Overview

In 1991 a new Energy Act was introduced to strengthen the efficiency of production, transmission, and consumption of electricity, with the means of active consumers and sound competition. As part of this the Norwegian Competition Authorities (NCA) gathered prices for electricity contracts for mandatory reporting to an official price comparison site. However, despite price transparency and crucial elements for a competitive market structure in place, we observe features that resembles tacit coordination of prices. We relate to Stigler (1964), Albæk et al. (1997), Porter (2005), and Hahn et al. (2008), and argue that transparency of prices might function as an option for retailers to observe and adjust, hence tacitly coordinate prices at the expense of customers.

Two "story lines" strengthen our curiosity and suspicion that price colluding behavior takes place in this market. Storyline 1: One of the major nationwide retailers sends a signal through media that their company will raise prices due to a long period with prices close to marginal cost. Storyline 2: Factors of crucial importance to facilitate collusion are present. In addition, we draw on a recent study by Fange (2017) which finds that despite a period with low electricity prices from 2010 to 2015, dispersion in prices has increased. The latter strengthens our suspicion that mechanisms other than market forces are driving prices.

Methods

This study investigates presence of tacit collusion from a two-pronged approach. First, we evaluate and discuss presence of relevant factors to sustain collusion. Next, we evaluate the common price adjustments in the market, and finally we disentangle the price adjustments by estimation of an econometric model. We adopt a hidden Markov model (HMM) to evaluate the pricing actions by retailers. By this approach, we estimate the probability that retailers coordinate price setting to obtain extra normal profits in low price periods. We draw on the theoretical approach first presented in Kim and Nelson (1999). This probabilistic sequence model approach, first adopted in econometrics by Hamilton (1989), allows us to determine the probability that prices set by retailers can be linked to a specific predefined hidden state \( s_t \). Here we refer to two hidden state options, which belongs to the set \( Q \) as potential sources to drive prices: Collusion denoted as \( q_1 \) and business as usual \( q_2 \).

We use weekly data drawn from NCA on electricity prices specified by contract type.

Results

Our preliminary results show that as one retailer adjusts the contract price, other retailers follow up by a price raise the following week. Some retailers wait until they experience the general trend among other retailers before they adjust their price, approximately two weeks. The general quick response among retailers to adjust prices indicates a possibility for coordination of prices through the price comparison web site. In addition, we find that price coordination is more likely to happen in periods when demand is low. This is in accordance with findings in Rotemberg and Saloner (1986), which conclude that oligopolies find implicit collusion more difficult when
demand is relatively high. In accordance with larger benefits from undercutting the price (or keep price at status quo) when demand is high.

**Conclusions**

With presence of factors to sustain collusion and empirical evidence of colluding behavior, we conclude that the price comparison site set up to promote competition has been a tool for coordination of prices at a higher level.

As Norway is an integrated part of an extended European electricity market and with a unique long history of market liberalization, our findings are of relevance to other restructured electricity markets in the process of assessing how to secure a robust design for price transparency and competition.

**References:**


