

**SVI 2000/442**

**Evaluation of short term raises in gasoline prices**

**(Evaluation kurzfristiger Benzinpreiserhöhungen)**

# SUMMARY

## **Aim and method**

Since 1999, crude oil and fuel prices have been rising in Switzerland (in total around 30%). This study analyses the short term impacts of these price changes and compares them with the impacts after the latest increase of the mineral oil tax in 1993.

The analysis is looking at both supply and demand of the Swiss fuel market. It considers also further impacts such as driving behaviour and the purchase of new cars. For this purpose, different methods were applied: econometric analysis, descriptive statistical analysis and specific surveys of the car sellers.

## **Fuel market reactions**

Importers of fuel passed the price changes directly to the petrol stations. No strategic behaviour could be observed. The margins of the market remained constant.

The following figure shows the most important influence factors on fuel demand (fuel sales in Switzerland). The market price changes happened 1999 in a period with high economic growth. Thus the influence of the income (GDP) is predominant. We estimated an income elasticity of 0.65. That means, if GDP is growing (*ceteris paribus*) by 10%, fuel sales will grow by 6.5%.

The influence of the price increase itself is less predominant. The figure shows, that the sales decreased especially in the year 2000 (in total by 8%, compared to 1999). It is only possible to show a significant influence of the price increase, if one considers delayed market reactions. The analysis confirmed such an effect. Assuming a one year delay, the econometric analysis results in a price elasticity between -0.3 and -0.4, that means: fuel sales are decreasing by 3 to 4%, if fuel market prices increase by 10%. The delay seems to be plausible, because market actors might assume only after a certain time, that the higher price level is remaining as well in the longer run. Compared to that, the market reactions after the increase of the mineral oil tax 1993 was immediate. A price increase due to a tax change has as well a bigger influence on fuel tourism, since price differentials between Switzerland and the neighbouring countries are getting bigger (different to market based price changes). 50% of the reduction in fuel sales in 1993 can be explained by a reduction of fuel tourism. Compared to that fuel tourism played a minor (more local) role within in 1999 price changes.

It has to be taken into account however, that the analysis of the lag structure is referring to a unique event. A more in-depth scientific analysis should consider a longer time period with different market price changes.

## FUEL PRICE, FUEL SALES AND GDP DEVELOPMENT

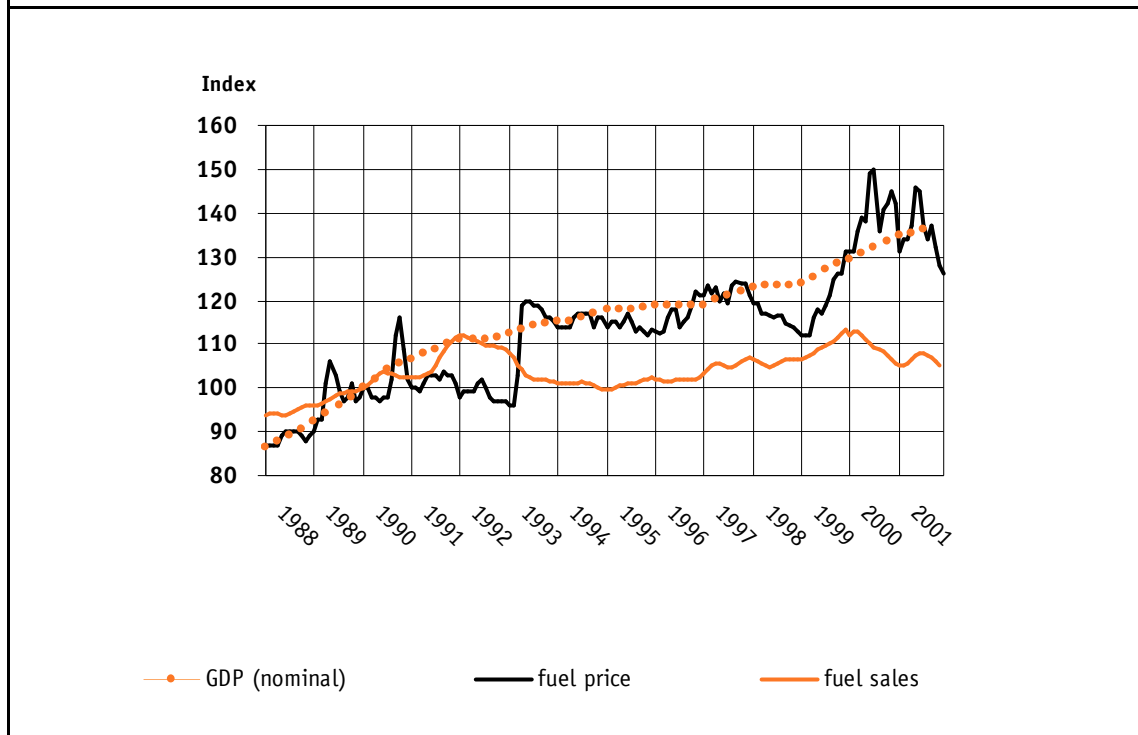


Figure S-1 Index 1990 = 100. Fuel sales are seasonal adjusted.

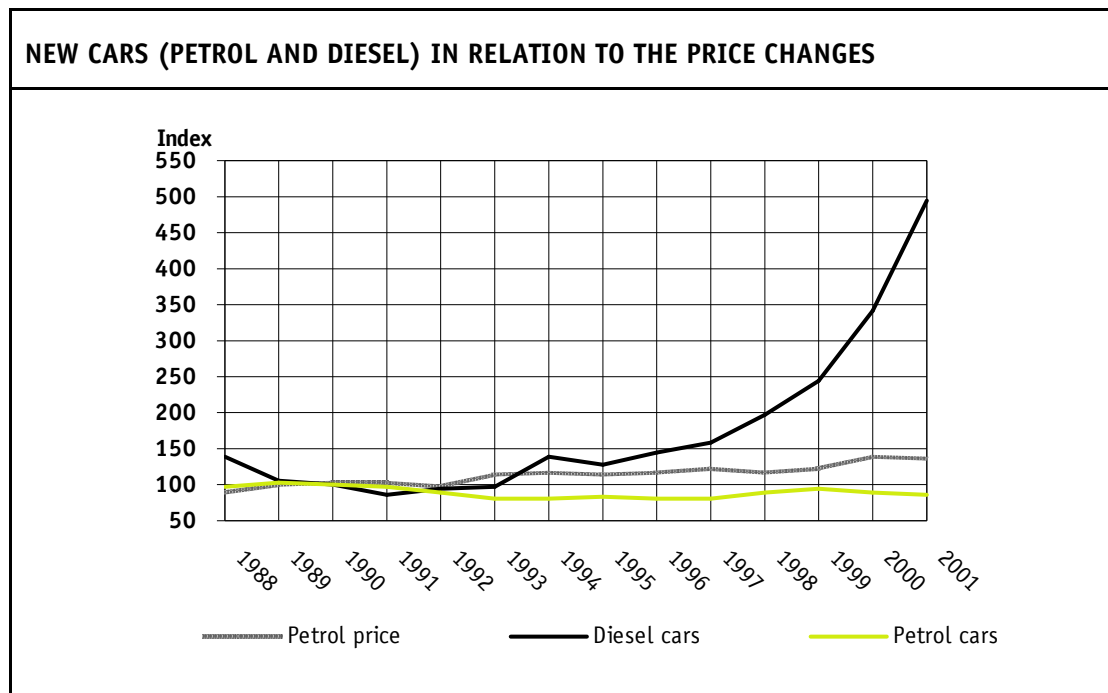
### Other impacts

The fuel market reactions are comparable with the change of traffic volumes. In general the traffic volumes develop similarly as the fuel sales. An analysis of the available statistics showed deviations at the borders (due to local changes in fuel tourism) and other interesting differences:

- › The price changes had a lower impact on traffic volumes on highways compared to other roads.
- › Weekend traffic volumes showed a bigger change than weekdays volumes. This might be an indication that leisure traffic is more price sensible.

The impacts on the car market was analysed by a survey of car sellers. According to them, specific fuel consumption of cars is no important marketing criteria. Most important criteria are comfort, space and equipment, car safety and motor power. Thus car sellers could not observe a significant change in car demand. At the same time, car sellers did not use the increased fuel price as an additional argument to sell energy saving cars, although Swiss importers are obliged to decrease the specific energy consumption of new cars.

The most important impact is the strong increase of diesel car sales, as the following figure illustrates. But this effects can be observed since 1993. There is consensus however, that the market price changes after 1999 had supported the diesel boom significantly.



**Figure S-2** Comparison between fuel price development (unleaded) and registration of new petrol and diesel cars (Index 1990 = 100). (Source VSAI, BFS)

### Transport policy conclusions

This study shows, that car drivers are reacting on fuel price changes. However the impact of the price changes is much less predominant than the effect of economic growth and market preferences for different type of cars. Such effects are even contra dictionary, for example the demand for better equipment, servo wheels or air conditioning. Very interesting is the finding that leisure transport seems to be more price sensible than other traffic segments.

Another interesting aspect is the reaction in the diesel market. At the moment, diesel cars seem to be the only alternative at the car market, which are promoted as well actively by car traders. Communication and marketing activities are playing an important role in order to produce synergies in the direction of energy saving car demand and car use. This synergy should be used more actively in the future. At the same time, there should be more information on possible trade offs, such as energy intensive car features.