



The Public Defense
of the Doctoral Thesis in Economics
by

Anna Adamecz

on

Evaluation of Educational Policies

will be held on

Friday, October 28, 2016 at 3:30 pm

in the

Senate room
Central European University
Nádor Street 9, Budapest

Thesis Committee:

Botond Kőszegi (Chair)

Róbert Lieli (Internal member)

Attila Rátfai (Internal member)

András Simonovits (External member)

Ágnes Szabó-Morvai (External member)

Supervisor:

Gábor Kézdi

Examiners:

Hessel Oosterbeek, Professor at the University of Amsterdam

(External Examiner)

Róbert Lieli, Associate Professor at the Central European University

(Internal Examiner)

The doctoral thesis is available for inspection
at the CEU Economics Department

Abstract

In my thesis I evaluate the effects of educational policy interventions. Educational outcomes are important factors of economic and social success. According to the human capital theory, individuals invest time and effort in their education for immediate and future gains. In the theoretical model of schooling investment and consumption decisions, one decides about how much time and effort to invest in learning maximizing the difference of the expected present value of lifetime wages and non-monetary benefits from schooling, and the actual costs of going to school and taking efforts. Both theoretical and empirical evidence show that such decision-making process may lead to lower-than-optimal schooling investment decisions, especially in the case of children of low socio-economic background, because they discount future returns more heavily, and also, learning may require more efforts from them.

Educational policies can influence the production of educational outcomes through two main channels. First, they may aim to induce individuals to invest more into learning. Second, they can increase the productivity of the learning process within schools to produce higher outcomes. I examine examples to these two types of policy measures in my dissertation. In the first two chapters I estimate the impacts of increasing the compulsory school leaving (CSL) age in Hungary. CSL age legislation introduces a constraint into the mechanism in which one decides about how much time to invest in going to school. I make use of a legislation change that increased CSL age from 16 to 18. In the first chapter, I estimate the effects of increased CSL age on secondary school track choice which occurs at age 14 and secondary school dropout rates. I find that the legislation change resulted in an increased probability that children would choose the academic high school track instead of vocational training schools. At the same time, those choosing vocational training schools are more likely to drop out under the higher CSL age scheme. Potential explanations of increased dropout rates include a decrease in the quality of teaching in vocational training schools due to supply constraints, and a shift in student composition to include more students from lower socioeconomic backgrounds.

The second chapter is a joint work with Flóra Samu and Ágota Scharle. We are looking at the effects of increased CSL age on the teenage fertility of Roma women, a disadvantaged ethnic minority in Hungary. We provide evidence that the legislation change decreased the probability of teenage motherhood among Roma women by 6.8 percentage points. This effect is temporary as higher CSL age delayed first birth-giving by two years. We exploit a unique database that covers live births, miscarriages, abortions, and still births, and contains information on the time of conception by weekly precision. We propose that the impact of the legislation change can be explained exclusively by the incapacitation effect of education, which keeps women physically in school: the higher CSL age decreases the probability of getting pregnant during the school year but not during summer and Christmas breaks.

The third chapter, which is a joint work with Gábor Kézdi and Éva Surányi, considers educational policy from a different angle. It estimates the effects of a change in the technology of educational production within schools by looking at the OOIH demonstration program in Hungary. The program supported teachers and the management of schools with disadvantaged

Roma students, mixed with non-Roma students, and aimed at helping the development of all students in an integrated school environment. We find that the program had significant positive effects on academic development (especially for Roma students), socio-emotional skills (in both ethnic groups), and inter-ethnic attitudes of non-Roma students.

In my thesis I document that increasing the CSL age affects forward looking decision making about secondary school track choice, and impacts the distribution of students in school. I find that these effects are the strongest among children of low-educated parents. Furthermore, I provide evidence that higher CSL age can reduce teenage pregnancy solely through the incapacitation effect of being in school, even in a case when no human capital effects of education can be detected. Lastly, I document that a sensitive approach to the integrated education of Roma and non-Roma students is beneficial for all parties involved.

Chapter 1: Increased Compulsory School Leaving Age Affects Secondary School Track Choice and Increases Dropout Rates in Vocational Training Schools

In the first chapter, I estimate the effects that an increase of the CSL age from age 16 to 18 in 1996 had on schooling outcomes in Hungary using a regression discontinuity design (RDD) strategy. The new CSL age came into force with students starting elementary school in September 1998. Identification is based on the age of elementary school start rule. Children compliant with the age rule started elementary school under the new CSL age scheme if they were born on June 1, 1991, or later. Those compliant with the age rule and born before this date had started elementary school in the previous year, under the old CSL age scheme. Thus, a natural cutoff point occurs at this date of birth which allows me to construct a fuzzy RDD strategy to estimate the intention to treat (ITT) and local average treatment effects (LATE) of the increase using the 2011 and 2001 Hungarian Census data.

The Hungarian reform is unique because the first treated cohort knew already at age 6 that they would have to stay in school for two years longer. This fact allows me to test whether this information affected forward-looking decision-making as measured by secondary school track choice at age 14. I find that as a result of the CSL age increase, children at age 14 were more likely to choose the more demanding and more beneficial 4-year academic high school track instead of the 4-year vocational training school track. The legislation change did not influence more individuals to start secondary school, but those who did decide to start were more likely to opt for an academic high school rather than a vocational training school.

At the same time, those who did choose the vocational training school track were more likely to drop out under the new scheme. The data suggest two potential explanations for this adverse effect. First, the financial and human resources allocated to vocational training schools were not adequate for the sudden increase in the number of students. Second, as the students from higher socioeconomic standings, and with stronger abilities chose academic high schools instead, and lower standing, lower performing students stayed in vocational training school

longer, the distribution of students in vocational training schools shifted towards lower socioeconomic status students.

The last takeaway from this analysis is that increasing the CSL age may not always be a good instrumental variable (IV) for education. It harms the monotonicity assumption of the instrument if the quality of education for some students is negatively affected by the increase (Cygan-Rehm and Maeder, 2013). The monotonicity assumption requires students to be impacted by the instrument in the same way (Angrist and Pischke, 2009). In this context, it would assume that the legislation change induced some individuals to have more education and for no one to have less education, both in terms of length, tracks, quality, and earned degrees. In the case of the Hungarian reform, this concern is valid if one wants to use the increase of the CSL age as an IV to education, as the legislation change did increase dropout rates in vocational training schools.

Chapter 2: The Effects of Increased Compulsory School Leaving Age on the Teenage Fertility of Roma Women, a Disadvantaged Ethnic Minority

joint with Flóra Samu and Ágota Scharle

In the second chapter, which is a joint work with Flóra Samu and Ágota Scharle, we estimate how higher CSL age affects the teenage childbearing of Roma women. Roma make up the largest ethnic minority in Hungary, belonging to the Roma minority is highly correlated with poverty, social exclusion, and long term unemployment. Teenage fertility of non-Roma women is very low in Hungary, while among Roma women, it is comparable to levels measured in the Congo and Kenya.

Teenage fertility is one of the most important sources of intergenerational poverty transmission. The literature presents evidence on the negative health, social, and economic consequences of teenage childbearing. Due to high opportunity costs, the prevalence of teenage motherhood has been declining in most developed countries. However, teenage motherhood is still very common in several communities of disadvantaged ethnic minorities living in developed countries. Examples include Mexican women in the US, women of Pakistani and Bangladeshi origin in the UK, Turkish women in Belgium and France, and Roma women throughout Europe. Despite the large selection of literature that looks at the effects of education on early fertility in general, we know very little about the effects of education on teenage motherhood of ethnic minority women in particular.

Using the same identification strategy as in the previous chapter, we construct a fuzzy regression discontinuity design (RDD) identification strategy to estimate the intention-to-treat (ITT) effect of this legislation change on the probability of both early childbearing and pregnancy. We exploit a unique data set of all known pregnancies, including live births, abortions, fetal losses, and still births, linked to a large subsample of the 2011 Hungarian

Census. We find that the higher CSL age decreased the probability of teenage motherhood among Roma women by 6.8 percentage points. This effect is temporary as it only creates a two-year delay in motherhood. We find no effect among non-Roma women, where teenage fertility is rare.

We use our rich data sets to reconstruct the conception time of all pregnancies of Roma women. We show that the legislation change decreased the probability of getting pregnant during the school year but not during summer and Christmas breaks. Thus, we find no evidence of any impact through the human capital channel. This result is in line with the argument of the literature: teenage childbearing in disadvantaged ethnic minority communities might be more likely to be influenced if human capital development happens alongside increased economic opportunities. In addition to our contribution to the literature on the fertility of disadvantaged ethnic minorities, this is also the first known paper to document that being physically present in school contemporaneously lowers the probability of getting pregnant.

Chapter 3: Integrated Education of Disadvantaged Ethnic Minorities: The Effect of the OOIH Demonstration Program on Roma and Non-Roma Students in Hungary

joint with Gábor Kézdi and Éva Surányi

The third chapter is a joint work with Gábor Kézdi and Éva Surányi. In this paper we evaluate a program in Hungary that aimed at transforming the management and teaching practices of schools with a sizable disadvantaged Roma minority to provide high-quality education to all students in a mixed environment. The target schools were regular primary schools covering grades 1 through 8, with 20 to 40 percent of Roma students.

The evaluation is non-experimental as the participating schools applied to an open call and were selected by the program administrators. We matched a control school to each of the 30 program schools in the sample, based on pre-program characteristics of student composition and aggregate test scores. Survey data were collected on school characteristics, student background, and academic outcomes including standardized cognitive tests, socio-emotional skills and inter-group tolerance. The treated and control samples are balanced both in terms of pre-program characteristic and student composition measured by subsequent surveys. Preliminary results of the evaluation were published by Kézdi and Surányi (2009). In this study we take a more systematic approach and address potential problems arising from clustered samples and multiple inference.

We find that the effect of the program was positive overall. The effect is positive on academic development, especially for Roma students, and no negative effects are found on non-Roma students. The effects are positive on socio-emotional skills in both ethnic groups. Anti-Roma sentiments and social distance of non-Roma students are decreased due to the program.

CURRICULUM VITAE

ANNA ADAMECZ-VÖLGYI

Central European University
Department of Economics
Nádor utca 11.
Budapest, H-1051, Hungary

Phone: +36 70 242 8639
E-mail: adamecz_anna@phd.ceu.edu
aadamecz@gmail.com

RESEARCH INTEREST

Applied Econometrics, Impact Evaluation, Economics of Education, Labor Economics

PROFESSIONAL EXPERIENCE

- 2016- Head of Microanalysis and Applied Economic Research
 National Bank of Hungary
- 2012-2016 Senior Researcher
 Budapest Institute for Policy Analysis
- 2007-2009 Head of Economic Analysis
 Ecostat Government Institute for Strategic Research of Economy and Society
- 2005-2007 Economist
 Ecostat Government Institute for Strategic Research of Economy and Society

EDUCATION

- 2009- Central European University, Budapest, Department of Economics
 PhD Candidate in Economics
- 2004-2007 Corvinus University of Budapest, Department of Economic Sciences
 MA in Economics
 Major: European Integration and the Economic Adjustment of the World
 Economy
- 1998-2003 Budapest Business School
 BSc in Economics

TEACHING EXPERIENCE

- 2016 Policy Evaluation for Civil Servants and NGO Executives, Lecturer
Central European University, Summer University, Budapest
- 2015 Policy Design and Evaluation, Lecturer
Central European University, Summer University, Budapest
- 2014 Topics in Public Policy Design and Evaluation for Economists, Lecturer
Master Program in Economics
Eötvös Loránd University, Budapest
- 2014 Program Evaluation of Social Policy Experimentation: Info-session and
Training, Lead trainer
European Network for Social Policy Analysis for Robust Knowledge (SPARK)
- 2013 Topics in Public Policy Design and Evaluation for Economists, Lecturer
Master Program in Economics
Eötvös Loránd University, Budapest
- 2012 Impact Evaluation Workshop for Public Servants, Instructor
Hungarian National Development Agency, Budapest
- 2011 Certificate from the “Teaching in Higher Education” Program
Central European University, Budapest
- 2011 Introduction to Quantitative Methods: Mathematics, Lecturer
Master Program in Public Policy
Central European University, Budapest
- 2010 Macroeconomics for Public Policy, Teaching assistant
Master Program in Public Policy
Central European University, Budapest
- 2010 Investments, Teaching assistant
Master Program in Economics
Central European University, Budapest
- 2010 Global Financial Markets, Teaching assistant
Master Program in Public Policy
Central European University, Budapest
- 2010 Microeconomics, Teaching assistant
Eötvös Loránd University, Budapest

CONFERENCE PRESENTATIONS

- 2016 (Ce)² Workshop on Microeconomic Theory and Applications, CenEA and CeMMAP, Warsaw
- 2016 Workshop on the Economics of Education, Maastricht University
- 2015 Annual Conference of the Hungarian Society of Economists, Budapest
- 2015 2nd PODER Summer School "Recent Advances in Impact Evaluation for Development", Paris School of Economics
- 2015 Young Economists' Meeting, Masaryk University, Brno
- 2014, 2015 Annual Labor Economics Conference of the IE CERS HAS, Szirák

SKILLS

Languages: Hungarian (native), English (fluent), Italian (basic)
Software: STATA, Latex, Eviews,