



More and cheaper haircuts after VAT cut? On the efficiency and incidence of service sector consumption taxes☆



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ARTICLE INFO

Article history:

Received 6 September 2013
Received in revised form 10 September 2015
Accepted 10 September 2015
Available online 21 September 2015

JEL classification:

H22
H21
H25

Keywords:

VAT reform
Efficiency
Tax incidence

ABSTRACT

Consumption tax rates targeted at specific sectors are often reformed without any empirical knowledge about the efficiency of these policies. This paper sheds light on tax incidence as well as the efficiency issue, the potential for welfare improving reform, by studying the impact of value added taxes (VAT) on prices and quantities of labor intensive services. I utilize a VAT reform targeted at a specific service sector, which creates a natural experiment set up. The VAT for hairdressing services in Finland was reduced from 22% to 8%, and the previous tax treatment still applied to other labor intensive services. The choice of the treatment and control groups was exogenous to circumstances in Finland, since these groups were selected from a wider European setting. The results suggest that hairdressers cut their prices only by half of what a complete pass-through would have implied, and that there was hardly any adjustment in equilibrium quantity due to the reform. Hairdressers were able to increase their profits significantly. There is important heterogeneity in the results according to firm size.

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1. Introduction

Economic literature provides sound theoretical insights for efficient consumption taxation (Crawford et al., 2010). Tax incidence depends on the relative elasticities of supply and demand, and the deadweight loss from taxation depends on the effect of taxes on equilibrium quantity. In more elaborate optimal consumption taxation models the focus is usually on the behavior of consumers, i.e. on demand elasticity. Here, demand elasticity affects the extent that a given tax rate distorts the economy (Ramsey, 1927 and Diamond and Mirrlees, 1971), or extent that the labor supply of consumers is distorted via the correlation between consumption and labor supply (Atkinson and Stiglitz, 1976). Also, the small share of leisure time used to consume services could make them a good target for reduced VAT rates, but this result also depends inversely on the demand elasticities (Kleven et al., 2000 and Kleven, 2004).

☆ I am grateful to the helpful comments from the editor Henrik Kleven and two anonymous referees. I want to thank Essi Eerola, Wojciech Kopczuk, Eva Mörk and Jukka Piirttilä as well as those of many conference audiences for helpful comments that provided many insights to this article. These insights provided much needed fuel for thought, although all the commentators do not necessarily share all the views in the final article. I am also grateful to the financial support of the Nordic Tax Research Council for this study and the cooperation of the Finnish Hairdressers' Association, in addition to the Finnish Competition and Consumer Authority in obtaining the data for this study.

Despite the vast theoretical literature on this subject, the empirical work is not as widely developed. The tax incidence question has been analyzed in a number of papers, but there remain some gaps (see Adam et al., 2011, Section 8.3). Even larger gaps exist in our current understanding on the question of efficiency. Even though estimating demand systems gives valuable structural insights on this (Deaton and Muellbauer, 1980 and Banks et al., 1997), there are few convincing reduced form empirical results on to what extent quantities respond to consumption taxes. A likely reason for this gap is the scarcity of settings that enable causal estimates and the lack of micro data on relevant variables, such as the quantity of goods traded.

This paper fills some of these gaps by providing an empirical study of the impact of consumption taxation on prices, quantities and profits. A recent VAT reform affecting hairdressing services in Finland allows me to provide causally credible estimates on these outcomes. The reform excluded some labor intensive services that could be used as a control group. Comparing analysis of different outcomes provides evidence on how the equilibrium quantity is affected by the VAT reform and to interpret what this implies for the efficiency of consumption taxation. The VAT reduction was first passed for four years, and later extended to be in effect for five years. Thus the policy change was not permanent, nor was it a short-term tax change. This may affect the interpretation of some of the results, but at least prices and demand should have had time to adjust to the new policy.

The reform studied here reduced the VAT rates on hairdressing services from 22% to 8%. Natural control groups for hairdressers are other

labor intensive services typically carried out in small businesses for which the VAT rate did not change. The list of services selected into the control group is: beauty salons, day spas, massage services, physiotherapists, dry cleaning and repair services.¹ The choice of the treatment group is exogenous to the behavior of firms, since the treatment group was chosen as a result of a European Commission Directive long before the experiment was implemented in Finland. In the legislation, the line between some of these services is drawn at the eyebrows: hairdressing services apply to head hair and beards and beauty salon services to the eyebrows. The empirical analysis provides evidence that economic conditions in the treatment and control groups develop similarly over time, before the reform.

I observe prices before and after the VAT change for a sample of firms. Following the prices of individual services around the VAT cut enables me to estimate tax incidence precisely. Moreover, the price information is linked to firm level tax register data which contains information from every firm liable to taxation in Finland. The tax register data contain the quarterly turnover and wage sums, as well as annual tax records containing firms' profits. The turnover is the quantity of services sold multiplied by their prices. Contrasting the changes in prices and in turnover due to the reform allows one to approximate the extent to which the equilibrium quantity changed as a response to the VAT cut. Observing profits allows one to estimate which side of the market gained the surplus from the tax cut. Other tax record variables describing firm's costs and listed in the data section are useful for controlling for the economic circumstances firms face.

The results on prices indicate that hairdressers cut their prices by 6%, half of what full pass through implies. Thus, the results here imply that firms and consumers divided the benefits from the tax reduction roughly equally. Larger firms reduced their prices more often than did smaller firms. The degree of competition seems to matter, since there was more pass through on the prices of regular services advertised on street billboards than on the prices of more specialized and less visible services.

The examination of the tax variables indicates a decline in turnover at larger firms, but is less clear on the effects on smaller firms. This is in line with the price results for larger and smaller firms, the former reducing their prices more than the latter. Turnover is the consumer price times the number of services sold. The fact that turnover declines by almost as much as prices suggests that number of services sold did not change.

However, turnover of all firms did not decline as much as prices of firms in the price sample. Two facts may explain this difference: first, the price data contains larger firms, which reduced their prices more than smaller ones, and second, turnover contains other sales than services at the reduced rate. To provide more accurate evidence on the quantity of services traded, I developed a proxy for the quantity of services traded. This approximation is turnover divided by price for those firms from which both variables were observed. The regression results indicate no changes in the quantity of traded services due to the VAT reform.

The results for other outcomes nicely complete the analysis of the VAT reform. The reform seems not to have affected the wage sums of the treated firms. This is not surprising given that most firms do not have any employees. Instead, the results indicate that the reform increased the firms' profits. A weak result suggests that smaller firms increased their profits a bit more than larger firms.

This study contributes to the literature studying the impact and optimality of consumption taxes in two ways. First, credible estimation of the effect of consumption taxes on equilibrium quantity is challenging. This paper provides quasi-experimental evidence of the reform's effect on quantities and discusses how the estimates are useful for policy conclusions. The result suggest that demand and supply are fairly inelastic,

which is one indication of inefficient tax reduction (Ramsey, 1927; Diamond and Mirrlees, 1971; Saez, 2002; Kleven et al., 2000 and Kleven, 2004).

Secondly, this paper contributes to the current literature by estimating that pass through of consumption taxes on certain labor intensive service sector firms could be only a half. There are not many quasi-experimental studies focusing on this sector. Somewhat relatedly, Doyle and Samphantharak (2008) and Marion and Muehlegger (2011) study gasoline tax incidence. In those studies, the overall finding is that prices have a unit tax elasticity, although the pass-through depends on economic conditions. Also Carbonnier (2007) found that consumption tax incidence depends on the sector, by comparing prices that were the result of two VAT changes. He found that taxes pass through less to repair service prices than to vehicle prices. Other studies report widely varying tax incidences, and analyses with varying degrees of econometric quality (see Adam et al., 2011, Section 8.3 for a survey and Poterba, 1996; Besley and Rosen, 1999 and Alm et al., 2009).

Section 2 describes the institutional background. Section 3 presents the econometric approach. The data are described in Section 4. Section 5 presents and explains the results, Section 6 discusses policy implications and Section 7 concludes the study.

2. Design of the reform and anticipated effects

2.1. Institutional background and the reform

The European Union requires Member States to structure their consumption tax systems based on value added taxes (VAT). A certain degree of harmonization is required of individual Member States in setting their VAT rates (EC, 2006a). As an exception to their normal VAT rates, Member States are allowed to experiment with reduced VAT rates for certain labor-intensive services. The aim of the EU rules is to allow Member States to experiment whether reduced VAT rates can increase employment and reduce the shadow economy for these services (EC, 1999, 2006b).

Finland reduced the VAT on hairdressing services from 22% to 8%, beginning in 2007. The reduced rate was to remain in effect until the end of 2010 (Finlex, 2006). In a subsequent decision, the reduced VAT was abolished at the end of 2011, when it had been in place for five years. The original EU directive (EC, 1999) listed the services that were eligible for reduced VAT rates. This list includes some labor-intensive services, but leaves out others (such as beauty salons). There is a fine line in the enacted legislation between a hairdressing and a beauty salon service. Performing a service for hair styling is in the former category, but performing a service such as eyebrow waxing is in the latter category.

It is important to note that the VAT rates are applied to different products, in this case services. Naturally, firms are free to provide different products, those at reduced rate as well as others. Therefore the same firm is obliged to apply different VAT rates to its various products. An empirical example for the present case is that hairdressers provided hairdressing services at the reduced rate between 2007 and 2011, but also sold hair care products at the standard rate throughout that period. Fortunately for the analysis here, it appears that firms declaring hairdressing as their industrial classification seem to provide hairdressing services for the most part (see Table 1).

Firms report VAT to the tax authority once a month as a total sum, but do so separately by VAT rate. Consequently, the tax records reveal the monthly sum of VAT for each firm in each month and at each VAT rate.

2.2. Pass-through in formulas

In the Finnish VAT reform for labor-intensive services, the VAT rate was reduced from 22% to 8%. The consumer price P comprises the producer price plus the VAT. The proportional change in consumer prices

¹ For price analysis the services are selected by actual service type observed in the price collection, and for VAT analysis the five digit industrial classification code for the firm is used.

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