Quantitative tales of ethnic differentiation: measuring and using Roma; Gypsy ethnicity in statistical analyses

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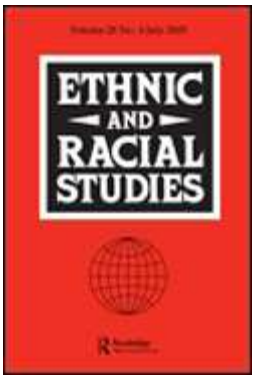

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Abstract:

This paper analyzes the use of ethnicity in quantitative models, focusing on Roma / Gypsy ethnic affiliation. Three research models are identified, together with characteristic measurement and model specification issues. A path model is estimated as a methodological example in order to explore the association of Roma / Gypsy ethnic affiliation with church attendance in Romania, using data from two surveys with national and Roma samples. Direct, mediated and moderated relationships involving ethnic affiliation are highlighted and discussed in relation to the processes of ethnic differentiation.

Keywords: ethnicity, measurement, causality, survey, Roma, Gypsy

There is a vast literature that uses ethnicity as a variable in quantitative models in sociology, in epidemiology and public health studies. In what follows, the paper discusses the main challenges in using ethnicity as a meaningful variable, and the specificity of Roma / Gypsy ethnicity for quantitative models, with a focus on sociology[1].

Given the widespread use of race and ethnicity variables in epidemiological and public health research, it is not surprising to find in this

field a substantial body of methodological reflections – including articles by Singh (1997), Smith (2000), Fenton and Charsley (2000), Mays et.al. (2003), Bhopal (2006), or Lee (2009). Shared concerns include lack of theoretical justification for using ethnicity as a predictor or control variable, insufficient methodological reflection on measurements of ethnicity, and over-reliance on direct coefficients of ethnicity in regression models in order to identify assumed causal relationships. Dedicated sociological reflections on ethnicity in statistical analysis are less frequent; a relevant analysis can be found in Steinberg and Fletcher (1998).

Starting from these concerns, the paper discusses and illustrates possible strategies to overcome them. The debate on the use of Roma ethnicity in quantitative models is particularly relevant given the substantial body of quantitative surveys on the European Roma people, and the ongoing interest in this field – proven by recent cross-cultural surveys including Roma and other ethnic minority samples, such as the Open Society Institute's "Cross-National Survey of Parents in South East Europe" (2009)[2], or the FRA EU-MIDIS research (2009) on perceived discrimination.

In the following sections the paper differentiates between three quantitative research models that use ethnicity, and characteristic measurement and model specification issues are discussed for each of them. The article then examines the particularity of Roma / Gypsy ethnicity in quantitative studies, and it illustrates several arguments with an empirical model that analyzes church attendance as a function of Roma ethnicity and other predictors, in present-day Romania[3].

Conceptual issues

The sociological understanding of ethnicity has gradually moved away from its taken-for-granted understanding as a way of classifying social groups with clear cultural or even biological borders. This shift within the discipline has become more visible after the seminal work of Barth (1969), 'Ethnic groups and boundaries'. Barth challenges the definition of ethnic groups as 'culture-bearing units' based on biological self-perpetuation, focusing on the maintenance of social borders as the key definition of ethnicity (idem, pp. 10-15). Along the same line, the concept of 'emerging ethnicity' proposed by Yancey, Ericksen and Juliani (1976) relies on an understanding of ethnicity as "crystallized under conditions which reinforce the maintenance of kinship and friendship networks" (p. 392), while Bergesen (1977, p.823) adds that it 'ebbs and flows' due to political mobilization. This perspective has been further developed by scholars such as Ballard (2002), Brubaker (2002), Vermeersch (2003), Brubaker, Loveman and Stamatov (2004), Hale (2004), Wacquant (2005), Omi and Winant (2007), and Wimmer (2008). This perspective means, for Brubaker, 'taking as a basic analytical category not the "group" as entity but *groupness* as a contextually fluctuating conceptual variable' (2002, pp. 167-68, emphasis in original). The social processes of ethnic differentiation situate individuals in a social landscape that they need to navigate. At the individual level,

> "[E]thnic identity" (or ethnicity) is that set of personal points of reference, thick and thin, that involve what we call "ethnic" distinctions between people. An "ethnic group" is thus a set of people who have common points of reference to these ethnic

dimensions of the social world and who perceive that they indeed have these things in common and that these similarities are captured by a label, the ethnic group's name" (Hale 2004, p. 473).

This theoretical perspective has important methodological consequences. Firstly, it requires a measurement model for ethnicity that departs from the conventional categorical measurement by ticking the best fitting ethnic label. Secondly, it points to the contextual embeddedness of ethnic identity, and consequently it complicates the relationship between ethnicity and variables usually interpreted as controls, such as age, education, or occupation. Last but not least, it challenges the unidirectionality of causal influences from ethnicity to other social phenomena, which may play a part in the process of ethnic differentiation. If ethnic distinctions are associated with differences in schooling, eating choices, or church attendance, for example, it is plausible that these differences are in turn used to define and re-create ethnic classifications.

Research models

One can differentiate three main uses of ethnicity in quantitative models. Firstly, 'ethnic disadvantage models' measure a given inequality in access to resources or in risk incidence. Secondly, 'discrimination models' attempt to isolate discrimination from other sources of inequality, and to measure it. The third type, which will be referred to as 'ethnic difference' models, pursues the different relationships between ethnicity and other social phenomena which are theoretically linked to the process of ethnic differentiation.

The three types are not mutually exclusive, because an ethnic disadvantage or a discrimination model may also investigate a phenomenon which is relevant to ethnic differentiation. Also, what counts as a resource or a risk is a matter of normative choice: any feature assumed to be desirable may be analyzed from an 'ethnic gap' perspective – for example, wealth, education, health, but also consumption of a specific product, religious belief or participation, or adherence to a given tradition.

The main focus of *ethnic disadvantage and discrimination models* is precise measurement, and a secondary focus may consist in the identification of relevant predictors. Discrimination models using cross-sectional survey data also face a complicated challenge in model specification. All relevant variables related to the respondents' competence and preference must be controlled for in order to identify unequal treatment. Since discrimination involves unequal treatment for persons who have the same relevant qualifications and claims, the normative issue which arises is what counts as a 'relevant' qualification and what counts as an 'irrelevant', thus discriminatory, criterion. Therefore, as discussed in detail by Hanquinet et.al. (2006, pp. 51-52), the use of multivariate analysis to measure discrimination is vulnerable to several sources of bias, including the 'omitted variable bias', when relevant controls are not included, the 'included variable problem', when some controls already capture variation due to discrimination, and the 'diverting variable bias', when controls include variables that should not be controlled, according to the normative concept of discrimination employed.

Ethnic difference models range from simple models that trace differences between ethnic groups in language use or religious denomination,

to complex causal models that aim to study the influences of ethnic affiliation on intergroup attitudes, parenting styles, religious participation, conflict management, and so on.

While in ethnic gap models ethnicity is usually measured as a categorical variable, used to chart unequal distributions of resources or risks, in ethnic difference models the focus is on processes of ethnic delineation – also by including more complex measurements of ethnicity, as discussed below.

Measurement issues

Contextual and situational ethnicity

As any other social distinction, ethnicity is shaped in a given social context. This is a serious challenge to cross-cultural harmonization of ethnic terminology (Aspinall 2007, pp. 58-62) and to cross-cultural research using ethnicity. Moreover, contexts that shape ethnic identities vary not only across societies, but also across transient situations in a person's life (Stayman and Deshphande 1989). Public self-identification may be outright strategic, as people may choose their ethnic label to suit their needs in a specific interaction (Bovenkerk, Siegel and Zaitch 2003). This has important measurement consequences, especially if the interview situation is thought to influence ethnic self-identification, as in the case of the Roma.

Measurement models

Aspinall (2007, p. 60) distinguishes two main styles in measuring ethnicity. On the one hand, there is the analytical approach, measuring the components

of ethnicity understood as a combination of citizenship, country of birth, nationality and parental nationality, maternal language, religious denomination, or migrant status. On the other hand, there is the synthetic approach, which emphasizes subjective affiliation to an ethnic community as the overall measure of ethnicity. In what follows the first type will be referred to as the *'formative'* model, and the second one as the *'categorical'* model, relying on a classification of ethnic groups.

Still, a third strategy, referred to as the '*dimensional*' model in the next pages, acknowledges the multiple facets of ethnic affiliation, conceptualized as dimensions of ethnicity. For example, at a cross-cultural level, Phinney (1992) builds the 'Multi-Group Ethnic Identity Measure' (MEIM). Subsequent research with the MEIM scale has identified 'ethnic affirmation' and 'ethnic exploration' as two main dimensions of ethnicity (Romero and Roberts 1998, p. 643).

Other multi-dimensional measures of ethnicity are group-specific. For example, Kwan (2000) constructs a scale for measuring the ethnic identity of Chinese-Americans, understood as consisting of internal (cognitive, moral and affective) and external aspects (such as language use, observance of traditions or friendship networks). The Cross Racial Identity Scale (CRIS) for the African American ethnicity (Vandiver et. al. 2002, Worrel et.al. 2006), includes six subscales that measure different types of 'identity attitudes', modeled as dimensions.

At this point, it is illustrative to compare the measurement of ethnicity to the measurements of religiosity in quantitative models. Both variables share common features, as they measure outcomes of individual positioning in

processes of social differentiation; both are consequential for the delineation of communities, and for shaping individual values and life trajectories. The two are also empirically associated. In the studies that include religiosity as an independent variable, categorical measures, such as religious denomination, are as a rule complemented with dimensional models – such as intensity of belief, religious participation, or private practice. On the contrary, in the studies that use ethnicity as an independent variable, the categorical measure (identification with a specific ethnic label) is usually the sole indicator of ethnicity, while dimensional measures constitute the exception rather than the rule. As a reflection of the same underlying difference in understanding the two phenomena, religiosity is often analyzed as a dependent variable, while ethnicity is most often analyzed as an independent variable.

Model specification issues

Ethnic affiliation and the socio-demographic controls

Control variables in multivariate analysis have the function of isolating the covariation of ethnicity from the covariation of other variables with the dependent variable. Therefore, the choice of control variables plays a decisive role in interpreting the resulting coefficient for ethnic affiliation. As discussed above, some research models impose clear requirements on control variables. Discrimination models require strict control of relevant competence and preference covariates. In public health studies, ethnicity may be used as an indicator (or proxy) of inherited biological vulnerabilities (Singh 1997, p.307). In this case, controlling the influence of relevant social confounders and

environmental factors makes sense as a precision tool, aimed to explore the distribution patterns of a given inherited feature.

On the contrary, in ethnic difference models with an explanatory focus, ethnic affiliation represents an outcome in a process of social differentiation that builds upon other differences – such as class, gender, or generation distinctions – and in turn shapes these differences. Along similar lines of reasoning, Steinberg and Fletcher (1998) and Smith (2000) criticize the over-confident use of socio-economic controls in models that use ethnicity or race variables. Not only are such control indicators often sketchy, allowing for residual confounding; it is also important that 'socioeconomic disadvantages and exclusionary social practices are, in this view, mutually constitutive' (Smith 2000, p. 1696) – and it is thus impossible to conceptually isolate the influence of ethnicity from the influence of socioeconomic position.

Ethnicity as moderating influence

Ethnicity is likely to be a moderator variable in quantitative models – significantly altering the influences of other social attributes (Steinberg and Fletcher 1998). The moderating influences of ethnicity may be explored by estimating the same model for different ethnic categories of respondents, in order to see whether the configuration of relationships is stable or variable. Estimates of the size of moderating influences may be obtained by including interaction terms in regression models in pooled samples, together with more detailed tests of interactive hypotheses (Kam and Franzese 2007).

'Direct' or 'residual effects' of ethnic affiliation

As discussed above, the 'direct effects' of ethnic affiliation are of primary interest in ethnic gap models focused on biological covariates of ethnicity, and in discrimination models. It is important to highlight here the common observation that what may be labeled as a 'direct effect' in the statistical output for a path model may not reflect a causal process at all; the validity of a causal hypothesis measured by an 'effect' coefficient is conditional on the relevance of the underlying theoretical model.

If ethnicity is understood as a social distinction, not as an indicator or proxy for biological heritage, and if it is introduced in the model for explanatory purposes, and not for descriptive or measurement purposes, the 'direct effects' of ethnicity are only relevant to those phenomena that can be meaningfully modeled as closely influenced by ethnicity. These may include language use, ethnic diversity in one's social networks, or affiliation to ethnically marked communities or organizations. For other, more distant dependent variables, the causal mechanisms become intelligible through the theoretical specification of mediating variables.

In such research contexts, the so-called 'direct effect' of ethnicity, separated from its indirect causal pathways, is rather a 'residual', not-yet-explained 'effect'. The remaining association of ethnicity with the dependent variable may be due to residual confounding with variables imperfectly measured in the model, or to a mix of other mediating variables which are missing from the model. For any such model, the lower the residual association, the better specified the influence of ethnicity on the dependent variable.

Data analysis issues

In ethnic gap models, regression models are the tool of choice, allowing for a measurement of the 'direct effect' of ethnicity after the introduction of proper controls.

In ethnic difference models, given the conceptual linkage of ethnicity to other differentiation processes, analyses that aim to realize theoretically informed evaluations of the causal influence of ethnicity should trace the multiple pathways that connect ethnicity or its dimensions with the dependent variable. Path or structural equation models are better able to conceptualize the mediated associations between ethnicity and the dependent variable than regression models, which focus the attention on the residual associations with the dependent variable. Also, special attention should be paid to the moderating influences of ethnicity – that is, the influence of ethnicity on the effects of other factors included in the model.

One significant challenge in modeling causal relationships has to do with the directionality of hypothesized influences. If one understands ethnic affiliation as an individual 'move' in the social game of ethnic differentiation, it is theoretically plausible that certain mediating variables which are usually considered as effects of individual ethnicity, such as education or income, may also be causes of individual ethnic affiliation. For example, Prieto-Flores (2009) estimates a model of Roma ethnic affiliation as a dependent variable.

(Table 1 around here)

Uses of Roma /Gypsy ethnicity in quantitative analysis

Research models

Ethnic disadvantage models using Roma ethnicity include a substantial body of research on public health issues (as reviewed in Hajioff and McKee 2000, Kaladydjieva, Gresham and Calafell 2001, Morar et. al. 2004). In what is probably the most controversial field of ethnic gap models, due to its methodological shortcomings (Block 1995) and to its relationships with racist views and policies, in particular eugenics – namely, intelligence research, Rushton, Čvorovič and Bons (2007) use an ethnic disadvantage model to discuss differences in 'general mental ability', specifically measured by Raven's matrices, between Roma and non-Roma respondents in Serbia.

Sociological analyses also start, most frequently, from an ethnic disadvantage model. There is considerable literature on quality of life (including Zamfir and Zamfir 1993, Zamfir and Preda 2002, UNDP 2003, Fleck and Rughiniş 2008), and on poverty (such as Emigh and Szelényi 2001, Ladányi and Szelényi 2002). Some pieces of research are also examples of *ethnic difference models*, insofar as they study the contribution of poverty to the broader process of ethnic differentiation (Emigh and Szelényi 2001, Ladányi and Szelényi 2002, Fleck and Rughiniş 2008). Perceived discrimination is investigated within the framework of an ethnic disadvantage model in the FRA EU-MIDIS research (2009).

Discrimination models are relatively rare; examples include Kertesi and Kézdi (s.a.), Mete (2003), and Drydakis (2008).

Ethnic difference models of the process of Roma vs. non-Roma ethnic differentiation have addressed the issue of hetero-attribution of Roma ethnicity

(Ladányi and Szelényi 2001, Csepeli and Simon 2004, Ahmed, Feliciano and Emigh 2006). Székeli, Csepeli and Örkény (2003) and Prieto-Flores (2009) address the issue of upward Roma mobility and assimilation, while Durst (2002) explores downward mobility and its consequences on fertility. Other ethnic difference models explore the influence of Roma identity on ethnic tolerance (Tufiş 2001) or on political mobilization (Fox 2001).

Measurement issues

The literature on Roma ethnicity measurement has been dominated by the debate on the use of hetero-attribution of Roma ethnicity as an indicator of Roma ethnicity (Babusik 2004). This concern has been prompted by widespread politically-laden debates on the 'true' number of Roma and by the observation that Roma people often prefer not to declare a Roma affiliation in censuses and official contexts (Clark 1998), which led to the assumption that a similar reticence may bias unofficial survey measurements. The use of hetero-attribution as an indicator of ethnicity has gradually subsided, partly as a result of the critical approach by Ladányi and Szelényi (2001), Csepeli and Simon (2004), and Ahmed, Feliciano and Emigh (2006), who analyzed discrepancies in hetero and auto-attribution, highlighting the socially contingent processes of ethnic labeling. The debate continues to develop, also covering the legitimacy of Roma observers or local experts using hetero-attribution (Babusik 2004, Prieto-Flores 2009), and hetero-attribution for the community as a whole (Sandu 2005).

The dominant measurement model of Roma ethnicity is categorical, using the indicator of self-affiliation with such ethnic labels as Roma, Gypsy,

Ţigan etc. More detailed categorical measures introduce multiple affiliations (Fleck and Rughiniş 2008), or an additional classification by tribe (Ro. *neam*), (Zamfir and Zamfir 1993, Zamfir and Preda 2002). Using a formative model, Székeli, Csepeli and Örkény (2003, p. 59) develop a classification of Roma ethnicity by combining the respondents' ethnic affiliation with information about their ethnic background. I did not find any instance of a dimensional model for measuring Roma ethnicity.

Roma ethnicity and church attendance in present-day Romania

This section presents a path model using self-declared Roma ethnicity, alongside other variables, to explain church attendance. Given the sketchy specification of the model and its methodological shortcuts, it is useful as a methodological example for interpreting paths and coefficients involving ethnicity, rather than a substantial contribution to understanding religious behaviors.

The analysis relies on two surveys on Roma people from Romania: The Roma Inclusion Barometer (RIB 2006) and the Work Attitudes Survey (WA 2008) (see Table 2). The two surveys include Roma samples designed with the same methodology (Sandu 2006), thus facilitating comparability of results.

(Table 2 around here)

Model specification

Since this model is built primarily as a tool for methodological exploration and not for precise measurement, it is best conceptualized as an 'ethnic difference' model, looking for those results that offer valuable information on the process of ethnic differentiation, and its consequences on church attendance in Romania.

A considerable body of qualitative research indicates that conversion to Pentecostalism has had significant consequences for the delineation of Roma life trajectories in Romania (Kiss 2009, Fosztó 2009). Therefore, Pentecostal confession is expected to be highly influent on religious participation among the Roma.

Previous research on church attendance in Romania (Voicu 2007) has shown that its main predictors, besides religiosity, are childhood religious socialization, age and gender. While age and ethnicity seem, prima facie, two unrelated variables, they are connected by processes which are part of ethnic differentiation. Roma people are younger, on average, because of lower life expectancy, higher fertility rates and, maybe, differential migration patterns. Such life course events are part of an ethnicized life trajectory. One may tentatively say that in Romania the Roma do not get to be old enough to attend church frequently. Therefore, although it may not seem intuitive, it does make sense to identify a path that links ethnicity and church attendance and is mediated by age.

While in this example some paths are modeled as unidirectional, such as the influence of ethnicity on church attendance via education, wealth or prayer, others are modeled as partly non-directional, such as the influences of ethnicity via Neo-Protestant affiliation or age.

Given the multiple patterns of ethnic differentiation between the Roma and the non-Roma, one should also expect ethnicity to have a moderating influence on other variables – such as gender, religious confession or education.

Model limitations

Several variables are missing from the available datasets, although they could account for the variation of church attendance: socio-economic status, church accessibility, measured by the time and financial costs involved in reaching the church, and the community norms and personal ideas with respect to church attendance, childhood religious socialization, personal religious worldviews, relevance of religious services, local church policy, or relationships with other churchgoers.

In order to simplify the presentation of model results, the ordinal level variables (education, prayer and church attendance) have been analyzed as as metric. This approximation is justified by the exploratory and illustrative purposes of the model, which does not require precise estimates. Also, for brevity reasons, moderated influences are only explored by means of a comparison of models, without estimating interaction terms.

Model variables and sampling weights

Figure 1 illustrates the path model that connects Roma ethnicity with church attendance. Besides the paths which are explicitly specified in the model, all dependent variables are regressed on Neo-Protestant confession, gender (masculine), age and type of locality (urban). In order to simplify the diagram,

the four socio-demographic variables have been represented graphically as a single block, unified by a dotted line.

(Figure 1 around here)

The comparative path model includes two religiosity predictors and several socio-demographic variables, as detailed in Table 3.

(Table 3 around here)

The distribution of church attendance on ethnic affiliation across the two surveys (Table 4) is quite similar, indicating lower attendance on the part of the Roma people.

(Table 4 around here)

The two religiosity items available in both surveys are the frequency of prayer outside religious service, and affiliation to a Neo-Protestant denomination. The latter is particularly interesting because of the expected influence of Pentecostal affiliation discussed above, and because it is significantly associated with Roma ethnicity: around 8% of the Roma in RIB 2006 and 12% in WA 2008 declare a Neo-Protestant confession, compared to around 2.5% of the non-Roma in both surveys (Table 5).

(Table 5 around here)

The total sample included in the analysis is composed of the weighted non-Roma respondents from the national sample, plus the weighted Roma respondents from the Roma sample[4]. The path model has been estimated using MPlus v.5. Because of the need for sampling weights, the analysis used the MLM estimator (Muthén and Muthén 2007, p. 457).

Model estimates

In this example, in both surveys (see Table 5 and Table 6), the main predictor of church attendance is frequency of prayer (positive), indicative of private religious practice, followed by masculine gender (negative), Neo-Protestant affiliation (positive) and Roma ethnicity (negative).

(Table 6 around here)

The main predictors of frequency of prayer are age (positive), followed by masculine gender (negative), Neo-Protestant affiliation (positive) and Roma ethnicity (negative). Because Roma ethnicity is positively associated with Neo-Protestant affiliation, there is also a positive indirect and non-directional association between Roma ethnicity and church attendance, mediated by the Neo-Protestant affiliation.

(Table 7 around here)

In Table 8 one can see the 'total effect' of ethnicity on church attendance, with its mediated and direct components. Only a small fraction of the difference in church attendance between Roma and non-Roma is explained by the

mediating variables included in the model, after controlling for Neo-Protestant affiliation. Therefore, the 'direct effect' of ethnicity is likely to include paths mediated by variables which are missing from the model – such as religious beliefs, religious socialization, community relations, and proximity to a church.

(Table 8 around here)

Moderation effects

A comparison of the models estimated in the non-Roma sample with the Roma sample reveals that ethnicity moderates the influences of gender (in WA 2008) and education on church attendance – although some of these coefficients may not be statistically significant. For Roma and non-Roma alike, men have lower levels of private religious practice compared to women. Still, in WA 2008 the residual gender influence on church attendance is not statistically significant in the Roma sample, unlike the non-Roma sample. This may indicate external reasons that impose a higher uniformity on church attendance across gender categories – such as exclusion from the broader church community.

Education has a weakly positive but statistically significant residual influence on church attendance for the Roma sample, while it has no residual influence in the non-Roma sample. At the same time, education is not directly associated with frequency of prayer for the Roma. If this pattern of associations is indeed more than a statistical artifact, it may indicate an inclusionary influence of education for Roma in mixed communities. Its positive association with Roma church attendance may reflect stronger relevance of religious services for the Roma people with higher levels of

schooling, or their increased acceptance by the majority of non-Roma churchgoers.

There is also an interesting difference concerning the proportion of explained variance for wealth and education across models: while in the non-Roma samples the estimated R square is around 25% for education and 38% for wealth, in the Roma samples the estimated R square is around 5% for education and 17% for wealth. This difference arises mainly because of age and urban locality, which are powerful predictors in the non-Roma samples but weak predictors in the Roma samples. This indicates that, unlike the non-Roma, the younger generations of Roma people have improved less their educational and material achievements compared to the older generations, when controlling for the other variables. Also, Roma people seem to take less advantage of social and economic opportunities offered by urban localities.

Discussion

The path analysis indicates that ethnicity and church attendance are connected by several circuits, with mixed positive and negative paths. For example, in present-day Romania, Roma ethnicity is associated with an increased probability of Neo-Protestant affiliation, which in turn increases church attendance. On the other hand, the mediated association of ethnicity with attendance through private religious practice (prayer) is negative, and the residual association of Roma ethnicity with attendance is also negative.

The proposed model could be used as an *ethnic gap model* by a researcher interested in assessing the difference in religious participation between Roma and non-Roma people. Such a difference could be measured

across various population categories, defined, for example, by region, locality size, age category or gender – and it could become a useful tool for targeting church recruitment policies. In such a research scenario, the direct coefficient of Roma ethnicity, after controlling for selected variables, would be of main interest, and the research would focus on precise measurement.

In an alternative scenario, if this model is used to investigate the *process of ethnic differentiation*, its value is severely limited by the lack of theoretically relevant mediating variables related to religiosity and community life. Since the residual association of ethnicity is stronger than the mediated and non-directional association with attendance, the correlation between ethnicity and attendance remains largely unexplained in the model.

Still, this model includes some interesting information derived from the moderating effects of Roma ethnicity, such as an increased influence of education in the Roma samples, and possibly a decreased influence of gender on church attendance. Also, there is a lower correlation of age and urban locality with education and wealth in the Roma samples. These different patterns of variability have been provisionally interpreted as results of social exclusion of the Roma people in present-day Romanian society. This reasoning relies on an infrastructure of assumptions that may ultimately prove misguided. Qualitative research is essential for elucidating such under-theorized moderating influences.

Conclusions

There seems to be a gap between the current theoretical understanding of ethnicity, as a result of successive moves in a process of social differentiation,

and its use in statistical models, usually as a categorical indicator, with scarce theoretical justification. Still, if one takes into account the diversity of research models that use ethnicity, a certain amount of variability in the degree of theoretical grounding and interpretation of ethnic differences is to be expected. An in-depth discussion of processes of ethnic differentiation could be impractical, for example, in ethnic disadvantage models for health risks, or in models that are dedicated to measuring ethnic discrimination on the labor market.

Quantitative researchers improve the clarity and relevance of their use of ethnicity variables to the extent that they specify the descriptive or explanatory aims of the analysis, and the choice of control and mediating variables. As previously illustrated for church attendance, the very same direct coefficient for ethnicity in a path model may have a completely different meaning in an 'ethnic disadvantage' model, compared to an 'ethnic difference' model.

In addition to the usual requirements for theoretical relevance and methodological clarity, the use of ethnicity in quantitative models is also subject to political considerations. Ethnic differentiation is interlinked with power relations and political strategies. Therefore, researchers that publish results related to ethnicity are, perforce, players in the wider social process of ethnic border creation and maintenance. A scientific measurement of ethnic differences may be more consequential outside the research community than within it. The most obvious ethical and political risks related to quantitative research using ethnicity refer to the racialization of ethnic groups, by consolidating stereotypical portraits with the cement of scientific authority and

quantitative precision. This is an obvious risk for quantitative investigations of ethnic differences in 'general mental ability', or deviant behaviors, for example – but also a collateral damage of repeated measurement of ethnic gaps in fields like education, employment, or gender equality. As activists in the civic Roma movement are only too aware, ethnic disadvantage models run the risk of portraying members of discriminated ethnic minorities as 'bearers of problems', rather than as resourceful and creative people.

Therefore, quantitative research using ethnicity faces several requirements, related both to the theoretical appropriateness of the model, and to the public understanding of scientific results. In order to de-essentialize ethnicity, heterogeneity within ethnic categories should be systematically investigated. Model estimates in separate ethnic samples are a useful tool for exploring variability among people that affiliate to a certain ethnic community. Moreover, it is time for ethnicity to become widely understood as a result of choice, not only of ascription. This means, on the one hand, that the directionality of causal relationships between ethnicity and other phenomena should be a matter of theoretical reflection. On the second hand, a clear research priority consists in the development and systematic use of formative and dimensional models for ethnicity measurements, including Roma / Gypsy ethnicity, to complement the current categorical ones. Current standards of measurement and model specification in religiosity research may offer valuable reference points for the road ahead.

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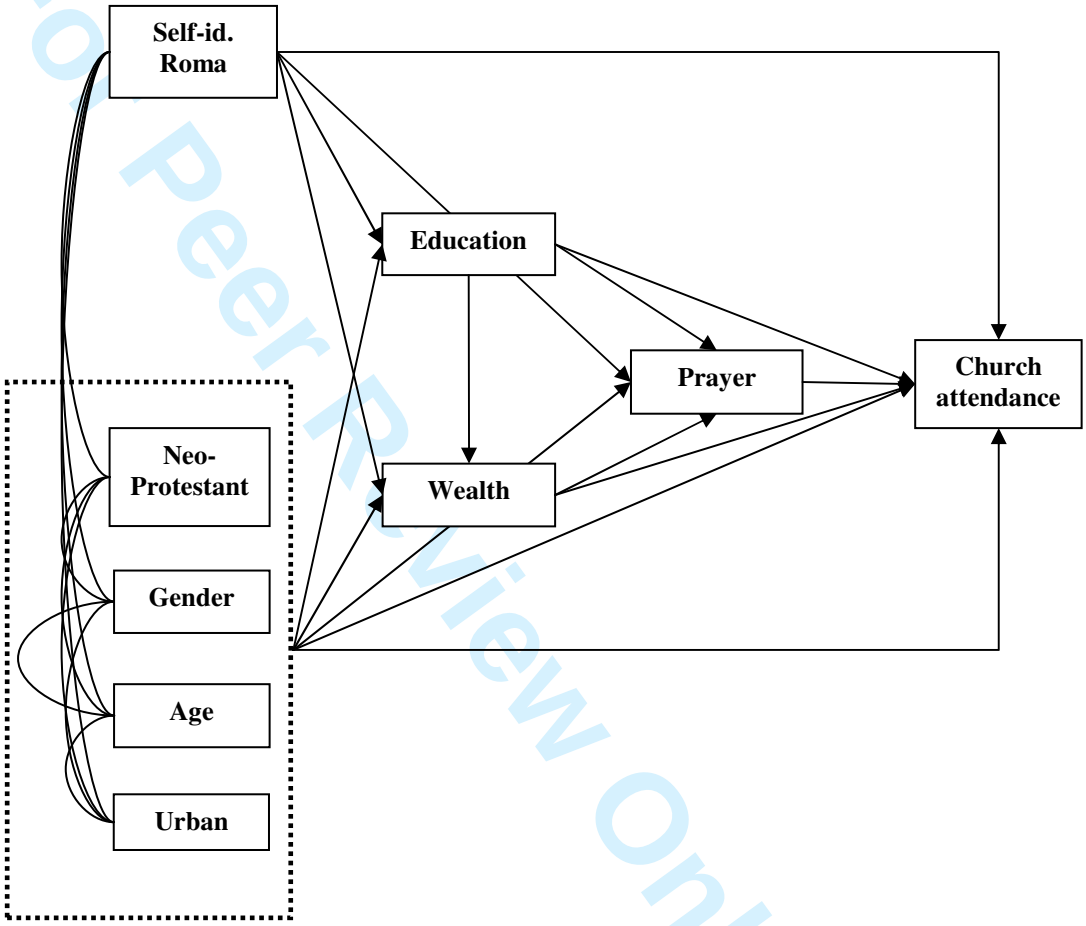
Figures and Tables

Figure 1. Path model specification



The model includes all possible paths between variables, and therefore it reproduces the empirical covariance structure.

Table 1. Uses of ethnicity in three types of quantitative models

Models	Ethnic gap		Ethnic difference
	Ethnic disadvantage	Discrimination	
Dependent variable	- Valuable resource or behavior	- Valuable resource dependent on others' decisions	- Variables linked to the process of ethnic differentiation
Research focus	- Measurement of inequalities - Identification of risk factors	- Measurement of discrimination - Identification of risk factors	- Description of ethnic differentiation processes - Estimates of causal influences of ethnicity on the dependent variables
Measurement of ethnicity	- Categorical or formative	- Categorical or formative	- Categorical, formative or dimensional
Control variables	- Frequent use of socio-demographic controls - Increasing use of 'reasoned action' models	- Required control of competence and preference variables - Risks: 'omitted variable bias', 'included variable problem', 'diverting variable bias'	- Depending on the research question and theoretical model
Moderating influences	- Decreasing returns for different forms of capital, or differential influence of risk factors	-Are not related to the research question	-Highly relevant for the study of ethnic differentiation
'Direct effects'	- Provides measurements of ethnic disadvantage, without explanatory force - Relevant if ethnicity is used as an indicator (proxy) for biological heritage, in public health studies	- Main research focus: they provide measurements of ethnic discrimination, if the model is correctly specified	- Causally meaningful for phenomena which are closely linked to ethnic differentiation - Residual (un-explained) measure of association for more distant phenomena

Table 2. Survey information

Abbreviation	RIB 2006	WA 2008
Research	Roma Inclusion Barometer	"Work Attitudes" survey
Organization	Soros Foundation Romania	Soros Foundation Romania
Dataset availability	On request from Soros Foundation Romania	On request from Soros Foundation Romania
Respondents in Roma sample	1387	996
% self-identified Roma respondents	93%[5]	100%
Other samples (cases)	Romanian national sample (1215)	Romanian national sample (2391)
Urban Roma	41%	42%
Urban national respondents	54%	59%

Table 3. Independent variables

Prayer	'How often do you pray to God outside religious services?' 4 'Daily'; 3 'Several times a week'; 2 'Once a week'; 1 'Less often'
Neo-Protestant	The respondent's religious confession is Neo-Protestant (1. Yes, 0. No)
Education	'What school did you graduate most recently?' 1 'No schooling'; 2 'Primary (1^{st} -4^{th} grades)'; 3 'Middle school (5^{th}-8^{th} grades)'; 4 'Vocational, high school'; 5 'Posthigh-school, college and more'
Sex	0 'Woman'; 1 'Man'
Age	Respondent's age
Urban	0 'Residence in rural locality'; 1 'Residence in urban locality'
Household wealth	Number of household appliances among the following: automobile, telephone, automatic washing machine, refrigerator, computer
Roma	Roma ethnicity (self-declared) 0 'Other ethnicity'; 1 'Roma ethnicity'

Table 4. Church attendance recoded on 4 values – dependent variable in the regression model

	RIB 2006		WA 2008	
	Non-Roma	Roma	Non-Roma	Roma
1. Less often or never	16	29	16	24
2. On Holy Days	32	31	33	39
3. Monthly	27	17	28	18
4. Weekly	24	20	22	18
Missing (DK/NR)	1	3	1	1
Total	100	100	100	100
Cases	1182	1387	2336	999

Table 5. Distribution of religious confessions in Romania. Source: RIB 2006

Religious confession	Percent (%)
Orthodox	88.7
Romano-Catholic	3.8
Protestant	3.1
Neo-Protestant	2.4
Greek-Catholic	1
Other	0.6
No religion	0.3
Total	100

Table 6. Standardized (STDYX) estimates for path models in RIB2006

	Path model					
	Total sample (weighted)		Non-Roma respondents		Roma sample	
	Std. coeff.	Sig.	Std. coeff.	Sig.	Std. coeff.	Sig.
Church attendance on…						
Prayer	**0.305**	0.000	**0.308**	0.000	**0.191**	0.000
Education	-0.024	0.468	-0.028	0.419	**0.082**	0.005
Wealth	-0.019	0.584	-0.017	0.642	**-0.075**	0.007
Neo-Protestant	**0.097**	0.003	**0.087**	0.012	**0.343**	0.000
Gender	**-0.199**	0.000	**-0.202**	0.000	**-0.089**	0.001
Age	0.037	0.213	0.035	0.257	**0.083**	0.001
Urban locality	0.035	0.273	0.035	0.293	0.049	0.056
Roma ethnicity	**-0.041**	0.000				
Prayer on…						
Education	-0.035	0.262	-0.035	0.268	**-0.037**	0.234
Wealth	-0.045	0.207	-0.047	0.193	**0.131**	0.000
Neo-Protestant	**0.106**	0.000	**0.101**	0.000	**0.205**	0.000
Gender	**-0.128**	0.000	**-0.129**	0.000	**-0.113**	0.000
Age	**0.214**	0.000	**0.218**	0.000	0.006	0.822
Urban locality	-0.048	0.124	-0.048	0.139	-0.026	0.352
Roma ethnicity	**-0.050**	0.000				
Household wealth on…						
Education	**0.330**	0.000	**0.327**	0.000	**0.381**	0.000
Neo-Protestant	**0.064**	0.003	**0.066**	0.003	**0.057**	0.034
Gender	-0.034	0.156	-0.036	0.148	**0.051**	0.045
Age	**-0.145**	0.000	**-0.149**	0.000	0.019	0.433
Urban locality	**0.309**	0.000	**0.318**	0.000	**0.093**	0.000
Roma ethnicity	**-0.112**	0.000				
Education on…						
Neo-Protestant	-0.022	0.380	-0.023	0.411	-0.032	0.203
Gender	**0.134**	0.000	**0.137**	0.000	**0.128**	0.000
Age	**-0.340**	0.000	**-0.350**	0.000	**-0.183**	0.000
Urban locality	**0.299**	0.000	**0.310**	0.000	**0.115**	0.000
Roma ethnicity	**-0.210**	0.000				
Neo-Protestant with…						
Roma ethnicity	**0.096**	0.000				
R Square						
Church attendance	**0.181**	0.000	**0.180**	0.000	**0.198**	0.000
Prayer	**0.100**	0.000	**0.101**	0.000	**0.071**	0.000
Education	**0.277**	0.000	**0.253**	0.000	**0.064**	0.000
Wealth	**0.358**	0.000	**0.342**	0.000	**0.169**	0.000

Sig. = Two-tailed error probability

Table 7. Standardized (STDYX) estimates for path models in WA2008

	Path model					
	Total sample (weighted)		Non-Roma respondents		Roma sample	
	Std. coeff.	Sig.	Std. coeff.	Sig.	Std. coeff.	Sig.
Church attendance on…						
Prayer	**0.241**	0.000	**0.240**	0.000	**0.265**	0.000
Education	-0.004	0.872	-0.008	0.771	**0.071**	0.026
Wealth	0.016	0.516	0.015	0.567	0.047	0.118
Neo-Protestant	**0.144**	0.000	**0.135**	0.000	**0.332**	0.000
Gender	**-0.174**	0.000	**-0.179**	0.000	-0.005	0.880
Age	**0.074**	0.001	**0.074**	0.001	-0.012	0.701
Urban locality	**0.083**	0.000	**0.086**	0.000	-0.001	0.971
Roma ethnicity	**-0.036**	0.000				
Prayer on…						
Education	**-0.056**	0.015	**-0.056**	0.019	-0.059	0.095
Wealth	-0.042	0.095	-0.047	0.072	**0.089**	0.010
Neo-Protestant	**0.074**	0.000	**0.067**	0.000	**0.193**	0.000
Gender	**-0.238**	0.000	**-0.241**	0.000	**-0.116**	0.000
Age	**0.180**	0.000	**0.179**	0.000	**0.127**	0.000
Urban locality	-0.041	0.053	-0.038	0.081	**-0.083**	0.010
Roma ethnicity	**-0.029**	0.001				
Household wealth on…						
Education	**0.383**	0.000	**0.377**	0.000	**0.386**	0.000
Neo-Protestant	**0.031**	0.032	0.029	0.059	0.073	0.018
Gender	-0.009	0.568	-0.010	0.536	0.048	0.119
Age	**-0.218**	0.000	**-0.223**	0.000	-0.032	0.283
Urban locality	**0.270**	0.000	**0.276**	0.000	**0.113**	0.000
Roma ethnicity	**-0.092**	0.000				
Education on…						
Neo-Protestant	0.002	0.904	0.006	0.725	**-0.097**	0.002
Gender	**0.111**	0.000	**0.112**	0.000	**0.166**	0.000
Age	**-0.333**	0.000	**-0.343**	0.000	**-0.080**	0.013
Urban locality	**0.327**	0.000	**0.342**	-0.061	-0.053	0.057
Roma ethnicity	**-0.202**	0.000				
Neo-Protestant with…						
Roma ethnicity	**0.055**	0.000				
R Square						
Church attendance	**0.155**	0.000	**0.153**	0.000	**0.221**	0.000
Prayer	**0.126**	0.000	**0.128**	0.000	**0.080**	0.000
Education	**0.283**	0.000	**0.269**	0.000	**0.041**	0.004
Wealth	**0.431**	0.000	**0.424**	0.000	**0.168**	0.000

Sig. = Two-tailed error probability

Table 8. Standardized (STDYX) estimates of direct and indirect effects of ethnicity on church attendance in WA 2008 and RIB 2006

Ethnicity effects:	WA2008		RIB2006	
	Estimate	Sig.	Estimate	Sig.
Total	**-0.041**	0.000	**-0.043**	0.000
Direct	**-0.036**	0.000	**-0.041**	0.000
Total indirect, out of which:	-0.005	0.401	0.002	0.828
Via: Prayer	**-0.007**	0.001	**-0.015**	0.000
Via: Education	0.001	0.872	0.005	0.468
Via: Wealth	-0.001	0.516	0.002	0.585

Sig. = Two-tailed error probability

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[4] Estimates of Roma people who self-identify as such in Census and surveys range between 2.5% in the 2002 Census and 2% or below in nationally representative samples, such as the biannual Public Opinion Barometer of the Soros Foundation Romania. Therefore, I have computed a weight variable, so that the self-identified Roma respondents represent 2.5% of the total sample, while keeping the total number of cases constant.

[5] Only self-identified Roma respondents were included in analysis.