

# **Various data collection methods in the Norwegian CPI**

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# The history of paper questionnaires

- The traditional data collection method in the Norwegian CPI
- Standardized questionnaires
  - Pre-defined representative items
  - Specific product description
  - Price
  - Check boxes for the identification of sales and quality differences and for the availability of the product
- The Norwegian Statistics Act of 16 June 1989
  - Collect information from businesses needed to provide official statistics
  - May impose compulsory fines
  - High and stable response rate for the Norwegian CPI

# The history of paper questionnaires II

- Large response burden on businesses
  - About 33 minutes on average per month filling in food questionnaires (1995)
  - The average overall time was about 13 minutes
- Interviewers used for pre-collection visits

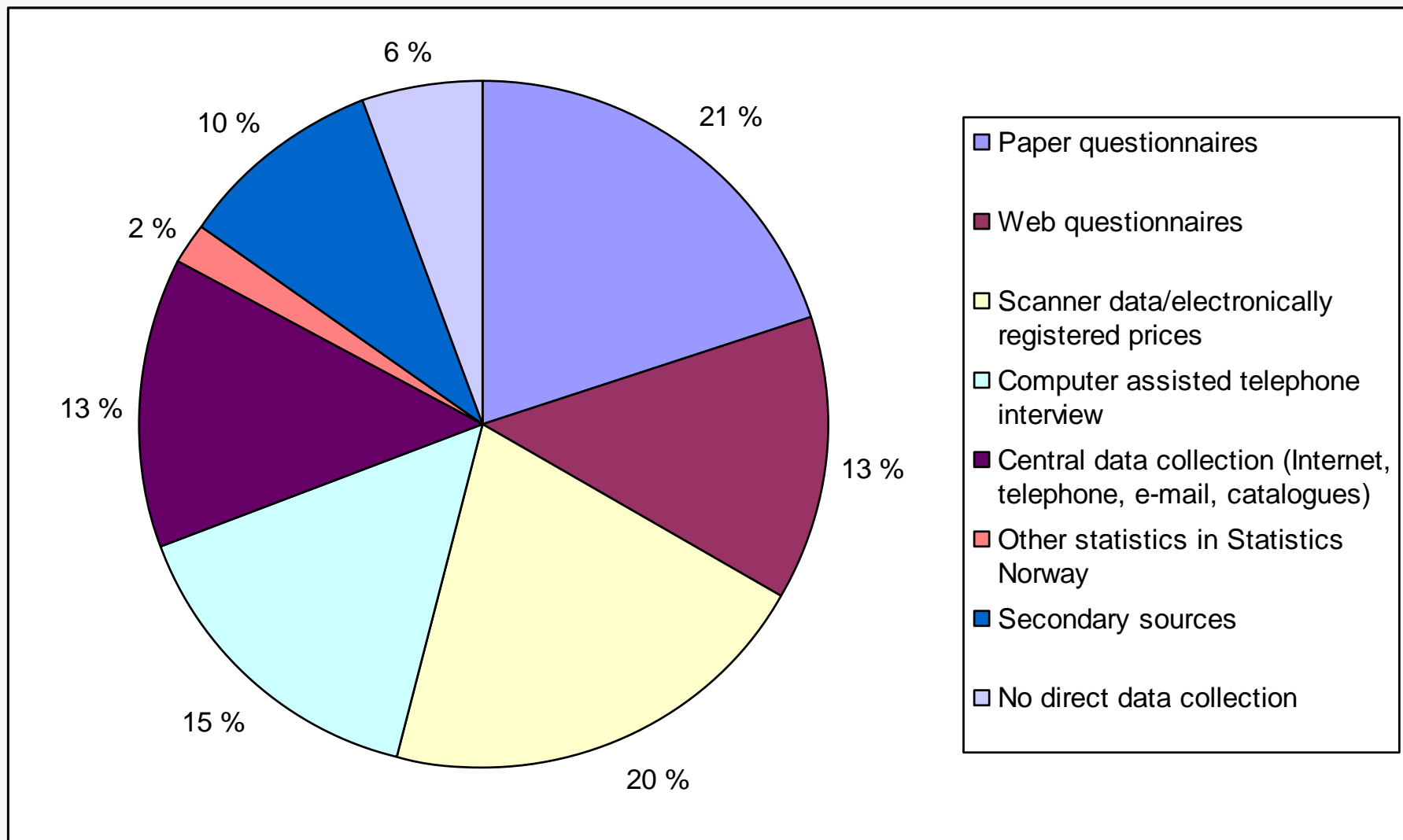
# Motives for exploring greater variety of methods

- Focus on low response burden
  - High priority in Statistics Norway
  - But also pressure from businesses to deliver data electronically from the head offices
- Effectiveness
- Improving data quality
- Rapidly changing prices and more complex pricing structures
- Consumer behaviour is changing
  - The importance of the Internet
- Increasing availability of electronically data

## New data collection methods

- The share of paper questionnaires in the CPI is declining
  - 10 years ago: nearly 40 per cent in terms of CPI weight share
  - Today: approx. 20 per cent
- While electronically reported data is increasing
  - Web questionnaires; 13 per cent
  - Scanner data; 20 per cent
  - Data from secondary sources; 10 per cent

## Data collection methods based on CPI weight shares



# Web questionnaires

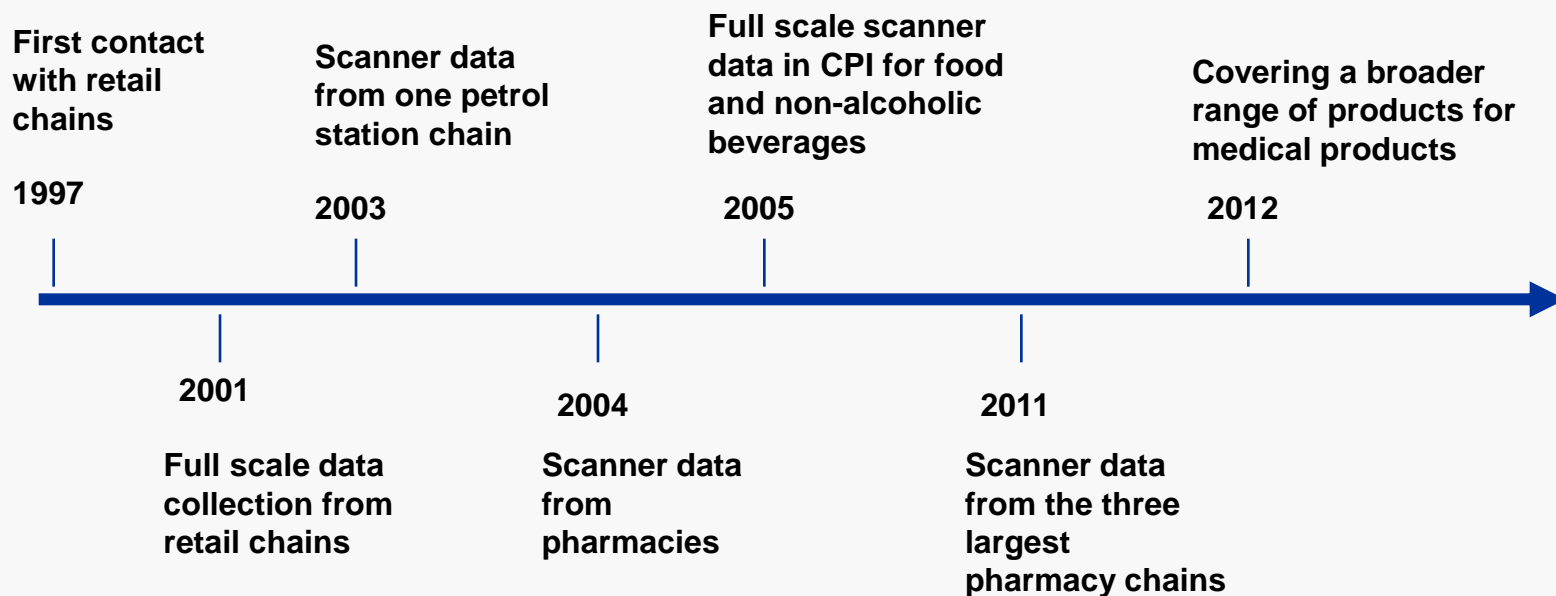
- System for electronic exchange with businesses (2004)
  - Possible to deliver the CPI questionnaires electronically
  - About 35 per cent choose web instead of paper questionnaire
  - Data also from local governments
- Improvements?
  - Many of the same challenges as paper questionnaires
  - Built-in validation checks
    - ♦ Some of the editing process is transferred to the respondents
  - Increased flexibility
    - ♦ Increased motivation among respondents to deliver accurate data?
  - Lower perceived burden
    - ♦ Paper questionnaires may be perceived as old fashioned and ineffective



# Scanner data

- The product codes are scanned into the cash registers of retail outlets when the items are purchased
- The data is collected from the chains' headquarters and contains information on price, quantity, type of outlet, location, period and description of the item
- The items are identified by;
  - EAN (European Article Number), an international retail product code
  - PLU codes; internal chain specific codes

# The use of scanner data in the Norwegian CPI



# Step-wise introduction of scanner data

- Initially we replaced prices from questionnaires with scanner data prices on predefined representative items
  - Still do that for non-food items
- Expanding the use of scanner data:
  - 2005: superlative price index for food and non-alcoholic beverages
  - 2012: broader range of products in price index for medical products

# Data from secondary sources

- An alternative to scanner data is other types of electronic data from so-called secondary sources
  - Examples may be trade organisations and federal authorities
  - In the Norwegian CPI such examples are;
    - ◆ The Norwegian Competition Authority
    - ◆ The Norwegian Water Resources and Energy Directorate
    - ◆ The Information Council for Road Traffic
    - ◆ The Norwegian Booksellers Association
    - ◆ The Consumer Council of Norway and the portal [www.finansportalen.no](http://www.finansportalen.no)

# Scanner data and data from secondary sources – quality improvements?

- More control of the input data
- Actual transaction price for each product
  - The risk for manually reported errors connected to questionnaires is eliminated
    - ◆ Less dependent on the respondent's motivation
- Larger data coverage
  - Full scale product coverage
- Opens up for possibilities for more advanced quality adjustment and calculation methods

# Scanner data and data from secondary sources – quality improvements? II

- Increased response rate
- However,
  - Few data suppliers makes the statistical agency more vulnerable if they fail to deliver the data
  - Without the right tools, the amount of data may appear unmanageable

# Efficiency gains?

- Large establishing costs for both supplier and recipient of the data
  - Testing
  - IT systems and technological solutions must be established
  - Written contracts
- Lower response burden on businesses
  - The average time per month filling in questionnaires has fallen from about 13 minutes to approximately 7 minutes
- Less use of interviewers
- The time spent in the statistical office producing CPI/HICP has increased by over 30 per cent the last 10 years
  - From about 8 full-time equivalents (FTEs) involved in the monthly CPI/HICP production and development in 2001 to 11 FTEs in 2011

## Efficiency gains? II

- The increase in the number of FTEs probably a result of several factors
  - An increase in the number of official statistics within the Division
    - ◆ Several indicators for underlying inflation, such as the CPI adjusted for tax changes and without energy products (CPI-ATE)
    - ◆ The Rental Market Survey
  - Changes within the CPI production process caused by various data collection methods
    - ◆ Less uniform production routines, vary between consumer groups



# Concluding remarks

- Reduced response burden on businesses
- Improved CPI in terms of data accuracy and coverage
- Less uniform and more complex CPI production system