1 about here]

The county councils are not allowed to set prices above, or below, the costs, since they are not allowed to profit from or subsidize their production. There is a very large dispersion in prices among county councils as can be seen from the minimum and maximum values of price changes in Table 1. The very large difference in price changes for a given treatment, and also between treatments for a given county, makes it questionable whether the price changes in reality reflect differences in costs between county councils. Indeed, a report from the National Social Insurance Board states that such large cost differences between county councils seem unlikely (RFV, 1999).

Product description

I study seven treatments in detail. The selected treatments have been chosen in order to provide a variety of traits.

Standard examination: This is the treatment most likely to be compared by consumers. Consumers usually go to the dentist for a standard examination once a year. The need for more treatments may be discovered during a standard examination. The costs for additional treatments are not covered for by the cost for the standard examination. Standard examinations are subsidized for consumers aged 18-29, and the prices collected are for this group. Prices for older people were not collected, but were usually the same.

X-ray single picture: This treatment is cheap and very standardized.

X-ray mouth: This treatment is medium priced and very standardized.

Prophylaxis: This treatment provides an investment in future dental health.

Removal of tooth by operation: This treatment is comparatively expensive.

Root canal filling: This is a relatively common and comparatively expensive treatment.

Emergency treatment: Consumers are least likely to shop around for an emergency treatment. Note that the emergency treatment had the same price as a standard examination under the regulated price scheme used before the deregulation, but is much higher afterwards.

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Table 2 shows then mean price changes after the price deregulation for the seven treatments studied for county councils' public dental services and private dental firms.

[Table 2 about here]

Variable description

Table 3 shows the descriptive statistics for the variables used in the econometric analysis.

[Table 3 about here]

The 21 Swedish counties set prices independently. *COUNTYCOUNCIL_PRICE* is the price of a treatment by the county council's public dental services in the county where the private dental firm is active. The variable is used to test whether the county council's price for a treatment affects the price of the same treatment by private firms. There is a large variation between the prices of different counties. In a report regarding county councils' dental services, the Swedish National Social Insurance Board claims that there is "no uniform line of pricing among the counties and differences between counties are unlikely to be explained by differences in costs", (RFV, 1999). It is not uncommon that a county council increases the price for one treatment more than other county councils, but increases its price less than other county councils for other treatments. Thus, it seems that the price for an individual treatment by an individual county council contains a random component, not reflecting costs. This random component is very useful for testing price leadership.

The mean increase in the county council's price for dental services, *ΔM.COUNTYCOUNCIL_PRICE*, is computed as the mean increase in percentage points for the treatments in the data, except the treatment studied. Thus, in regressions studying the determinants of prices of, for example, a standard examination by private firms, *COUNTY-COUNCIL_PRICE* is the price of a Standard examination by the county council's public dental services in the county where the private firm is active and *ΔM.COUNTY-COUNCIL_PRICE* is the mean percentage increase for all treatments in the data, excluding the standard examination, by the county council in the county where the firm is active. The variable *ΔM.COUNTYCOUNCIL_PRICE* will be used to control for price changes common for all treatments of the county council's public dental services.

In 1999, there were 289 municipalities in Sweden. All counties but one cover a number of municipalities, which vary in size and mean per capita income. The county councils are required by law to set the same price in all municipalities, but private firms are free to adjust their prices to local demand conditions. The size of the local market may affect the price. The standard prediction would be that a large market will increase the number of firms and thereby competition, but if the market works as in the reputation good model by Satterthwaite (1979), we would expect less competition in large markets. The size of the market is measured as the natural logarithm of the population of a municipality, Ln(*POPULATION*). Local demand may be affected by the mean disposable income in a municipality, *INCOME*. Statistics Sweden has collected data on Ln(*POPULATION*) and *INCOME*, and these data for 1999, are used in this study.

In most cases, it is possible to tell the dentist's gender from the name of the firm. I have used this to construct a number of dummy variables for gender: *MALE* for male dentists, *MIXEDSEX* for firms with both male and female dentists and *UNKNOWNSEX* for firms where it is impossible to tell the dentists' gender. The default category is female dentists. One drawback of these variables is that it is possible that a firm is named after one dentist, though the firm employs several dentists. Variables for immigrant status are defined in a similar way, with *IMMIGRANT* for dentists with non-Swedish names, *MIXEDIMM* for firms containing both Swedish and non-Swedish names, and *UNKNOWNIMM* for firms with names that do not provide any information of the dentists' origin. The same drawback as for gender variables, with the possibility of a number of dentists in the same firm, occurs for these variables. Furthermore, a non-Swedish name does not necessarily mean that the dentist was not born in Sweden, and dentists with Swedish names could be immigrants.

III Econometric Analysis

The private dental firms' prices for the seven treatments studied are estimated in separate OLS regressions. Two hypotheses are tested.

Hypothesis 1: The county councils act as price leaders, i.e. a county council's prices for public dental services have a positive effect on the prices of the private firms in the county.

Hypothesis 2: According to the reputation good model of Satterthwaite (1979), an increase in market size may lead to an increase in prices.

Further, the effects of gender and immigrant status are investigated, though no specific hypotheses are tested.

Empirical specification:

Price (treatment i) = Constant + county council price (of treatment i)

+ mean county council price change (excluding treatment i)

+ (logarithmed) municipal population + mean municipal income

+ gender (captured by 3 dummy variables)

+ immigrant status (captured by 3 dummy variables)

[Table 4 about here]

Table 4 shows the regression results for the seven treatments studied. The dependent variable is the price of private dental firms. One county council decreased the price for a Standard examination by 70 percent, probably for political reasons. This very large price decrease reduces the explanatory power of the OLS regression for Standard examination. In an alternative OLS regression for Standard examination, Column 2 in Table 4, this county is excluded, and the results for Standard examination become very similar to those for other treatments.

According to Hypothesis 1 a private dental firm will follow the price of the county council in the area in which it is active, i.e. there will be a positive sign on *COUNTY-COUNCIL_PRICE*. We find a strongly significant effect of *COUNTYCOUNCIL_PRICE* on prices for all treatments, with estimates between 0.117 and 0.594, which is what Hypothesis 1 predicts.

Before drawing the conclusion that there is a causal effect of *COUNTY-COUNCIL_PRICE* on the price of private firms, we must address the possibility that there are common cost or demand differences, in for example wages and rents or income, that make both county councils and private firms adjust prices in the same way. If this is the case, the prices for other treatments will vary in the same way for both county councils and private firms in a county. This would also look as a price leader effect. To control for this, the mean change in the county council's prices for other treatments, *ΔM.COUNTYCOUNCIL_PRICE,* is included in the regression. A county council with high costs would increase all its prices more than the average. The effect of *COUNTYCOUNCIL_PRICE* on the prices of private firms is both statistically and economically strongly significant, and the obvious alternative

explanations of a common difference in costs or demand are controlled for, by the inclusion of *ΔM.COUNTYCOUNCIL_PRICE*. This gives strong support to Hypothesis 1. As seen in Table 3, there is not a positive relation between the increase in a county council firm's price for other treatments and the price for a treatment by private firms. Thus, the prices of private firms follow the county councils' prices treatment by treatment, not across treatments.

We observe price leadership, but of which type? Collusive price leadership seems unlikely given the market structure, with no firm sufficiently large to strategically interact with the county councils' public dental services. The county councils arguably have larger resources to collect information on costs and demand, which is consistent with barometric price leadership. However, the very large and unsystematic differences in price changes between different county councils seem to suggest that the county councils do not use very exact information about costs for their pricing decisions. The market structure with one large and many small suppliers fits the model of dominant firm price leadership. However, the market share for public dental services is only about 1/3 in Sweden and a dominant firm is supposed to have a market share of at least 50% (Scherer and Ross, 1990). Furthermore, the price increase of public dental services is, on average, much lower than that of the private dental firms. If the county councils acted as monopolists, deducting the supply of the private firms, they would raise, not lower, their prices relative to private firms.

To sum up, none of the theories on price leadership seems to fit the data. The existence of price leadership in the Swedish dental care market is nevertheless both statistically and economically very significant. To understand pricing formation in this market is of importance for regulators, so more theoretical research would be of interest. Consumers are very unwilling to change dentists. My guess is that a model incorporating customer stocks would be able to provide a better understanding of the pricing in the Swedish dental care market, as well as other markets with similar characteristics.

According to Hypothesis 2, we would expect a positive sign on Ln*(POPULATION)*, i.e. a positive relation between market size and price. The regressions in Table 3 show significant support for this for six of the seven treatments. It is possible that high income is positively related to the population of a municipality. This relationship is controlled for by the inclusion of *INCOME* in the regressions.

If the prices set by the county councils are affected by the reputation good mechanism, they will increase their prices relatively more in counties that, on average, have municipalities with large populations, and part of the reputation good mechanism will be captured by *COUNTYCOUNCIL_PRICE*. A county council must set the same prices in all municipalities

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in the county. Thus *COUNTYCOUNCIL_PRICE* is a function of market conditions, for example the population in all municipalities of the county. One way of avoiding this problem is to use differences in the population between municipalities within a county. Table 5 shows the results for county-fixed effects regressions. The same dependent variables as for the OLS-regression are included, except the county-specific variables.

[Table 5 about here]

The results from the county fixed effects regressions also support Hypothesis 2 for six of the treatments. The point estimates are slightly higher than for the OLS-regressions, which is compatible with some of the reputation good effects being captured by *COUNTY-COUNCIL_PRICE* in the OLS regressions.

There are no effects of gender on prices, neither in the OLS nor in the fixed effects regressions. There is a lack of control variables for the dentist's individual characteristics. Ideally, one would like to control for differences in e.g. age and number of years in the profession. Thus, it is not possible to draw any strong conclusions about the impact of gender on prices.

There is a very significant negative effect of *IMMIGRANT* on prices. In the OLS regressions, the effects range between 0.9 and 6.9 percent of the mean price of a treatment, with a mean of 4.5. The county-fixed effects estimates range between 1.2 and 6.3 percent, with a mean of 4.0. The cause of the negative effect of *IMMIGRANT* on prices is uncertain, since the lack of background data on dentists makes it impossible to control for the number of years in the profession.

Although the lack of control variables makes it impossible to draw any strong conclusions from the estimates for gender and immigrant status, these estimates are still mentioned, as they point to an avenue for future research. With more background data, this market would be very well suited for studies of market gender or immigrant discrimination as the Swedish dental care market provides a mix of genders and immigrant/native dentists and contains self-employed dentists who set their own prices in private firms, as well as dentists employed by the comparatively large public dental services organizations.

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IV The long-run effects of the price deregulation

The data used in this paper were collected in the spring of 1999, immediately after the deregulation of prices. After the price deregulation, the prices of the county councils' public dental services increased by 13 percent, on average, and the prices of private dental services by 21 percent, on average, for the seven treatments studied in this paper. The large and unexpected price increases have lead to an ongoing interest in the prices of dental services from the National Social Insurance Board. A few follow-up studies with much smaller samples of dentists have been conducted. The smaller sample sizes make these data less suitable for the kind of analysis carried out in this paper, but they are sufficiently large to give an accurate description of price changes for dental services on a national level. The large price increases immediately after the price deregulation were followed by price increases of 6-26 percent for different treatments in the period 2000-2002.

At the time of the reform, the demand for dental services was considered to be highly price elastic. However, in a Gallup survey conducted as part of the National Social Insurance Board's evaluation of the reform, only 12 percent of the consumers would change dentists if another dentist located at a reasonable distance from their current dentist offered slightly lower prices. If a dentist at a reasonable distance offered treatment at half the price, 57 percent would still stick to their current dentist. When asked whether dentists are allowed to freely set prices, 34 percent agreed (correct answer), 35 percent disagreed (wrong answer) and 31 percent did not know. The lack of information among consumers and the low willingness to change dentists found in the Gallup survey is consistent with the large price increases observed after the deregulation of prices.

V Conclusion

In each of Sweden's 21 counties, both county councils and a large number of small independent private firms provide dental services. Public and private dental services are subsidized to the same extent. Until 1998 prices were regulated, but after January 1, 1999 prices are unregulated. In this paper I use price data collected immediately after the price deregulation for seven dental treatments.

County councils' public dental services are much larger than any individual private firm and county councils decide on price changes in public sessions. In this paper I test if county councils act as price leaders. There are large differences in both mean price changes and the pattern of price changes across treatments for the county councils' public dental services after

the deregulation of prices. It thus seems as prices for an individual treatment by an individual county council contains a random component. This is very useful for testing price leadership, since it provide a source of variation in price leader's price for an identical product. It thus becomes possible to relate the price change of the price leader to the price changes of the followers, although we only have data colleted at a single point in time. A positive relation between county councils' and private firms' prices could be explained by common cost or demand differences between regional markets. This possibility is controlled for by including the mean price change for other treatments in the regressions. There is a, both statistically and economically, very significant positive relationship between prices for private firms and county councils, even when common cost or demand differences is controlled for, i.e. the county councils act as price leaders. None of the standard theories on price leadership, collusive, dominant firm, and barometric fits the Swedish dental services market. Price leadership is still observed, which would motivate more theoretical research on price leadership.

The second finding is that prices increase more in large markets, even when consumer income is controlled for. This may seem surprising as a large market can support more firms, which leads to increased competition in most models. However, the dental care market fits the assumptions of the reputation goods model by Satterthwaite (1979), where an increased number of firms can decrease competition, as it becomes more costly for consumers to acquire information on the quality and price of a given dentist.

References

van Damme, Eric and Sjaak Hurkens, Endogenous Price Leadership, *Games and Economic Behavior*, 47: 404-420.

Deneckere, Raymond J. and Dan Kovenock, (1992), Price Leadership, *Review of Economic Studies*, 59: 143-162.

RFV (National Social Insurance Board), (1999), RFV redovisar 1999:9 Privattandvårdens tandvårdstaxor till juni 1999- en prisjämförelse (Prices of Private Dental Services in June 1999 – A Price Comparison).

RFV (National Social Insurance Board), (2003), Prisutvecklingsanalys för tandvårdsmarknaden för perioden 2000-2002 (Analysis of Price Changes for Dental Services, 2002-2002).

Satterthwaite, MA., (1979), Consumer Information, Equilibrium Industry Prices, and the Number of Sellers, *Bell Journal of Economics*,10: 483-502.

Schereer Frederick M. and David Ross, (1990), *Industrial Market Structure and Economic Performance*, 3rd edition, Houghton Mifflin Company, Boston.

The Swedish Government, (1998), Bill to the Swedish parliament, Reformerat tandvårdsstöd (Reformed Support for Dental Services) Prop. 1997/98:112.

Table 1. Price Changes in Percentages for County Council Public Dental Services.

	Price 1998 in SEK	Mean change in percentages	Min	Max	Std Dev in percentage
Standard Examination (Treatment 11A)	352	-0.6	-69.8	16.4	18.3
X-ray single picture (Treatment 13)	22	12.5	-9.0	59.0	17.1
X-ray mouth (Treatment 15)	408	9.5	-2.0	27.4	9.2
Prophylaxis (Treatment 24)	175	15.4	0	50.2	9.7
Removal of tooth by operation (Treatment 34)	991	16.5	3.6	57.4	14.7
Root filling (Treatment 41)	1057	15.0	0	45.1	10.1
Emergency Treatment (Treatment 91A)	352	22.1	0	46.3	13.2
Mean Price Change		12.9	1.5	23.3	

Table 2. Price Changes in Percentages for Private and County Council Public Dental Services.

	Price 1998 in SEK	Mean Change County Council	Mean Change Private
Standard Examination (Treatment11A)	352	-0.6	5.8
X-ray single picture (Treatment13)	22	12.5	23.2
X-ray mouth (Treatment15)	408	9.5	13.6
Prophylaxis (Treatment24)	175	15.4	26.6
Removal of tooth by operation (Treatment34)	991	16.5	21.5
Root filling (Treatment41)	1057	15.0	24.2
Emergency Treatment (Treatment91A)	352	22.1	30.4
Mean Price Change		12.9	20.8

Table 3. Descriptive Statistics (Sample for X-ray Single Picture)

Variable	Mean (Std Dev.)	Min	Max	Unit
County var.				
COUNTY-COUNCIL_PRICE	24.9 (3.48)	20	35	SEK
ΔM. COUNTY-COUNCIL_PRICE	14.4 (5.34)	0.951	23.6	Percentage increase
Municipal var.				
INCOME	178 (21.0)	140	306	SEK*1000
POPULATION	204316 (259026)	3244	743703	Individuals
Ln(POPULATION)	11.4 (1.31)	8.08	13.5	
Dummy var.				
MALE	0.661 (0.473)	0	1	Dummy
MIXEDSEX	0.105 (0.307)	0	1	Dummy
UNKNOWNSEX	0.0401 (0.196)	0	1	Dummy
IMMIGRANT	0.0628 (0.242)	0	1	Dummy
MIXEDIMM	0.00658 (0.0809)	0	1	Dummy
UNKNOWNIMM	0.0149 (0.121)	0	1	Dummy

Table 4. Results OLS-regressions. Dependent Variable: Private Dental Firms' Prices in SEK

	Standard Examination	Standard Examination *Excl.* County Dalarna	X-ray single picture	X-ray mouth	Prophylaxis	Removal of tooth by operation	Root filling	Emergency Treatment
Mean price	372.4	372.5	27.1	463.3	221.5	1204	1312.4	458.9
Intercept	336***	306.8***	15.8***	278***	129***	509***	469***	178***
	(14.2)	(19.6)	(4.30)	(21.1)	(21.5)	(71.1)	(57.9)***	(28.5)
County var.								
COUNTYCOUNCIL_PRICE	0.0437*	0.117***	0.402***	0.314***	0.374***	0.414***	0.596***	0.541***
	(0.0224)	(0.0388)	(0.0281)	(0.0436)	(0.0886)	(0.0390)	(0.0309)	(0.0463)
ΔM. COUNTYCOUNCIL_PRICE	-0.148	-0.107	-0.0233	-0.114	-0.527*	-1.63*	-0.563	-1.50***
	(0.198)	(0.200))	(0.0183)	(0.260)	(0.273)	(0.832)	(0.672)	(0.427)
Municipal var.								
INCOME	-0.0188	-0.0260*	-0.00294	0.143*	0.130**	0.673**	0.377*	0.131
	(0.0568)	(0.0570)	(0.00516)	(0.0738)	(0.0595)	(0.262)	(0.201)	(0.103)
Ln*(POPULATION)*	2.53***	2.93***	0.190**	2.14*	0.282	10.9***	6.09**	3.69**
	(0.893)	(0.920)	(0.0799)	(1.11)	(0.900)	(4.05)	(3.06)	(1.59)
Dummy var.								
MALE	-0.921	-1.45	0.0606	-5.51	-5.67**	-2.72	-33.5***	-7.19
	(2.86)	(2.90)	(0.256)	(3.55)	(2.84)	(12.9)	(9.80)	(5.08)
MIXEDSEX	-1.60	-1.55	-0.0178	-9.26*	-5.14	8.47	-37.1***	-4.13
	(4.13)	(4.19)	(0.376)	(5.20)	(4.16)	(18.7)	(14.3)	(7.51)
UNKNOWNSEX	2.41	2.10	-0.748	1.67	-6.41	-48.1	-48.2**	9.97
	(6.66)	(6.69)	(0.581)	(8.10)	(6.55)	(29.5)	(22.5)	(11.8)
IMMIGRANT	-17.9***	-17.7***	-1.15***	-22.0***	-1.99	-82.9***	-69.5***	-22.0***
	(4.66)	(4.71)	(0.411)	(5.97)	(4.63)	(20.3)	(15.7)	(7.98)
MIXEDIMM	8.70	9.53	-0.513	-11.0	49.5***	4.61	-23.5	15.4
	(13.0)	(13.1)	(1.20)	(16.8)	(13.2)	(59.0)	(45.9)	(26.8)
UNKNOWNIMM	-17.5*	-16.5	-0.614	-6.60	6.79	33.7	29.7	-4.66
	(9.37)	(9.40)	(0.866)	(12.2)	(9.58)	(41.7)	(32.0)	(17.3)
Number of obs.	1560	1519	1666	1531	1631	1596	1666	1346
Adj R^2	0.013	0.017	0.117	0.061	0.018	0.094	0.201	0.100

Standard deviations are in parenthesis, ***, **, and * denote significance at the 1, 5, and 10 percent level, respectively.

Table 5. Results County Fixed Effects Regressions. Dependent Variable: Private Dental Firms' Prices in SEK

	Standard Examination	Standard Examination *Excl.* County Dalarna	X-ray single picture	X-ray mouth	Prophylaxis	Removal of tooth by operation	Root filling	Emergency Treatment
Mean price	372.4	372.5	27.1	463.3	221.5	1204	1312.4	458.9
Municipal var.								
INCOME	0.231***	0.226***	0.0154**	0.208**	0.152*	0.600	0.702**	0.273*
	(0.0796)	(0.0802)	(0.00722)	(0.0970)	(0.0840)	(0.374)	(0.282)	(0.149)
Ln*(POPULATION)*	4.08***	3.99***	0.377***	3.06**	-0.189	14.6***	7.94**	5.04***
	(0.987)	(0.996)	(0.0886)	(1.21)	(1.02)	(4.55)	(3.45)	(1.80)
Dummy var.								
MALE	-0.364	-0.694	0.0360	-4.73	-5.11*	-3.07	-33.9***	-6.02
	(2.79)	(2.82)	(0.250)	(3.50)	(2.85)	(12.9)	(9.74)	(5.04)
MIXEDSEX	-0.458	-0.546	-0.0140	-6.05	-4.11	16.9	-32.7**	0.158
	(4.04)	(4.09)	(0.368)	(5.00)	(4.17)	(18.7)	(14.3)	(7.46)
UNKNOWNSEX	4.88	4.66	-0.767	0.695	-6.74	-47.8	-49.1**	11.1
	(6.48)	(6.51)	(0.568)	(7.74)	(6.55)	(29.3)	(22.4)	(11.7)
IMMIGRANT	-14.1***	-14.2***	-0.939**	-18.2***	-2.66	-75.8***	-64.6***	-20.8***
	(4.57)	(4.61)	(0.403)	(5.78)	(4.66)	(20.3)	(15.7)	(7.94)
MIXEDIMM	10.8	10.8	-1.04	-16.8	49.7***	11.7	-6.51	9.04
	(12.7)	(12.8)	(1.18)	(16.2)	(13.3)	(58.4)	(45.8)	(26.7)
UNKNOWNIMM	-18.2**	-18.3**	-0.316	-5.57	7.78	50.4	35.3	-4.57
	(9.19)	(9.22)	(0.853)	(11.8)	(9.65)	(41.7)	(32.0)	(17.3)
Number of obs.	1560	1519	1666	1529	1631	1596	1666	1346
Adj R^2	0.075	0.076	0.164	0.080	0.028	0.116	0.218	0.128

Standard deviations are in parenthesis, ***, **, and * denote significance at the 1, 5, and 10 percent level, respectively.