Most people are afraid of the homeless or even find them disgusting. My doctoral thesis at the Institute of Statistics and Demography of the Warsaw School of Economics (SGH) tackles economic deprivation (problem of lack of goods). Homeless people are embodiment of this social phenomenon. As a PhD student at SGH and statistician at the Cancer Centre and Institute of Oncology in Warsaw, I am focused on statistical modelling of social difficulties: from alcohol abuse and economic violence to cancer incidence and mortality. The key objective of the project is to answer the research questions on causes of homelessness. Statistical modelling is considered a mean to achieve this objective.

Even before applying for the Preludium 13 grant, at the turn of February and March 2017, I carried out a questionnaire survey of homeless males in all shelters, night shelters, and warming centres of Warsaw. Almost 100 variables, mostly on childhood, were measured in the questionnaire. It was one of the first surveys on childhood of homeless people and their life prior to the homelessness episode. The homelessness problem is strongly spatially differentiated. However, I have not found any study similar or analogous to mine in the English-, Russian- and German-language literature. The total sample of homeless men surveyed in February and March 2017 (i.e. before applying for the grant) amounted to app. 600 persons. The same kind of survey of homeless females I have planned for the turn of February and March 2018. The total sample of homeless men and women is expected to exceed N=900. Based on data from the sample of homeless people (N=900) and a stratified random sample of Warsaw's inhabitants of the same gender, age, and educational distributions, as in the homeless population of Warsaw (N=900, hereinafter, the 'control group') a structural equation model will be developed.

Based on the structural equation model a link between homelessness and over a dozen of factors will be examined, such as: childhood factors (including low interest in school, as an early manifestation of exit strategy for life; being a victim of violence; and dysfunctional family of origin), personality traits (including nonconformity and weakness of character), and difficulties of adult life (such as addiction behaviours, poor financial situation, and family dysfunction). I have developed analogous structural equation models to identify risk factors for nicotine addiction, economic demotivation, and uptake of preventive screening. Techniques of structural equation modelling allow to separate a direct impact from an indirect one. Since answers to most of the questions were measured on a binary scale ('agree' or 'disagree') or Likert scale (i.e. on a continuum from 'strongly agree' to 'strongly disagree'), a structural equation model will be estimated by a weighted least squares estimator using a diagonal weight matrix and mean- and variance-adjusted chi-square test statistic (WLSMV or DWLS). Structural equation modelling is a useful technique for modelling attitudes. The current project will contribute to dissemination of that statistical technique. In my doctoral dissertation, which is currently being drafted, I show that structural equation models have been only occasionally developed by the Polish researchers using WLSMV or DWLS estimation.

The assumption that the homeless are guilty of economic failure is firmly anchored in the public awareness. In fact, my hypothesis of the key role played by childhood factors in homelessness seems to be true. 43% of homeless men had the nonpositive relationship with at least one parent in childhood. 27% of them brought up in incomplete families. The hypothesised role of childhood factors can be tested using statistical modelling and requires a housed control group to compare the homeless sample with.

83% of homeless people would like to change their lives by renting a house and finding a regular job. Housing, job, and shifting back in time are, according to answers to an open question, the most frequent dreams of homeless men. Deprived people are not more likely to be demotivated for work. Risk factors for deprivation and demotivation vary considerably. Based on data collected by the Polish Academy of Sciences, I have developed a structural equation model, which will be published in my doctoral dissertation. Demotivation for work is rarely based on external factors.

Two English-language academic papers with the results of statistical modelling will be specific results of the project. Insights from structural equation modelling will be also presented during an international conference. A secondary purpose of the analysis is to get a better understanding of determinants of the duration of homelessness. Based on at least 20 individual in-depth interviews and results of the above quantitative survey, the current life of homeless people will be discussed. During in-depth interviews the emphasis will be put on life satisfaction, future plans, and knowledge of free-of-charge educational possibilities for adults. The qualitative analysis will be published in one of the Polish-language academic journals.

In Poland, there are at least 33,000 homeless people. The current project is restricted to cognitive goals; however, I gained a strong motivation to carry out the project due to the openness and friendliness of homeless men, contrary to stereotypes, and empathy of pain that the homeless feel, while speaking about their lives.