Romani Employment in Hungary
After the Post-Communist Transition

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Abstract

Employment rate of Romanies is very low in Central and Eastern Europe. In Hungary, it is less than half of the national average. The gap emerged in the early years of the post-communist transition and slightly widened since. We decompose the difference and show that educational composition and geographic isolation explain about 40 per cent of it. The rest is due to differences in unobserved skills (pre-market factors) and labor market discrimination. The residual employment gap is increasing in the local unemployment rate, and this relationship strengthened significantly after the early 1990's. We also show evidence that no such relationship can be found in the regional distribution of the ethnic gap in student outcomes. Our interpretation is that labor market discrimination became stronger in high unemployment areas.

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The Romani people (also known as Gypsies) are Europe's largest and poorest ethnic minority.[2] Nearly 80 per cent of them live in former communist countries of Central and Eastern Europe. The size of the Romany population is notoriously hard to assess. Some put it between 7 and 9 million, but the most reliable estimate for the Central and Eastern European Romani population in early 1990's comes out slightly over to 4 million (Barany, 2002).[3] According to the latter figures, the share of Romanies in the total population is close to 10 per cent in Bulgaria and Slovakia, it is between 4 and 7 percent in Hungary, Macedonia, Romania and Serbia, and it is at around 2 per cent in Albania and the Czech Republic. We have little hard evidence on the well-being of Romanies, but existing data indicate wide-spread poverty, low formal employment, low education, poor health, and social exclusion across all countries (Ringold et al, 2005).

The purpose of this paper is to shed light on the extent and some causes of the low employment of Romanies in Hungary. Hungary is one of the more successful transition economies with a significant Romany minority. It is also one of the few countries with reliable survey data on the Romanies both from the early transition and from afterwards. The Hungarian economy went through the post-communist transition relatively quickly, and the transition was accompanied by large net job destruction (Svejnar, 2002). Hungary also has a somewhat more open attitude towards Romanies, at least in terms of its institutions and declared policy goals. By analyzing Romany employment in Hungary, therefore, we can show how completed post-communist transition affects the Romanies under conditions that are probably more favorable than average.

Some background

The Romanies originated in India, migrated to Eastern Europe seven hundred years ago, and have no historical homeland in Europe.[4] They are quite heterogeneous. Some speak dialects of the Romani language, but others adopted the language of their host country, often in form of a special dialect. The vast majority of Romanies in Central and Eastern Europe had settled a long

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[2] There is some controversy about the name of the Romani ethnic group. The United Nations, the European Council, the U.S. Library of Congress and many international associations use the Romani name for an adjective and a noun as well (Romanies plural). The spelling Romany is also used. Roma, the plural of the word "man" in the Romani language, is also popular in many countries, especially as a noun but also as an adjective. The name Gypsy is popular among non-Romanies, but it is not preferred by Romanies themselves. It is a name created by outsiders and is derived from the misconception of Egyptian origin. Similarly to the alternative local names such as Tsigane, Cigany, Gitane or Gitano, the name Gypsy brings negative associations about lifestyle or project images that are inaccurate for most Romanies (e.g. the romantic image of travelers). In this paper we stick to the convention of the international organizations and use the Romani name. See, for example, Hancock (2002).

[3] Data on Romanies is difficult to collect because official data, censuses or standard national surveys contain no ethnic markers in Europe.

[4] For more details, see Barany (2002), Guy (2001), and Hancock (2002).

time ago, and their sometimes romantic image of being travelers is based on exceptions or pure fiction. Romanies were enslaved in some parts of Central and Eastern Europe for centuries, and they were often prosecuted in other countries.

The integration and assimilation of Romanies was very limited across all Central and Eastern Europe. Ever since their arrival in Europe, Romanies lived outside the mainstream society, had no land or any other formal property, and when not slaves, they worked as independent laborers or sold their own products and services. The industrial revolution and the emergence of centralized nation states started to bring Romanies closer to the mainstream society and undermined their traditional communities. The communist regimes speeded up the dissolution of those communities and instigated a paternalistic assimilation process into the modern society. Among other things, Romanies faced relocation into more mainstream neighborhoods, obligatory employment in the state sector and compulsory schooling of children. As a result, many (in some countries most) Romani families have had stable wage earners in the communist regimes and saw their children achieving more schooling than themselves. At the same time, many of the ties within Romani communities were fragmented or destroyed.

The fall of the communist system led to a deep recession and a thorough transformation of labor demand in most transition countries. Demand for unskilled labor collapsed. The more successful post-communist economies started to grow fast from the mid-1990's but not even they have experienced an increase in demand for unskilled labor. Many unskilled people who lost their employment during the transition period were left without a continuous formal job ever since. Anecdotal evidence suggests that all that affected Romanies especially severely. Hard evidence, on the other hand, is hard to find (UNDP, 2002).

Data

National censuses and standard nationally representative surveys in European countries contain no ethnic markers.[5] As a result, Romani – non-Romani comparisons are impossible without

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[5] Censuses and census-like representative surveys in general, and in Hungary in particular, do ask for the respondents' nationality, including Romani. Declared nationality is problematic for ethnic classification, for many reasons. First, nationality and ethnic identity may are different in general. In Hungary, most Romanies consider themselves Romungros, or Romani-Hungarians. As census does not allow for more complicated (e.g. double) national identity, Romungros have to chose, and many seem to choose Hungarian. Another reason is fear from enumeration as Romanies. As a result of their troubled history, Romanies usually prefer to be left alone. Census-like enumerations of the Romanies in the past led to forced relocations into housing projects (in communist times), or rounding up for extermination camps (during the Romani Holocaust in World War 2). The 1990 Census of Hungary

targeted surveys. The basis of our analysis are therefore two targeted, nationally representative Romani surveys from Hungary, one collected in the first quarter of 1994, the other in 2003 (see Kertesi, Havas and Kemény, 1995, Kemény and Janky, 2006). The sampling procedure and interviewer instructions made sure that the samples are representative of Romanies of Hungary (by ethnicity defined by non-Romanies and Romanies as well).[6] The Romani figures we compare to national data. In particular, we use the 1994.Q1 and 2003.Q1 samples of the Hungarian Labor Force Survey for comparisons. Recall that those surveys contain no ethnic markers. As a result, non-Romanies are impossible to identify. We compare Romani data to national data that certainly include Romanies as well. Therefore, the differences we show are lower bounds of the true ethnic differences.

Employment in Post-communist Hungary

In the first year of the post-communist transition, overall employment in Hungary fell significantly and reached levels that were low in international comparison, even among post-communist countries (Svejnar, 2002). While the employment rate of men was 78 per cent in 1994 in the OECD countries, it was only 66 per cent in Hungary (Table 1). By 2003, Hungarian male employment increased to 72 per cent, and approached OECD average, at 75 per cent. Female employment in Hungary decreased together with male employment but never went below the OECD average. By 2003 it was slightly above that, at 58 per cent (compared to 55 per cent).

By 1994, Romani employment collapsed, to below 30 per cent among men and to 17 per cent among women. Not only was the fall of Romani employment more dramatic but it did not improve much afterwards either. By 2003, employment of Romani men was at a mere 32 per cent, and that of Romani women stayed at 17 per cent. The Romani versus national employment rate differential was at 36-37 percentage points in 1994. In increased to 40 percentage points by 2003. Both the level and change of employment rates was surprisingly similar for men and women. In terms of relative differentials, Romani men have been at a stable 44 percent of the

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enumerated 143 thousand Romanies (by nationality), compared to the 6 thousand number in the Census of 1980. The most preferred estimate of Kertesi and Kézdi (1998) was 485 thousand, based on the 1994 Romani survey.

[6] The two surveys followed the same sampling procedure. The first crucial element of the procedure was enumeration of Romani household in small neighborhoods, based on information from kindergartens, primary schools, district pediatricians, social workers, etc. Neighborhoods were pre-selected by stratified random sampling where the strata were defined using preliminary information of the density of Romani population. The second crucial element was the instruction to interviewers to specify that the survey was meant to represent the Romani population of Hungary. Only households who agreed to participate in such a survey were interviewed. The representative nature of the resulting sample was checked and approved by Kertesi and Kézdi (1998).

national employment rate, while Romani women were at around 30 percent. Relative differences were stable not only through time but also across age groups (see Figure 1).

Table 1.

Figure 1.

The dramatic differences were brought about by the post-communist transition. Figure 2 documents the Romani employment was significantly closer to national averages before 1989 than afterwards. In this figure we follow members of the same birth cohort, in order to be free of any composition changes. These people were born between 1945 and 1964, and we follow them from 1984 (when they were 20-39 years old) to 2003 (when they were 39-58 years old).

The figures show that virtually all working-age men were employed in the communist economy, Romani or non-Romani. The difference was larger among women, in part due to more children in Romani families. At the same time, female Romani employment was above OECD average before 1989.

Figure 2.

Romanies experienced not only a sharp decline in their employment probability but also a decline in their employment duration if employed (Kertesi, 2005). The low level steady state employment of Romanies is a product of high inflows and high outflows. By 2003, yearly outflows from employment were around 30 per cent. Comparable national figures are at ???. Two important factors help explaining the instability of Romani employment. First, Romanies' jobs in Hungary (if any) are more likely than national average to be in highly seasonal sectors, such as construction and agriculture. Second, public employment projects and incentives built into the welfare system also lead to short employment spells and reinforce welfare-dependency.

Decomposing the employment gap

In order to get closer to understanding the employment gap, we decompose the employment rate differentials into differences in age, education, and geographical location, using the Oaxaca-Blinder methodology. We analyze the difference of the Romani and the national employment rate (non-Romani data are not available, se above), and estimate linear probability models. The right-

hand side variables are all discrete: age groups, educational attainment categories, region, type of town, and whether the individual lived in and agglomeration or a remote village. We carry out the exercise separately for men and women.

The decomposition is based on regressions of the following form:

$$(1) \qquad y_{sti} = \beta'_{st} x_{sti} + u_{sti}$$

y is employment (1 if employed and 0 otherwise), index s denotes the sample (Romani or national), index t denotes time, and i is the individual. β is the vector of OLS coefficients and x_i is the vector of right-hand side variables. Right-hand side variables are a constant and a series of dummies for age, education attainment, region, capital/city/town/village, agglomeration, and remote village.[7] Each regression is run separately for men and women, for the two years 1994 and 2003, and for the Romani and the national sample. The regression coefficients and the sample means are in the Appendix tables A1 through A4.

This is a linear probability model. Linear probability models, unlike probit or logit models, cannot be correctly specified if there are unbounded right-hand side variables. But even in such cases, they are usually good at approximating average partial effects. When right-hand side variables are dummies that cover mutually exclusive categories, the model is saturated, and linear probability models are correctly specified and in fact equivalent to probits and logits. Our case falls in-between those extremes. All of our right-hand side variables are all dummies, but they do not comprise all possible interactions, and our model is therefore not saturated.

Based on the linear models, the decomposition of the difference average employment rates at time t is in the familiar Oaxaca-Blinder form:

$$(2) \qquad \bar{y}_{rt} - \bar{y}_{nt} = \beta'_{rt} \bar{x}_{rt} - \beta'_{nt} \bar{x}_{nt} = \beta'_{nt} \left(\bar{x}_{rt} - \bar{x}_{nt} \right) + \left(\beta'_{rt} - \beta'_{nt} \right) \bar{x}_{rt}$$

or

$$(3) \qquad \Delta \bar{y}_t = \beta'_{nt} \Delta \bar{x}_t + \Delta \beta'_t \bar{x}_{rt}$$

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[7] Explain.

Upper bars mean averages, y is employment so that $\overline{y}$ is employment rate and $\overline{x}$ is the vector of mean right-hand side variables. Index r denotes the Romani sample, index n denotes the national sample. Average right-hand side variables are equal to the product of the corresponding regression coefficients and the average right-hand side variables, by the properties of OLS.

The first term in the decomposition, $\beta_{nt}' \Delta \overline{x}_t$ measures the difference due to different composition of the two samples, the so-called composition effect. It measures the difference that is due to the different composition of the Romani and the national sample. If the regression coefficients in the Romani sample would be the same as the national coefficients, the employment rate differential would be equal to this term. The national coefficients can be thought of as the "normal" reduced-form relationships between covariates and employment. Therefore, this term shows what "normal" employment rate differential would be, solely as a result of different composition of Romanies (e.g. younger, less educated, etc.).

The second term in the decomposition, $\Delta \beta_{nt}' \overline{x}_{rt}$, is equal to the residual difference. Technically, it is due to the fact that regression coefficients, including the constant, are different. Since all of our right-hand side variables are dummies, differences in the constant reflect Romani versus national employment differences among people in the reference group. Differences in the slope coefficients reflect differences in differences: the extent to which Romani employment rates in each category differ from Romani employment rates in the reference category, relative to this difference in the national sample. When regressions are taken as demand functions, difference in the slope coefficients term are usually interpreted the price effects (e.g. the differential value of education).

We present results of the decomposition separately for men and women, and for year 1994 and 2003. We present not only the overall composition and coefficient differences, but also their values by variables (groups of dummy variables) of age, education, and geographical location. Table 2 contains the results, Appendix table A1 shows the sample averages, and table A2 shows the corresponding regression results.

Table 2.

The results are similar for men and women. Different composition of Romanies explains 36-38 percent of the overall gap in 1994 and almost 50 percent in 2003. Younger age of Romanies

slightly improves upon their employment prospects. Romanies are significantly lower educated and live in higher proportions in some regions, rural areas, and remote villages. Both their educational and geographic composition decreases their employment probabilities by around ten percentage points. Compositional disadvantages of Romanies seem to have increased over time. Two possible reasons may be responsible for that: either the compositional differences increased, or they remained stable but the value (in terms of employment) changed in an unfavorable way for Romanies. We shall investigate this question later.

The bulk of the remaining differences are due to differences in the regression constant. This reflects that differences in differences are small: Romani employment rates in each category differ from Romani employment rates in the reference category in ways that are very similar to national differences. In other words, employment rate disadvantage of Hungarian Romanies is remarkably stable within the groups identified by our right-hand side variables. One exception is the differential effect of education for men in 2003. Closer inspection of the regression coefficients reveal that here the reason is the increase of national coefficients on all education dummies. This means that the returns (in terms of employment) to education grew significantly more for non-Romanies, while it stayed at its 1994 level for Romanies.

In order to look into the change in employment rate differentials, we also carried out dynamic versions of the Oaxaca-Blinder decomposition exercise. One can decompose the change in ethnic differentials as defined in (3) the following way.

$$(4)\ \Delta \overline{y}_t - \Delta \overline{y}_{t-1} = \beta'_{nt-1}\left(\Delta \overline{x}_t - \Delta \overline{x}_{t-1}\right) + \left(\Delta \beta_t - \Delta \beta_{t-1}\right)' \overline{x}_{rt-1} + \left(\beta_{nt} - \beta_{nt-1}\right)' \Delta \overline{x}_{rt} + \Delta \beta'_{nt}\left(\overline{x}_{rt} - \overline{x}_{rt-1}\right)$$

Here the first term reflects the effect of the changing composition differences. The second term is the change in the pure residual effects. The third term shows the effect of the national changes in the coefficients ("prices"). The fourth term shows the effect of changes in the national composition. Estimates are in table 3.

Table 3

Since employment rate differences changed very little between 1994 and 2003, Table 3 contains very small numbers. The effects cancel out in the second term, which implies that changes in pure residual effects are zero on the balance. Only the third term contributed significantly to the

increased employment rate gap, for both men and women. In fact its contribution was double of the overall change. All of this comes from education. Education-related employment differences (returns to education) increased significantly between 1994 and 2003 in Hungary. Since the Romanies are significantly less educated, this in itself increased the Romani versus national employment gap.

To summarize the results, Romani employment is dramatically below national rates. Half of the difference can be explained by the educational and geographic gap. The remainder is an unexplained difference that is stable across groups defined by age, education, and geographic location. The employment rate differences increased slightly between 1994 and 2003, due improvements in national employment rates. Romanies saw their employment rates increasing less because the improvement affected more educated groups, in which they are severely underrepresented.

History of the educational gap

A significant reason for lower employment of Romanies is their lower levels of education. In this section we look at whether there are improvements in the ethnic educational gap in Hungary. The historical trends are illustrated in Figure 3. The graphs show degrees completed for the adult population, by year of birth, separately for Romanies and the entire population.

Figure 3.

Nationwide primary school completion rate has been above 97 per cent for all cohorts born after 1950. The Romani approached that rate slowly, with males born after 1960 reaching 80 per cent. Females got up to the same rate 20 years later. In order to meet the increasing demand for skilled blue-collar workers, vocational training expanded dramatically in Hungary, especially among men. The ratio of vocational training degrees among men reached a 40 per cent national average for the 1950 cohort. Romani men took part in the expansion as well, albeit with a delay and at a smaller scale: the relevant ratio for them peaked at 20 per cent 20 years later. Cohorts born after the mid-1970's experienced a downward trend in the national average of vocational training as demand for blue-collar workers dropped sharply from the late 1980's. The mirror image of that decrease shows in the more valuable secondary education rates. Starting from around 1990, when cohorts born in the mid 1970 have finished primary school, national average secondary school

rates started to increase. Romani education rates did not follow this pattern, neither the decrease in vocational training nor the increase in secondary education.[8]

Since the fall of communism primary school completion rates continued to converge but the gap in further education has widened. Ironically, by the time the Roma achieved virtually full primary school completion it lost its market value. Table 4 shows education and enrollment rates in 1993 and 2003. The estimates show a significant, 18 percentage point increase in completed primary school rates for Romanies (part of which is due to earlier completion). At the same time, their overall vocational and secondary education decreased by 4 percentage points (18 percentage points if we condition on completed primary school). This slight decrease is in contrast to the national average rates that increased by 5 percentage points, so that 92 per cent – i.e. virtually all non-Romanies – continued in some school.

Table 4.

The widening educational gap is even more striking if we look at secondary education with the perspective of a maturity exam. Much of vocational education became obsolete with the fall of the communist economy and the labor-intensive technology it tended to use. As a result, national vocational education rates dropped by 27 percentage points. Increased enrollment into secondary schools with maturity more than compensated for this drop, producing a 32 percentage point increase at the national level. Romani vocational education dropped as well, although to a smaller extent. Romani secondary school enrollment, however, did not increase enough to compensate for that. As a result, by 2003, still a mere 14 per cent of young Romanies continued education towards a maturity degree, compared to an 80 per cent national average (16 versus 83 per cent conditional on primary school completion). Thus between 1993 and 2003 the gap between vocational and more valued secondary schooling widened by an additional 27 percentage points.

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[8] The educational gap does not seem to be closing for younger cohorts either. Since the fall of communism, primary school completion rates continued to converge but the gap in further education has widened. Ironically, by the time the Romani achieved virtually full primary school completion it lost its market value. At the same time, their overall vocational and secondary education decreased slightly, in contrast to the increasing national rates. More disturbing are the continuing differences in the composition of post-primary schooling. The educational gap has widened in terms of secondary education with the perspective of a maturity exam. Much of vocational education became obsolete with the fall of the communist economy and the labor-intensive technology it tended to use. As a result, national vocational education rates dropped sharply. Increased enrollment into secondary schools with maturity more than compensated for this drop at the national level. Romani vocational education dropped as well, although to a smaller extent but their secondary school enrollment did not increase enough to compensate for that.

We can sum up these trends the following way. Romani education caught up slowly but steadily after World War II. As a result, their primary school completion reached more than 80 per cent of the national average (at virtually 100 per cent). Romanies also started to enroll into vocational training schools and reached 50 per cent of national vocational schooling rates. However, their integration did not extend to secondary and tertiary education. By the second half of the 1980's, even the previously increasing trends stopped. After the fall of communism, secondary (and also tertiary) education experienced a dramatic expansion. But that seems to have left the Romanies behind. As a result, we can expect that the educational composition of Romanies will have a strong negative effect on Romani education – maybe even more so than in the present.

Residual differences: unobserved skills or labor market discrimination?

Less than half of the employment gap is explained by differences in educational attainment or geographic location (urban/rural and large regions). The rest is unexplained. It may reflect unobserved differences in skills (productivity) or labor market discrimination. In this section we look at the latter and try to see whether some part of the unexplained differences may be due to outright labor market discrimination.

We look at whether unexplained employment differences vary with the local unemployment rate. We use unemployment rates in small regions, of which there are 150 in Hungary. The distribution of local unemployment rates is shown in Figure 4. The thought experiment is the following. Take two people of the same gender, age and education one Romani, the other non-Romani, who live in very similar towns/villages, and in the same small region. Suppose that unemployment in this small region is low. Then relocate both to a different small region (within the same large region), to the same kind of town/village they lived before. Support that unemployment in the new small region is high. The question at hand is whether the difference in the employment probability of the Romani and non-Romani person is the same in the two small regions.

Figure 4.

We argue that, since we look at the same people who live in very similar circumstances (e.g. same commuting costs), labor market discrimination may be the reason for the ethnic gap to be larger in the high-unemployment region. The mechanism is the following. If unemployment is low, employer discrimination is more costly, because there are less people to choose from. When

unemployment is high, it is easier for employers to hire in discriminative way. Therefore discrimination is likely to be more prevalent when local unemployment is higher.

We run probability models with the same right-hand side variables as in (1), and add the regional unemployment rate as ad additional control variable. The two ethnic subsamples and the two genders are pooled together here, and coefficients on right-hand side variables (except regional unemployment) are forced to be the same for both. We allow for ethnic differences in the constant and the coefficient on regional unemployment rate. For each year, we estimate probit models of the following form:

$$(5) \qquad y_i = \Phi\left(\beta' x_i + \gamma u_i + \delta r_i + \lambda u_i \times r_i\right)$$

where the x variables are identical to those in (1): a constant, a constant and a series of dummies for age, education attainment, region, capital/city/town/village, agglomeration, and remote village dummies. r is 1 if person i belongs to the Romani sample and 0 otherwise; and u_i is unemployment rage of the small region the person lives in.

The parameters of interest are δ and λ. δ measures the Romani versus national employment rate differential in hypothetical regions with zero unemployment rates. λ measures the extent to which the difference changes with the local unemployment rate. Since all other characteristics are controlled for, the differences captured by δ and λ are the differences left unexplained in the Oaxaca-Blinder decomposition exercise. Table 5 shows the average partial effects of major interest; Appendix table A3 contains the complete set of the estimates. Figure 5 shows the partial effect of local unemployment rates on the employment probabilities for Romanies and the total population, in the form of predicted employment probabilities as a function of local unemployment, holding everything else fixed at sample means.

Table 5.

Figure 5.

If the relationship between local unemployment and the (residual) employment gap is interpreted as evidence on labor market discrimination, the results indicate that discrimination was present for men in 1994 but less so for women. By 2003, however, discrimination became significantly stronger. In 2003, for men, the employment gap is estimated to be 22 percentage points where

local unemployment is zero. The estimated gap doubles to 45 percentage points where unemployment is at 30 per cent. In 2003, the relationship is similar for women. The estimated residual employment gap is 21 percentage points where local unemployment is zero, and 41 percentage points where unemployment is at 30 per cent.

An obvious alternative to stronger discrimination is that in regions with higher unemployment, ethnic differences in skills may be larger. We can check whether unobserved skill differentials are related to the local unemployment rates the following way. Using primary school data from 1985, we look at whether ethnic differences in some outcomes are larger in the regions where unemployment rate became stronger in 1994 and 2003. We consider three outcomes: the fraction of schoolchildren who attended preschool earlier; the fraction of schoolchildren who are not overage, i.e. who started school in time and repeated no grade; and the fraction of students who failed no subjects. Figure 6 contains the results.

Figure 6.

The results show that ethnic differences are not larger in regions where unemployment became large either in 1994 or 2003. This provides support for the labor market discrimination argument.

Conclusions

We analyzed the employment of Hungarian Romanies from 1994 to 2003. We showed that Romani employment rates are less than half of the national average. The gap emerged in the early years of the post-communist transition to be at around 36 percentage points both for women and men. Both gaps increased to 40 percentage points by 2003. In terms of relative differentials, Romani men have been at a stable 44 percent of the national employment rate, while Romani women were at around 30 percent. Relative differences were stable not only through time but also across age groups

We decomposed the difference and show that educational composition and geographic isolation explain about 40 per cent of it. Education explains slightly more than geography. The residual, as always, is due to differences in unobserved skills (pre-market factors) and labor market discrimination. We showed that the residual employment gap is increasing in the local unemployment rate, and this relationship strengthened significantly after the early 1990's. We also

showed evidence that no such relationship can be found in the regional distribution of the ethnic gap in student outcomes. Our interpretation is that labor market discrimination became stronger in high unemployment areas over the years.

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Tables

Table 1. Employment rates, age 16 to 64.

| | Men | | Women | |
	1994	2003	1994	2003
OECD average	0.78*	0.75	0.53*	0.55
Hungary, Romanies	0.29	0.32	0.17	0.17
Hungary, overall	0.66	0.72	0.53	0.58
Romanies – national difference	-0.37	-0.40	-0.36	-0.40

*1990 figure.
Source of OECD figures: OECD Employment Outlook, 2005.
Source of Hungarian figures: own estimates.

Table 2. Romani versus national employment rate differential in Hungary. Oaxaca-Blinder decompositions, by gender, 1994 and 2003

| | Men | | | | | |
| | 1994 | | | 2004 | | |
	Composition	Coefficient	Sum	Composition	Coefficient	Sum
Age	0.03	-0.02	0.01	0.04	0.01	0.04
Education	-0.09	-0.02	-0.11	-0.11	-0.13	-0.25
Geography	-0.08	0.01	-0.07	-0.11	0.05	-0.05
Constant	-	-0.20	-0.20	-	-0.14	-0.14
Overall	-0.14	-0.23	-0.37	-0.18	-0.21	-0.40

| | Women | | | | | |
| | 1994 | | | 2004 | | |
	Composition	Coefficient	Sum	Composition	Coefficient	Sum
Age	0.03	0.01	0.04	0.03	0.05	0.08
Education	-0.09	-0.01	-0.10	-0.13	-0.05	-0.18
Geography	-0.07	-0.05	-0.12	-0.10	0.04	-0.06
Constant	-	-0.18	-0.18	-	-0.24	-0.24
Overall	-0.13	-0.23	-0.36	-0.20	-0.20	-0.40

Table 3. Dynamic Oaxaca-Blinder decomposition results.

	Men				
	Term 1	Term 2	Term 3	Term 4	SUM
Age	0.00	0.03	0.00	0.00	0.04
Education	0.00	-0.10	-0.06	-0.02	-0.18
Region	0.02	0.02	0.00	0.02	0.05
Constant	-	0.06	-	-	0.06
Overall	0.02	0.01	-0.06	0.00	-0.03

	Women				
	Term 1	Term 2	Term 3	Term 4	SUM
Age	0.01	0.04	-0.01	0.00	0.05
Education	-0.02	-0.04	-0.07	-0.01	-0.14
Region	0.02	0.08	0.00	0.01	0.11
Constant	-	-0.05	-	-	-0.05
Overall	0.01	0.03	-0.08	0.00	-0.04

Table 4. Changes in educational attainment after the post-communist transition of Hungary.
Schooling rates of the 16-17 year old (Romanies: 17-18 years old) population in 1994 and 2003 (per cent)

	Completes primary school	Continues studies in		Total
		Vocational school	Secondary school	
Romani average				
1993	68	33	9	42
2003	86	24	14	38
Change	+18	–9	+5	–4
National average				
1993	96	39	48	87
2003	96	12	80	92
Change	0	–27	+32	+5
Romani – National difference in changes				
	+18	+18	–27	–9

Note: The category of continuing studies covers those who studied in vocational or secondary schools or completed any of those. Continuing rates are underestimated by dropout rates.
Sources: Hungarian Romani Surveys of 1994 and 2003, and Hungarian Labor Force Surveys of 1994/1 and 2003/1.

Table 6. Effect of local unemployment rate on average employment and additional effect on Romani employment. Average partial effects from probit models. Standard errors in parentheses

	1994		2003	
	Men	Women	Men	Women
Effect on average employment	-0.62	-0.39	-0.47	-0.24
	(0.12)**	(0.11)**	(0.13)**	(0.12)*
Additional effect on Romani employment	-0.38	-0.04	-0.77	-0.96
	(0.16)*	(0.17)	(0.16)**	(0.19)**

* significant at 5%; ** significant at 1%

Control variables: Age (dummies), education (dummies), large region (dummies), Budapest/city/town (village is reference), agglomeration dummy, remote village dummy
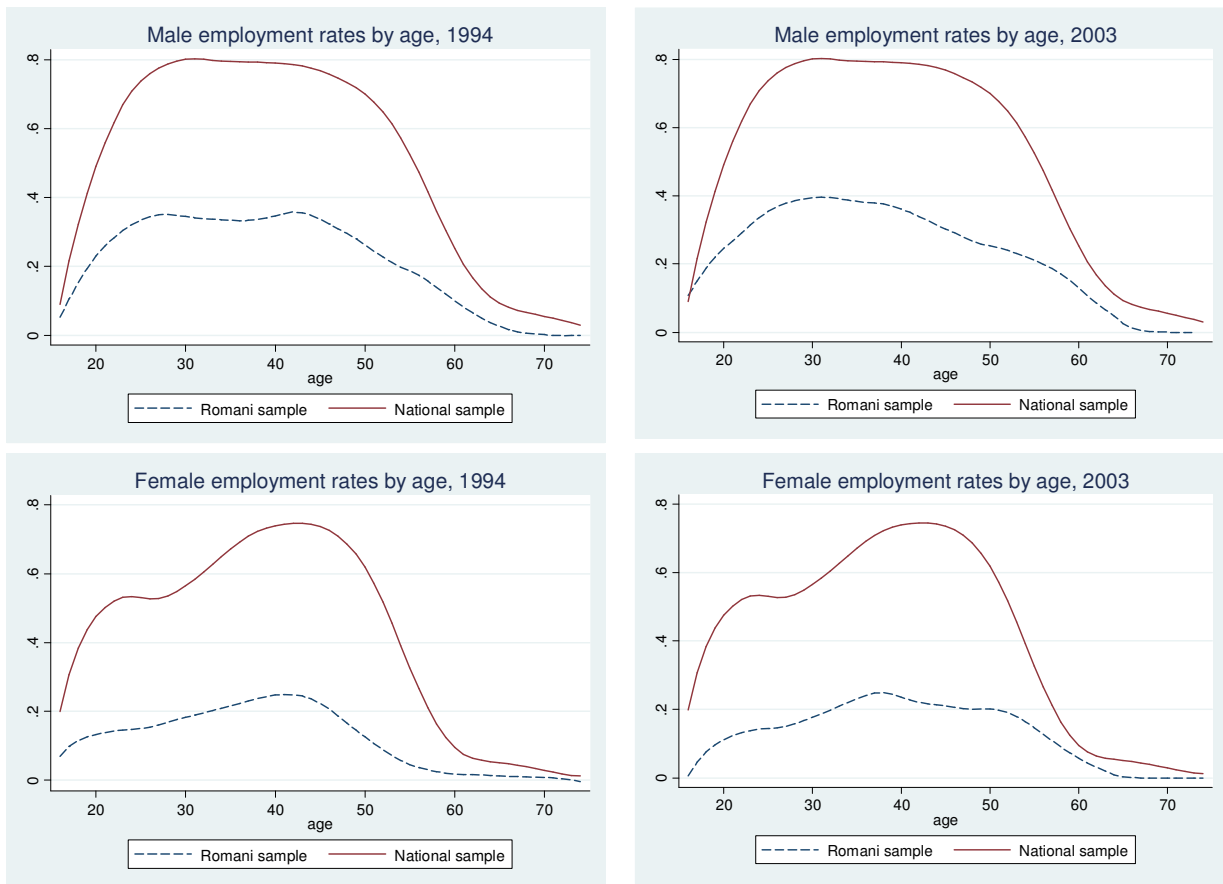
Figures

Figure 1.

Figure 2. Dynamics of Romani and National employment rates in Hungary, by gender. Cohort 20 to 39 years old in 1984
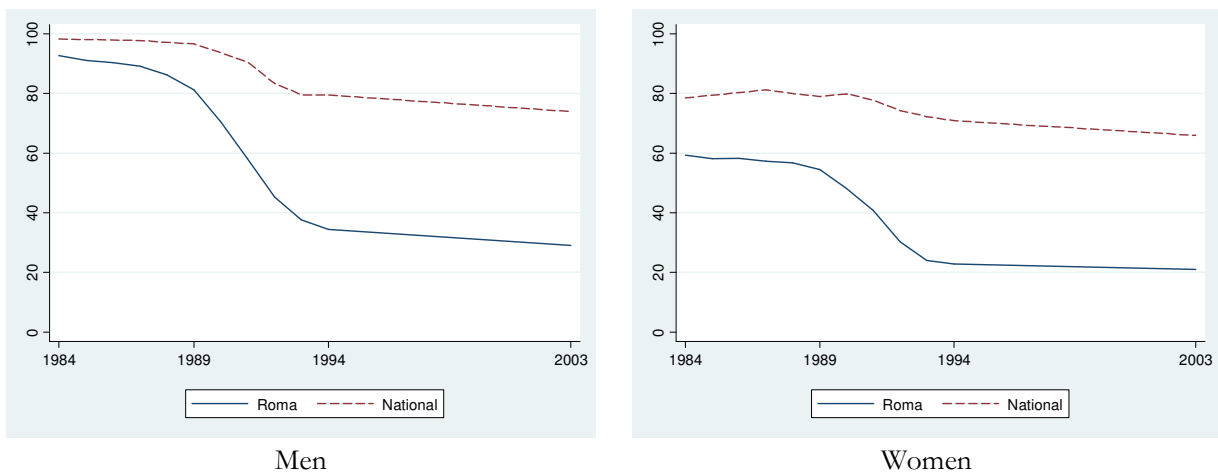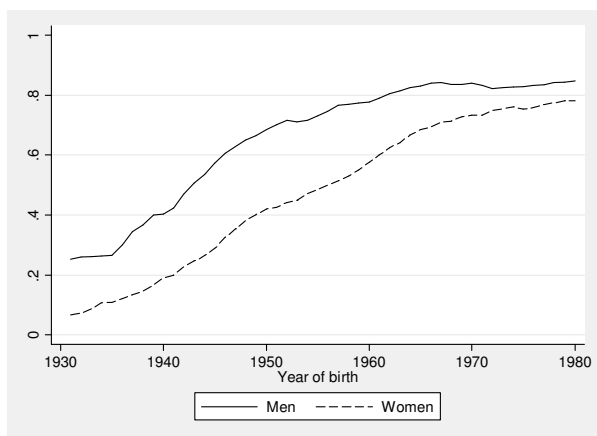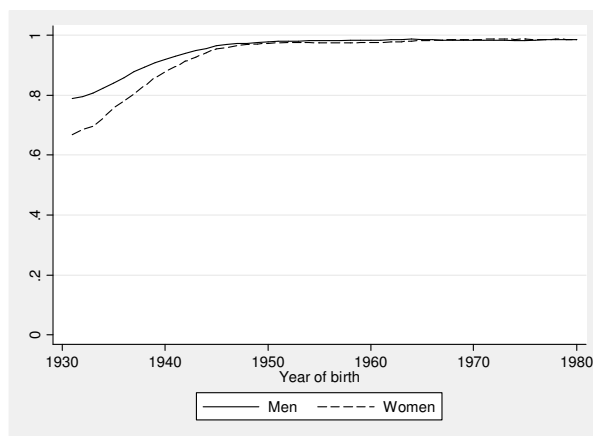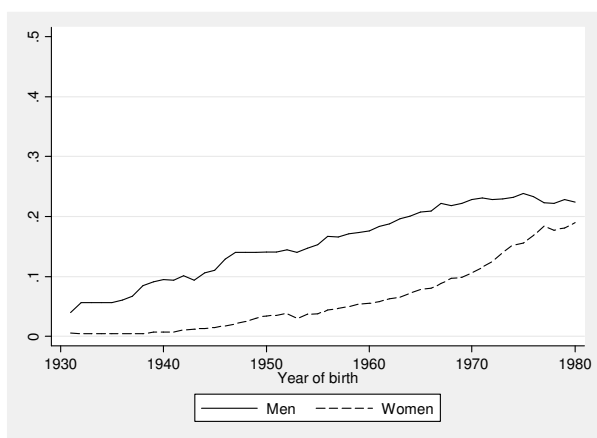
Figure 3. Trends in Romani educational attainment compared to national trends.
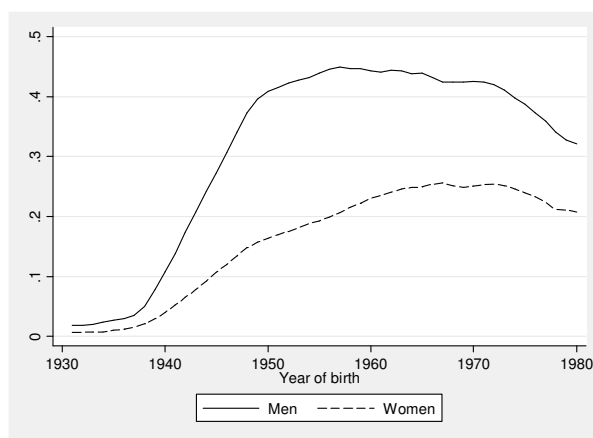

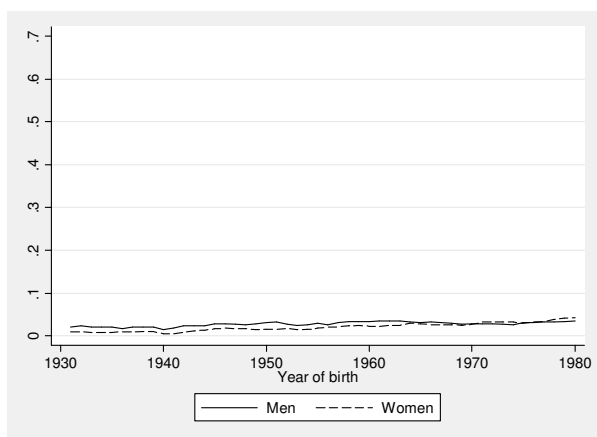
Romanies: primary school

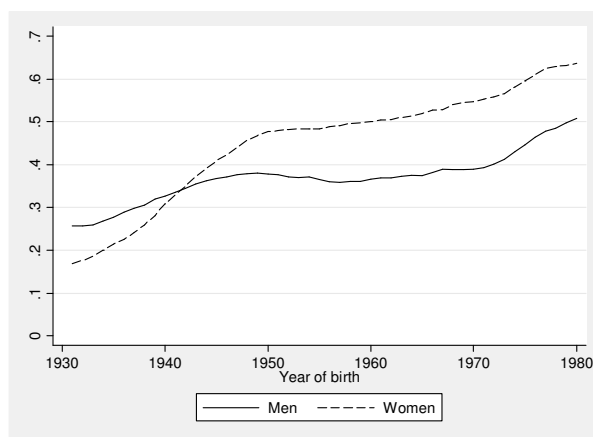National: primary school

Romanies: vocational school

National: vocational school

Romanies: secondary school maturity exam

National: secondary school maturity exam

Sources. Romanies: Hungarian Romani Surveys of 1994 and 2003, and Hungarian Labor Force Surveys of 1994/1 and 2003/1. Educational attainment rates of the 1930-1940 cohorts are computed from the 1994 surveys; those of the 1941-70 cohorts were computed as an average of the 1994 and 2003 surveys; those of the 1971-80 cohorts were computed from the 2003 surveys. The figures show smoothed series by taking ±5-year moving averages (appropriately adjusted at the endpoints).

Figure 4. Distribution of local unemployment rates

Figure 5. Local unemployment rates and composition-adjusted employment rates of Romanies versus overall rates. By gender, in 1994 and 2003. Vertical axes: employment rates; horizontal axes: unemployment rate of the small region.
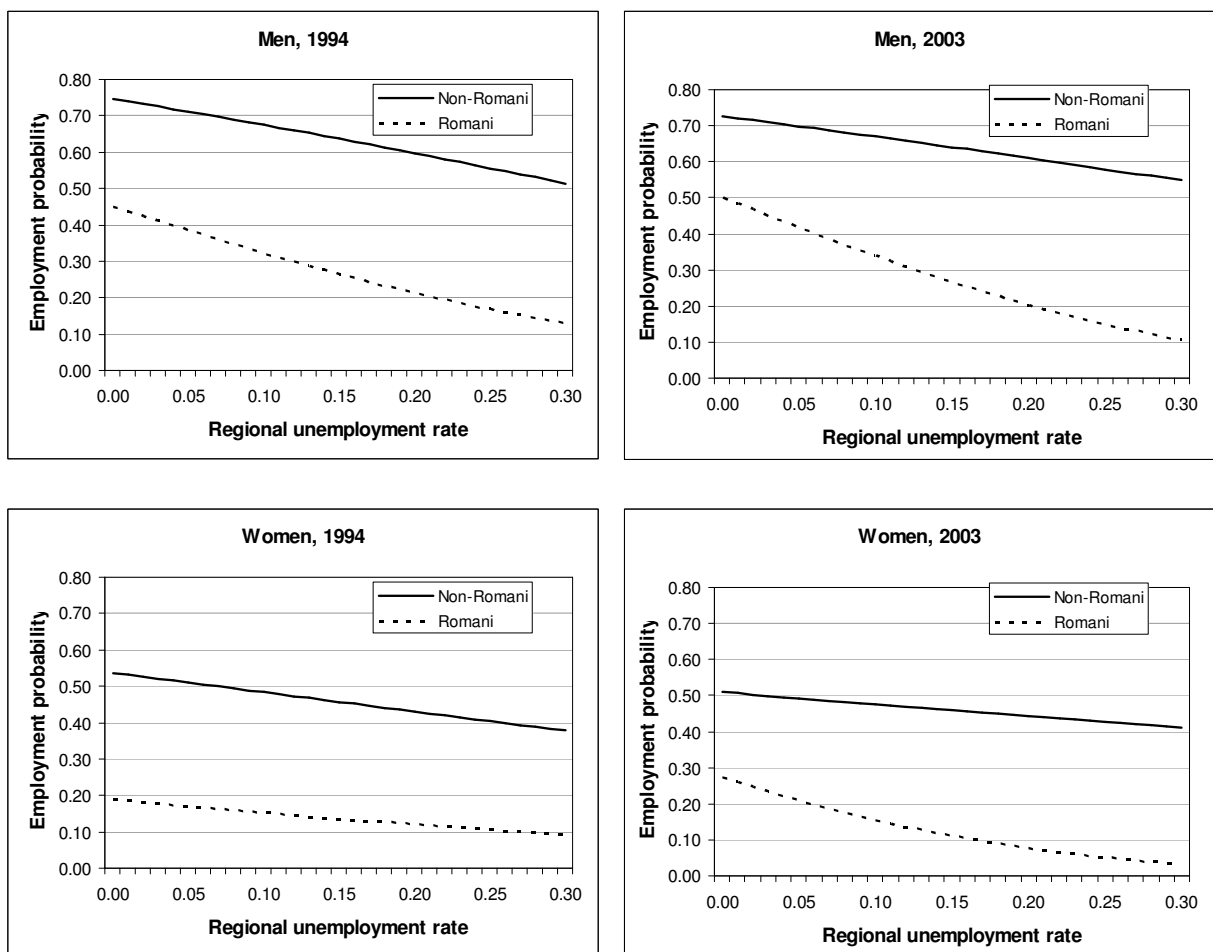
Figure 6. Local unemployment rates and kindergarten and primary school outcomes of Romanies versus overall outcomes. Vertical axes: outcomes (measured in 1985); horizontal axes: unemployment rate of the small region (measured in 1994 and 2003).
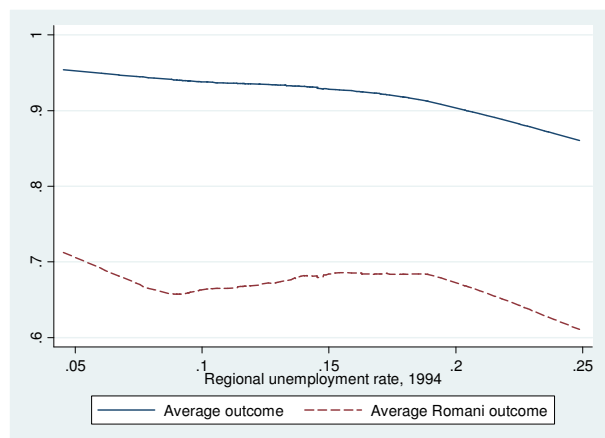
Fraction in kindergarten/preschool
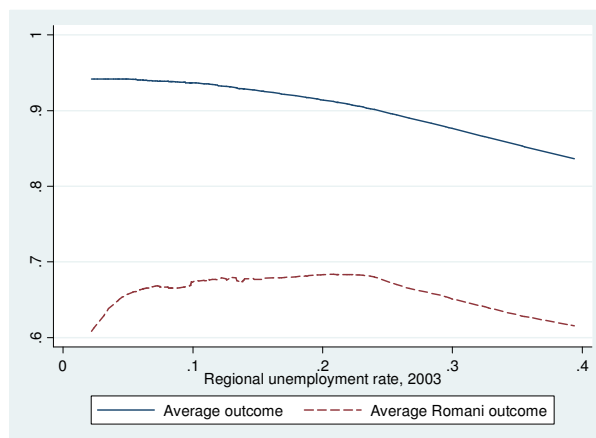
Fraction in kindergarten/preschool

Fraction *not* overage in primary school

Fraction *not* overage in primary school

Fraction *not* failed any subjects in primary school

Fraction *not* failed any subjects in primary school

Appendix Tables

Table A1. Sample means.

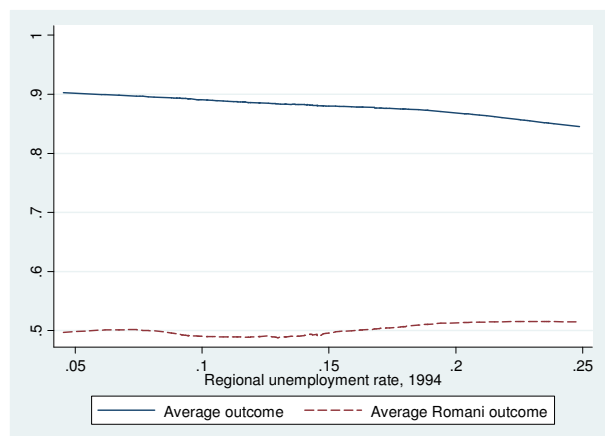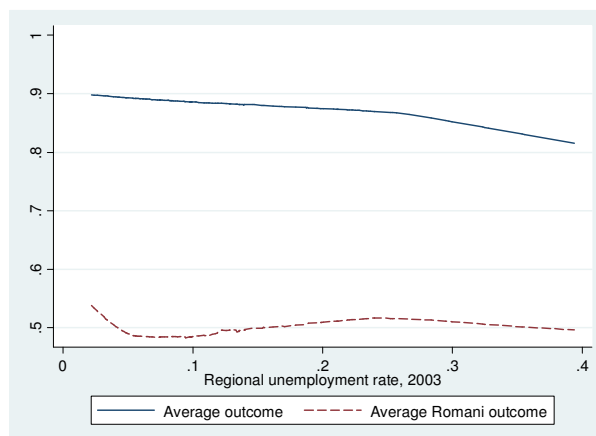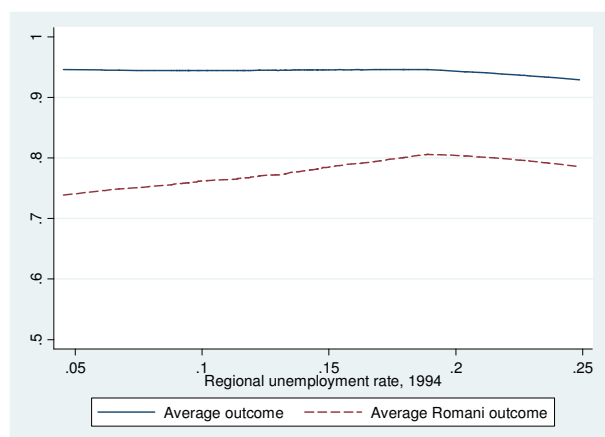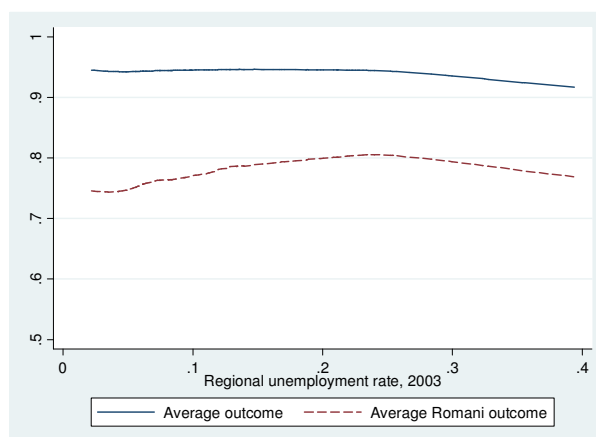|	Men				Women			
	1994		2003		1994		2003	
	Romani	National	Romani	National	Romani	National	Romani	National
Employment rate	0.29	0.66	0.32	0.72	0.17	0.53	0.18	0.58
Age 16-25	0.31	0.14	0.27	0.1	0.32	0.13	0.27	0.09
Age 26-35	0.28	0.21	0.28	0.27	0.27	0.20	0.30	0.25
Age 36-45	0.23	0.28	0.25	0.21	0.23	0.27	0.22	0.21
Age 46-55	0.12	0.21	0.14	0.26	0.11	0.22	0.14	0.26
Age 56-64	0.06	0.16	0.06	0.16	0.07	0.18	0.07	0.19
Educ 0-7 gr	0.32	0.05	0.21	0.02	0.47	0.09	0.34	0.02
Educ 8 gr	0.47	0.25	0.58	0.20	0.42	0.37	0.52	0.27
Educ vocat	0.19	0.37	0.18	0.40	0.09	0.15	0.11	0.21
Educ second	0.02	0.22	0.03	0.25	0.02	0.29	0.03	0.35
Educ higher	0.00	0.11	0.00	0.13	0.00	0.10	0.00	0.15
Region 1	0.13	0.28	0.12	0.28	0.14	0.29	0.14	0.29
Region 2	0.06	0.11	0.08	0.11	0.06	0.11	0.06	0.11
Region 3	0.05	0.10	0.06	0.10	0.05	0.10	0.06	0.10
Region 4	0.20	0.10	0.12	0.10	0.19	0.10	0.12	0.10
Region 5	0.24	0.13	0.31	0.13	0.24	0.13	0.32	0.12
Region 6	0.25	0.15	0.17	0.15	0.24	0.15	0.16	0.15
Region 7	0.07	0.13	0.14	0.13	0.08	0.12	0.14	0.13
Budapest	0.07	0.19	0.09	0.16	0.08	0.20	0.10	0.18
City	0.09	0.20	0.34	0.19	0.10	0.20	0.36	0.21
Small town	0.23	0.26	0.15	0.26	0.23	0.26	0.15	0.26
Village	0.61	0.26	0.15	0.26	0.23	0.26	0.15	0.26
Agglomeration	0.27	0.54	0.55	0.55	0.29	0.56	0.58	0.57
Remote village	0.22	0.08	0.16	0.09	0.21	0.08	0.14	0.08

Table A2. Linear probability models for employment.

	Men				Women			
	1994		2003		1994		2003	
	Romani	National	Romani	National	Romani	National	Romani	National
Age 26-35	0.057	0.153	0.127	0.112	0.05	0.026	0.035	-0.042
	[2.56]*	[13.86]**	[4.19]**	[12.42]**	[2.79]**	[2.31]*	[1.45]	[4.22]**
Age 36-45	0.1	0.137	0.057	0.091	0.155	0.195	0.114	0.11
	[4.29]**	[13.02]**	[1.81]	[9.74]**	[8.06]**	[18.13]**	[4.34]**	[10.78]**
Age 46-55	0.031	0.058	0.009	-0.003	0.025	0.098	0.139	0.087
	[1.04]	[5.21]**	[0.24]	[0.35]	[1.02]	[8.69]**	[4.55]**	[8.78]**
Age 56-64	-0.073	-0.327	-0.122	-0.296	-0.043	-0.357	-0.003	-0.334
	[1.94]	[26.82]**	[2.37]*	[29.91]**	[1.46]	[28.99]**	[0.08]	[31.49]**
Educ 8 gr	0.138	0.159	0.15	0.285	0.09	0.103	0.133	0.213
	[6.85]**	[10.23]**	[5.08]**	[15.53]**	[5.81]**	[8.05]**	[6.37]**	[12.31]**
Educ vocat	0.253	0.293	0.213	0.491	0.253	0.257	0.311	0.371
	[9.96]**	[18.70]**	[5.74]**	[27.21]**	[9.71]**	[17.10]**	[9.45]**	[20.87]**
Educ second	0.285	0.345	0.301	0.54	0.303	0.283	0.318	0.466
	[4.90]**	[21.11]**	[4.49]**	[29.39]**	[6.43]**	[20.42]**	[5.77]**	[26.70]**
Educ higher	0.483	0.44	0.223	0.616	0.439	0.385	0.219	0.58
	[2.76]**	[24.73]**	[1.05]	[32.30]**	[2.93]**	[23.85]**	[1.09]	[31.74]**
Region 1	0.024	0.038	0.191	0.058	-0.041	0.031	0.087	0.04
	[0.50]	[2.63]**	[2.71]**	[5.42]**	[1.05]	[2.17]*	[1.55]	[3.52]**
Region 2	0.092	0.014	0.223	0.091	-0.078	0.008	0.266	0.099
	[2.00]*	[1.10]	[4.23]**	[9.07]**	[2.14]*	[0.63]	[5.88]**	[9.28]**
Region 3	0.08	0.076	0.161	0.077	-0.034	0.054	0.199	0.072
	[1.63]	[5.53]**	[2.84]**	[7.42]**	[0.87]	[3.94]**	[4.40]**	[6.47]**
Region 4	0.084	-0.025	0.073	0.004	-0.018	0.021	0.033	0.017
	[2.24]*	[1.88]	[1.58]	[0.40]	[0.62]	[1.59]	[0.91]	[1.53]
Region 5	-0.059	-0.059	-0.031	-0.031	-0.03	-0.018	0.033	0.01
	[1.57]	[4.63]**	[0.76]	[3.11]**	[1.02]	[1.47]	[1.04]	[0.93]
Region 6	-0.089	-0.049	-0.102	-0.01	-0.124	-0.027	-0.008	-0.017
	[2.44]*	[4.01]**	[2.28]*	[1.08]	[4.33]**	[2.23]*	[0.22]	[1.69]
Budapest	0.03	-0.007	0.292	0.041	0.055	0.004	0.2	0.018
	[0.59]	[0.49]	[3.73]**	[4.04]**	[1.33]	[0.28]	[3.24]**	[1.69]
City	-0.08	0.052	0.081	0.044	0.022	0.043	0.012	0.045
	[1.96]	[4.37]**	[1.87]	[5.00]**	[0.67]	[3.63]**	[0.34]	[4.72]**
Small town	-0.016	0.035	-0.008	0.033	0.002	0.026	-0.056	0.034
	[0.73]	[4.10]**	[0.23]	[5.16]**	[0.10]	[3.04]**	[1.99]*	[4.87]**
Agglomeration	0.057	-0.003	0.002	0.004	-0.014	0.013	0.034	0.02
	[1.97]*	[0.28]	[0.05]	[0.63]	[0.60]	[1.37]	[1.03]	[2.66]**
Remote village	-0.048	-0.07	-0.063	-0.077	-0.027	-0.077	-0.05	-0.052
	[2.12]*	[5.36]**	[1.77]	[7.91]**	[1.46]	[5.84]**	[1.66]	[4.84]**
Constant	0.147	0.349	0.06	0.2	0.107	0.29	-0.075	0.161
	[3.90]**	[18.11]**	[1.18]	[9.95]**	[3.51]**	[16.27]**	[1.94]	[8.06]**
Observations	2674	16690	1404	26006	2795	18216	1469	27592
R-squared	0.1	0.24	0.2	0.23	0.09	0.27	0.18	0.23

Robust t-statistics in brackets.
* significant at 5%; ** significant at 1%

Table A3. Probit models for employment.

	1994		2003	
	Men	Women	Men	Women
Age 26-35	0.405	0.085	0.462	0.077
	[0.033]**	[0.031]**	[0.035]**	[0.033]*
Age 36-45	0.386	0.57	0.396	0.56
	[0.031]**	[0.031]**	[0.033]**	[0.032]**
Age 46-55	0.123	0.259	0.13	0.275
	[0.033]**	[0.032]**	[0.034]**	[0.033]**
Age 56-64	-0.99	-1.287	-0.984	-1.274
	[0.037]**	[0.043]**	[0.038]**	[0.043]**
Educ 8 gr	-0.833	-1	-0.862	-1.098
	[0.042]**	[0.046]**	[0.048]**	[0.052]**
Educ vocat	-0.367	-0.44	-0.356	-0.447
	[0.025]**	[0.029]**	[0.026]**	[0.030]**
Educ second	0.203	0.099	0.202	0.085
	[0.031]**	[0.031]**	[0.031]**	[0.032]**
Educ higher	0.623	0.5	0.608	0.484
	[0.047]**	[0.046]**	[0.047]**	[0.046]**
Budapest	-0.038	-0.002	0.026	0.037
	[0.050]	[0.048]	[0.053]	[0.049]
City	0.078	0.111	0.132	0.122
	[0.039]*	[0.037]**	[0.040]**	[0.038]**
Small town	0.107	0.073	0.118	0.072
	[0.025]**	[0.025]**	[0.026]**	[0.026]**
Region 1	0.032	0.028	0.085	0.074
	[0.048]	[0.046]	[0.049]	[0.047]
Region 2	0.08	-0.021	0.106	0.036
	[0.042]	[0.040]	[0.042]*	[0.040]
Region 3	0.198	0.087	0.238	0.144
	[0.046]**	[0.044]*	[0.047]**	[0.044]**
Region 4	-0.032	0.04	-0.064	0.049
	[0.041]	[0.040]	[0.042]	[0.041]
Region 5	-0.112	-0.013	-0.091	-0.016
	[0.041]**	[0.040]	[0.042]*	[0.041]
Region 6	-0.101	-0.114	-0.099	-0.077
	[0.039]*	[0.039]**	[0.040]*	[0.040]
Agglomeration	-0.04	-0.002	-0.05	-0.001
	[0.029]	[0.029]	[0.030]	[0.029]
Remote village	-0.123	-0.164	-0.154	-0.205
	[0.037]**	[0.038]**	[0.039]**	[0.040]**
Local unempl	-2.083	-1.347	-1.597	-0.833
	[0.410]**	[0.409]**	[0.423]**	[0.421]*
Local unempl × Romani	**-1.26**	**-0.117**	**-2.581**	**-3.278**
	[0.549]*	**[0.594]**	**[0.552]***	**[0.639]***
Romani	**-0.49**	**-0.648**	**-0.374**	**-0.381**
	[0.082]*	**[0.087]***	**[0.083]***	**[0.087]***
Constant	0.673	0.324	0.566	0.239
	[0.069]**	[0.070]**	[0.071]**	[0.071]**
Observations	19364	21011	18094	19685

T-statistics in brackets.
* significant at 5%; ** significant at 1%