

Thomas Ragni (Seco, CH):

SAPS for choosing effective measures in Switzerland

Slide 1



SAPS

Statistically Assisted
Program Selection

A Targeting System of
Swiss Active Labor Market
Policies (ALMPs)



Overview

1. SAPS has to be embedded into Swiss **PES**-institutions (= **P**ublic **E**mployment **S**ervices)
2. **Basic idea** and theoretical conception of SAPS
3. How does SAPS generate **recommendations** or forecasts with respect to a benchmark?
4. Specific **experience** with SAPS until now
5. Next steps: Realistic **experiment** in 12 „Pilot-RAV“ and evaluation 1 year after this experiment
6. **SWOT-Analysis** of SAPS

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1. SAPS – embedded in PES of Switzerland

1. Based on a **contract** seco (Swiss government) with the cantons (federal governments):
Main principle → „**Learning from each other**“ within a „**Best practice principle**“

→ NOT „resource based management“,
→ NOT „activity based management“,
→ **BUT Effectiveness based management**“

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In der neuen Wirkungsvereinbarung 2003-2005 des seco mit den Kantonen wird auf Beratung und Unterstützung der Kantone und ihrer PES (Public employment service) nach dem Prinzip des „*Best practices*“ verfahren. Der Grundsatz der *Wirkungssteuerung* ist unverändert belassen worden (anstelle der früheren Leistungs-, Aktivitäts- oder gar Aufwandsteuerung).



Four indicators

- The system is monitored using **4 indicators** capturing „**effectiveness**“ or „**outcome**“ of the matching process between job searchers and employers:
- I. (to promote fast) **reintegration in the labor market**: Average number of days payments of Unemployment insurance (UI) have to be paid [weight 50%]
 - II. (to reduce) **long term unemployment**: New entrants in this status divided by number of people who opened a new insurance frame (eligibility for payments) one year ago [weight 20%]

Four indicators

- III. (to reduce) **long term unemployment**: New entrants in this status divided by number of people who opened a new eligibility insurance frame one year ago [weight 20%]
 - IV. (to avoid) **re-entering in eligibility status**: Number of re-entries in UI divided by the number of people who have withdrawn from UI within the past 4 months [weight 10%]
- **To encourage** the effectiveness of the matching process by the PES, these Effectiveness indicators have to be integrated in a **setting of incentives for the PES**.
- **Ranking** of the cantons / of their RAV is valuable, if **reputation** is important for the governments of the cantons. (Experience: This is the case!)

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2. Basic idea an conception of SAPS

2. SAPS is a „**targeting** system“, not a „**profiling** system:

Profiling principle: What are the individual attributes and characteristics which have been responsible in the past for higher risks staying longer than 1 year in unemployment?
→ Which clients of the PES have sufficient similar attributes / characteristics? → These clients should be **advised more** intensively and **placed in more** ALMPs.

BUT: Which treatments are most effective for which individuals?

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Der **Profiling-Gedanke** besteht darin, die Eigenschaften *von Arbeitssuchenden* zu identifizieren, die in der Vergangenheit einem erhöhten Risiko der Langzeitarbeitslosigkeit ausgesetzt waren, um die aktuell Arbeitssuchenden mit demselben Eigenschafts-„Profil“ besonders intensiv zu betreuen und sie vermehrt in Massnahmen zu schicken.

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Targeting

The answer is: Targeting
principle: The impacts of every single ALMP are different with respect to combinations of individual attributes / characteristics

= individually distributed
„heterogeneity of effectiveness“ of every ALMP

Conjecture or assumption: There are different causal impacts of differently distributed attributes on the effectiveness of ALMP → evaluation of significant impacts → if so: SAPS makes a recommendation of the most effective (combination of) ALMP

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Ein Targeting-System will jene *Programme und Massnahmen* ausfindig machen, die in der Vergangenheit für jede individuelle Eigenschafts-„Kombination“ die maximale Wirksamkeit aufwies. *Bei jedem Individuum wirkt zu jedem Zeitpunkt in seiner Berufskarriere und bei jeder Umweltbedingung eine jeweils andere Massnahme relativ am wirksamsten.* Diesen Kerngedanken nennt man „**individuelle Effektheterogenität**“.

3. SAPS calculates a **recommendation** for each worker by solving an **optimization problem...**

→ Formal statement of the optimization problem:

(next slide)

Formal statement

Consider individual i at time t in unemployment spell with characteristics $X_{i,t}$ can enroll in one of R available programs

→ Potential outcomes (at some time $t+t$), could be vector valued:

$$Y_{i,t}^0, Y_{i,t}^1, \dots, Y_{i,t}^R$$

Expected outcomes for individual with characteristics $X=x$

$$E[Y_{i,t}^0 | X = x], \dots, E[Y_{i,t}^R | X = x]$$

Optimal choice by statistical treatment rule

$$r^*(x) = \arg \max_r u(E[Y_{i,t}^r | X = x])$$

(The optimization of utility u [approximated by the 4 indicators] respectively of expected outcome value Y need **not** have an index i because every single $X = x$ is already an „individual“ combination of features.)

Y-Variables: 4 outcome indicators
→ practically: 1 Index constructed

X-Variables: month, regional
unemployment rate, language
region, industry unemployment
and vacancy rate; age / gender /
education / job experience /
nationality; branch / profession /
job position / hours worked /
income; current unemployment
duration; past participation in
ALMP / past sanction days / past
unemployment spells / recent
participation in subsidized
temporary jobs...

Technical:

Parametric regression → Logit-
Estimation

But: Unbiased estimations would require that the unemployed have been **assigned randomly** to ALMP in the past.

→ no correct assumption (*for example just because of implemented profiling procedures!*)

→ to take into account: **selection problem** (or endogeneity problem) = „treatment effect heterogeneity“ → Identification of selection bias (with separate W-variables) implies identification of the correct control group

4. Experience with SAPS

4. The following steps have already been accomplished (by Lechner / Frölich / Steiger → SIAW, University of St. Gallen, in cooperation with seco):

(1) **Simulation study:**

What are the potential improvements of SAPS? The answer: **about 16%** efficiency gain possible in Switzerland

(2) **Start of the validation study:**

Preparation of the „natural experiment“ (= pilot study): 16 representative PES out of 124 (in Switzerland called „RAV“) have been recruited to be pilots.

5. Next step: Validation study

a. Rules of „natural experiment“ (= pilot study):

- The case workers in the RAV (not equipped with the SAPS-tool are randomly selected. (Case workers without SAPS-tool = Control group)
- Period from April to October 2005
- At every meeting with unemployed, the case workers can access updated recommendations (predictions) via Internet.
- The case workers with SAPS-tool are **not** forced to follow the recommendations, but they know that their performance will be monitored (but only anonymously).

b. Evaluation:

- The realized employment career of one year (until end of 2006) will be used to evaluate the success of the SAPS-tool.
- Study will be released to the public.

Predictions (recommendations):

An **employability indicator (EI)** who captures the chance to get a new job in the next 12 months says for example for individual i with respect to $r \in \{0..R=7\}$ ALMPs:

	EI	
0. No ALMP	5.7	X
1. Personality course	4.3	
2. Language training	6.7	X
3. Computer training	3.8	
4. Further vocational training	4.0	
5. Subsidized employment in regular labor market environment	4.9	X
6. Individual employment program	2.3	
7. Collective employment program	3.6	

X: green EI is significant better than black EI

red EI is significant worse than black EI

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Internet access (1)

Internet access for the case workers:

SAPS - statistisch assistierte Programmselektion

Username: T7365

Password: *****

Ich möchte auf diesem PC eingeloggt bleiben

Bei Fragen oder Problemen: saps@unisg.ch oder 071-224 2300


Willkommen bei SAPS!

Geben Sie hier die gewünschte AVAM-Personennummer der stellensuchenden Person ein:

Bei Fragen oder Problemen: saps@unisg.ch oder 071-224 2300

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Internet access (2)

AVAMNummer: 22355677 (Letzte Aktualisierung: 31.7.2005)
Geschlecht: weiblich
Jahrgang: 1956
Nationalität: Frankreich

Prognosen

	Beschäftigungsindikator	Welche Massnahmen sind ist Ihrer Meinung nach die sinnvollsten?
Keine Massnahme	5.9	<input type="checkbox"/>
Persönlichkeitsbildung	4.8	<input type="checkbox"/>
Sprachkurs	3.3	<input type="checkbox"/>
Informatikkurs	3.0	<input type="checkbox"/>
Fachkurse / berufliche Weiterbildung	2.8	<input type="checkbox"/>
PvB / Einsatzprogramm Einzelarbeitsplatz	1.6	<input type="checkbox"/>
PvB / Einsatzprogramm Gruppenarbeitsplatz	1.2	<input type="checkbox"/>

Feedback

Mein Hauptgrund, weshalb ich keine der vorgeschlagenen Massnahmen auswählen würde:

- Angebot ist nicht vorhanden
- Persönliche Eigenschaften des Stellensuchenden
- nicht klar, was Massnahme im konkreten Fall bedeuten würde
- kein Anspruch auf Massnahme
- Massnahme ist in diesem Fall zu teuer
- bereits andere Massnahme geplant

Kommentare:

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6. Strengths – Weaknesses – Opportunities – Threats

Strengths...

- **Efficient** data processing and **efficient** learning system („expert system“)
- **Optimization** of one of two main possibilities to improve matching process between needs of job offers and competencies of job searchers: Not improving ALMP itself, but procurement of ALMP to unemployed

Weaknesses...

- **Chains and combinations** of ALMP not in consideration
- **Categories of ALMP too approximate** (Fine tuned information and experiences about courses ... in the cantons are not taken into account.)
- Many important but **not visible** „**soft facts**“ about the clients are not in the data (or in a not valid manner).

BUT: SAPS uses **existing** data and data qualities in an **efficient** way. Why not reveal all possible information from the existing datas?

Opportunities...

- **Scientific** (micro-econometric) methodology can be applied in **PES-practice** with a simple using tool and moderate service effort.

Threats...

- **De-qualification** of the case workers? (*)
- Data quality too bad → **no significant impacts** on efficiency of the matching process? (**)

BUT:

- (*) SAPS is planned to be only an assistant tool which **need not** be used.

(**) Simulation study said: „No!“