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New experiences with scanner data in the Swiss CPI

Jean-Michel Zürcher & Bernard Buchenel – Swiss
Federal Statistical Office

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1. Introduction

- Early work in 2004, beginning of the project in 2005
- Use of scanner data **since 2008** in the Swiss CPI
- Better **source of data, cost savings** for the FSO and **smaller administrative burden** for retail chains
- **Maintaining the sampling and calculation methods**
- **Specific software** to manage the sample
- Initially, only food and near-food groups were considered
 - **“stable groups”** => little range and quality changes in comparison to non-food groups



2. Food & Near-food

Inclusions

- COICOP groups: 01, 02, 05 (partly), 09 (partly), 12 (partly)
- **4 chains** already in production (75% à 80% of the market)
- **Test price collection** before inclusion
- **Emergency plan**
- Problems encountered are mostly related to the **IT-System of the retailers** and **low costs savings**



3. Non-food (I)

- Division into **stable non-food** and **dynamic non-food**
- **Concentration on the stable non-food** in order to use the same methods as for food and near-food
- Identification of the stable non-food groups based on the **lifespan** of the items, **mean ranking in terms of turnover**, **suspected presence of price skimming**
- **Comparison** between **conventional price collection**, **RYGEKS** and **test price collection**
 - Stable non-food can be broken down into 3 groups
 - Dynamic non-food was let aside (group 4)



3. Non-food (II)

Group 1 (most suitable positions)

- COICOP **04.3.1** / COICOP **05.4** / COICOP **05.5.2** / COICOP **05.6.1** / COICOP **09.5.3** and **09.5.4** / COICOP **12.3.2**
(partly)
- Stable ranges, little price skimming, RYGEKS and test price collection indices close to conventional price collection
- Differences in samples
- Seasonal effects taken better into account in the scanner data price collection
- Positions will be introduced this year



3. Non-food (III)

Group 2 (strong potential)

- COICOP **05.2** / COICOP **05.3** / COICOP **05.5.1** / COICOP **12.1.2**

Group 3 (potential for future work but lack of analysis)

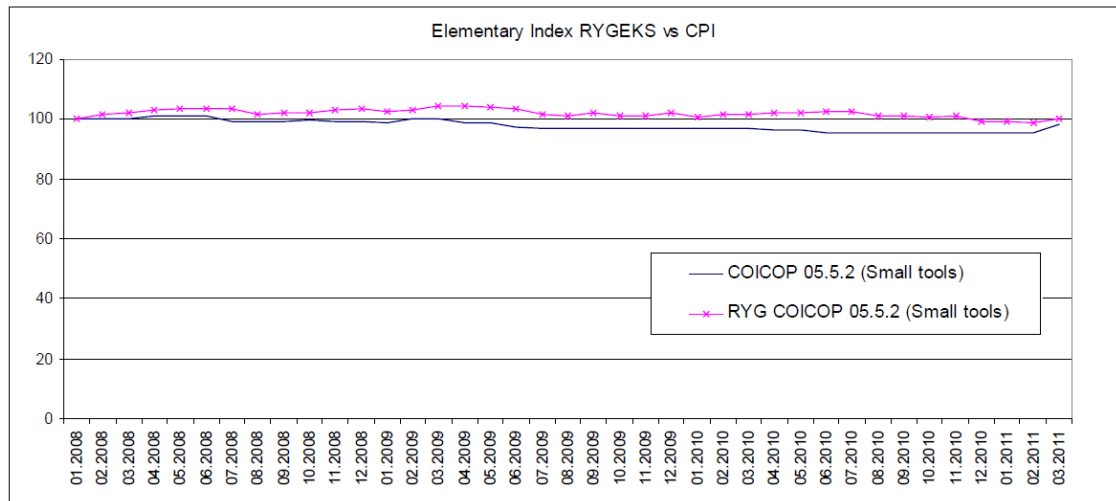
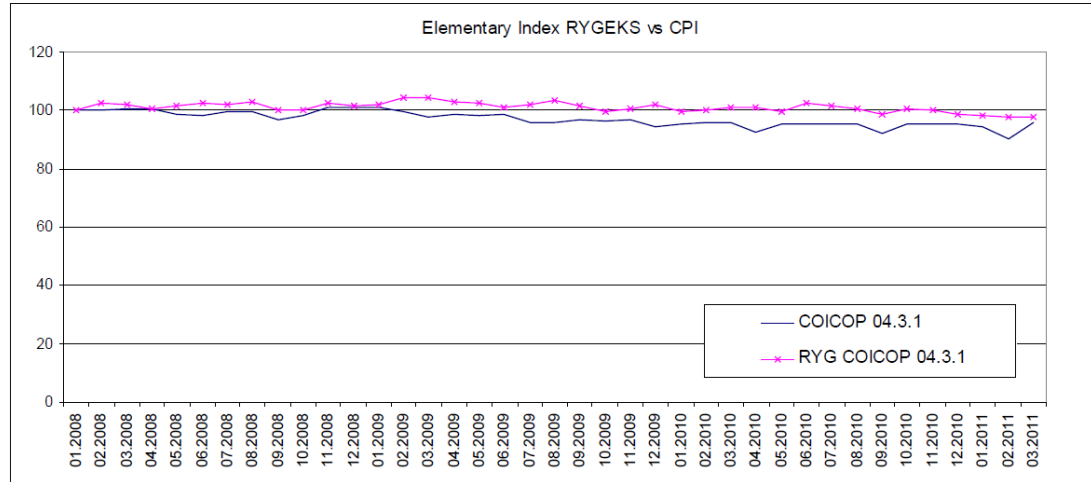
- COICOP **03** (partly) / COICOP **05.1**

Group 4 (dynamic non-food => not suitable)

- Non classical clothing / bikes / electronic products (TV, computer, etc.)

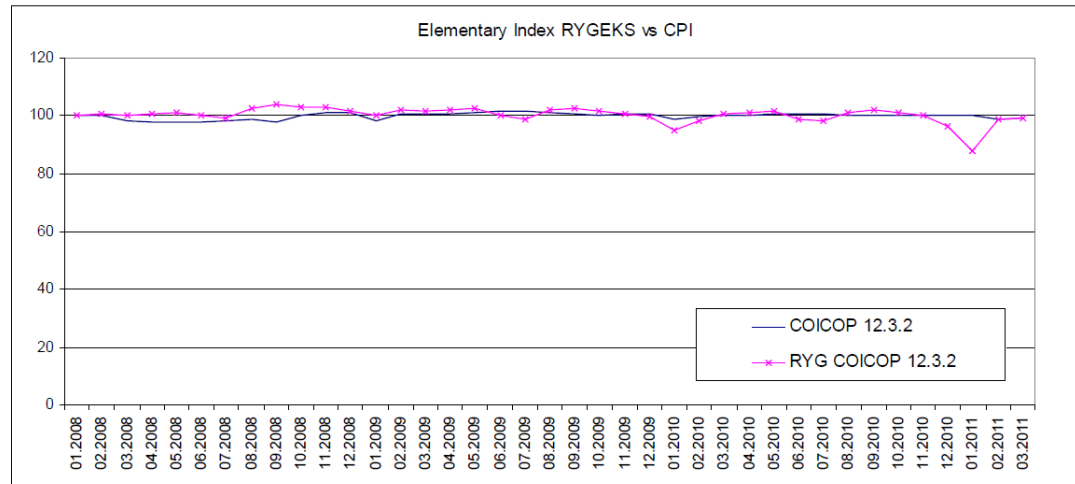
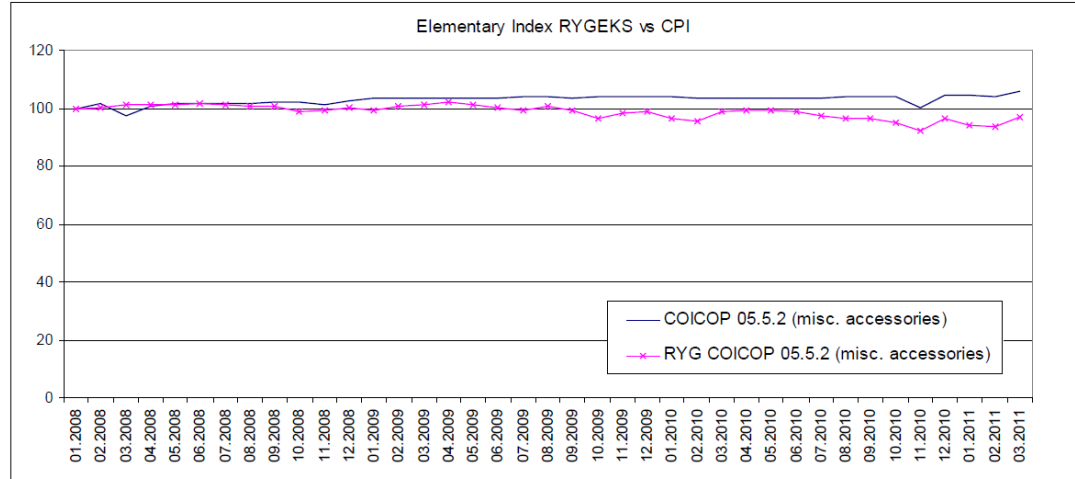


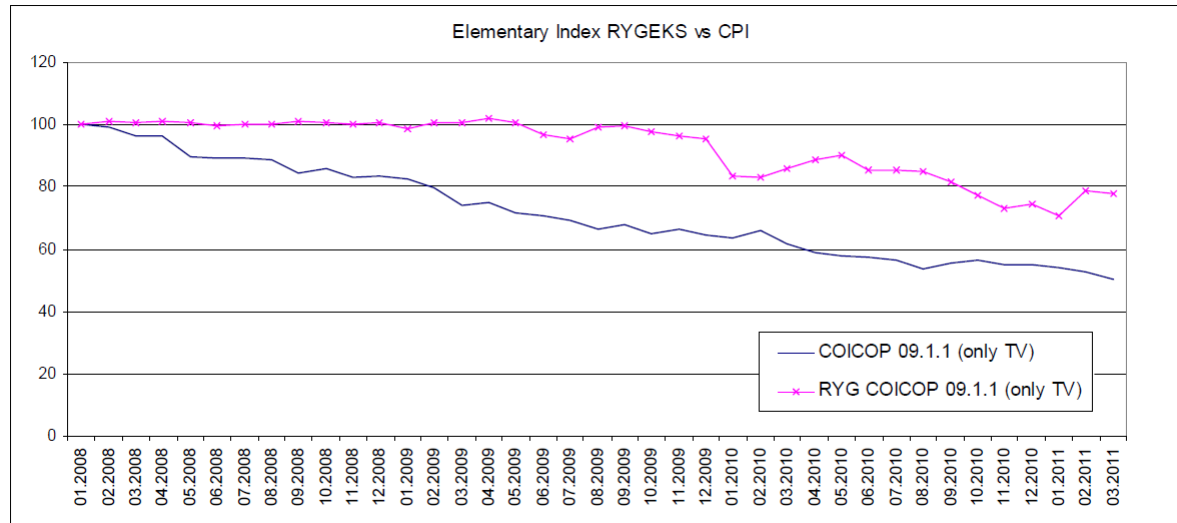
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4. RYGEKS (I)

- Development of a **SAS tool** to produce indices based on the **RYGEKS method**
- Based on the **formula proposed by Ivancic & al. (2009)** with specific adaptations to take account of the particularities of the Swiss CPI
- Will be used as **benchmark** (analysis and comparison) and not for production



4. RYGEKS (II)

Calcul GEKS pour les premières 13 périodes :

$$\left(\begin{array}{cccc} F(1/1) & F(1/2) & \dots & F(1/13) \\ F(2/1) & & & \\ \dots & & & \\ F(13/1) & & & \end{array} \right) \begin{array}{l} \rightarrow ps(1)(1) = MoyGéom\{F(1/1), F(1/2), \dots, F(1/13)\} \\ \vdots \\ \rightarrow ps(1)(13) = MoyGéom\{F(13/1), \dots, F(13/13)\} \end{array}$$

ainsi,

$$ps(1)(t) = MoyGéom\{F(t/1), F(t/2), \dots, (F(t/13))\}$$

$$RYGEKS(t) = ps(1)(t)/ps(1)(1) \quad (t = 1, \dots, 13)$$

Pour $t > 13$:

$$RYGEKS(t) = RYGEKS(t-1) \cdot ps(t-12)(t)/ps(t-12)(t-1)$$

où

$$ps(t-12)(t) = MoyGéom\{F(t/t-12), F(t/t-11), \dots, F(t/t)\}$$

$$ps(t-12)(t-1) = MoyGéom\{F(t-1/t-12), F(t-1/t-11), \dots, F(t-1/t)\}$$

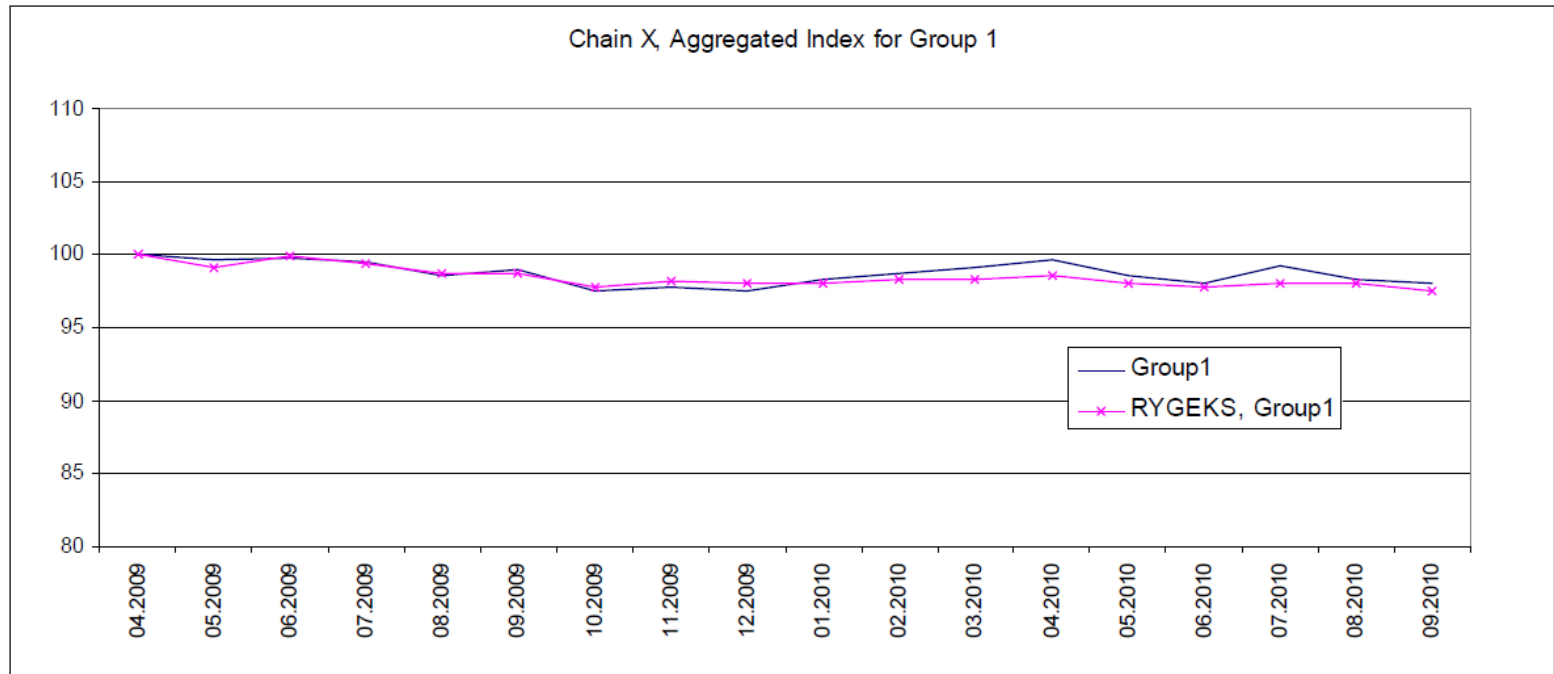


4. RYGEKS (III)

- First results
 - tool used to produce RYGEKS indices for the **non-food analysis**
 - **Comparison for COICOP 01** for a particular retail chain (RYGEKS vs index based on a conventional price collection with scanner data)



Chain X, Aggregated Index for COICOP 01





5. Conclusions

- **Positive conclusions** are drawn: **pragmatic use** of scanner data allowed **quality improvement** of the indices, **cost savings**, **smaller burden** of the retail chains along with **inclusion of 4 retail chains** covering 75% - 80% of the food / near-food market
- Some “**stable**” **non-food categories can be included** with the same methodology
- **RYGEKS** used as benchmark for analysis and comparisons
- Use of scanner data raises **many practical issues** and **IT challenge**



6. Contact

Contact about the Swiss approach of using scanner data for the CPI...

Jean-Michel.Zuercher@bfs.admin.ch



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Thank you for your attention!