Integrated Roma Earnings

A Multivariate Analysis for the Discrimination Hypothesis in Greece

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Abstract: This study is the first to apply econometric tools in the study of wage discrimination for the integrated Romani population ("Gypsies"). Analyzing 2007-08 data from a random sample, the Athens Area Study, drawn from 16 multiethnic municipalities, the author finds that male Roma workers earned 16.4% less than non-Roma workers with the same age, marital status, education, and occupational characteristics did. By using a random sample and multivariate analysis, this study constitutes a significant methodological advancement over previous studies of Romani discrimination and initiates efforts to compare earnings based on Romani background.

Key words: Wage Differentials, Labour Discrimination, Economics of Minorities, Mincer Wage, Heckman Selection Models, Inverse Mills Ratio.
JEL classification: J31, J71, J15, C13, C81

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1. Introduction

To date, Romani background[1] remains the most deprived demographic characteristic (EUAFR [2007]). Roma are poorer than other groups, they are more likely to fall into poverty, and they are more likely to remain poor (Fraser [1995]). The largest Roma population is found in the Balkan peninsula, and significant numbers also live in America, the former Soviet Union, Western Europe, the Middle East, and North Africa[2] (UNDP [2002]). Most Roma people speak one of several dialects of Romany, an Indo-Aryan language, but they also speak the languages of the countries in which they live (Silverman [1995]). Roma usually adopt the dominant ethnic identity and religion of the host country, while often preserving aspects of their particular belief systems and indigenous religion (Matras [2002]).

A significant proportion of the world's Roma live in Europe. Some often live in squatter communities and are referred to as Nomads[3], while some are fully integrated into society (ESA [2004]). For several interrelated reasons, present Romani economic conditions are due to this group's unfavourable initial position at the start of the transition from planned to market economies (EUAFR [2007]). Low education levels and overrepresentation among low-skilled jobs disadvantaged them in the labour market, which was compounded by employers' unequal policies (Ringold *et al.* [2005]). Roma are approximately eight times more likely than the general population to experience long-term unemployment (UNDP [2002]).

In Europe, for both integrated and non-integrated Roma, societal discrimination in employment[4], education, health care, and administrative and other services are common and their fundamental rights are not uniformly upheld (Okely [1983], Pogany [2006], EUAFR [2007]). In reality, Roma are considered the least desirable neighbours in the region. According to the current *Eurobarometer* survey (2008/296), 24% of Europeans said that they would feel "uncomfortable" having a Roma neighbour, with half of them saying they would be "very uncomfortable," compared

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[1] The term "Roma" is an endonym and refers to persons describing themselves as Roma, Gypsies, Manouches, Kalderash, Machavaya, Lovari, Churari, Romanichal, Gitanoes, Kalo, Sinti, Rudari, Boyash, Travellers, Ungaritza, Luri, Bashalde, Romungro, Yenish, Xoraxai, and other groups perceived as Gypsies (see EUMC [2006]). Roma are members of a social group sharing certain common ethnic, linguistic, and cultural characteristics that may differ according to their tribe or clan.

[2] The estimated population of Roma is at least 15 million worldwide (UNDP [2002]).

[3] The terms Roma and Nomads are used in this study as shorthand, as adopted in reports from the European Commission and United Nations, and this practice is not intended to downplay the diversity within these communities or to promote negative stereotypes.

[4] Labour market discrimination exists when two equally qualified individuals are treated differently in the labour market on the basis of some personal characteristic unrelated to productivity (Swinton [1977]).

to just 6% stating the same for a neighbourhood consisting of a group other than Roma. Is it reasonable to ask whether there is some reason to expect differential treatment of Romani groups? Social research has demonstrated the existence of "xenophobia" and the ensuing effects on the experiences of Roma in European societies (Banton [1996]). The term xenophobia is typically used to describe a fear or dislike of foreigners or of people significantly different from oneself (Stewart [1997]).

Arguably, the most fundamental change in the European Union related to combating xenophobia and discrimination has been the adoption of series of equality ordinances (Pogany [2006]). Roma issues have gained increasing international attention over the past decade because of emerging evidence of human rights violations and seriously deteriorating socioeconomic conditions within many Romani communities. Currently, the freedom of individuals belonging to national, ethnic, religious, or linguistic minorities to express and celebrate their identities as members of such minorities has been recognized as an integral feature of the international protection of human rights.

The inclusion of Article 13 in the European Community Treaty, following the enactment of the 1997 Amsterdam Treaty, empowered the EU to deal with many types of discrimination, including discrimination based on racial or ethnic origin, religion or belief, age, disability, and sexual orientation. The goal of Racial Directive No. 43, unanimously adopted by the Council in 2000, is to offer legal protection against discrimination in the labour market to everybody living in the European Union.[5] Social planers establish that employers should employ and pay people based on what they can produce on the job, not who they are. EU's priority is to integrate its entire membership into a new arrangement of active citizenship that protects everyone's long-term well-being in a diverse society.

A variety of scholars have analysed Romani lives (Turner [1975], Silverman [1988], Hall [1989], Stewart [1997], Taylor [1999]). Ethnographic articles on Romani people explore the demographics of ethnic identity among Romani communities in different and assimilation. Anthropological studies are characterized by the examination of otherness and the description of the cultural practices the Romani group displays. These studies cover many diverse issues such as the living and working conditions and lifestyle of the Roma in different countries and the ordeals they have faced over centuries of living in mainstream society.

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[5] In the European Union, it is currently unlawful to discriminate against: (i) job applicants in matters of recruitment, arrangements, decisions, and harassment; (ii) employees in matters of terms, promotions, transfers, training, benefits, and dismissals; and (iii) ex-employees in matters closely related to their former employment.

On the other hand, economic studies that compare Roma and non-Roma wages using random samples do not exist. One reason we know nothing about the economic effects of the Romani identity is that there are no reliable and representative data relating Romani identity to economic outcomes. This is mainly because most research focuses on the visible homeless Roma who correspond to the stereotype of the marginalized and impoverished pariah. More importantly, this lack of data reveals that social planners have not taken an interest in evaluating the phenomenon of Romani identity.

Contemporary economics has made a substantial effort not to see people as a single category and to deny other identities that oppress people. In this paper, we apply, for the first time, econometric tools developed in the study of wage discrimination to test differences based on an *integrated*-Romani group. This research requires the clear definition of a Romani sample and a non-Romani sample. Data pooled from a 2007-08 random sample, *, the Athens Area Study*, which took place in the 16 multiethnic municipalities in which Roma concentrate, allow econometric testing of whether discrimination against Romani identity affects wages. To determine whether there is discrimination against Roma workers, the process compares the wages of Roma to the wages of non-Roma. If Roma earn less than non-Roma, after accounting for differences in productivity and other factors that influence wages, then the unexplained differential may be attributed to labour market discrimination by employers.

Building on the lack of similar previous economic studies, our analysis aims to achieve two primary goals. First, we try to solidify our understanding of the statistical facts regarding the co-movement of individual earnings and Romani origin using well-established techniques. Because random samples in discrimination testing can indicate different directions and significance of wage effects, we offer a discussion of the econometric model (Two-Step Heckman Model). The second primary contribution of our analysis is theoretical. Specifically, we focus on the Taste theory (Becker [1957]) and the Statistical theory (Arrow [1973]) of wage discrimination to integrate and synthesize the available empirical evidence that may account for the observed wage gaps.

In this way, the present research makes an important conceptual contribution to our understanding of Roma origin. In its use of a random sample and multivariate analysis, this study is a significant methodological advancement over previous studies of Romani discrimination, and it promises to inspire new efforts to compare wages by Romani background. In identifying the

statistical effect of Romani origin on income, we aim to provide a richer empirical backdrop for further analysis of wage gaps and antidiscrimination policy.

The paper is divided into five sections. Section 2 reviews the scarce stylised facts concerning Roma people in Greece. Section 3 discusses the Athens Area Study data set. Section 4 evaluates the estimation framework. Section 5 presents the empirical estimations and offers a theoretical discussion. Section 6 concludes.

2. The Romani Population in Greece

The centuries-old Romani presence in Greece had become well entrenched by the time of the Greek War of Independence from Ottoman rule, otherwise known as the "Revolution of 1821." Until 1955, the Roma were stateless. Since then and gradually until 1978, they were all granted Greek citizenship to allow them to acquire an identity card or, in cases when they resided in a municipality, to allow them access to social benefits (ROM Network [2000]). In recent years, the expression "Greek-Roma" has emerged as the politically correct term to refer to Greeks with a Romani background.

In Greece, official data on demographic issues is rarely informative regarding Roma due to the lack of ethnically differentiated data. Currently, according to data from the Greek government, Roma number approximately 200.000. Their relative share of the Greek population varies between 2-3%, and 70-80% of them were considered to be well integrated in multiethnic communities (Komis [1998], Vaxevanoglou [2001]). The Roma in Greece think of themselves as part of Greek culture and civilization. The majority of the Greek Roma are Orthodox Christian and have taken Greek names, and most Roma speak the Greek language[6] (Hunt [1993], Vaxevanoglou [2001]).

The Roma live scattered over the entire territory of Greece, but a large concentration exists in the capital prefecture, Attica. The living standards of the assimilated Roma who have concentrated for several generations have been reported to be comparable to those of Greeks, though this has not yet been empirically tested. In contrast, the Nomads are reported to be the ones worst off; these people are not integrated in the sense that they live in shantytowns and are unable to meet their basic needs. In this study, we do not attempt to review the existing literature of Nomads.

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[6] We should also mention that a small number of foreign-born Roma emigrated to Greece from neighbouring countries after 1990.

Kozaitis (1997), Exarchos (1998), Marantzidis *et al.* (1999), and Karathanassi (2000) provide discussions of many relevant issues regarding Nomads.

Conditions of integrated-Roma and the characteristics of their housing is scarce and fragmented. However, how they concentrate in urban space has been the focus of different and complementary theories in sociology, geography, politics, and economics (Schelling [1969], Bourne [1976], Logan and Molotch [1987], Portes and Sensenbrenner [1993], Ratcliffe [1998], Tickamyer [2000], Wilson [2001]). Three hypotheses seek to explain the persistence of residential concentration of integrated-Roma across Attica: *economic differentials*, *discrimination in housing*, and *neighbourhood preferences*.

The economic hypothesis contends that concentration started and persists because Roma in Greece live where they can afford the cost of living. Specifically, the economic theory suggests that Roma people who are driven by their budget constraints choose to concentrate in mostly working-class communities. On the other hand, the racial discrimination hypothesis argues that Roma concentration persists because of the societal discrimination they face in middle and upper class areas by landlords, real estate agents, and non-Roma neighbours, who constitute the majority. Unfortunately, no field experiments have been undertaken to test the discrimination hypothesis. Nevertheless, since Roma do not enjoy higher societal approval than non-Roma, the racial discrimination hypothesis may explain some trends. The preference hypothesis posits that Roma in Greece wish to live in more homogeneously Romani neighbourhoods. Origin heritage includes factors such as cultural roots and "religion and memories," and this theory holds that origin heritage is a significant criterion for Roma to live in the same space. Social networks have been suggested as the basic tool to evaluate Roma culture, since it serves these individuals as a way to acquire a specific position in both the housing and labour markets.

All the theories described above remain controversial given the absence of empirical evaluation. In fact, a combination of these theories may explain the concentration of Roma in Greek multiethnic communities.[7]

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[7] Note that integrated-Romani people do not face residential segregation because the majority of people in the areas in which they live are non-Roma, and these communities are not characterised as ghettos. In fact, characteristics of ghettos – lack of multiculturalism, level of criminal activity, and quality of the neighbourhood public school - are not systematically found in areas in Greece (DEPOS/MRC [1999]). However, the lack of ghettos cannot be interpreted as proof of the lack of racial discrimination.

In Greece, little data exist on where integrated-Roma people find work in today's labour market. Nevertheless, the indications are that those formal employment work in the secondary labour market, which involves low-skilled jobs. Roma are reported to have lower levels of education and professional skills than other groups. Research also suggests that qualified Roma who get better jobs in the primary labour market are mainly employed in some kind of Roma-related field. Research suggests that this situation is not by choice, but rather because Roma are neither considered for, nor provided, the same range of employment opportunities or prospects as non-Roma with the same qualifications ((Hunt [1993], Kozaitis [1997], Marantzidis *et al.* [1999]).

The question of whether widespread discrimination based on Romani origin exists in Greek firms is important. Until recently, an attempt to construct a study focused on integrated-Roma people would meet with silence and denial. Given the legal and institutional actions in Europe that have the potential to affect Roma, it is increasingly important to understand the relationship between the Romani population and labour market discrimination. The systematic economic study of Roma individuals is valuable for both its policy relevance and its potential to inform social scientists and policy-makers about the functioning of the labour market.

3. Data Set

Data were gathered from September 2007 through June 2008, in the Athens Area Study (AAS), conducted by the University of Crete. The 2008 AAS is one component of the Multi-City Study of the Scientific Centre for the Study of Discrimination (SCSD), which has collected information on labour market variables (employment status, demographic characteristics, and wages), and which focuses on the Romani population.

The data set focuses on a particular group of Roma, namely those who are more successful at social integration than Nomads are. For the purposes of this study, we concentrate on the 16 municipalities in which Romani populations are concentrated. These residential areas have assumed at least some of the majority's societal attributes and are characterised as multiethnic municipalities.[8]

The current AAS consists of random telephone-based surveys that were administered to approximately 8.000 households. Male workers in each household were randomly selected to

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[8] Note that published demographic trends do not exist for the areas reviewed and analysed in this study. Similarly, opinion polls have not been conducted with adequate sample sizes to permit valid estimates of Romani prejudice in those municipalities.

provide individual information on a variety of demographic characteristics. The AAS includes only full-time workers, which minimises the problem of variations in earnings due to part-time work status, and interviews were restricted to individuals aged 18 to 65 years. Hence, the AAS excludes part-time workers, homemakers, and self-employed.

Income is measured as a continuous variable. The AAS constructed an hourly wage measure by dividing the last month's earnings by self-reported working hours per month. Surveyors asked, *"What is your best estimate of your wage last month before taxes and other deductions?"* The earnings variable is the natural logarithm of hourly earnings.

To investigate the Romani identity, adult workers were asked : *"The next question is about Romani origin. Are you Roma or, as said, Athinganos?[9]"* One hundred percent of respondents answered this question. The Romani origin is a dummy variable called **ROMA**, taking the value of one if the respondent was Roma, and zero otherwise.

At this point, two issues in economic analyses of origin identity are important to discuss. First, an important factor influencing the potential for Romani background to decrease earnings through employer discrimination is the employers' ability to distinguish Roma and non-Roma. To the extent that an employer only imperfectly observes Roma employees, any evidence of discrimination we find would understate the extent of discrimination against Roma.[10] Nevertheless, Roma families in Greece are proud of their heritage and continue to follow their cultural traditions. Thus, we believe it unlikely that an employer would fail to detect the Roma origin of a worker.

Second, "underreporting" is a concern in every study that infers origin from self-reported data. Within the Roma community, it may be that a higher percentage of higher-earning men are willing to identify themselves as Roma. Both instances of untruthfulness, if uniformly distributed over all kinds of employees, would tend to bring the Roma and non-Roma averages closer together, biasing a test to detect differences against finding any.

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[9] The term Roma was not commonly used in Greece until recently. Athinganos is the term used for administrative purposes for Roma in Greek. This term is fully understandable in the Greek region and includes relevant sub-groups. The AAS used both expressions in case individuals were unfamiliar with the Roma term.

[10] Romani origin might be inferred from stereotypical physical characteristics (Okely [1983], Hall [1989], Fraser [1995], Stewart [1997]). On average *darker-yellow* skin than that of the rest of the local population, some recognisable facial characteristics and expressions, traditional clothing, and living together in large families number among the distinctive characteristics of Roma individuals. However, this reliance on physical characteristics leads to errors if Roma individuals do not have these stereotypical characteristics and their origin goes unnoticed by employers and the greater society.

Nothing suggests that the above mentioned two points cause greater bias than in comparable studies.

There are numerous factors besides Romani identity that may influence wage levels. To isolate the effect of Romani origin on wages, we must appropriately control for all other factors that affect wages and that correlate with Romani origin. Some of these factors pertain to individual productivity. The productivity variables used in the study were age, education, fluency in the Greek language, health status, and occupation. The variable *AGE* measured the individual's years of age. To allow for a non-linear relationship between wage and age, the square of age (*AGESQ*) was included in the regression. The variable *MARR* was set equal to one if the respondent was married, and zero otherwise. The variable *CHIL* measured the number of children in the household. The variable *HOMEM* measured individual's household members.

The variable *IMM* was set to one if the individual was immigrant (non-Greek), and it was zero otherwise. The variable *FLUEN* was equal to one if the individual spoke the Greek language well or very well, and zero otherwise. To capture possible effects of disability and disease, the variable *DIS* was set to one if the individual's activities were limited by poor health, otherwise it was zero. To be comparable to previous research, we defined disability status using the self-reported response to the question concerning conditions that limited the individual's ability to work (Baldwin and Johnson [2000]).

The variable *SCHOL* was set to one if the respondent had completed the minimum mandatory education level, and it was zero otherwise. The variable *GRAD* was set to one if the respondent had graduated from high school, and zero otherwise. The variable *UNIV* was set to one if the respondent had a university or technical school diploma, and zero otherwise. The coefficients on these variables measure the effects of degree completion compared to workers who did not receive a comparable educational level. The variable *PC* was set to one if the individual had computer skills, otherwise it was zero. The variable *ENGL* was set to one if the respondent had knowledge of English, zero otherwise. The variable *DRIV* was set equal to one if the respondent had a driving licence, and zero otherwise.

The variable *EXPER* measures the individual's years of working experience. For reasons discussed above, we also included the square of experience (*EXPERSQ*).

Three dummy variables for occupational categories were included in the analysis. The variable *WHITE* was set to one if the individual's occupation was among white-collar occupations,

otherwise it was zero. The variable **BLUE** was set equal to one if the individual's occupation was among blue-collar occupations, otherwise it was zero. The variable **SERV** was set to one if the individual's occupation was among service occupations, otherwise it was zero.

For deeper occupational control, two additional variables were considered. The variable **PUBL** was set to one if the worker was employed in the public sector, and zero otherwise. The variable **PRIV** was set to one if the worker was employed in the private sector, and it was zero otherwise. The variable **INSI** was set to one if the worker worked in the municipality in which his household was located, and zero otherwise.

Finally, the dummies **MUN_1** up to **MUN_16** represent region-specific fixed effects (16 municipalities), and the variables **MON_1** up to **MON_10** represent common time effects (10 months).

For convenience, variables definitions are summarized in Table 1 below.

Table 1. Definitions of Variables

Variable Name	Definition
NLHN	Natural logarithm of hourly wages
ROMA	1 if individual has a Romani origin; 0 otherwise
AGE	Years of age
AGESQ	Squared years of age
MARR	1 if individual is married; 0 otherwise
CHIL	Number of children in household
HOMEM	Number of members in household
IMM	1 if individual is an immigrant; 0 otherwise
FLUEN	1 if individual is fluent in the Greek language; 0 otherwise
DIS	1 if individual is limited in kind or amount of work, has a mobility limitation, or has a personal care limitation; 0 otherwise
SCHOL	1 if individual has completed minimum mandatory education; 0 otherwise
GRAD	1 if individual has graduated from a high school; 0 otherwise
UNIV	1 if individual has university or a technical school diploma ; 0 otherwise
PC	1 if individual has computer skills; 0 otherwise
ENGL	1 if individual has knowledge of English; 0 otherwise
DRIV	1 if individual has a driving license; 0 otherwise
EXPER	Years of working experience
EXPERSQ	Squared years of working experience

Table 1. (continued) Definitions of Variables

Variable Name	Definition
WHITE	1 if individual's occupation is among managerial or professional specialties, or the individual works in a technical, sales, or administrative support position; 0 otherwise
BLUE	1 if individual's occupation is among precision production, craft, or repair occupations, or the individuals works as an operator, fabricator or labourer; 0 otherwise
SERV	1 if individual is in a service occupation; 0 otherwise
PUBL	1 if individual is employed in the public sector; 0 otherwise
PRIV	1 if individual is employed in the private sector; 0 otherwise
INSI	1 if individual's work is in the same municipality as his residence; 0 otherwise
MUN_1	1 if individual's household located in Agia Barbara; 0 otherwise
MUN_2	1 if individual's household located in Agioi Anargyroi; 0 otherwise
MUN_3	1 if individual's household located in Aigaleo; 0 otherwise
MUN_4	1 if individual's household located in Ano Liosia; 0 otherwise
MUN_5	1 if individual's household located in Aspropyrgos; 0 otherwise
MUN_6	1 if individual's household located in Eleusina; 0 otherwise
MUN_7	1 if individual's household located in Zefyri; 0 otherwise
MUN_8	1 if individual's household located in Ilion; 0 otherwise
MUN_9	1 if individual's household located in Kamatero; 0 otherwise
MUN_10	1 if individual's household located in Keratsini; 0 otherwise
MUN_11	1 if individual's household located in Korydallos; 0 otherwise
MUN_12	1 if individual's household located in Menidi; 0 otherwise
MUN_13	1 if individual's household located in Nikaia; 0 otherwise
MUN_14	1 if individual's household located in Perama; 0 otherwise
MUN_15	1 if individual's household located in Petroupoli; 0 otherwise
MUN_16	1 if individual's household located in Xaidari; 0 otherwise
MON_1	1 if individual's interview took place in September 2007; 0 otherwise
MON_2	1 if individual's interview took place in October 2007; 0 otherwise
MON_3	1 if individual's interview took place in November 2007; 0 otherwise
MON_4	1 if individual's interview took place in December 2007; 0 otherwise
MON_5	1 if individual's interview took place in January 2008; 0 otherwise
MON_6	1 if individual's interview took place in February 2008; 0 otherwise
MON_7	1 if individual's interview took place in March 2008; 0 otherwise
MON_8	1 if individual's interview took place in April 2008; 0 otherwise
MON_9	1 if individual's interview took place in May 2008; 0 otherwise
MON_10	1 if individual's interview took place in June 2008; 0 otherwise
LAMDA	Inverse of Mill's ratio, estimated from Probit Model equation results

4. Modelling

In this study, we test the hypothesis that the Romani population have statistically different earnings from non-Roma while controlling for differences in labour market experience, educational levels, occupations, and other characteristics.

The empirical work is based on the standard human capital wage equation developed by Mincer (1974). We develop our estimates by systematically modifying the *Mincer Equation*. The wage equation, written below, relates the calculated wages (called **NLHW**) to dummy variables for the demographic and control variables. We use the natural logarithm of the wage variable, which

increases the efficiency of estimation because it increases the extent to which the variable approximates a Gaussian distribution. It also allows for an easier interpretation of the coefficients as percentages. Equation (1) presents a linearly estimable specification of this basic model:

$$\ln W_i = \alpha_1 + \beta_1 R_i + \gamma_1 X_i + \varepsilon_{1i} \qquad (1)$$

where W_i = hourly wage of individual i; R_i = indicator variable equals 1 if the worker is Roma and 0 if the worker is non – Roma; X_i = vector of characteristics that describe individuals and that are thought to be related to wages; α_1, β_1, γ_1 = parameters to be estimated by the OLS model; and ε_{1i} = error term.

The key variable of interest is the dummy variable indicating that the worker is Roma. The main effect of discrimination, if any, will be captured by the Romani identity coefficient. A statistically significant negative coefficient would imply discrimination in the form of lower wages.

Following Halvorsen and Palmquist (1980), the percentage impact on earnings, given the presence of the characteristic represented by the dummy variable, must be measured using the formula:

$$100\psi = 100\{\exp(b_i) - 1\} \qquad (2)$$

where ψ = the relative effect on wages; and β_i = the dummy variable's coefficient.

In any study, isolating unbiased outcomes requires attention to unobserved heterogeneity. In the current study, we addressed this issue as it relates to the effects of Romani identity and potential employment heterogeneity by estimating a preliminary employment equation in order to construct an *Inverse Mills Ratio* term that will serve as a statistical correction when estimating wage equations for only individuals with observed wages[11] (called ***LAMDA***).

A two-stage estimation procedure proposed by Heckman (1974) was applied, which translates sample selection into a problem of an omitted variable.[12] This correction is particularly important for our analyses because of the possible differentials in importance of the demographic

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[11] For instance, the sample in Equation 1 is systematically selected according to the condition $\varepsilon_{1i} > -\alpha_1 - \beta_1 R_i - \gamma_1 X_i$. As a result, the expected value of the error term is not zero and the use of OLS generates inconsistent estimates.

[12] According to Heckman, the results of this procedure can be quite close to results from maximum likelihood estimations.

variables in employment selection for Roma. This ratio is known as the hazard rate in reliability theory.

Our empirical work relies on the following specification of the *Probit* model applied to employment, in which the continuous latent variable x_i^*, reflecting preferences for paid work, is expressed as the observed discrete employment outcome:

$D_i = 1$ if $x_i^* > 0$ $\qquad$ (3)

$\quad = 0$ otherwise,

where $x_i^* = \alpha_2 + \beta_2 R_i + \gamma_2 X_i + \varepsilon_{Ri}$; $D_i = 1$ if individual *i* participates in the labour force and has positive wages and is 0 otherwise; and α_2, β_2, γ_2 = parameters to be estimated by Probit model; and ε_{Ri} = error term.

The variables that are included in the estimation of employment, but not wages, and that therefore help the model's identification, include the number of children in the household, the number of members in the household, and 10 common time effects. Males' decision for employment is affected by the existence of children. Similarly, we can expect that the number of household members may drive adult males to be employed. However, since interviews were conducted over a period of 10 months, it was necessary to control for time effects using time dummy variables defined by the month when the interview took place (see, Table 1 for definitions).[13]

We then use the predicted *Inverse Mills Ratio*, which we denote as $\tilde{I}_i$ for each observation in the sample of workers.

Equation (3) presents the wage regression above, which includes a correction term to adjust the employment selection correction term.

$\ln W_i = \alpha_1 + \beta_1 E_i + \gamma_1 X_i + \delta_1 \tilde{I}_i + \varepsilon_{1i}$ $\qquad$ (4)

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[13] In the Probit equation, if we do not include one or two of the three variables **CHIL**, **HOMEM**, and **MON**, whatever the combination, we obtain the same estimates of the LAMDA coefficients.

Estimation of Equation (3) yields consistent parameter estimates. This procedure, while controlling for sample selectivity, introduces heteroskedasticity into the model. We dealt with heteroskedasticity using the White (1981) method to estimate a consistent covariance matrix.

In our analysis of completeness, five Two-Stage Heckman Selection models were estimated. The first model controlled only for differences in Roma background, age, marital status, and health limitations. The second model also controlled for the proportion of immigrants and individuals' fluency in Greek. The third model also controlled for working experience. The fourth model additionally controlled for occupational differences (i.e. a total of six variables). The fifth model included full information after controlling for differences in education (six variables).

5. Results

5.1 Descriptive Statistics

By using self-reported Roma background, we are able to separate non-Roma from Roma. Our sample of adults consists of 6903 non-Roma and 1095 Roma. The AAS represents a proportion of Roma individuals on the order of 13.7%.

We present variable means stratified by employment status and non-Romani and Romani background. Table 2 shows descriptive statistics for employed non-Roma and Roma (Columns 1 and 3). At first glance, Roma have lower hourly wages (natural log) than non-Roma (3.29 versus 3.61, respectively, p=0.00[14]). The results also indicate that Roma and non-Roma people have nearly the same average age (35.4 versus 35.6, p=0.42). Moreover, Roma are more likely to be married than non-Roma (75.9% versus 65.5%, p=0.00). In addition, Roma have more children than non-Roma (1.43 versus 0.91, p=0.00) and their households have more members than non-Roma (7.19 versus 4.22, p=0.00).

The origin of the Roma individuals in the AAS is also interesting. Roma immigrants do not exist in the sample. In other words, our sample exclusively consists of Greek-Roma. This outcome has two possible explanations. It may reflect the fact that Roma were granted Greek citizenship decades ago (see Section 2). However, Roma immigrants may not be integrated in Greek society; hence, the data collection design (telephone contact) may not have identified them. On the other hand, the proportion of (non-Roma) immigrants is 8.2% (p=0.00). Interestingly, Roma people are

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[14] Significant at the 1% level if p-values<0.01, significant at the 5% level if 0.01<p-values<0.05, significant at the 10% level if 0.05<p-values<0.1, insignificant if p>0.1.

more likely to be fluent in the Greek language than are non-Roma (100% versus 98.8%, p=0.23).[15] This result is obvious because some non-Roma are immigrants. Moreover, Roma are less likely to have health limitations than non-Roma (3.2% versus 5.23%, p=0.19).

Roma and non-Roma devote a significantly different number of years to education. Integrated-Roma are significantly less likely to have completed minimum mandatory education than non-Roma (30.7% versus 95.5%, p=0.00). As a result, Roma are less likely to have a high school diploma than non-Roma (19.3% versus 83.6%, p=0.00). Similarly, only a small proportion of Roma people have a university or technical school degree (8.0% versus 45.8%, p=0.00). Furthermore, Roma are significantly less likely to have computer skills and English knowledge than non-Roma[16] (6.2% versus 68.8%, p=0.00, and 6.8% versus 43.6%, p=0.00, respectively). Nevertheless, Roma people are more likely to have a driving license than non-Roma (94.6% versus 88.8%, p=0.02).

Among employed men, Roma have more years of working experience than non-Roma (18.9 than 14.8, p=0.00). If we subtract the individual's age from years of working experience, we see that Roma people start their working career at 16.5 years of age, and non-Roma at 20.8 years of age. The interpretation is clear. Since Roma people cease their education early, they start employment at a younger age. Based on our sample, Roma people have approximately four additional years of working experience than non-Roma.

A potentially important difference between Roma and non-Roma is their occupational category. Roma people are significantly less likely to be employed in white-collar jobs than non-Roma (3.0% versus 39.8%, p=0.00). This result may be due to the limited education they acquire in their lives. Concomitantly, they are significantly over-represented in blue-collar jobs compared to non-Roma (85.7% versus 50.0%, p=0.00). Moreover, Roma are less likely to work in service occupations than non-Roma (8.0% versus 13.1%, p=0.00). A small number of Roma are employed in the public sector compared to non-Roma (4.25% versus 31.8%, p=0.00). Concomitantly, more Roma people are employed in the private sector than non-Roma (84.6% versus 55.1%, p=0.00). In addition, fewer Roma than non-Roma work in the same municipality in which they live (21.6% versus 27.5%, p=0.04).

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[15] The fluency of the individuals and their gender were the only issues that AAS testers were able to accurately self-report. Indeed, Roma self-report Greek fluency.

[16] Note that if we concentrate on Roma and non-Roma who are under 20 years of age, they have comparable rates of mandatory education. Also, if we consider Roma and non-Roma who are older than 50 years, only a small proportion of the former complete mandatory education.

Finally, the geographic distribution of Roma differs from that of non-Roma in many of the 16 municipalities. Specifically, Roma people are highly concentrated in three municipalities.

On average, the data support the stereotypes that Roma people have a higher rate of marriage, number of children, and household members than non-Roma. In addition, the data suggest differences in educational levels among Roma people, which correlate with future employment opportunities.

The present study indicates that Roma workers have lower educational levels but more working experience. On one hand, Roma may have lower wages because of their lower educational level; on the other hand, they may earn more than non-Roma due to their greater working experience. Thus, we have two opposing factors that may affect the observed wage gap. Nevertheless, even before performing an econometric analysis, the data clearly indicate that Roma have lower monthly earnings.

Focusing on unemployed Roma and non-Roma (Columns 2 and 4), we see that the mean age of Roma people is 27.7 years, while the mean age of non-Roma is 30.9 years (p=0.04). This might suggest that Roma face unemployment at a younger age. Moreover, among unemployed men, Roma are more likely to be married than non-Roma are (51.1% versus 46.9%, p=0.03) and to have more children than non-Roma do (0.89 versus 0.63, p=0.00). In addition, Roma households have more family members than non-Roma (6.91 versus 4.19, p=0.00). In the present data set, Roma immigrants are absent. On the other hand, 8.6% of the non-Roma respondents are immigrants (p=0.00). Roma are always fluent in Greek, compared to 95.9% of non-Roma (p=0.08). Furthermore, Roma people are more likely to have health limitations than non-Roma (4.81% versus 3.22%, p=0.13).

Moreover, 42.1% of Roma have completed mandatory school, compared to 94.4% of the non-Roma population (p=0.00). In addition, 31.9% of Roma have a high school diploma, while 85.9% of non-Roma are awarded high school diplomas (p=0.00). As a result of poor educational standards, Roma are less likely to graduate from a university or technical school (10.8% versus 40.8%, p=0.00). Roma are less likely to have computer and English skills than non-Roma (21.6% versus 78.1%, p=0.00, and 16.8% versus 50.4%, p=0.00, respectively). Unemployed Roma are less likely to have a driving license than non-Roma (79.5% versus 85.0%, p=0.03). Finally, Roma have 13.1 years of working experience compared to the 10.2 years for non-Roma (p=0.00).

Of all these differences, perhaps the most striking is that the Roma population faces an 7.5% unemployment rate, while non-Roma are unemployed at a higher rate of 10.3% (p=0.03). This result contradicts claims that Roma have higher rates of unemployment than non-Roma. The result found here may be explained by four factors. First, the non-Roma group is made up of a substantial proportion of immigrants. Some of the unemployment difference may come from immigrants' status in the labour market. Second, the data set revealed that the non-Roma group is less likely to be fluent in Greek, which could be a major limitation in their search for employment. Third, as previously mentioned, Roma have more working experience, which gives them a competitive advantage. Finally, lower wages given to Roma people is one factor that persuades firms to hire them over non-Roma. The question remains open which of these factors contributes most to the results reported here.

Finally, if we concentrate on employed and unemployed Roma (Columns 2 and 4), and note the age difference between these groups (30.9 versus 27.7, p=0.03), some interesting findings result. It seems that younger Roma are more likely to have completed all three education levels (p=0.00) and also to have more skills in computers and English than older Roma (p=0.00). This is undoubtedly a sign that integrated Roma value education and that younger people follow suit. Nevertheless, they still face significant educational limitations from the non-Roma population, and they are plagued by a high unemployment rate.

Table 2. Descriptive Statistics: Non-Roma & Roma

	Non-Roma		Roma	
	Employed	Unemployed	Employed	Unemployed
Number of Observations	6189	714	1012	83
Mean hourly earnings (natural log)	3.611	-	3.297	-
Mean age	35.68	30.95	35.48	27.72
Percentage who are married	65.54%	46.98%	75.96%	51.12%
Mean number of children in household	0.912	0.630	1.430	0.891
Mean number of household members	4.224	4.190	7.192	6.915
Percentage who are immigrants	8.245%	8.963%	0%	0%
Percentage with Greek fluency	98.88%	95.93%	100%	100%
Percentage with health limitations	5.231%	3.221%	3.261%	4.813%
Percentage completing minimum mandatory education	95.54%	94.49%	30.71%	42.16%
Percentage of high school graduates	83.61%	85.94%	19.38%	31.92%
Percentage of university or technical school graduates	45.84%	40.89%	8.01%	10.84%

Table 2. (continued) Descriptive Statistics: Non-Roma & Roma

	Non-Roma		Roma	
	Employed	Unemployed	Employed	Unemployed
Percentage with computing skills	68.86%	78.15%	6.23%	21.68%
Percentage with English skills	43.66%	50.42%	6.82%	16.81%
Percentage with driving license	88.86%	85.01%	94.65%	79.51%
Mean years of experience	14.84	10.25	18.92	13.14
Percentage in white-collar jobs	39.82%	-	3.000%	-
Percentage in blue-collar jobs	50.03%	-	85.75%	-
Percentage in service occupations	13.16%	-	8.014%	-
Percentage in public sector	31.88%	-	4.257%	-
Percentage in private sector	55.51%	-	84.67%	-
Percentage employed in the area of residence	27.58%	-	21.63%	-
Percentage living in Agia Barbara	4.721%	6.862%	13.64%	7.228%
Percentage living in Agioi Anargyroi	4.329%	1.960%	12.95%	4.819%
Percentage living in Aigaleo	9.571%	8.543%	11.47%	4.819%
Percentage living in Ano Liosia	4.944%	5.603%	5.440%	1.204%
Percentage living in Aspropyrgos	6.253%	2.801%	5.736%	6.024%
Percentage living in Eleusina	7.061%	7.983%	7.418%	7.228%
Percentage living in Zefyri	7.462%	9.243%	3.659%	6.024%
Percentage living in Ilion	8.208%	4.341%	2.670%	10.84%
Percentage living in Kamatero	6.738%	4.201%	4.451%	4.819%
Percentage living in Keratsini	5.913%	8.125%	6.429%	6.024%
Percentage living in Korydallos	6.205%	3.641%	5.143%	9.638%
Percentage living in Menidi	6.831%	5.042%	4.352%	10.84%
Percentage living in Nikaia	5.107%	5.743%	4.055%	8.433%
Percentage living in Perama	4.944%	7.703%	6.528%	3.614%
Percentage living in Petroupoli	4.831%	10.08%	2.373%	6.024%
Percentage living in Xaidari	6.640%	7.142%	3.758%	1.204%
Percentage interviewed in September 2007	11.61%	8.683%	11.17%	6.024%
Percentage interviewed in October 2007	8.013%	14.42%	10.28%	9.638%
Percentage interviewed in November 2007	8.682%	13.16%	16.61%	14.63%
Percentage interviewed in December 2007	11.80%	14.70%	4.641%	22.89%
Percentage interviewed in January 2008	9.031%	15.68%	7.610%	8.431%
Percentage interviewed in February 2008	11.90%	4.621%	7.990%	3.614%
Percentage interviewed in March 2008	7.378%	8.123%	12.56%	8.433%
Percentage interviewed in April 2008	8.941%	7.228%	10.63%	12.04%
Percentage interviewed in May 2008	13.73%	7.282%	7.123%	4.819%
Percentage interviewed in June 2008	9.151%	5.182%	13.35%	7.222%

5.2 Estimations

The results of first-stage Probit regressions on employment selection are in the Appendix. Table 3 presents coefficients from the OLS wage regression. Models 1 to 5 include variables for the

Roma indicator, age, marital status, health limitation, and location effects. Each successive Two-Stage model includes more covariates.

Model 1, the basic model, documents a large and significant income penalty (23.9%) for Roma people (see Halvorsen and Palmquist [1980] transformation). Roma people have significantly lower hourly earnings than non-Roma. In Model 2, wages are also modelled as a function of the proportion of immigrants and fluency in the Greek language. Inclusion of these variables does not change Model 1's finding concerning a Roma background. The estimated effect of Romani background was an approximately 24.0% reduction in wages.

Model 3 includes working experience. Although the descriptive statistics suggest that a potentially important difference between Roma and non-Roma is years of working experience, the significance of the variable for being Roma does not change. The estimated effect of being Roma changes from 24.0% to 23.6%. In Model 4, we incorporate more detailed labour market information available in the AAS. The inclusion of six occupation variables does not change the sign or significance of the variable for being Roma. In this model, the magnitude of the Romani effect changes only slightly (24.5%).

Model 5 applies a Two-Step procedure that includes six explanatory education variables. The coefficient on the Romani indicator becomes smaller in magnitude, decreasing to 16.4%, but it remains significant at the 1% level. We cannot reject the hypothesis that there is a non-trivial incidence of Romani discrimination in the market, even when we control for educational characteristics. Human capital theory suggests that differences in pay can be explained by differences in workers' education, which tend to increase pay because of their positive impact on productivity. To the extent that human capital variables are unable to explain pay differences between Roma and non-Roma, the remainder of the assigned differential is generally interpreted as evidence of discrimination.

With respect to other variables of interest, the results are as expected. Age and marital status have positive and statistically significant effects on earnings in the five models. Moreover, reporting a health limitation always has a negative and significant effect. The variable used to control immigrants' presence has a negative and significant impact on earnings in all specifications. On the other hand, fluency in Greek has a positive and significant effect on earnings in all models.

As expected, working experience has a positive and significant correlation with earnings. Concerning the occupation covariates, all but one has positive effects on the dependent variable. In

white-collar jobs, we observe positive and statistically significant covariates. In blue-collar jobs, although we estimated positive effects, covariates were insignificant. The assigned negative effects for service occupations are statistically insignificant. Public jobs' effect on earnings is positive and statistically significant. For private jobs, the coefficients are positive but statistically insignificant. Moreover, if the employers' workplace is in the same municipality as the individual's household, the effect on earnings is positive but insignificant. Finally, each education variable is positive and significant in each specification. A higher return to education is observed for those who completed the minimum mandatory level of education, followed by those with a degree from a university or technical school.

Empirical analysis shows that signs of the coefficients of the variables that measure human capital are consistent with human capital theory. It is important to keep in mind, however, that numerous factors that should affect the level of wage discrimination, such as the importance of unobservable skills, observability of qualifications, precision of observable skills, and ease of performance measurement, may vary greatly across jobs.

The control for sample selectivity (*Inverse Mills Ratio*) is statistically insignificant in all models. This implies the success of efforts to control for sample selectivity that might have biased the analysis on the return to Romani origin.

Table 3. Coefficients from Wage Regression

	Model 1 Age, marital status and health limitation	**Model 2** (1) Add Immigrants proportion and Greek fluency	**Model 3** (2) Add Working experience	**Model 4** (3) Add Occupation variables	**Model 5** (4) Add Education Variables
	(1)	(2)	(3)	(4)	(5)
ROMA	-0.271*	-0.272*	-0.267*	-0.278*	-0.179*
	(0.007)	(0.006)	(0.007)	(0.007)	(0.009)
AGE	0.092*	0.092*	0.063*	0.063*	0.052*
	(0.001)	(0.001)	(0.002)	(0.002)	(0.000)
AGESQ	-0.001*	-0.001*	-0.001*	-0.001*	-0.001*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
MARR	0.066*	0.056*	0.056*	0.056*	0.045*
	(0.006)	(0.006)	(0.006)	(0.005)	(0.006)
DIS	-0.028*	-0.028*	-0.039*	-0.039*	-0.024*
	(0.009)	(0.008)	(0.009)	(0.008)	(0.004)
IMM	-	-0.134*	-0.131*	-0.129*	-0.086*
		(0.011)	(0.010)	(0.011)	(0.006)

Table 3. (continued) Coefficients from Wage Regression

	Model 1 Age, marital status and health limitation	Model 2 (1) Add Immigrants proportion and Greek fluency	Model 3 (2) Add Working experience	Model 4 (3) Add Occupation variables	Model 5 (4) Add Education Variables
	(1)	(2)	(3)	(4)	(5)
FLUEN	-	0.034*** (0.017)	0.031*** (0.015)	0.033*** (0.017)	0.006 (0.015)
EXPER	-	-	0.021* (0.001)	0.021* (0.001)	0.027* (0.001)
EXPERSQ	-	-	-0.001* (0.000)	-0.001* (0.000)	-0.001* (0.000)
WHITE	-	-	-	0.015* (0.000)	0.016* (0.000)
BLUE	-	-	-	0.001 (0.009)	0.001 (0.009)
SERV	-	-	-	-0.001 (0.008)	-0.002 (0.008)
PUBL	-	-	-	0.014** (0.006)	0.013** (0.005)
PRIV	-	-	-	0.006 (0.006)	0.009 (0.006)
INSI	-	-	-	0.011 (0.008)	0.012 (0.009)
SCHOL	-	-	-	-	0.105* (0.009)
GRAD	-	-	-	-	0.052* (0.006)
UNIV	-	-	-	-	0.059* (0.003)
PC	-	-	-	-	0.005** (0.002)
ENGL	-	-	-	-	0.012*** (0.006)
DRIV	-	-	-	-	0.044* (0.008)
LOCATION CONTROLS	Yes	Yes	Yes	Yes	Yes
INTERCEPT	1.281* (0.035)	1.311* (0.059)	1.723* (0.001)	1.715* (0.062)	1.615* (0.060)
LAMDA	-0.080 (0.042)	-0.060 (0.042)	-0.039 (0.041)	-0.043 (0.041)	0.040 (0.039)
N.	7201	7201	7201	7201	7201

*Notes: Standard errors are in parenthesis. *Significant at the 1% level. ** Significant at the 5% level. *** Significant at the 10% level.*

There has been growing concern about employment discrimination against Roma. Unfortunately, such concerns have been voiced only in terms of impressionistic accounts. The primary purpose of this study was to uncover the statistical relationship between Romani origin and wages and to interpret its meaning. In this section, we use econometric analysis of Romani origin and wages to evaluate the findings of wage discrimination that are consistent with empirical findings. Having demonstrated that Roma wages are different from those of non-Roma, we now discuss what may cause these differences after the human capital parameters are controlled.[17]

A number of important issues concerning the interpretation of the current results should be noted. As a result of discriminatory practices, two equally qualified groups of individuals were treated differently. Discrimination opposes the interest of equality. Thus, it is interesting to ask how previously proposed theories explain the observed effects associated with Roma people. Theoretical explanations of labour market discrimination are concerned with how and why productivity-irrelevant characteristics influence the labour market behaviour of employers and workers (Swinton [1977]). There is no generally accepted theory that explains labour market discrimination, even though a variety of hypotheses exists. In this section, we briefly review the two main strands of the theoretical literature on discrimination in the context of ethnicity. These strands are *distaste* for the minority (Becker [1957]) and *statistical* discrimination (Phelps [1972], Arrow [1973], and Aigner & Clain [1977]).

With respect to the estimated effect, *significantly lower monthly wages for Roma than for non-Roma*, the basic argument of Becker's discrimination model suggests that Roma individuals potentially face lower earnings. The distaste hypothesis describes discrimination as a preference or taste for which the discriminator is willing to pay. In particular, the taste for discrimination by employers is based on the idea that they want to maintain a physical or social distance from certain groups, or they fear that their customers or co-workers dislike transacting with minorities. Instead of making the common assumptions that employers consider only the productivity of employees, that workers ignore the characteristics of those with whom they work, and that customers care only about the quality of the goods and services provided, Becker suggests that discrimination coefficients incorporate the influence of characteristics unrelated to productivity, such as tastes and attitudes towards Romani identity. Following this line of thinking, employers may offer Roma a

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[17] We acknowledge that results from our study may not be similar for a larger labour market. Nevertheless, we believe this paper demonstrates a robust technique for investigating labour market discrimination against Romani populations.

lower wage compared to non-Roma in order to equalize the unit cost of labour once psychic costs are factored in.

So long as employers' prejudices persist, the size of the Roma penalty will be directly related to the strength of the employer's prejudice, and wage discrimination will be practiced consistently against the Romani population by prejudiced agents. Given the widely cited prevalence in Greek society of "Romaphobia," it seems likely that the Romani population experiences this kind of discrimination in the labour market.

The statistical theory of discrimination may also explain the lower wages earned by the Romani population. The common hypothesis embraced by classical economists is that competition in a capitalist economy decreases the impact of discrimination. Discrimination imposes a cost on the employer and therefore, a profit-driven employer will avoid racist hiring policies. Thus, statistical discrimination predicts that unequal treatment is a result of a profit-maximizing response by employers to uncertainty about the quality of individual workers (Arrow [1973]). Meanwhile, real or subjective distributions favour the group that receives preferences, such as non-Roma workers.

In a world of imperfect information, employers face risks regarding workers' productivity and specific characteristics become inexpensive screening devices. Following the Statistical theory, the rational employer will seek to obtain the maximum amount of information about the expected profitability associated with prospective tenants at the lowest cost. If employers believe that there is a systematic difference between Roma and non-Roma people in their reliability, aptitude, and job stability, then sufficient conditions exist to create a permanent differential in wages. The belief of employers and other influential groups that Roma are less productive can be self-fulfilling. This belief may cause Roma people to under-invest in work skills such as punctuality. In this situation, discrimination is not the consequence of exogenous preferences but a result of profit-maximizing behaviour of risk-averse employers. Unlike in the Taste theory, in the Statistical theory, employers' prejudices are irrelevant.

Both theories capture important aspects of the real economy. Because of employers' distaste and/or employers' perception that Roma workers are not as productive, Roma individuals receive substantially lower wages in the market.

Although the European Union's priority is to integrate its entire membership into a new arrangement of active citizenship within a diverse society, the current study finds that Roma are

disadvantaged in the labour market. Given the legal and institutional actions in Europe that have the potential to affect Roma, it is increasingly important to understand the relationship between Romani origin and labour market discrimination. Understanding the sources of wage inequality and the mechanisms leading to inequality between people with different identities is of crucial importance for appropriate public policy initiatives.

This study should be regarded as exploratory. Our hope is that by carefully formulating alternative motivations for discrimination against Roma in the labour market, we have established an adequate foundation for future theoretical and empirical research. The systematic study of employment discrimination against Roma is valuable for both its policy relevance and its potential to inform social scientists and policy-makers about the functioning of the labour market.

6. Conclusion

European institutions have condemned all manifestations of discrimination as incompatible with the values of the European Union, and these institutions have stressed the need to change perspectives and to see diversity and equality as a benefit rather than a threat to society. Nevertheless, discrimination based on Romani background has been totally ignored by the economic literature, despite evidence from other disciplines on the economic effects of ethnic origin. In the current study, we report the first estimates of the economic effect of Romani background in the Greek labour market using the Athens Area Study from 2007-08. Our Two-Step Heckman framework using a random sample of hourly wages solidifies the empirical record on Roma identity and individual earnings. We find strong evidence that is consistent with the hypothesis of discriminatory treatment against Roma. Our work concludes that discrimination remains an important cause of the Romani wage gap. Roma wages would increase by approximately 16.4% if Roma were remunerated on the same basis as non-Roma workers. Overall, the results are consistent with the Taste and Statistical theories of discrimination. Currently, Greek-Roma do not appear to face a level playing field in the Greek labour market, even four years into the national implementation of European antidiscrimination labour legislation.

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Appendix

Table Ap. shows the results of the Probit estimation. The coefficients measure the influence of the variables on the probability of male individuals to have been employed in the previous month. For the most part, the signs of the coefficients are reasonable. The probability of being employed increases with age, marital status, number of children and household members, fluency in Greek, working experience, and education. We can observe, nevertheless, that the outcomes are not always statistically significant. We also note that the probability of being employed negatively correlates with health limitation. In other words, the disabled are more likely to be unemployed in our sample. The positive sign on the proportion of immigrants requires some explanation, though it should be pointed out that the estimations are statistically insignificant. Given that immigrants are promptly employed and receive lower wages than Greeks receive, the fact that their labour is cheaper may give them an advantage in hiring decisions.

Table Ap. Coefficients from the Employment Probit Model

	Model 1 Age, marital status and health limitation	Model 2 (1) Add Proportion of immigrant and Greek fluency	Model 3 (2) Add Working experience	Model 4# (3) Add Working experience	Model 5# (4) Add Education Variables
	(1)	(2)	(3)	(4)	(5)
ROMA	0.051	0.031	0.016	0.016	0.002
	(0.082)	(0.083)	(0.087)	(0.087)	(0.105)
AGE	0.033*	0.025*	0.006	0.006	0.001
	(0.011)	(0.010)	(0.020)	(0.019)	(0.023)
AGESQ	-0.001*	-0.001*	-0.001*	-0.001*	-0.001*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
MARR	0.090	0.087	0.079	0.079	0.064
	(0.060)	(0.060)	(0.061)	(0.061)	(0.061)
DIS	-0.191**	-0.185***	-0.185***	-0.179	-0.188
	(0.090)	(0.096)	(0.096)	(0.106)	(0.107)
CHIL	0.010	0.009	0.010	0.009	0.022
	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)
HOMEM	0.032**	0.032**	0.031***	0.032	0.031
	(0.014)	(0.014)	(0.015)	(0.019)	(0.020)
IMM	-	0.025	0.025	0.026	0.027
		(0.093)	(0.093)	(0.093)	(0.093)
FLUEN	-	0.114*	0.109*	0.109*	0.110*
		(0.017)	(0.018)	(0.018)	(0.018)

Table Ap. (continued) Coefficients from Employment Probit Model

	Model 1 Age, marital status and health limitation	Model 2 (1) Add proportion of immigrants and Greek fluency	Model 3 (2) Add Working experience	Model 4# (3) Add Working experience	Model 5# (4) Add Education Variables
	(1)	(2)	(3)	(4)	(5)
EXPER	-	-	0.014* (0.001)	0.014* (0.001)	0.011** (0.005)
EXPERSQ	-	-	-0.001* (0.000)	-0.001* (0.000)	-0.001* (0.000)
SCHOL	-	-	-	-	0.049** (0.023)
GRAD	-	-	-	-	0.021*** (0.010)
UNIV	-	-	-	-	0.029** (0.013)
PC	-	-	-	-	0.026 (0.030)
ENGL	-	-	-	-	0.189 (0.500)
DRIV	-	-	-	-	0.241* (0.062)
LOCATION CONTROLS	Yes	Yes	Yes	Yes	Yes
TIME EFFECTS	Yes	Yes	Yes	Yes	Yes
INTERCEPT	-0.899 (0.632)	-1.965* (0.657)	-1.667** (0.698)	-1.689** (0.968)	-1.516** (0.723)
N.	797	797	797	797	797

*Notes: Standard errors are in parentheses. * Significant at the 1% level. ** Significant at the 5% level. *** Significant at the 10%*

 # Models 4 and 5 do not include occupation variables since the individuals are unemployed.