

We are grateful for the reviewers' efforts and their positive comments. All three reviewers emphasize the contribution of our proposal to the field (if funded), are in agreement that our team contains the right competence and underline that our working plan is well designed. The reviewers do raise clarification questions concerning the substantial (historical) part of the proposal (reviewer 2), the replication of the method by Schulz (reviewer 1) and the project's risk assessment (reviewer 2,3), on which we will now elaborate.

Reviewer 2 asks for two points of clarification on the substantial part of the project. "What constitutes "achieved" and "ascribed" characteristics" and "what is understood as human capital [... and how is it] measured?". Our research proposal aligns to a longstanding social and historical literal trying to answer the question to what extent social mobility has changed over time and what the determinants of that change are. Social mobility is the process where one gains a better 'social status' position, usually measured in terms of social and (!) economic resources associated with an occupation. So people are socially mobile when they move from a 'lower' occupation (e.g. farm labourer, maid) to a 'higher' occupation (e.g. newspaper editor, lawyer). There are various forms of social mobility, e.g. intergenerational (comparing status of parents to those of their children), marriage (comparing status of partners or partners' parents) and the one we focus on in the proposal is intragenerational mobility, indicating whether people attain different social positions over their career.

In order to attain a better social status position one can benefit from so called 'ascribed' characteristics. These are characteristics related to the social background of a person. For example, if one comes from a higher social background, one might benefit more from the social capital (network) and social skills to find (or compete) for a job, than someone from a lower social background. In contrast, 'achieved' characteristics are characteristics that a person 'achieved' him or herself, for example, educational attainment where on through personal focus is able to attain a better educational qualification and therewith a higher occupation and social status position. As reviewer 2 indicates this distinction is not as clear in practice. For example in some countries, social background basically determines what type of education one is able to attain. This however, does not take away the point of the research literature, namely that the more social position depends on achieved characteristics, rather than ascribed characteristics, the more equal a society is, as social background is less of a determinant of one's social position.

Our research contributes to the research literature by describing to what extent job advertisements in newspapers changed over time in using ascribed and achieved characteristics. Theoretically, it is expected that with the mechanization of labor and mass-transferral of knowledge, occupations become more complex, and educational qualifications become more important over time, as knowledge, rather than milieu were important to the 'new' occupations.

Our research question 1 focuses on whether career patterns have changed in this sense over time. For example, more 'modern' (technology related) occupations that tend to require higher qualifications may not only start at a higher status position, but may throughout the career also increase the gap with more traditional occupations. Our research question 2 focuses on this phenomenon and tries to measure whether, over time, job advertisements in newspapers indeed asked more often for achieved, rather than ascribed characteristics. To illustrate Figure 1 shows a job advertisement for a type of maid. Some of the requirements are clearly linked to ascribed characteristics, such as that she needs to be from a specific area ("Geldersche of Overijsselsche") and she is required to have proper references ("goede getuigschriften"). Other parts are more related to achieved characteristics, skills the maid acquired in relation to keeping house ("Mazen, Stoppen, met de Wasch omgaan en Tafeldienen").

Figure 1. Example of a newspaper advert



Source: Nieuwe Rotterdamsche Courant (Jan 27th, 1867) via <http://www.delpher.nl>.

We will draw on Schulz et al. (2015), who annotated more than 2000 job advertisements, to decide which characteristics are considered to be 'ascribed' and which to be 'achieved'. This is also what we were considering to be the 'history of human capital'. For many of these adverts contain concise descriptions of the skills and even degrees needed to obtain an occupation. Due to our automated procedure we cannot only distinguish whether adverts of certain occupations are more often requiring skills and educational credentials, we can also see to what extent this is changing over time.

Reviewer 1 asks to what extent we are going to replicate the studies by Schulz on career attainment (Schulz and Maas 2010) and newspaper adverts (Schulz et al. 2015). Investigating whether we can replicate these studies through automatic methods is a central piece in the evaluation of our method, but our investigations will go beyond that. With regard to career attainment, our main contribution is that, for the first time on a large scale, we will derive career patterns from a non-register-based data. So far all large scale studies on social mobility use either, birth, marriage, death certificate data or census data. Instead, we will use data from biographies to retrieve information on careers. There are major implications should we receive funding. First, since there are various criticisms on the register data (e.g. not created with the intend for analysis, not focused on recording of occupational activities), we are able to provide an answer to the question to what extent results on career patterns measured with register are consistent with results from non-register data. The second implication is that we are making it possible to derive occupational data from textual sources, and thus we are able to add information from more qualitative sources (newspapers, books, biographies) to data on quantitative sources (register data). Since the qualitative sources provide 'soft' information on e.g. preferences for work, cultural differences between social groups, we are able to extend the existing quantitative models that are restricted to 'hard' information (characteristics of persons (age, gender) or regions (number of steam engines, kilometers of railway)).

Our contributions to the job-advert study follow from our approach using computer assisted retrieval and textual analysis for the newspapers. For one, we will be able to retrieve a much bigger sample and control for more characteristics that are relevant to the hypotheses at hand. For example, we will be able to extract whether there are differences between adverts (and newspapers) that are religiously differently oriented. This leads to new hypothesis tests of a central theorem of social mobility research, for example that higher levels of achievement are related to protestants, rather than catholics.

While reviewer 1 underlines the feasibility of our study, reviewer 2 mentions that “conceptualizing and writing substantial papers seem to be quite ambitious” and reviewer 3 hopes that there will be “a possibility to extend it, if needed”. First, we would like to underline that the work we will do has both a more substantial and a more methodological focus. Through CLARIAH, we now have experienced how both efforts can result in a more methodological paper with a more minute substantial focus, as well as in a more historically oriented article, with modest introduction to the method used. Moreover, all members of the proposal are intrinsically engaged with the topic and thus publication of the results is must-have at our career stages. Finally, all members will still be engaged in CLARIAH after the project, so any loose ends can be properly dealt with alongside the CLARIAH project.

References

- Schulz, W. and I. Maas. 2010. Studying historical occupational careers with multilevel growth models. *Demographic Research* 23 (24), 669-696. DOI: 10.4054/DemRes.2010.23.24
- Schulz, W., I. Maas, and M.H.D. van Leeuwen. 2015. “Occupational Career Attainment during Modernization. A Study of Dutch Men in 841 Municipalities between 1865 and 1928.” *Acta Sociologica* 58 (1): 5–24. DOI:10.1177/0001699314565795.