Consumer Price Index with constant tax

- the Swedish approach

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Outline
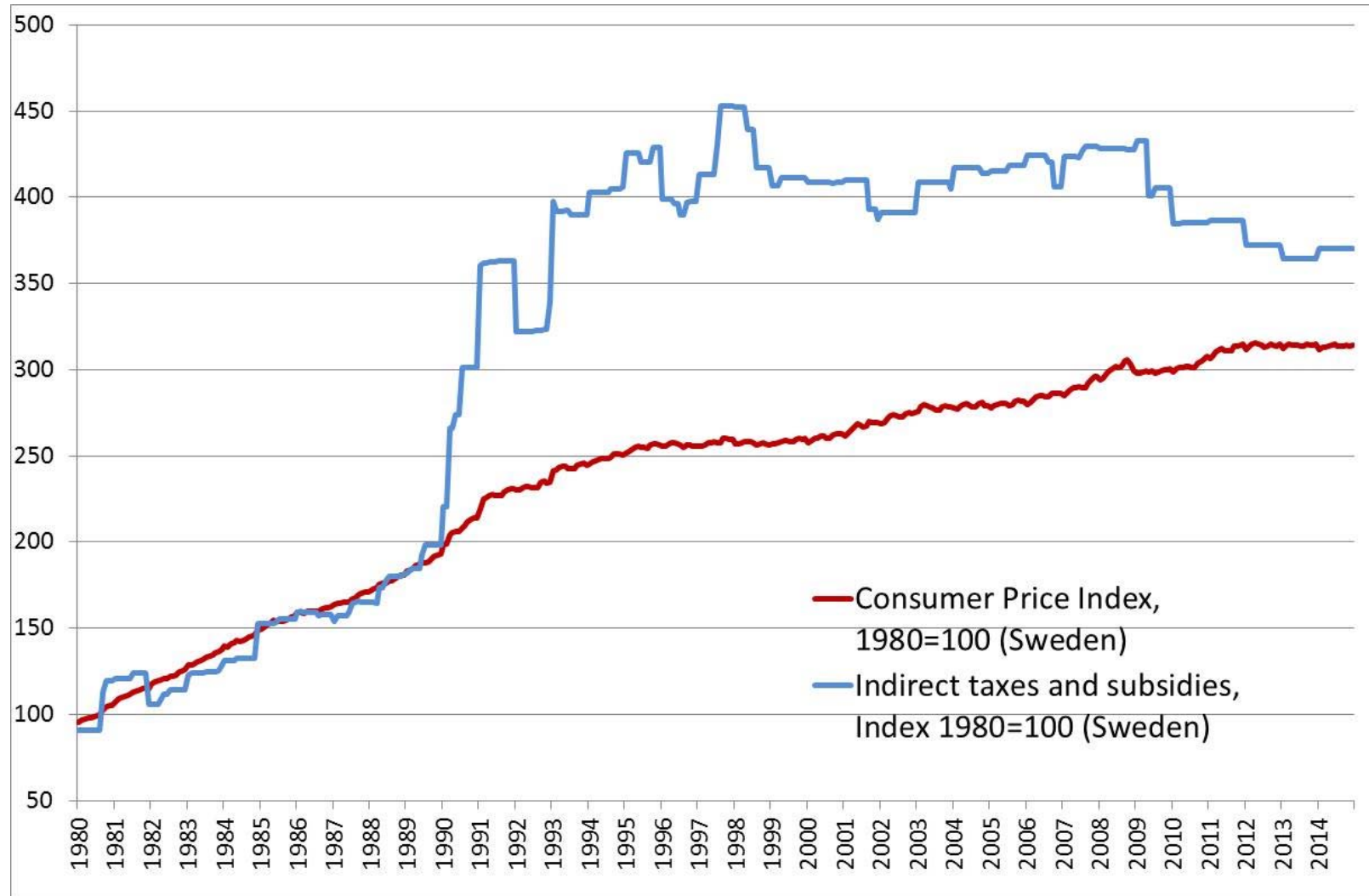
- Background
- Nominal vs. real adjustments for excise tax changes
- In practice
- Actual outcome

Background

Excise vs. value taxes

- Different treatment of value and excise taxes

- Value tax – nominal change is when the tax rate as a percentage of the retail price changes

- Excise tax – nominal change is when the tax rate in dollars and cents change

- HICP-CT and previous constant tax indices in Sweden

Implications from this principle

1. The design of taxes has an effect on price changes

   - Excise tax – calculation has in practice meant CPI with constant *nominal* tax
   - Value tax - calculation has in practice meant CPI with constant *real* tax

2. This way of dealing with changes in excise taxes and subsidies has a dampening effect on inflation
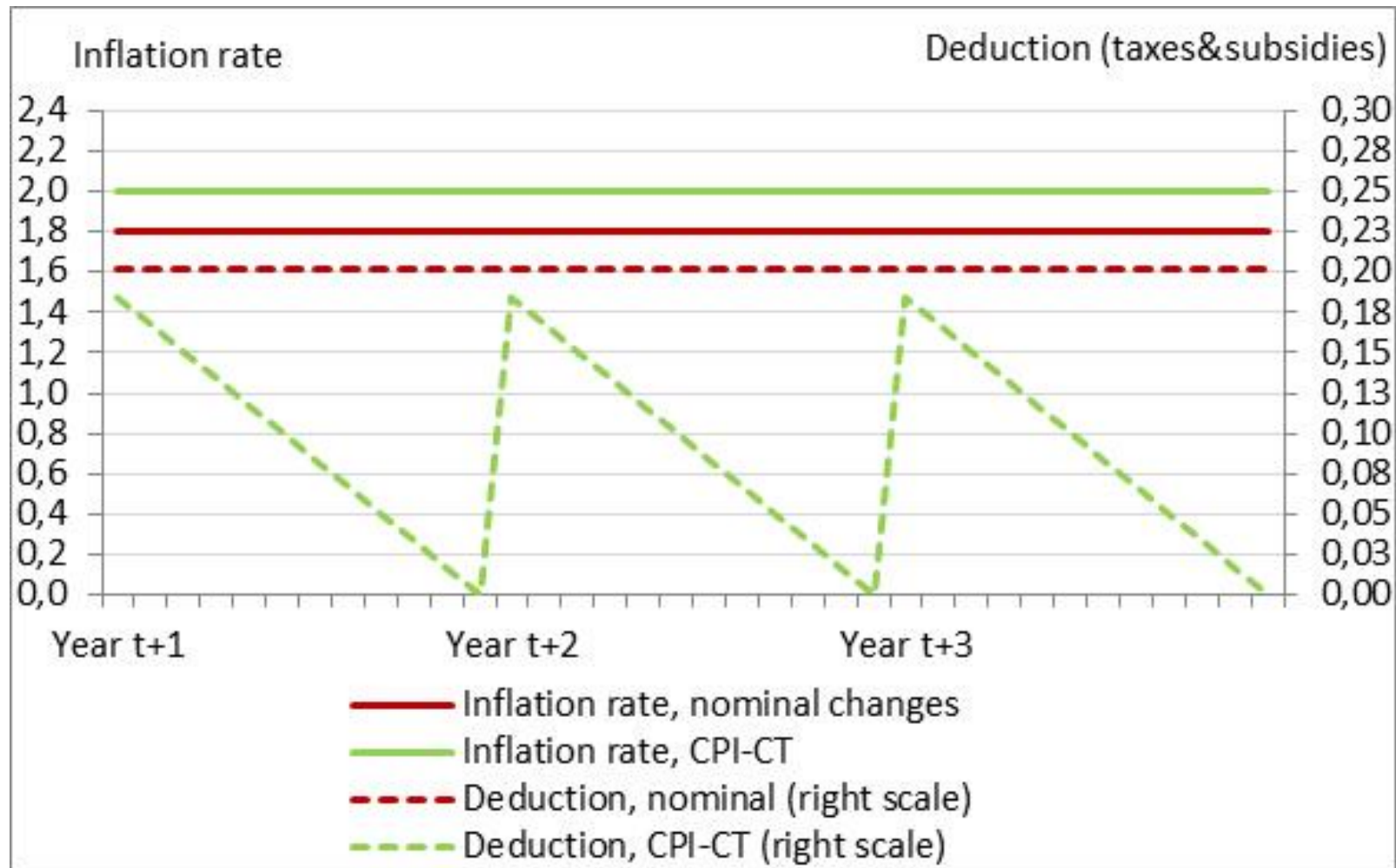
A new index by Statistics Sweden

- CPI is adjusted only for tax changes beyond the normal indexation by the CPI, i.e. actual tax changes.

- A calculation of the CPI at constant tax in real SEK

- If taxes are only indexed to the CPI the inflation rate according to CPI and CPI-CT will be the same

Adjusting for nominal changes in taxes will dampen inflation - example

The basic calculation method

- The basic formula:

$$\Delta\text{CPI CT} = \Delta\text{CPI} - (\text{effect from } \Delta\text{taxes} - \text{effect from } \Delta\text{subsidies})$$

- A deduction of taxes and subsidies for each index link:

$$\text{CPI CT}_{2013}^{2015,\text{jan}} = \text{CPI}_{2013}^{2015,\text{jan}} - \sum_{k \in S\&S} W_k^{2013} \times I_{k\,2013}^{2015,\text{jan}}$$

- Weights for each tax and subsidy:

$$W_k^{2013} = \frac{U_k^{2013}}{\sum_g U_g^{2013}}$$

The basic calculation method - example

Period	Tax group and product	CPI basket, total weight	Tax revenue	Tax weight (%)	Nominal tax change (%)	CPI	Tax change in CPI-CT (%)	VAT	Effect nominal	Effect CPI-CT
		1	2	3=2/1	4	5	6=4/5	7	8=3*4*7	9=3*6*7
2013M12	Energy, petrol	1 487 189	10 775	0,72	2,88	101,6	1,3	1,25	0,03	0,01
2013M12	Alcohol & tobacco, spirits	1 487 189	4 348	0,29	0,00	101,6	-1,6	1,25	0,00	-0,01

Actual outcome based on Swedish data