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Statistical and econometrical analysis of economic emigration of students of higher schools in the Silesian Province

A summary of Ph.D. thesis

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At the beginning of the 21st Century the Polish and Silesian labour market was in extreme imbalance. 20% of professionally active Polish citizens and 17,5% of professionally active Silesian citizens remained unemployed. In this situation Polish employees have waited hopefully for the accession of Poland to the European Union and for the opening of labour markets in countries of “old” EU.

Long expected accession took place on 1 May 2004. Although not all EU-countries have opened their labour markets immediately, the period after 2004 should be considered as the new opening of the rich history of Polish emigration. Suffice to say that 333 thousand people have left Poland in the years 2004-2017 and 2,5 million of Polish citizens have been living abroad in 2017.

Such a big scale of emigration has caused many both positive and negative effects for our country and region. On the one hand, it contributed to remove imbalance within the domestic labour market. The unemployment rate in Poland and in Silesia has currently reached a very low level – 6,6% for Poland and 5,1% for the Silesian province. Current university and college graduates don't have such problems finding first jobs as their 10 years older colleagues.

On the other hand, Polish employers have increasing difficulties finding valuable employees, especially graduates of technical faculties. Polish government tries to solve this issue and thus financially support the “ordered faculties”. But the high demand for work of these graduates persists not only on the Polish labour market, but also in other countries. This fact, together with the freedom of movement and employment within the whole EU and the plans for US visa waiver cause Polish graduates to have increasingly wider choice of working places. Economic emigration has become an alternative source of income instead of remaining an unpleasant necessity and it has become really difficult for Polish employers to be competitive with the salaries offered in Western Europe. Such outflow of most valuable labour force is called “brain drain”.

These conditions make students (especially of faculties, where job demand significantly exceeds job supply) a community with crucial meaning for the development of the country and region. It is thus essential to apply the current heritage of various scientific disciplines in the area of migrations for the detailed research of the student population.

This Ph.D. thesis follows expectations defined above. It implements many statistical and econometrical tools for the research of migratory behaviours of Silesian students. The most important of them are gravitation models based on “push and pull factors” that encourage or

discourage to migration and logit regression models, which constitute the technique of variable modelling measured on a nominal scale.

The first chapter of the thesis has theoretical nature and contains a short overview of the heritage of various scientific disciplines (sociology, geography, psychology, economics, demography, statistics and econometrics) in the area of research on migrations. The thesis also discusses migration indicators used in public statistics (including its advantages and limitations) and econometrical methods that could be used as modelling tools of the phenomenon of migration.

The second chapter focuses on the structure and dynamics of the Polish and Silesian emigration. Firstly, a short historical overview (from 17th Century till Poland's EU access) has been introduced. The next section is an overview of domestic and foreign elaborations on post-accession emigration as well as strategies applied by migrants abroad. The last two parts contain analysis of data available in public statistics and the estimation of models of development tendencies of the Polish and Silesian permanent and temporary emigration. It is useful background and good starting point for further analysis described in next chapters.

The third chapter introduces the methodology for survey research carried out among students in the Silesian province and initial outcome of it. Firstly, methods of selecting the research sample and actions ensuring its representativeness have been described. Secondly, it presents the method for measuring the inclination of students to emigrate and factors that influence its distribution of answers of respondents.

The fourth chapter focus on analysing the dependence of the inclination to migration on factors that could influence it using chi-square tests of independence.

This correlation analysis has been a good starting point for the initial selection of diagnostic variables to the models set in the **fifth chapter**. The first group constitutes two power gravity models, that allowed to identify factors that pull the students towards particular destination countries and barriers, that discourage them to leave their own country. In the first one, the dependent variable has been subjectively perceived by students attractiveness of the country. Whereas, the second one presents the real frequency of choosing particular countries as working places among students, that had migratory experience in the past. Second group of models constitute logit regression models, where the dependent variable was an inclination of students to different types of emigration. It allowed to research how particular demographic and personal features of students and types of the chosen studies influence the inclination to migration and to estimate the probability that students are ready to emigrate.

The results of the research show, that while the minority of students (approximately 15%) had migratory experience in the past, the majority is ready to make this move. More than 75% of them is inclined to work abroad during holidays and even higher percentage is ready to go abroad for a period shorter than 1 year to work in one's own profession. But it is extremely alarming that approximately a half of students consider permanent or long term emigration.

This readiness to emigrate is strongly selective as per the selected faculty of studies. Analysis of dependence and logit regression models show, that the choice of technical faculties contributes to the inclination to emigrate for employment in one's own profession. Outcomes

of research prove that there is a serious risk, that students educated at the cost of the Polish taxpayers can contribute to economic development of other countries instead of Poland.

On the other hand, there is a group in the student community that has a tendency to take on the strategy of depreciation of qualifications, meaning that they can accept working below their qualifications and competences. Taking on such strategy is caused by choosing such faculties as humanistic and environmental sciences, law, administration and (in smaller degree) economic sciences.

The other feature that selects students to have or not to have an inclination to emigrate is their age. Students after 30 have a weaker tendency to emigrate than the younger ones.

The next factor that influences readiness of students to emigrate is their economic situation as well in objective conceptualization, as subjectively perceived by themselves. Low incomes, negative considerations of one's economic situation and money as priority increases the probability of students being ready to emigrate, even if it is connected with working below one's qualifications and competences.

The research outcome also prove that close family relations constitute a serious inhibiting factor for any type of migration. Whereas, strong relationship with the home country and positive feelings towards it merely weaken the readiness to long-term migration. It doesn't however have impact on the students' tendency to take on short-term migrations abroad.

Paradoxically it may seem that the strongest inclinations to migrate are manifested by individuals that have insufficient self-confidence. It can thus be assumed that students who have strong confidence in their possibilities believe they can find the satisfactory employment domestically. There is a psychological factor inhibiting the migration susceptibility: conservative students, individuals reluctant to changes demonstrate a lower tendency to emigrate.

The very decision to leave one's country, as well as the selection of the destination are essentially triggered by the emigration possibilities created by family members (unimportant whether close or more distant relatives) employed abroad. Firstly, this can be proved by research carried out among students with emigration experience - as much as 35% of them has benefited from their family assistance in finding employment. Secondly, the number of individuals from the closest environment employed abroad constitutes one of the independent variable models explaining the tendency for migrating. Thirdly, while creating a gravity model, one of the essential factors positively influencing both the subjectively perceived attractiveness of the potential emigration destination, as well as the actual frequency of the destination selection were indeed the migration traditions of a particular country.

From the econometrical point of view it is allowed to say, that models of gravity constitute a convenient tool for evaluating the attractiveness of potential emigration destinations. The created model fits the empirical data in 90%. Additionally, while creating these models, some significant discrepancies between the subjectively perceived attractiveness of the potential destination countries and the actual frequency of selecting this particular country have been observed. For instance, students consider the US as the most attractive employment destination (almost a half of students marked such answer in the survey), while only 3% of students with

migratory experience have really worked in this country. The coefficient of estimated models show, that the reason for this difference is the unreal evaluation of attractiveness by students. They have mainly considered pull-factors, e.g. GDP per capita or the population of biggest metropolises and don't take into account significant barriers of emigration – e.g. closed labour markets, visa duty, distance between potential destination country and Poland and lack or weakness of migratory tradition and nets. The meaning of these barriers increases only during the actual choice of the destination country.

The logit regression models fit the empirical data a bit worse than the gravity models (cca. 70%). Although distributions of migration probabilities estimated on the basis of it are different for both student groups (ready and unready to emigrate), there is a certain group of students featured by the probability of migration close to 0,5. So it is difficult to predict, whether these individuals will be ready to emigrate or not. We can thus claim, that logit regression models constitute useful tools for describing the dependence of inclination to emigrate on different factors and for the prediction of the probability of migration, but for the part of students it can give ambiguous outcome and it will be necessary to apply other forecasting methods. It could be a good starting point for the continuation of research.

Due to the strategic meaning of students (especially of faculties, where job demand is the highest) to the economical development of the region, it is recommended to constantly monitor both their tendencies to migrate and the basic determinants established during research performed within this thesis. It of course requires significant work, however, facing further risks of the "brain drain" phenomenon in the most scarce segments of the domestic labour market, it seems necessary.

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