Environmental Economics

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EPFL ENAC LEUrE

ENV-471

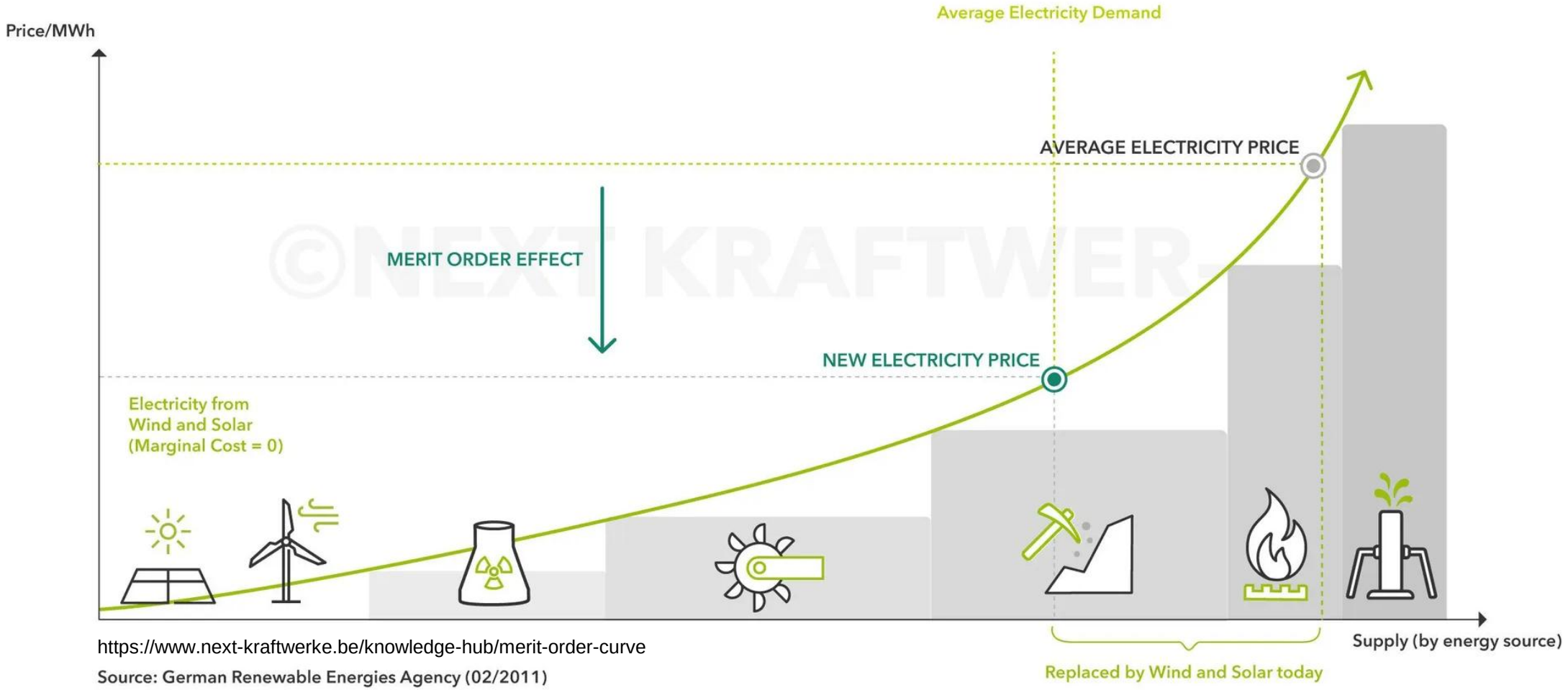
Master semester 2 or 4

Adobe Stock #233774328

Basics – Case studies

MERIT ORDER CURVE FOR ELECTRICITY SUPPLY

Merit order curve for electricity supply



With wind and solar today, the marginal cost = price is that of coal on this illustrative (German) market
Without wind and solar, demand would require gas, which would push the price higher

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Basics – Case studies

GASOLINE DEMAND IN SWITZERLAND

Simple estimation of elasticity

In 1993, fuel duties on gasoline were raised by 20 ct/litre (approved in a vote on March 7, effective March 8), from 53 to 73 CHcents. What were the consequences?

1993 is problematic with 2 months without additional tax (with accelerated imports), so 1994 must be compared with 1992:

	Consumption (million l)	Nominal price (ct/l)
1992	5 397	98.7
1994	5 003	115.5
Var.	-7.3%	+17%

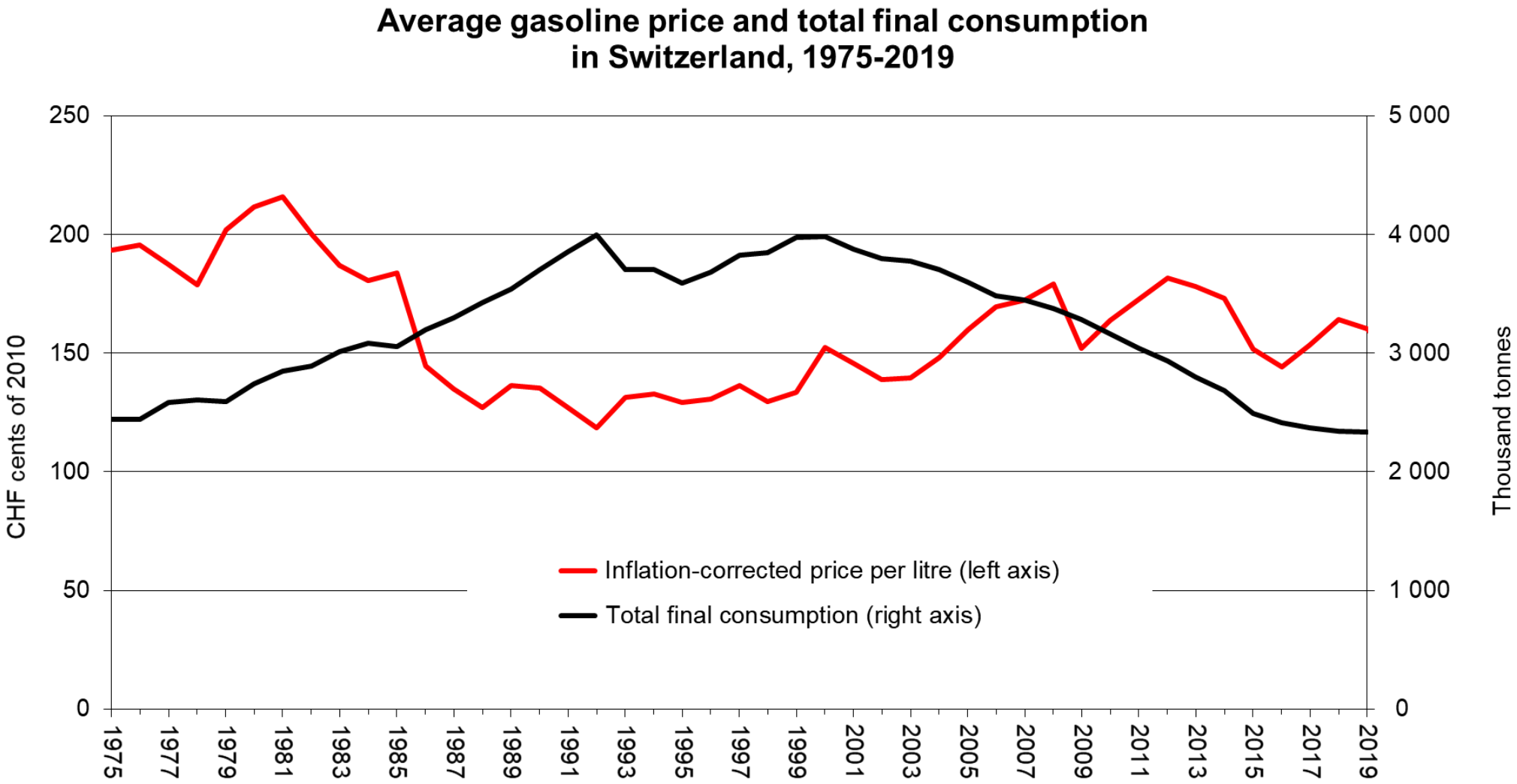
Elasticity = −7.3%/17% = −0.43 (assuming *ceteris paribus*)

Note that the price only increased by 16.8 ct!

The expected additional tax revenue was 20ct. × Q_{1992} = 1 080 MCHF

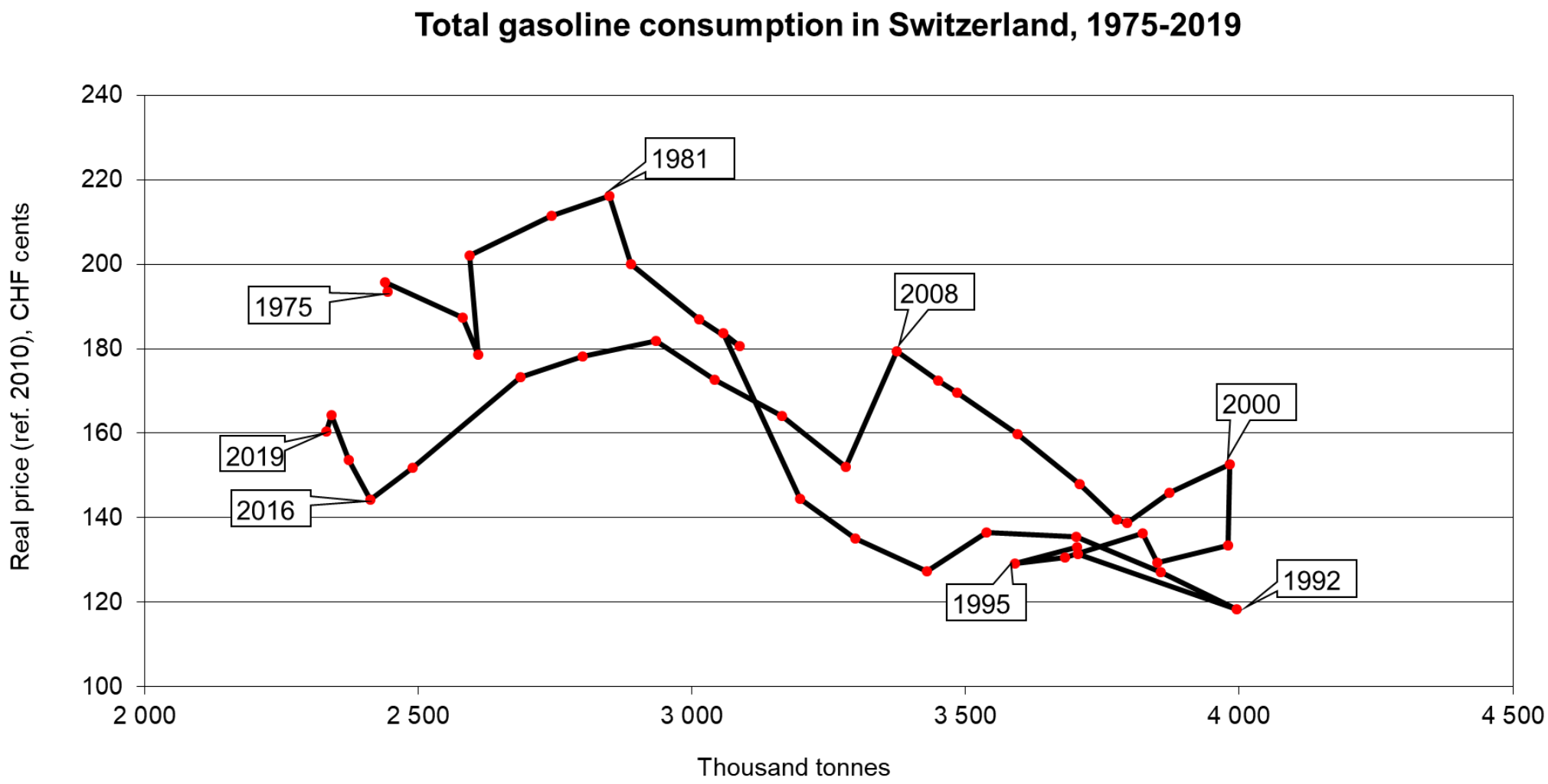
The actual additional revenue was (73ct. × Q_{1994}) − (53ct. × Q_{1992}) = 790 MCHF

Gasoline in Switzerland since 1975

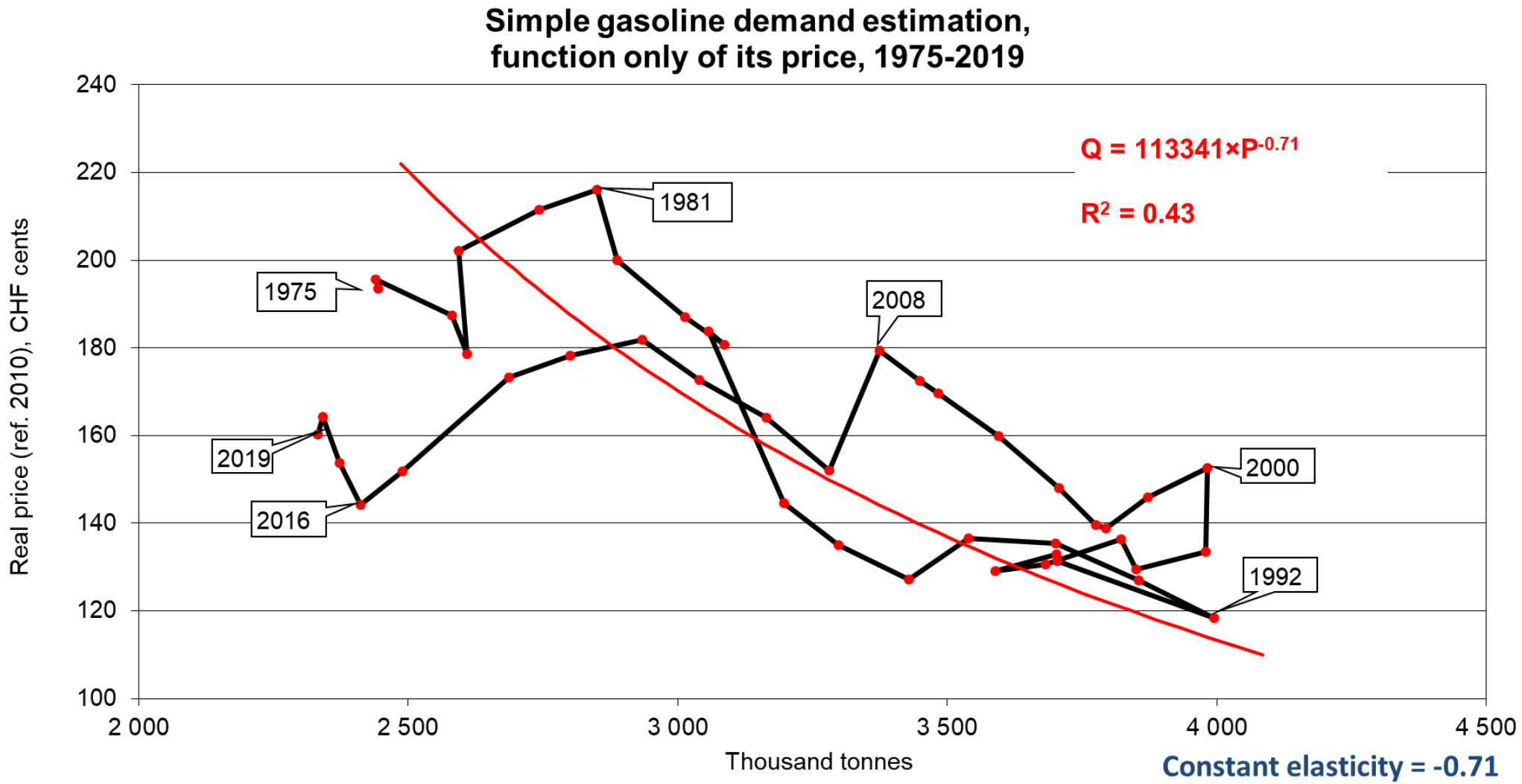


In this graph and the following ones, I use data from the Federal statistical office

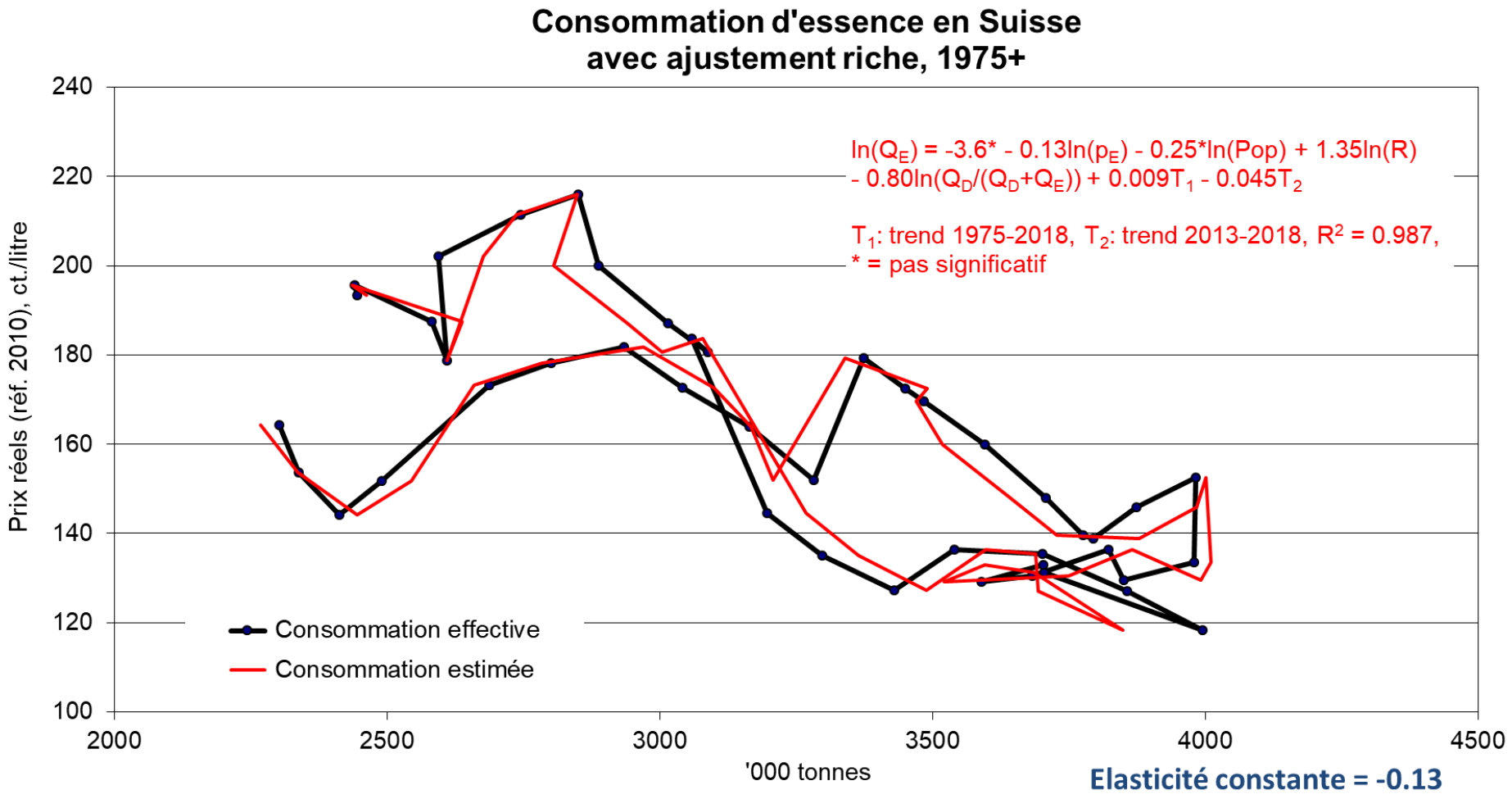
Consumption and price crossed



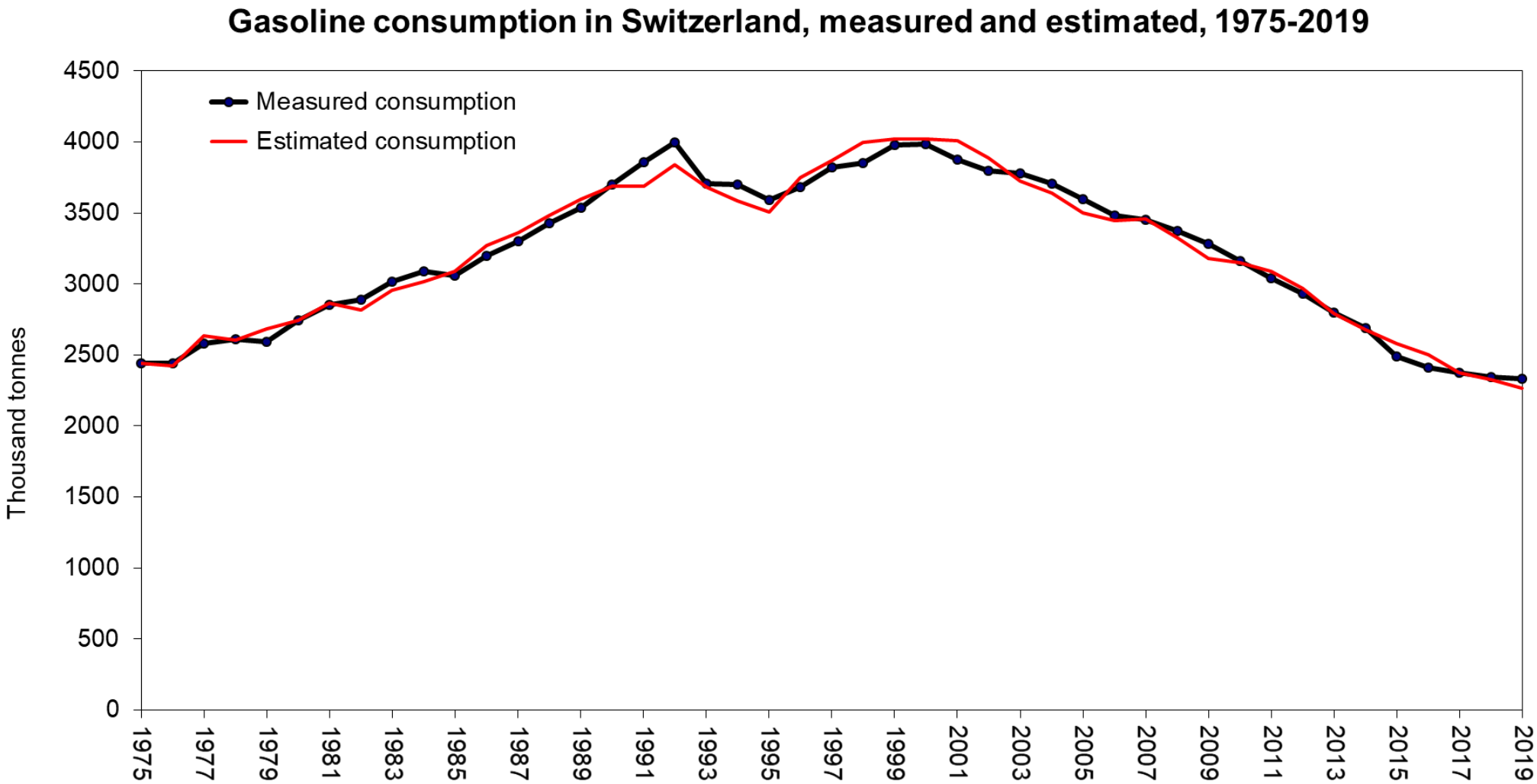
Demand – first estimation



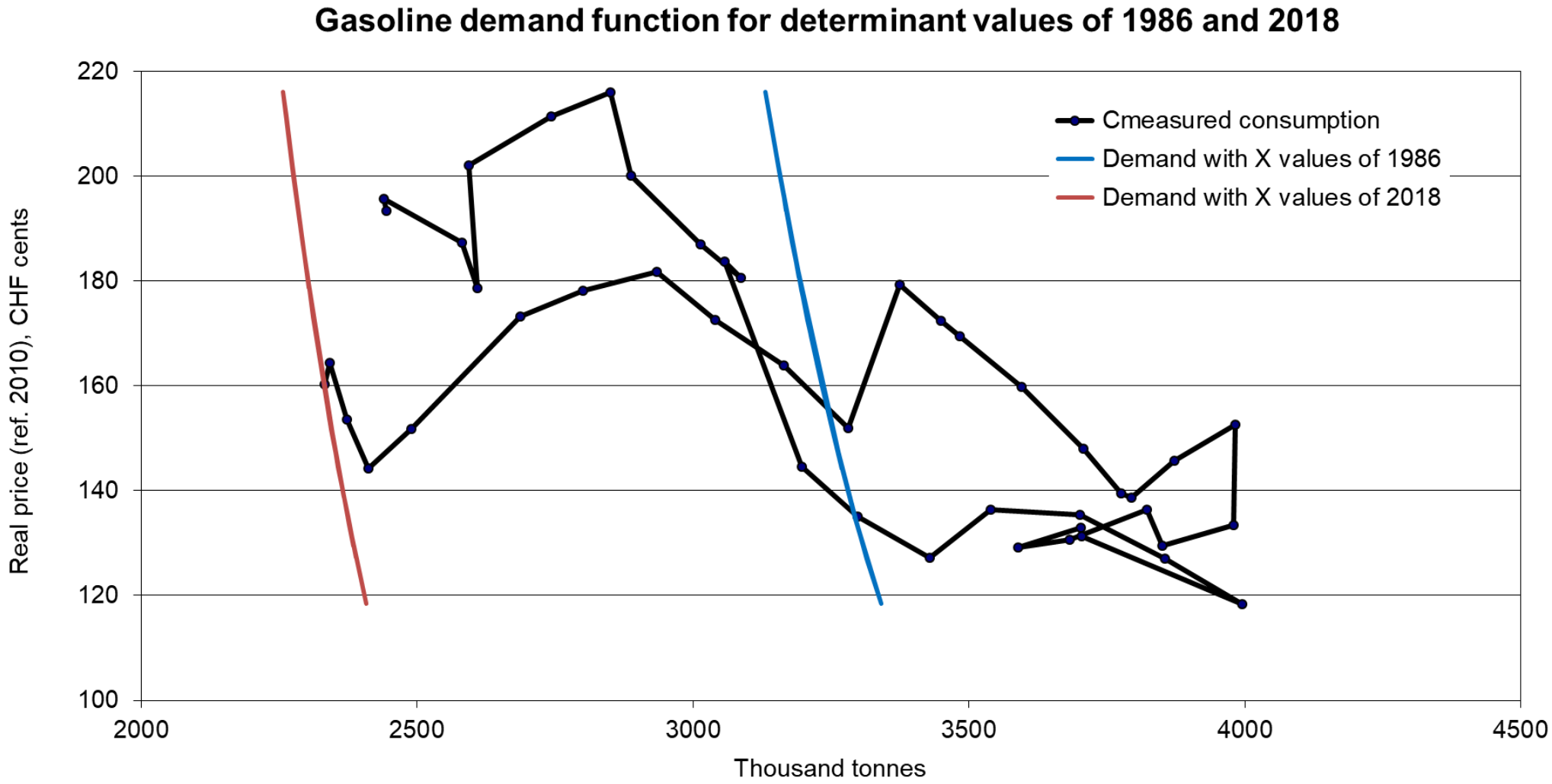
More sophisticated estimation



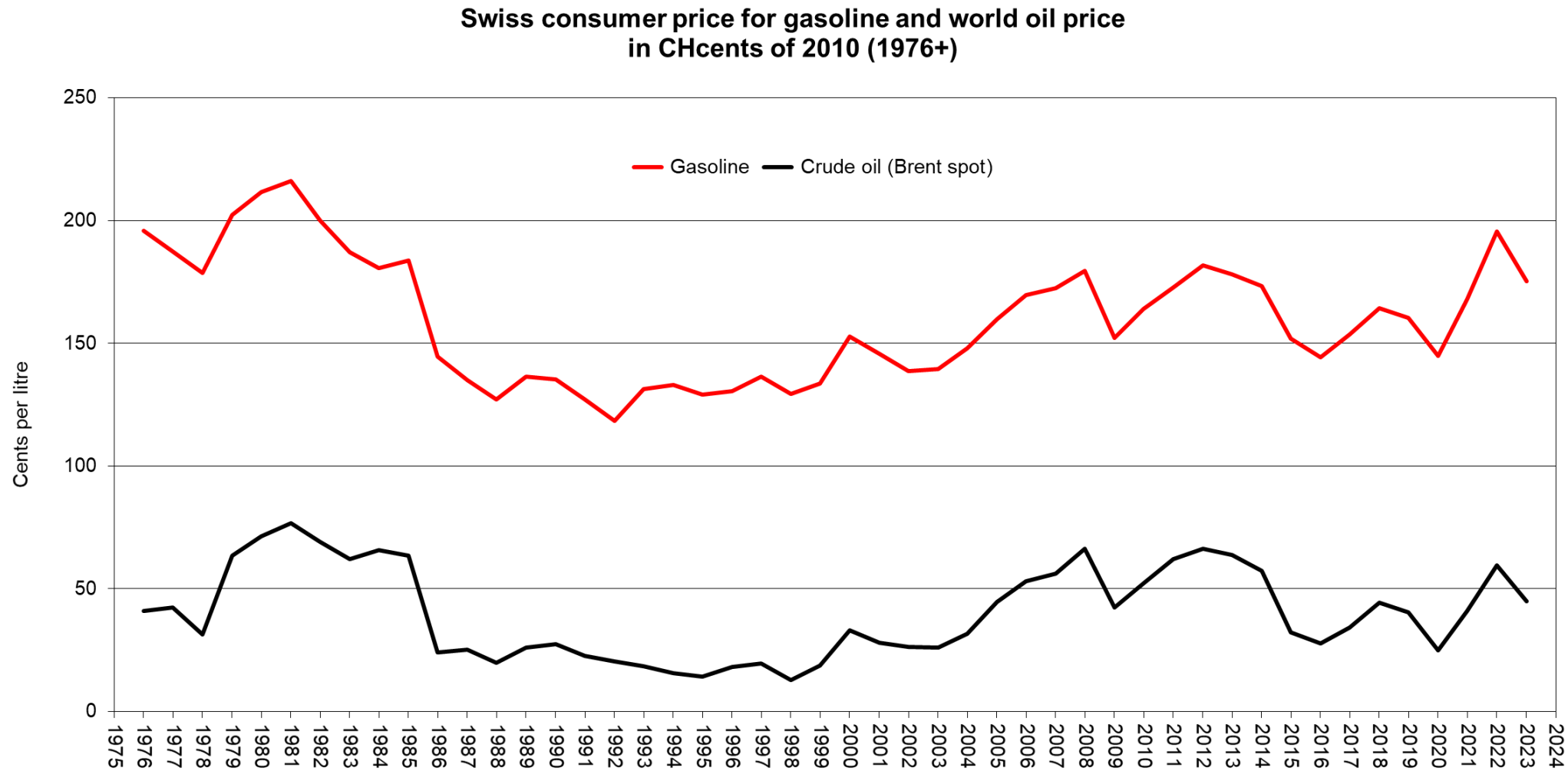
Quality of fit



Meaning of low demand elasticity



Gasoline price = oil price + margin



Sources: gasoline price: Swiss CPU, average price of energy and motor fuels (T.05.02.91); crude oil: computed from Energy Institute and SNB data