International Journal of Industrial Organization 32 (2014) 33–45

Contents lists available at ScienceDirect

International Journal of Industrial Organization

journal homepage: www.elsevier.com/locate/ijio

Austrian-style gasoline price regulation: How it may backfire[☆]

Martin Obradovits [*]

University of Vienna, Department of Economics, Austria

ARTICLE INFO

Article history:
Received 8 November 2012
Received in revised form 15 October 2013
Accepted 24 October 2013
Available online 4 November 2013

JEL classification:
L5
L13
D83

Keywords:
Price regulation
Consumer search
Retail gasoline
Price dispersion
Intertemporal search
Austria

ABSTRACT

In January 2011, a price regulation was established in the Austrian gasoline market which prohibits firms from raising their prices more than once per day. Similar restrictions have been discussed in New York State and Germany. Despite their intuitive appeal, this article argues that Austrian-type policies may actually harm consumers. In a two-period duopoly model with consumer search, I show that under the regulation, firms will distort their prices intertemporally in such a way that their aggregate expected profit remains unchanged. This implies that, as some consumers find it optimal to delay their purchase due to expected price savings, but find it inconvenient to do so, a friction is introduced that decreases net consumer surplus in the market.

© 2013 Elsevier B.V. All rights reserved.

1. Introduction

Retail gasoline is the subject of ongoing debates in the public, media and politics. High and volatile prices annoy consumers, and competition authorities are often suspicious about how prices are formed in this typically highly concentrated market. In fact, many politicians argue in favor of interventions such as price regulations to protect consumers from being exploited, and several countries across the world are either discussing regulation or have already adopted it in one form or another.[1]

This paper is motivated by a regulatory price policy that became law in Austria in 2011.[2] The law prohibits retail gasoline stations from *increasing* their prices more than once per day, and every such price increase must occur simultaneously at noon. In contrast, the stations are free to decrease their prices whenever they wish. The policy's main intent is to decrease consumer price uncertainty and make it easier for gasoline purchasers to assess and evaluate prices. This should foster competition and ultimately increase consumer welfare in the gasoline market.

The idea behind the Austrian type of regulation is not new. It dates back to at least 2005, when a virtually identical law was passed by the New York State Senate,[3] but later died in the New York State Assembly. In fact, the law is a recurring theme in New York State's legislation, as a new attempt for its establishment was made in the New York State Senate in 2011,[4] and is currently under review by the New York State Division of Consumer Protection. Moreover, prompted by the Austrian policy, a public discussion has emerged in Germany as to whether German consumers could benefit from a similar regulation.[5] However,

---

[☆] I am grateful to Paul Pichler for bringing my attention to the analyzed policy, and Maarten Janssen for providing numerous helpful comments and suggestions. I would also like to thank Franz Wirl, Karl Schlag, Sandro Shelegia, as well as seminar participants at the University of Vienna, EARIE 2012, and HSE Moscow 2013, for giving valuable feedback. The paper significantly benefited from the comments of the editor, Yongmin Chen, and two anonymous referees. Financial support from the Vienna Graduate School of Economics and the Austrian Science Foundation is greatly acknowledged.

[*] Vienna Graduate School of Economics, Oskar-Morgenstern-Platz 1, 1090 Vienna, Austria.
E-mail address: martin.obradovits@univie.ac.at.

[1] For example, fuel price regulations are currently in place in Austria, Luxembourg, Western Australia, several Canadian states, and Mexico. For further details, see Haucap and Müller (2012), Dewenter and Heimeshoff (2012) and Arteaga and Flores (2010).

[2] BGBl II Nr. 484 ("Verordnung des BM für Wirtschaft, Familie und Jugend betreffend Standesregeln für Tankstellenbetreiber über den Zeitpunkt der Preisauszeichnung für Treibstoffe bei Tankstellen"); established on January 1, 2011.

[3] Bill number S5969, introduced by Senator Marcellino, states that "[i]t is unlawful for any dealer [of gasoline or diesel fuel] to increase the price charged for the sale of motor fuel of any particular grade or quality more than once in any calendar day."

[4] Bill S603-2011, sponsored by Senator Peralta, is "[a]n act to amend the general business law, in relation to prohibiting more than one increase in the price of gasoline in any twenty-four hour period".

[5] For example, an initiative was put forward by the German *Bundesrat* in Spring of 2012 which requested the German government to evaluate various possible pricing regulations in the German gasoline sector, including the Austrian policy. Several German newspapers have covered this story, e.g. *Handelsblatt* ("Ramsauer will Benzinpreise regulieren"/"Ramsauer wants to regulate fuel prices") on April 18, 2012 and *Die Welt* ("Benzinbranche wehrt sich gegen "Spritpreisbremse""/"Fuel sector opposes fuel price regulation") on April 19, 2012.

0167-7187/$ – see front matter © 2013 Elsevier B.V. All rights reserved.
http://dx.doi.org/10.1016/j.ijindorg.2013.10.009

the German *Bundeskartellamt* (federal antitrust authority) so far has taken a skeptical view of the policy's potential merits. For example, in Bundeskartellamt (2011, p.137), a comprehensive study of the German gasoline sector, it is stated that, as competitive structures and incentives are not affected, "an enduring positive effect [of price regulatory policies as in Austria] in the sense of improving competition [in the gasoline sector] is not implied."

The simple question one can ask is the following. Can consumer welfare in the gasoline market in fact be increased by restricting firms' pricing? Or is the New York State Assembly's 2005 decision of rejecting the New York State Senate's proposal and the German Bundeskartellamt's skeptical view of the price regulation warranted?

In this article, I argue that Austrian-type policies might in fact have a *negative* effect on consumer welfare. The principal reason is simple: if firms anticipate that they will not have the possibility to increase their prices whenever they wish, they might be reluctant to charge low prices in the early stages of their (policy induced) twenty-four hour price-setting cycle, in order to maintain more price flexibility later on. This can lead to pricing distortions that are harmful to consumers, as will become clear below. Importantly, this is the case even though I abstract from any effects the Austrian regulation may have on firms' ability to coordinate prices. While it can be argued that the policy may facilitate collusion – for example, by providing a focal point for coordinated price increases – the showcased mechanism works independently of such concerns.[6]

Retail gasoline can be considered as an essentially homogeneous good that is traded in a market where search is important.[7] Some consumers find it worthwhile to shop around and compare prices, whereas others purchase randomly whenever they are in need. From the firms' perspective, this creates a well-known tension between charging high prices and only selling to non-searching consumers at a high margin versus charging low prices and also attracting searching consumers, making larger sales. An elegant way to model this has been provided in Varian's (1980) seminal contribution on price dispersion. In order to capture the Austrian regulation, I extend a duopoly-version of the Varian model to two periods.[8]

At the *beginning* of the first period (noon), the price-setting cycle is reset, implying that the firms are free to charge any price they want. The chosen prices are assumed to be fixed in the short run and hence dictate each firm's demand over the course of the first period (a period covering several hours after noon). Then, at the start of the second period (e.g., at some point in the evening), the firms are given the chance to revise their prices for the rest of the pricing cycle (the remaining time until the following noon). However, because of the Austrian price regulation, the firms may only *decrease* their prices relative to their initial price choice. In addition, the consumers' intertemporal decision of the period in which to buy can be endogenized, as they may compare the expected gains of purchasing later in the cycle – at lower prices – with an idiosyncratic preference of purchase time.

Using this setup, I derive two key properties of the Austrian regulation for the case of unit demand. First, if the consumers' intertemporal distribution (the relative number of first to second period consumers) is fixed exogenously, the Austrian policy is ineffective in promoting consumer surplus. It merely leads to a redistribution of surplus from first to second period consumers, while keeping firms' expected profits constant. Compared to the unregulated regime, the firms compete less aggressively in the first period because low initial prices lead to low price ceilings and harsh competition in the second period. Hence, the firms' pricing is more cautious in the first period, which can be interpreted as a desire for maintaining price flexibility and potentially large margins later. On the other hand, in the second period, the firms' pricing tends to be more aggressive, as their pricing range is narrowed down due to the artificial price ceilings that are imposed. It turns out that for *any* exogenous intertemporal consumer distribution, the firms' equilibrating strategies are such that these two effects exactly offset each other.[9]

Second, if the consumers may endogenously select their purchase time, the policy even leads to a reduction of consumer surplus, compared to the unregulated regime. Intuitively, this is the case because "flexible" first-period consumers who face little disutility of delaying their purchase until the second period will want to do so, as they can expect to find lower prices. But as the aggregate equilibrium firm profits and hence equilibrium *gross* consumer surplus remain unchanged for every intertemporal consumer distribution, an individual waiting consumer's realized *gross* gain of waiting resulting from lower second period prices is "financed" by an aggregate loss of equal size by all other consumers in the market, as they have to pay higher prices. This is true because waiting consumers exercise an indirect negative externality on all others: if fewer consumers purchase in the first period, the firms compete less aggressively in both the first and second period. But then, although the consumers' aggregate *gross* welfare remains unchanged, the aggregate *net* consumer welfare in the market is reduced by the aggregate waiting cost that is incurred by waiting consumers.[10]

Other findings are that the Austrian regulation tends to harm those consumers who are the least flexible regarding their purchase time, and that a general decrease of the consumers' waiting disutility may exacerbate the efficiency loss induced by the policy.

There is a small theoretical literature analyzing the effects of price regulations in markets governed by consumer search. Fershtman and Fishman (1994) and Armstrong et al. (2009) examine regulatory price ceilings in a market characterized by optimal (non-sequential) fixed sample-size search à la Burdett and Judd (1983). Both papers find that price ceilings have two effects on firms' equilibrium price setting. First, there is a direct effect of capping the upper range of firms' equilibrium price distributions, which has the intended result of reducing prices in the market. However, as in turn, the consumers' expected gains from search decrease, there is also an indirect effect of reducing the amount of search in the market, leading to higher prices. Which effect dominates

---

[6] Articles that analyze collusion in the gasoline market include Borenstein and Shepard (1996), Eckert and West (2004), and Wang (2008), among many others.

[7] For excellent introductions to the theoretical and empirical literature on retail gasoline markets, see Houde (2010) and Eckert (2013).

[8] Note that with ex-ante identical periods, a necessary condition for (potentially) harmful price distortions to arise is the presence of uncertainty. Clearly, in a static environment where firms play pure actions in each period (e.g., a two-period Hotelling-model), the Austrian regulation would be innocuous. In the present model, uncertainty does not stem from any stochastic properties of the fundamentals (e.g., demand or cost fluctuations over the price-setting cycle), but arises naturally as a result of the firms' mixed-strategy pricing. The only uncertainty they face is about their rival's pricing. This essentially minimizes the structure imposed on market dynamics. In fact, it is easy to construct models where a welfare loss is created by demand or cost uncertainty alone. Thus, if there is *both* an uncertainty over the other firm's price and the market fundamentals, the negative consequences outlined in this article will tend to be exacerbated.

[9] None of the models' main results rely on the assumption of unit demand. For any well-behaved demand function, it is easy to argue that the firms can maintain their equilibrium profits if the price regulation is implemented. Also, for a large class of demand functions, e.g. for $D(p) = 1 - p^r$, with $r > 0$, mathematical intuition can be provided as to why the aggregate two-period consumer surplus must unambiguously *decrease* under the price regulation, even if the consumers' intertemporal distribution is fixed exogenously. This is because the additional deadweight loss created by firms distorting their prices upwards in the first period of the model may exceed the reduction of deadweight loss in the second period caused by artificial price ceilings. However, even for linear demand, comparing the expected consumer surplus across the restricted and unrestricted regime is so complicated that it requires numerical methods. This text thus focuses on the simple case of unit demand, although the mechanism generalizes to many downward sloping demand functions.

[10] In the main extension of the baseline model (Section 3), the consumers are restricted to selecting their purchase period *before* entering the market. Hence, I rule out the possibility that consumers may enter the market in the first period, observe prices that are unexpectedly high, and only *then* delay their purchase until the second period. Potentially, relaxing this assumption may make the Austrian regulation more appealing, as the firms' first period pricing could be disciplined. However, in Section 4, a simple example is provided in which consumers that can engage in costless sequential intertemporal search are still harmed by the policy.

Download English Version:

https://daneshyari.com/en/article/5078098

Download Persian Version:

https://daneshyari.com/article/5078098

Daneshyari.com