

SOLEP: Technology is changing evaluation worldwide and in Luxembourg

Liser

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Outline of the project

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Active Labour Market Policies Evaluation in Luxembourg -- (EvaLab4Lux)

- EvaLab4Lux is a ESF Project, co-financed by the Ministry of Labour and LISER (2015-2018). The project consists in the development and implementation of a systematic evaluation strategy of all active labour market programmes -- along with all ESF supported activities -- in Luxembourg
- Given (i) the high cost of labour market programmes, (ii) the fundamental necessity to evaluate whether interventions have had or will have their intended effects and (iii) the need for better tools to design future policies, evaluation is becoming a fundamental aspect of policy making.
- For this reason, it should provide answers about what programmes work for whom and why, and how to design optimal future policies.

Main Objectives

- ❑ Building the relative administrative dataset, collecting information included in the global social security database on labour force in Luxembourg (IGSS) and the administrative data collected by the Employment Agency (ADEM)
- ❑ Providing systematic studies (descriptive statistics/survival analyses...etc) of all active labour market programmes (in line with the evaluation strategy of the Ministry of Labour)

Main Objectives

- ❑ Conducting impact evaluation studies of all active labour market programmes in Luxembourg, based on advanced methodologies that guarantee the robustness and reliability of the results
- ❑ sharing knowledge: I. an international conference where top experts will present their latest research and exchange innovative ideas (<https://www.liser.lu/?type=news&id=1411>); II. a national conference for public policy actors in Luxembourg, to present recent findings on programme evaluation results of national interest; III. a summer training school on Policy Evaluation and Causal Inference, with the intervention of top experts in the field (<https://www.liser.lu/?type=news&id=1412>)

Data

- In order to analyze the effect of alternative training programmes on subsequent labour market outcomes (e.g. re-employment probability and wages) we combined two rich administrative datasets in Luxembourg.
- The first dataset is represented by administrative records derived from the global social security database in Luxembourg (Inspection Générale de la Sécurité Sociale (IGSS)), which collects social security forms of all workers employed in the country since 1980.
- These data allow us to follow the trajectory of workers from their first entrance in the labour market.

Data

- The IGSS dataset is merged with the longitudinal dataset on training programmes collected by the Employment Agency (ADEM) by using a unique personal identification number (anonymized). The longitudinal information collected in this way represent a rich reference source for the analyses to implement.
- Available characteristics of the unemployed are: age, education, gender, civil status, and nationality, the last job performed and the new job (if employed), the job starting date, wage, number of hours worked, firm size, profession, and sector of activity, civil status previous to unemployment registration, type of job required by the unemployed, type of interventions/programmes implemented by the agency, and a score variable assessing the employability level of the unemployed worker.

Combination of qualitative and quantitative methods

Focus Group with the promoters of different ESF projects (COSP JEUNES , COSP Demandeurs d'emploi, Fit4Bâtiment, Fit4Financial Markets)

The meeting allowed us to take into account the promoters' point of view on the implementation of the policy under study (performance analysis of each intervention)

For example, the interview allowed us to gather information about the following aspects:

- their experience with the administrative procedure implemented by ADEM to select the final 'recipient/beneficiary' of the intervention

Combination of qualitative and quantitative methods

- the importance of having 'mixed' group of people among the beneficiaries
- the importance of social competences (cognitive and behavioral skills)
- the importance of language skills
- the incentive
- health problems and livelihoods
- monitoring and feedback on the efficiency of the different measures

Combination of qualitative and quantitative methods

- We also conduct impact evaluation studies of a series of active labour market programmes in Luxembourg, based on advanced methodologies that guarantee the robustness and reliability of the results + the tractability and availability of tools for policy analysis (e.g. updated statistical softwares implemented in the analyses have been published and are currently downloadable from Stata: <http://www.statajournal.com/article.html?article=st0352>).
- Our focus is on the estimation of causal effects when considering participation to i) binary and ii) multiple interventions. Moreover, we focus not only on pair-wise comparisons among individuals enrolled in different schemes (drawing causal effects for a particular subpopulation), but also on comparing all individuals simultaneously. This would enable policy makers to contrast the average effects across different measures, and eventually select the most efficient corresponding to a well defined target group.

Combination of qualitative and quantitative methods

- How to conduct impact evaluation studies? Example: By using matching techniques.
- **Matching** is a statistical technique which is used to evaluate the effect of a treatment by comparing the treated and the control group units in an observational study or quasi-experiment (i.e. when the treatment is not randomly assigned).
- The goal of matching is to find/match one (or more) control unit(s) for every treated unit, with similar pre-treatment observable characteristics against whom the effect of the treatment can be assessed.

Combination of qualitative and quantitative methods

- By matching treated units to control units, this technique enables a comparison of outcomes among treated and non-treated to estimate the effect of the treatment received.
- In this way we reduce bias due to confounding (selection bias due to the fact that the intervention is not randomized). Propensity score matching, an early matching technique, was developed as part of the Rubin causal model.

Possible extensions of the EvaLab4Lux project

More recently, another ESF project on the 'Investissement pour la croissance et l'emploi (2014-2020) -- Luxembourg' got financed (2018-2020)

A CORE project on 'Machine Learning for Policy Evaluation' will be also submitted by Andrea Mercatanti (researcher at Liser) in the coming two months to the National Research Fund - FNR.

Machine Learning for Policy Evaluation

In the framework of programme evaluation one of the main concerns is the prediction of heterogeneous effects-->the dissimilarity of causal effects in the targeted group (females vs males, youth vs elderly, native vs immigrant).

A recent but fast growing field of research in machine learning methods is focused on allowing researchers to detect heterogeneity of causal effects based on a data-driven search.

Standard approaches developed to tackle the question of heterogeneity become unfeasible when the aim is to detect the features of individuals who display significantly different causal effects, particularly when the number of observed individual characteristics is high.