

Risk profiling of long-term unemployment in Finland

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Contents of the Presentation

- Overview of the risk profiling tool in Finland
- Effectiveness of the tool in identifying high-risk clients
- Experience learned in the evaluation study about the impact of the tool
- Conclusions

Risk profiling in Finland

- The Finnish ministry of employment and the economy introduced a statistical profiling tool in 2007.
- The tool is integrated in the ICT-system used by employment counsellors and produces the risk estimate automatically when an unemployed person registers as a job seeking candidate.
- The risk estimate is presented to the counsellor as a sliding-scale "thermometer" (low-high risk). The counsellors are advised to discuss about the estimate with the client.
- The risk estimate is one factor affecting the segmentation of the clients and in determining appropriate interventions for each client. However, the labour market counsellor makes the final decision (no automatic mechanism).
- Traditionally, the counsellors have made their decisions based on intuition. No other tools exist to identify those in high-risk of becoming long-term unemployed.

Statistical background of the tool

- The tool utilizes large data-set collected by the ministry about each unemployed person.
- The list of variables in the data-set include: unemployment history, age, place of residence, previous occupation, citizenship, education, reason for the termination of previous employment and information about possible disability.
- The tool uses co-efficients produced by econometric estimations. Each co-efficient captures the marginal effect of each variable to the risk of prolonged unemployment.
- Each individual client has his or her unique history and personal profile. The tool calculates the overall risk of long-term unemployment based on this personal profile and the estimated co-efficients.

Econometric issues

- The profiling tool is essentially an interface to an econometric model about the factors leading to prolonged unemployment.
- Internationally, there has been attempts to explain both the duration and the classification between long- and short-term unemployment econometrically.
- Different econometric specifications have been tested both in Finland and elsewhere.
- The current Finnish profiling tool belongs to the category of models estimating the risk of prolonged unemployment, not the exact duration of the unemployment period. It uses a logit-model to produce the estimates (also other econometric specifications such as OLS, probit and tobit have been tested).

How well does the model predict long-term unemployment?

- Obviously, the most important feature of the tool is the ability to distinguish between long-term and short-term unemployment.
- The definition of long-term used in Finland is a period lasting more than a year. Can the model identify those clients in high-risk of been unemployed over one year?
- The answer is a strong yes!
- The effectiveness of the model has been tested twice. In both occasions the statistical capability of identifying high-risk clients was deemed to be very good.

Statistical effectiveness of the tool?

- The following test-setting was constructed: Two data-samples including every seventh unemployed person (about 60 000) were collected from years 2002 and 2005. The sample of 2002 was used to estimate the coefficients and the sample of 2005 to test the statistical capabilities of the different model specifications.
- The most intuitive way to test the effectiveness of the tool is to create predictions for each of the almost 60 000 unemployment periods starting in 2005 and check how these predictions compare to the actual outcomes observable from the data.

Statistical effectiveness of the tool?

- The following table collects the findings:

OLS-regression	Predicted short-term	Predicted long-term
Actual short-term	88.38 %	0.44 %
Actual long-term	10.86 %	0.32 %
logit-model	Predicted short-term	Predicted long-term
Actual short-term	87.00 %	1.82 %
Actual long-term	8.96 %	2.21 %

- The logit-model used in current profiling-tool provides correct prediction in about 89 % of the cases.

About the impact of the tool

- The statistical effectiveness of the tool is very good. However, this is just one side of the story. The actual impact of the profiling tool has been limited. Why?
- Based on the survey among the labour market counsellors conducted in the evaluation study:
 - 3 out of 4 of the counsellors do not discuss with the client about the model and the predicted risk of long-term unemployment.
 - 84 % of the counsellors answered that the tool did not help to solve the client-case.
 - When asked why the predicted risk was not discussed with the client 53 % answered that they didn't believe it to be useful, 20 % didn't believe in the actual estimated risk.
- No pressure from the client side not to discuss the risk estimate! Based on the survey a large majority of clients who did learn their estimated risk reacted positively.

About the impact of the tool

- To summarize, the counsellors do not believe that the model can predict long-term unemployment, do not use it in their day-to-day work nor discuss the results with the clients. Combined these findings suggest strongly that so far the impact of the profiling tool has been limited.
- At the same time the tool does provide different predictions about the long-term unemployment risk than the counsellors. The tool gives a medium-risk estimate more often than the counsellors while the counsellors believe clients to be either in high or low risk of prolonged unemployment more often than the profiling tool.
- It is a statistical fact that the profiling tool can predict long-term unemployment risk correctly in 9 cases out of 10. This means that significant gains in segmenting clients could be secured if the counsellors used the tool more.

Conclusions

- Risk of prolonged unemployment can be predicted accurately.
- The profiling tool used in Finland does work as expected. The current challenges are elsewhere; how to convince the labour market counsellors that the tool is worth using.
- How to convince the counsellors?
 - Provide training and information about the tool.
 - Change current processes. Should the use of the tool be made mandatory? Should the client segmentation and intervention decisions be based more directly on the predicted risk provided by the profiling tool?
 - Something else?