

Title:

Mobility and Labor Market Careers of Graduates from a Local University – A Microdata Approach Using Geo-code Information

The University of Regensburg in Bavaria has been founded 50 years ago as a regional university. In the time of its existence, Regensburg and the surrounding areas have experienced a deep structural transformation: in the beginning of this period, Regensburg was considered to be amongst Western Germany's crisis regions. Nowadays, by contrast, it is ranked as one of Bavaria's economic hot spots. Such a development very likely is driven by a deep structural change, where certainly the supply of high-skilled workers plays a central role.

The study employs a unique data set linking full university's administrative data on graduates with social security micro data from the German labor market. We concept builds on a concept of strict data protection. In a first step, the birth date, name and surname of the students – strictly separated from other information -- are used to identify the person in the social security (so called Integrated Employment Biographies, IEB) data of the Institute for Employment Research (IAB) . Having done this, an identifier is generated which is used for data linkage. In the linked data set the clear names are deleted and only the anonymized identifier is included. The combination yields a micro data set with extremely rich information.

The social security data is based on the IAB's employment register data which covers about 80% of Germany's total workforce. The IEB data set makes it possible to track the employment status of a person exact to the day (unemployment and employment spells, participation in labor market measures).. The IEB consist of all individuals in Germany, which are characterized by at least one of the following employment status: employment subject to social security (in the data since 1975), marginal part-time employment (in the data since 1999), benefit receipt according to the German Social Code III or II (SGB III since 1975, SGB II since 2005), officially registered as job-seeking at the German Federal Employment Agency or (planned) participation in programs of active labor market policies (in the data since 2000). These data, which come from different sources, are merged in the IEB. Only civil servants or family workers and self-employed persons are not included in the data. Because records are used to compute social security contributions and accordingly unemployment benefits and earnings data are highly reliable. The data also includes personal information like age, gender, skills, occupation, working time (part-time, non part-time), sector, region, place of work, place of residence.

The university's administrative data contains individual information on the place of residence where the school leaving certificate that guarantees access to the university ("Abitur") was obtained, the course of education (both secondary school and university education), the specific field of study, the grades achieved, the length of university studies etc. Hence we have data for the educational and labor market career of all individuals included in the sample.

During the study we will generate detailed geo-data consisting of coordinates of all living places and working locations over the full working life as well as information on where each graduate has finished secondary education (which can be taken as a proxy for the place where one has grown up). This allows us to study mobility patterns in a very fine-tuned empirical set up.

A large majority of the university's graduates in our sample are originating from Regensburg's immediate hinterland and eastern Bavaria. As such, individuals receiving a higher education

entrance qualification in the greater Regensburg area are more likely to attend the University of Regensburg compared to individuals from other German regions.

The study concentrates on questions like the following:

- (1) Where the graduates are entering the labor market? How long did they search for a job and what factors determine the length of job search?
- (2) What can be said about mobility patterns? Does mobility depend on the field of study, the labor market situation in specific occupations and general economic conditions?
- (3) Is there a link between the mobility and further labor market career aspects (like earnings and the probability of employment)? Is there a mobility dividend and, if so, how large is this dividend?
- (4) How many of the graduates not originating from Regensburg's hinterland stay in the region? How many individuals originating from Regensburg's hinterland leave the region? Which factors are responsible for this behavior? How these patterns are related to other factors explaining success on the labor market?
- (5) What is the influence of grades on further labor market career indicators? Is this field specific?
- (6) What is the influence of the length of studies on further labor market career indicators? Is this field specific?
- (7) What about regional push and pull factors for student's mobility?
- (8) Are there relationships between regional and occupational mobility?
- (9) Can an influence of high skilled graduates on the economic development of the destination region be identified? Are the indications for brain drain and brain gain effects?

The study contributes to the literature in several aspects. First, it investigates the linkage between the process of the individual's acquirement of human capital and the individual labor market performance as shown by earnings and un-/ employment probability. Second, it clarifies the role of investment in specific occupational human capital on labor market outcomes. Third, it gives some empirical evidence on the role of a higher regional supply of high skilled individuals on regional economic development and structural change. The foundation of the university can be taken as a sort of natural experiment. Fourth, the study intends to shed some light on the value of mobility for the labor market career of the graduates. Fifth, we are able to show to what extent different grades of the final exam influence the labor market performance of the graduates (controlling for other factors). Because we have the exact grades, we can use a regression discontinuity design by comparing the labor market careers of students' with an average grade of, say, 2.49 (yielding a total grade of "good" in the German system), with students who achieved a grade of 2.51 (yielding a total grade of "satisfactory", only). Of course, other factors have to be controlled for.

Labor market performance will be measured by average or lifetime earnings, the likelihood of unemployment and the questions whether or not the person is over- or underqualified for a given profession. All these indicators are specific also to the region.

An important part of the study will be devoted to the question whether or not a contribution of the foundation of an university to the speed of structural change, the birth and death of new firms, growth of local GDP, available income etc. can be identified. Does a higher supply of university graduates who are attached to the region generate a positive growth impulse to the region? Are there effects of regional wages through neoclassical competition or through knowledge spillover effects? The latter can be investigated if one looks at an effect of the share of high skilled in a region on labor market performance indicators like the wage level.

Additionally we can address the basic hypotheses formulated by Richard Florida. Can we discriminate between graduates in a specific occupation as belonging to a "creative class" and those who do not? Using the definitions used by Florida we can easily identify the occupational codes that

appear in the concept. This would lead to the hypothesis that areas with a higher share of persons belonging to the creative class should perform better than others with respect to economic indicators.

The rich micro panel data allow us to identify individual fixed effects by using a conventional Mincerian wage equation. This individual fixed effect can be investigated further. For instance, one can ask whether the individual fixed effect is influenced by the field of study, the grades obtained, the length of studies and other variables that characterized the specific human capital investment or individual ability.

All in all, geo-coded information will play a crucial role in our information. For instance, the concentration of specific human capital in an area defined by a fine grid might lead to specific neighborhood effects exactly in this area. Moreover, the geo code is extremely important for investigating the mobility patterns before and after the period of study. Because of its peculiar economic history, the region of Regensburg is an ideal field of study. The research questions we are posing are of high relevance for regional development and the assessment of investment in regional educational infrastructure. Due to the extraordinary rich micro data, we will be able to generate reliable results and to test our basic hypotheses. The investigation will contribute to the understanding of regional development and the role of human capital, the value of mobility and the specifics of investment in human capital and external effects (spillovers).

The research will be carried out at the Institute of Employment Research (IAB) in Nuremberg.