1. NON-TECHNICAL SUMMARY

Please provide below a project summary written in non-technical language. The summary may be used by ESRC to publicise your work and should explain the aims and findings of the project. [Max 250 words]

The project has enhanced statistical methods for duration analysis and delivered new insights into empirical questions related to individual unemployment experiences. Moreover, it provides
new evidence for the importance of data problems in administrative data. Unobserved periods and misclassification can preclude any reliable causal inference even if the data is large and precise in many variables.

A number of applications with administrative individual data were performed to show the applicability of the suggested methods and to obtain interesting findings for empirical labour market research. The applications illustrate that the suggested methods are able to provide informative results in a real research situation under milder conditions than previous approaches. The applications include the analysis of the effect of unemployment benefit entitlements on the incidence and length of unemployment, the analysis of factors which safeguard employment and the role of the regional labour market for individual re-employment prospects. The main empirical findings include that an unemployment benefit reform in Germany in 2006 lead to annual savings for the Federal employment agency that amounted to up to 4.2 billion Euros. Other important findings for Germany include that a higher educational degree is much less associated with a safer job than having long tenure. For the UK it is found that individual characteristics seem to be more important for finding a new job quickly then the regional labour market environment. Large cities such as London and Birmingham provide the worst and remote parts of Scotland the best environment for finding a new job quickly.

2. PROJECT OVERVIEW

a) Objectives

Please state the aims and objectives of your project as outlined in your proposal to the ESRC. [Max 200 words]

One important part of the project was to extend econometric methods for competing risks duration models such that they take into account the non-identifiability of the model and empirically relevant data quality problems. Recent results from Biometrics suggested that addressing the non-identifiability of the competing risks model may lead to a re-interpretation of existing empirical results. One objective of this project was to explore whether this is also the case for labour market data.

The other important part of this project was to apply these models to unemployment duration data from Germany. The following empirical questions were to be analyzed:

a) General determinants of unemployment duration, b) evolution of unemployment duration over time, c) effect of policy reforms.
The project outcomes aimed at reassessing former empirical results of high policy relevance. In addition to applied researchers, the results shall be of interest for data providing institutions and departments of labour.

b) Project Changes

Please describe any changes made to the original aims and objectives, and confirm that these were agreed with the ESRC. Please also detail any changes to the grant holder's institutional affiliation, project staffing or funding. [Max 200 words]

The project mainly follows the original research plan with some small modifications and several extensions as the progress was faster than expected. Remaining time was therefore used to address various related problems.

Instead of modifying the Honore/Lleras-Muney (2006, Econometrica) approach to tighten bounds on estimated coefficients, the project adopted copula functions to model the dependence structure between competing risks (Zheng/Klein, 1995, Biometrika) as the latter approach is more general. As an extension of the original research plan, the project now also uses administrative data from the UK and European household panel data. The project is therefore not restricted to German data. Another extension to the research plan is to estimate misclassification probabilities for variables in German administrative individual data and to apply misclassification regression techniques to take into account for these data problems. The project also looked at the reliability of retrospective unemployment information in the European Household Panel Survey. These data are a prime resource the analysis of European Unemployment.

c) Methodology

Please describe the methodology that you employed in the project. Please also note any ethical issues that arose during the course of the work, the effects of this and any action taken. [Max. 500 words]

A considerable share of the project work was devoted to the development of statistical methods for duration analysis. Moreover, standard multivariate regression techniques, nonparametric estimators, quantile regression and misclassification techniques were employed.

The project made the following methodological contributions:

1) A model is suggested that allows for the estimation of a dependent competing risks model in presence of more than two risks and in presence of covariates. With this framework it is possible to determine the robustness of covariate effects on the distribution of the latent variables with respect to the dependence structure between risks. It also enables the applied
researcher to derive bounds on covariate effects which are due to the non-identification of the model. Simulation results suggest that the sign of a treatment or covariate effect is often robust with respect to the assumed dependence structure while the magnitude of the effect is highly sensitive. The estimator extends existing methods in two respects: first, the approach is applicable to a model with more than two risks. Second, the approach allows the dependence structure to differ over the values of the covariates. Moreover, in this model it is straightforward to combine bounds due to partial identification of the dependent variable (unemployment duration) and bounds due to non-identification of the model. It is also straightforward to tighten the bounds due to non-identification by imposing restrictions on the dependence structure. By not imposing any restriction, the method produces the Peterson bounds which are generally wide. The model can be employed with non-, semi- and parametric estimators for the cumulative incidence curves.

2) It is shown under a rather mild assumption that the sign of changes in marginal distributions in response to covariate changes can be identified for large sets of durations. This approach exploits a direct relationship between the sign of a change in the cumulative incidence curves and the sign of a change in the marginal distributions. Identifiability of the latter can be achieved if the dependence structure between risks (copula function) is unknown but independent of the varying covariate.

There were no ethical issues.

d) Project Findings

Please summarise the findings of the project, referring where appropriate to outputs recorded on ESRC Society Today. Any future research plans should also be identified. [Max 500 words]

Methodological findings:

1) The copula graphic estimator (Zheng/Klein, Biometrika, 1995) was extended to a model with more than three competing risks.


2) A general approach to the identification of the sign of a covariate effect on the latent distributions in absence of strong assumptions.


3) Development of a general regression framework (closed form solutions) for the copula graphic estimator.

Empirical findings:

i) Germany:

1) The effect of the 1997 reform of the unemployment compensation system on unemployment duration is re-investigated by applying the copula graphic estimator to a model with three risks. Lo/Wilke (2010).

2) The highly disputed 2006 reform of unemployment benefits in Germany lead to a strong increase in unemployment incidence just before the reform and a strong decline in unemployment incidence for the affected groups after the reform. It is estimated that the policy change effectively reduced early retirement which lead to savings of about EUR 4 bil. annually for the German unemployment insurance.


3) Providing important new insights on data quality problems in administrative data by revealing a large degree of misclassification in the education and citizenship variables of the German employment records. It is found that the educational level is much less important for job security in Germany than the length of tenure.


ii) UK:

1) Local labour market characteristics have a weaker association with job finding probabilities than individual characteristics of unemployed people. Large cities provide the worst local labour market environment for job seekers allowance claimants while remote regions of Scotland provide the best environment.


2) Several implementations of unemployment duration in UK individual administrative data (JUVOS) are suggested.


iii) Europe:

Providing evidence for considerable recall errors in the retrospective unemployment information of the European Household Panel data.

e) Contributions to wider ESRC initiatives (eg. Research Programmes or Networks)

If your project was part of a wider ESRC initiative, please describe your contributions to the initiative’s objectives and activities and note any effect on your project resulting from participation. [Max. 200 words]

Not applicable

3. EARLY AND ANTICIPATED IMPACTS

a) Summary of Impacts to date

Please summarise any impacts of the project to date, referring where appropriate to associated outputs recorded on ESRC Society Today. This should include both scientific impacts (relevant to the academic community) and economic and societal impacts (relevant to broader society). The impact can be relevant to any organisation, community or individual. [Max. 400 words]

Scientific:

2 research papers are already published/accepted in leading international statistics journals: JRSS A and JRSS C.

One paper has a revise and resubmit at Oxford Economic Papers.

3 papers are currently submitted to international journals and one paper is currently under preparation for submission.

The research was presented in many international conferences including: World Congress of the Econometric Society 2010, Joint Statistical Meeting 2009, and European Econometric Society 2009.

Research output was presented in 11 contributed conference talks and in one invited conference talk (Meeting of the German Statistical Society 2010). Research output was presented in 15 invited external seminar talks and in 4 internal workshops.

Societal:

Research output was presented at workshops by the DWP (WPEG Seminar, London) and the HMRC (Westminster applied Evaluation Workshop, HMRC London). These events were mainly attended by staff of the relevant departments.
In December 2009 a joint press release was issued by the Institute for Employment Research (IAB), the Centre of European Economic Research (ZEW) in German and by the University of Nottingham in English. Simultaneously the IAB has released a non-technical briefing note for non academics (Kurzbericht) which summarises the findings of the paper by Dlugosz/Stephan/Wilke (2009). In response to this the main press agencies have picked up the topic for their ticker and several German newspaper reported the main results. In response there were several request by the Federal Employment Agency for additional information.

Research results with German data are directly communicated to the data provider (FDZ, research data centre of the Federal Employment Agency) and the Institute for Employment Research (IAB). The IAB is consulting the Federal Employment Agency and German politics about labour market policies. In response to the research output of this project the FDZ is modifying data manuals and has started internal projects for the analysis of data quality problems.

Research results were also communicated to the DWP through informal contacts and through a consulting project with DWP which is related to unemployment duration.

b) Anticipated/Potential Future Impacts
Please outline any anticipated or potential impacts (scientific or economic and societal) that you believe your project might have in future. [Max. 200 words]

Further refereed publications are expected. Further conference presentations are expected.

Output will be presented in a keynote at the user conference of the research data centre of the German Federal Employment Agency in April 2011. The conference audience comprises academics and staff of the Federal Employment Agency.

To cite this output:

You will be asked to complete an ESRC Impact Report 12 months after the end date of your award. The Impact Report will ask for details of any impacts that have arisen since the completion of the End of Award Report.
4. DECLARATIONS

Please ensure that sections A, B and C below are completed and signed by the appropriate individuals. The End of Award Report will not be accepted unless all sections are signed.

Please note hard copies are NOT required; electronic signatures are accepted and should be used.

A: To be completed by Grant Holder

Please read the following statements. Tick ONE statement under i) and iii), then sign with an electronic signature at the end of the section.

i) The Project

- This Report is an accurate overview of the project, its findings and impacts. All co-investigators named in the proposal to ESRC or appointed subsequently have seen and approved the Report. ✗

ii) Submissions to ESRC Society Today

- Output and impact information has been submitted to ESRC Society Today. Details of any future outputs and impacts will be submitted as soon as they become available. ✗

OR

- This grant has not yet produced any outputs or impacts. Details of any future outputs and impacts will be submitted to ESRC Society Today as soon as they become available. ✓

OR

- This grant is not listed on ESRC Society Today. ❌

iii) Submission of Datasets

- Datasets arising from this grant have been offered for deposit with the Economic and Social Data Service. ❌

OR

- Datasets that were anticipated in the grant proposal have not been produced and the Economic and Social Data Service has been notified. ❌

OR

- No datasets were proposed or produced from this grant. ✗

SIGNATURE:  

NAME: Dr. Ralf Wilke 
DATE: 10/2/2011

B: To be completed by Head of Department, School or Faculty