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National minorities and their representation in Swiss surveys (I): Providing evidence and analysing causes for their under-representation

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Summary

Many social science surveys suffer from under-representation of national minorities. In this article, using Switzerland with its heterogeneous national minority groups as a case study, we find strong under-representation among people with a geographically more 'distant' nationality. Foreigners with a nationality of one of the neighbouring countries sharing one of the Swiss national languages, however, are represented as well as Swiss citizens. Low educated people are generally under-represented, especially those with a more distant nationality. These findings are true for cross-sectional surveys and seem to aggravate in panel surveys through cumulative underrepresentation.
In view of both an increased migration flow and increasingly heterogeneous migrants, the problem reinforces if not more effort will be invested to better represent national minorities in social surveys.

Keywords: National minorities, Attrition, Representation.

National minorities and their representation in Swiss surveys (I): Providing evidence and analysing causes for their under-representation[1]

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1. Introduction

The past decades have seen massive international migration flows into most western societies. Unlike the typical migrant of the '60s, however, today's migrants can hardly be standardized in terms of skills, gender and country of origin (Castles and Miller 1993, Koser and Lutz 1998, Kofman et al. 2000). Traditionally the bulk of unskilled migrants came from Italy in the '50s, Spain in the '60s, and Portugal and Ex-Yugoslavia in the '80s and the beginning of the '90s (Piguet 2004). Since some years, however, highly skilled migrants from Northern Europe account for a considerable portion of Swiss migrants. In parallel to this development, there has been a remarkable increase of social surveys with the aim to provide indicators on poverty, integration and vulnerability within the national context as well as in a comparative setting.

Many authors (e.g., Wimmer and Schiller 2002; Chernillo 2006; Wimmer and Min 2006) addressed the issue of whether social surveys are (still) able to represent the heterogeneous national minorities both with respect to their cultural background, educational level, and position in the hosting country's social structure. There is evidence that national minorities in general and especially the more marginal and

[1] The present paper is the first of a series of two papers, which deal with the phenomenon of representation of national minorities in social surveys (this paper) and the efficiency of measures to improve national minorities' representation (Laganà et al., 2011).

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vulnerable individuals are underrepresented (Vandecasteele and Debels 2007). Reasons are both undercoverage in sampling frames (Lipps and Kissau forthcoming), higher non-response rates in cross sectional surveys (Deding et al. 2008; Feskens et al. 2006, 2007; Camarota and Capizzano 2004; Eisner and Ribeau 2007; Jakobsen 2004; Nielsen and Pedersen 2000), and higher attrition rates in longitudinal surveys (Lipps 2007; Peracchi and Depalo 2006). To analyse under-representation, the literature either focused on some given minorities (Deding et al. 2008) or used a rough distinction between western and non-western minorities only (Feskens et al. 2007). However it is very likely that this does not capture the increasing heterogeneity in an adequate way. In the present paper we analyse the representation of various national minorities, focusing on the way social and economic characteristics of different national populations are represented in social surveys. Because of the size and diversity of its migrant population, Switzerland is an interesting country to examine national minorities' representation in social surveys. For immigrants from outside the European Union, the new legislative frame of Swiss immigration policies allow for a stay permit only to the high skilled. This accentuates the heterogeneity of national minorities with respect to both their positions in the Swiss society and the Swiss labour market (Gross 2006).

In the present paper we aim to answer three questions:

1) Is the representation of national minorities in Swiss social surveys generally biased?

2) Are there subcategories within national minorities that are especially concerned?

3) Does possible underrepresentation in cross-sections increase in panel surveys through attrition?

The paper is organized as follows: In the first section we describe the theoretical framework used to motivate our analysis of national minorities' under-representation. Next, we formulate hypotheses relating this to nationality, education, and social class. We then introduce the data and the models used to analyse under-representation in Swiss cross-sectional and panel surveys. In the final section we interpret the results and conclude.

Determinants of national minorities' under-representation

To better understand under-representation of national minorities we adopt the 'Total Survey Error' approach (Groves 1989). Under-representation may stem from undercoverage problems of the sampling frame and from nonresponse (Groves 1987). Undercoverage arises "if the population from which the sample of cases is drawn is incomplete" (Corbetta 2003; p. 79) such that parts of the target population are not adequately represented. For example in telephone surveys, national minorities usually

have a lower likelihood to own a fixed line telephone, and – even if they do – to be listed in telephone books. If sample members are drawn from an individual register, there are problems to match foreign names with telephone numbers that are available from other information sources (Lipps and Kissau, forthcoming). With respect to up-to-dateness of sampling frames, there is evidence that more instability with respect to living arrangements and residential situations are likely causes for the under-representation of national minorities (Centraal Bureau voor de Statistiek 2004; Camarota and Capizzano 2004). Nonresponse is either due to noncontact or noncooperation. National minorities' higher levels of non-contact (e.g., Deding 2008; Feskens et al. 2006, 2007) are often due to more non-standard working times. As for cooperation, survey language competence is of course an obvious requirement. At the least, poor language competences add considerably to the survey burden. As for more survey-related reasons, Groves et al. (2004) identify topic interest as one important issue: one reason for non-participation is probably that issues relevant in the host country may not concern the minority interests. In addition, according to the "social exclusion" theory, the more socially excluded tend to be underrepresented in surveys (Groves and Couper 1998; Groves et al. 2004; Stoop 2005). Both foreigners and the socially more excluded may have higher non-response rates possibly because of more shame to talk about sensitive topics. Or, foreign respondents might not feel legitimate to participate.

As for socio-economic correlates, Schmeet and Michiels (2003, p. 388) stress the importance of economic status to explain national minorities' higher non-response rates. Feskens et al. (2006) identifies variables like the degree of urbanization, employment, socio-economic status and educational level. Jakobsen (2004) and Nielsen and Pedersen (2000) explain higher non-response rates among minorities in the Netherlands with the educational level and employment status. Feskens et al. (2007, p. 387) show that the effect of nationality is almost entirely mediated by the degree of urbanization which is likely to influence non-contact. Deding et al. (2008), distinguishing between different national minorities, find that in Denmark the different non-response rates between immigrants and natives persist even after controlling for the socio-economic dimension.

Starting from these findings, we put forward the following non-concurrent hypotheses:

- *Independence*: Under-representation holds even if respondents' educational levels and socio-economic dimensions are controlled for.

- *Moderation*: Under-representation varies within national minorities. Specifically it is stronger for minorities that are in the lower socio economic positions, moderated for those in a higher position.

- *Mediation*: Socio-demographic and socio-economic characteristics explain under-representation. Specifically, national minorities are under-represented because they are in the most marginal positions.

2. Data, Methods, and Variables

2.1. Data

We use data from three Swiss social surveys: the Swiss Household Panel (SHP), the Swiss National Labour Force Survey (LFS), and the Swiss sample of the European Social Survey (ESS). We use three different surveys to check if possible patterns of underrepresented national minorities are independent of survey design features. In addition, using panel data like the SHP and the rotating LFS panel allows analysing attrition as a second dimension of under-representation. Appendix 1 illustrates similarities and differences between the three surveys.

SHP: The SHP is a yearly multi-topic CATI household panel survey about living conditions, attitudes, and social change, conducted by the Swiss Centre of Expertise in the Social Sciences (FORS). The SHP is representative of the residential population living in private households, irrespective of duration of stay, permit, or nationality. All household members from the age of 14 years on are interview eligible. The first sample started in 1999 with 5,074 completed households, and a refreshment sample was added in 2004 with 2,578 completed households, both sampled from the telephone register. Within each household, one member is assigned to be the reference person as a source of information on household related characteristics. The reference person might act as a gatekeeper for other household members (Lipps 2009). Survey languages offered comprise the three national languages.

LFS: The LFS is a yearly individual survey on labour market participation, conducted by the Swiss Federal Statistical Office (SFSO). The LFS is representative of the residential permanent population older than 15 years, including foreigners in Switzerland with a stay permit of at least one year. Each individual is followed during 5 years. The survey started in 1991 with a sample of 16,000 individuals, sampled from the telephone register. Modifications during the past years included to add a sample of about 15,000 foreigners drawn from the central register of foreigner to the standard LFS sample in 2003. In the same year, questionnaires in Serbo-Croat, English, and Albanian were introduced, with additional questionnaires in Turkish and Portuguese

since 2005. The interview involves CATI if the language chosen is one of the three national languages, while it involves CAPI if another language is chosen.

ESS: The ESS is an individual, bi-annually conducted face-to-face repeated cross-sectional survey on changing public attitudes and values in Europe, with the Swiss part running by the Swiss Centre of Expertise in the Social Sciences (FORS). The ESS started in 2002 and is representative of the residential population older than 14 years, irrespective of duration of stay, permit, or nationality. The effective sample size depends on the size of the country and amounts to 1,800 individuals for Switzerland. While the 2002, 2004 and 2006 Swiss samples were drawn from the telephone book, for the 2008 round the register of postal addresses was used. Because the sample is household based, the target person is randomly selected within sampled households. This procedure adds a step and requires consent of the contact person of the household: the gatekeeper. Survey languages offered comprise the three national languages.

2.2. Methods

To answer our research questions, we distinguish between two dimensions of bias: the cross-sectional and the longitudinal dimension. Analysing representation in cross-sectional surveys requires background information such as that included in administrative registers or information about the gross sample. Since this information is not available in the surveys considered, the only way to deal with this problem is to compare survey respondent statistics with statistics from other data sources, such as the census. Attrition analyses in a panel survey, however, benefit from information collected in earlier waves.

While data from the Swiss census stem from 2000, for the three surveys different reference years are used. The reason of this choice is that the surveys have different designs and in some cases (as in the LFS) substantial modifications were made. Two criteria determine the selection of the survey reference year: Firstly, we use the years where the design of the three surveys was as similar as possible, in order to avoid that patterns of under-representation are due to the particular design of a survey. Secondly, we use the years which are as close to 2000 as possible, in order to minimize time effects. Following these two criteria, the reference year for the cross-sectional analysis of the LFS was 2002, because in 2003 the LFS foreigner subsample was added and new languages were introduced. For the longitudinal analysis of the LFS, the year 2001 was chosen as the starting year. For the SHP the reference year was the first year of the survey (1999), because in 2000 and after, attrition might have affected the sample

much stronger than the (small) one-year time effect. Finally, we include the ESS data pooled over all four rounds conducted so far (2002-2008). Reasons for pooling are small sample sizes.

For the analyses on cross-sectional representation, we use the ratio between the odds for a randomly selected individual to be represented in the survey sample and the relative odds in the population (Census value) as measure of bias. The advantage of taking odds instead of a percentage is that the odds are independent of the marginal distribution of the observed variables. For example, if we consider education by nationality, the odds allow estimating the magnitude of the bias of the two variables in our population independently from the marginal distribution of education and nationality. The odds are thus independent of scales. Suppose there are J categories of national minorities (jєJ), n the sample size of the survey of interest, N the population size, s_j the sample size of a category j and S_j the population size of the category j in the census. The odds for a given national minority group j is defined as follows:

Equation 1

$$OddsRatio_j = \frac{\left[s_j /\left(n - s_j\right)\right]}{\left[S_j /(N - S_j)\right]}$$

To analyse national minorities' under-representation by several socio-economic dimensions simultaneously, we generalise Eq 1. Suppose there are I categories of educational level (iєI), s_{ij} the sample size of a category combination i and j and S_{ij} the population size of the category combination i and j in the census, the odds are then defined as:

Equation 2

$$OddsRatio_{ij} = \frac{\left[s_{ij} /\left(n - s_{ij}\right)\right]}{\left[S_{ij} /(N - S_{ij})\right]}$$

In both equations 1 and 2, values close to 1 indicate that the representation of a given category is unbiased, values smaller than 1 indicate under-representation, and values greater than 1 over-representation.

To analyses attrition bias, we use logistic regression models.

2.3. Variables to explain under-representation and attrition

To compare representation of population groups in the three surveys with that in the population, we have to limit ourselves to the variables that are included in the census 2000: nationality, education, and social class. Because of different survey sample sizes, different distinctions of the nationality variable and other independent variables must be used. With respect to the national minority groups, the LFS data allow to distinguish between Swiss, Italians, French, Portuguese, Germans, Turkish, Ex-Yugoslavians and Albanians, those from the rest of Europe, Africans, Americans, and Asians and Oceanians. In the other surveys we distinguish between the Swiss, those from neighbouring countries (Germans, Austrians, Liechtensteinians, French, and Italians) and those from a non-neighbouring foreign country. With respect to the educational levels, we use a three-category classification, distinguishing between "No education/Secondary I", "Secondary II", and "Tertiary". Respondents that are still in training are classified in a fourth category whose results, being marginal for the aim of the paper, are not presented here. For social class, we use the ISCO (International Standard Classification of Occupations), recoded into three categories: upper non-manual (ISCO codes 1, 2 and 3), lower non–manual (ISCO codes 4 and 5) and manual (ISCO codes 6, 7, 8 and 9). Further, individuals who are not in employment are gathered in a fourth category.

3. Education, Social Class, and national Minorities' Representation

In the present section we analyse:

1) If there is evidence of under-representation of national minorities in the selected Swiss surveys;

2) If yes, how can this be explained in different dimensions (social class and education).

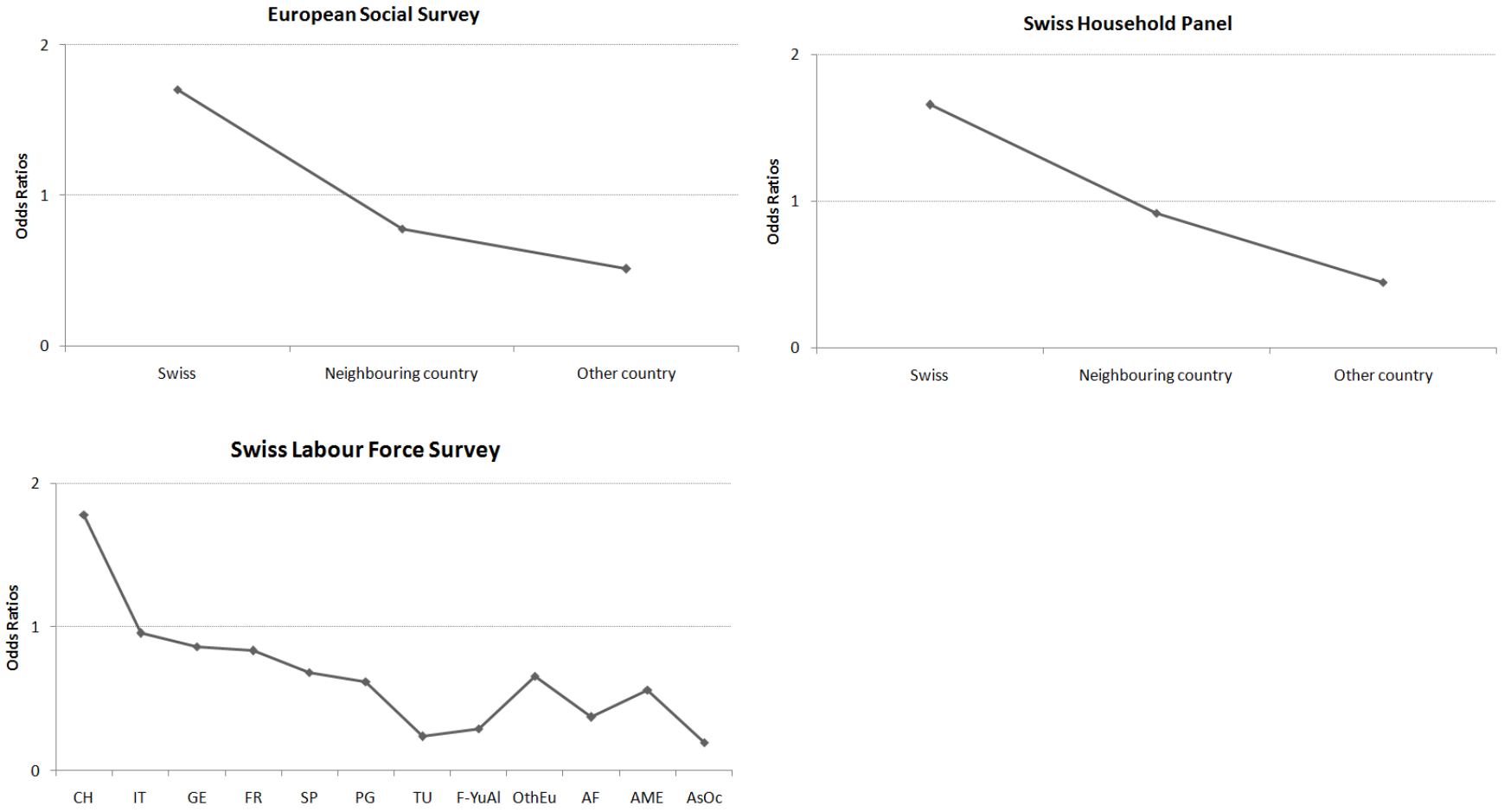

Figure 1: National minorities' representation (odds ratios) in the Swiss Household Panel 1999, the European Social Survey 2002-2008, and the Swiss National Labour Force Survey 2002. CH=Swiss, IT=Italy, GE=Germany, FR=France, SP=Spain, PG=Portugal, TU=Turkey, F-YUAl=Ex-Yugoslavia or Albania, OthEu=Other European country, AF=Africa, AME=America, AsOc=Asia and Oceania.

3.1. Under-representation of national minorities: comparison with the census

Figure 1 depicts the odds ratios for national minorities in the three surveys (SHP, ESS, and LFS) compared to the census 2000. First, all three surveys' national minorities show similar patterns of under-representation. Secondly, the LSF indicates that the groups showing the strongest under-representation are the Turkish, Ex-Yugoslavian and Albanians, Africans, and Asians. In all three cases, the national minorities that are best represented are those from the neighbouring countries Italy, France, and Germany.

3.2. Bias within national minority groups

Having found that some national population minorities are poorly represented in Swiss surveys, the next step is to examine whether the bias against national minorities is constant within national minorities' subgroups or some categories of national minorities are particularly concerned. Analysing the interaction between the socio-economic variables education and social class, and national minorities' under-representation helps to understand the nature of the bias and the interplay between different dimensions.

In *Figure 2*, *Figure 3* and *Figure 4*, the odds ratios relating to national minorities groups (and Swiss) in the LFS 2002, the ESS 2002-2008 and the SHP 1999 are shown for education and social class, relative to the census 2000. As mentioned above, values below 1 indicate under-representation and values above 1 over-representation. For example if we consider the representation of the Portuguese minority in the LFS by education (figure 2, upper graph), we find an over-representation of individuals with tertiary education, an almost correct representation of the population with secondary II education and an under-representation of individuals with no education or secondary I.[4]

[4] An Odds Ratio of 0.6 indicates that 40 percent of the individuals with low educational levels are not represented in the LFS.

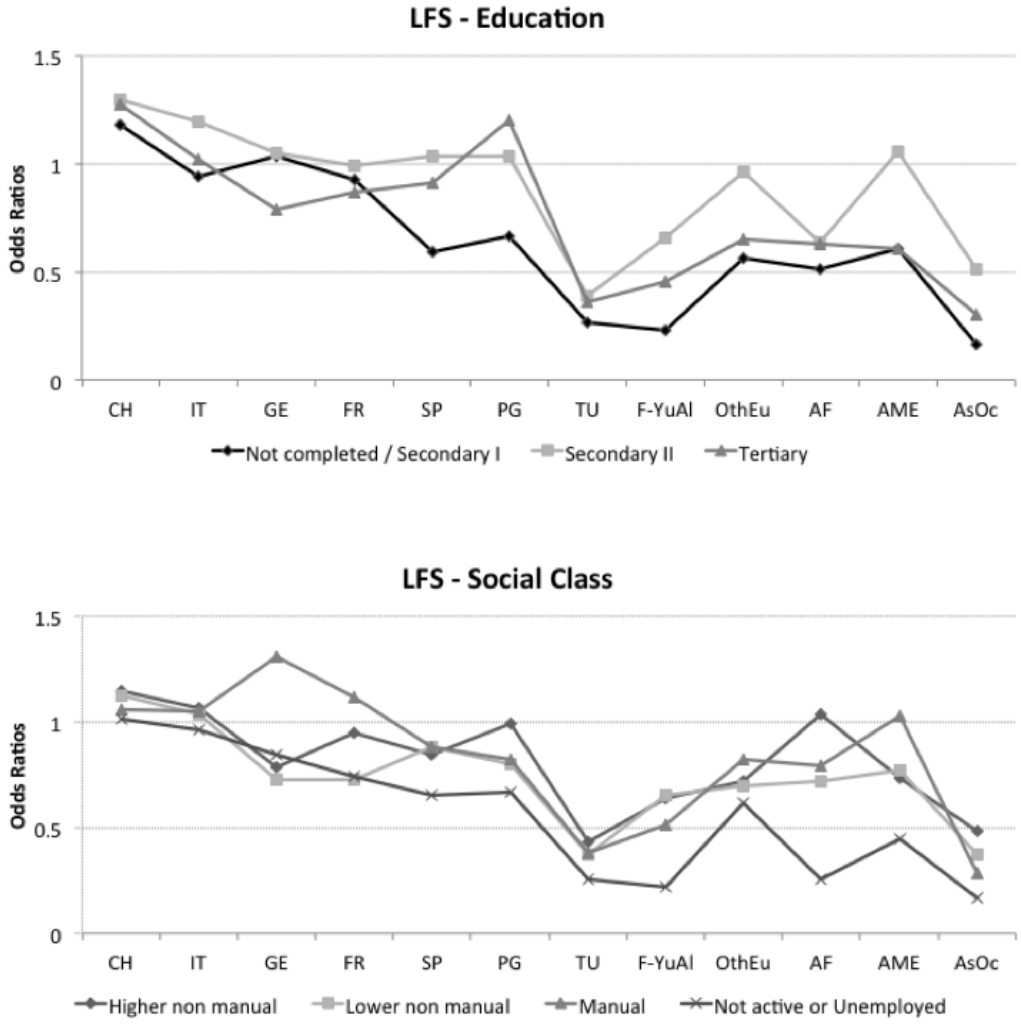

Figure 2: National minorities' representation (odds ratios) by education and social class in the National Labour Force Survey 2002. CH=Swiss, IT=Italy, GE=Germany, FR=France, SP=Spain, PG=Portugal, TU=Turkey, F-YUAl=Ex-Yugoslavia or Albania, OthEu=Other Europeanl country, AF=Africa, AME=America, AsOc=Asia and Oceania.

The data of the LFS indicate a general under-representation of those national minorities constituting the backbone of the more recent migration (Former-Yugoslavs and Turkish and in parts Spanish and Portuguese, with a lower educational level) and those more distant from the core of Swiss society (non Europeans).

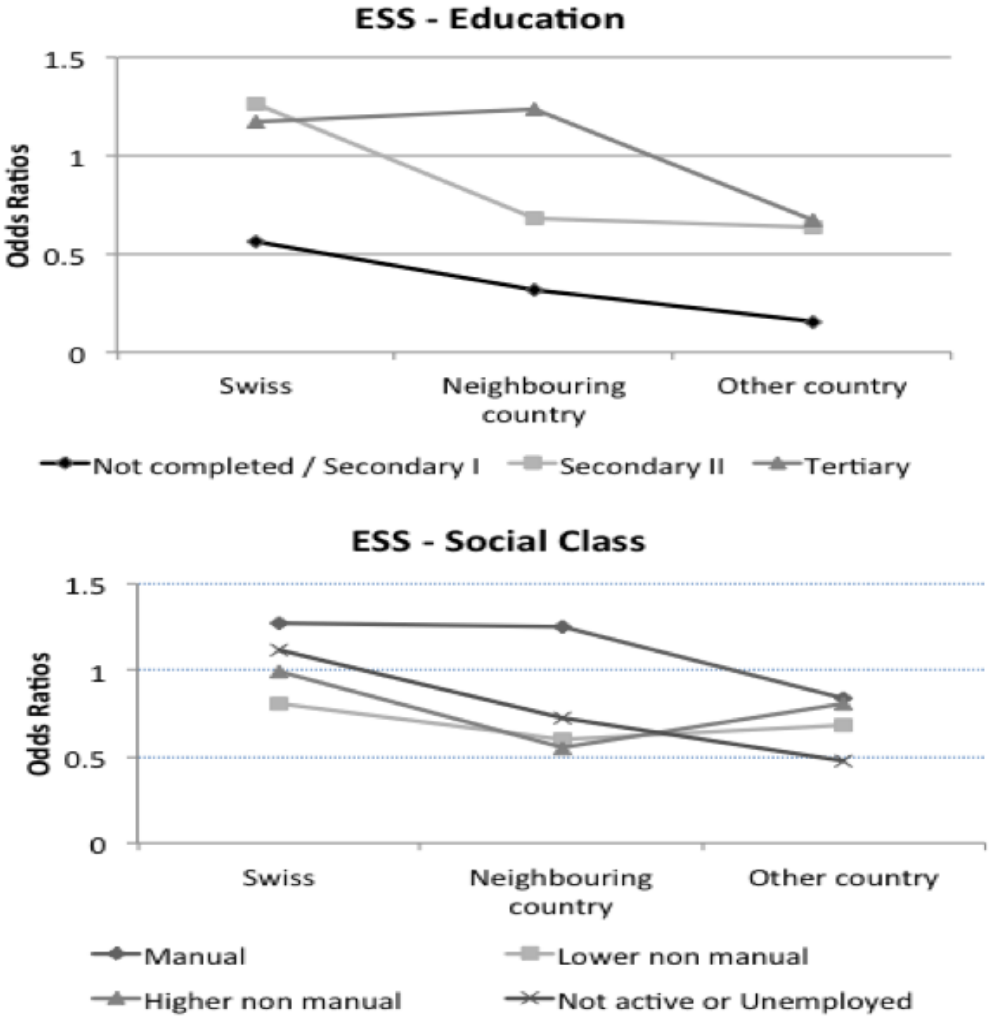

Figure 3: National minorities' representation (odds ratios) by education and social class in the European Social Survey 2002-2008.

With respect to education, all three surveys show that the under-representation is more prevalent for individuals with low education, especially for those from not-neighbouring countries. For example 80% of people from not-neighbouring countries with low education are missing in the ESS (figure 3, upper graph) and 60% in the SHP (figure 4, upper). The picture is quite similar when we consider the LFS (figure 2, upper). The graphs show that there is no systematic under-representation of foreigners with a mid or a higher level education.

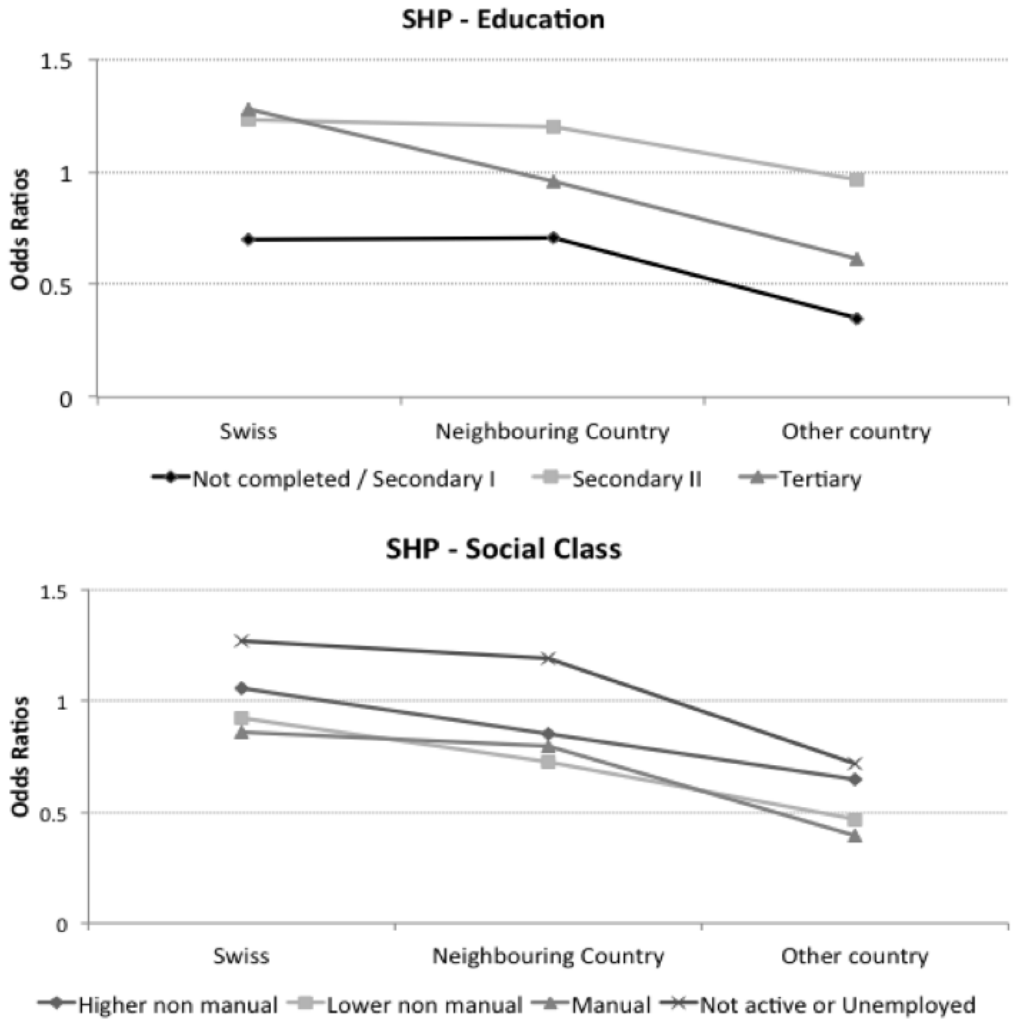

Figure 4: National minorities' representation (odds ratios) by education and social class in the Swiss Household Panel 1999.

With respect to social class, non-manual workers are generally better represented than manual workers in the ESS (figure 3, lower) and the SHP (figure 4, lower). The graph using the LFS (figure 2, lower) suggests that national minority groups seem under-represented independently of social class, i.e. under-representation of minorities is not moderated by a higher social class.

Summarizing, *the figures show that in the three surveys, national minorities of a low educational level tend to be underrepresented. This is more pronounced for minorities with a more distant nationality.* Education seems to be an important factor in determining underrepresentation among *national* minority groups. The degree of representation also depends on nationality: while, e.g., among the Portuguese, those with a higher education are over-represented, among e.g. the Turkish, individuals of all education levels are underrepresented. Unlike education, social class does not seem to have a strong moderation effect. I.e., minorities are underrepresented irrespective of

their social class. In the next section we will analyse whether these tendencies cumulate or rather level-off when doing an attrition analysis.

4. Analysis of national Minorities' longitudinal Representation in the SHP

The aim of the current section is to analyze if, once under-represented in cross-sectional surveys (or, the first wave of a panel survey), national minorities also attrite to a higher extent. In addition to social class and education, we include socio-demographic inclusion variables known to correlate with attrition. Especially the duration foreigners already live in Switzerland ("acculturation") is controlled for[5]. Conceptually we follow Voorpostel and Lipps (2011; see there for details), who also used data from the SHP. Like them, we model obtaining contact on the household and obtaining cooperation on the individual level, with cooperation modelled conditional on contact. Unlike in their research, however, we also keep interview eligible households and individuals who participated during one wave only.

4.1. Cases used and attrition groups

Households and individuals attrition behaviour is distinguished by the following patterns:

'Always in'. Households (individuals) that could be successfully contacted (completed the individual questionnaire) in every wave they were eligible are coded 'always in'.

'Ever out'. Households (individuals) that could not be successfully contacted (did not complete the individual questionnaire) in all waves, but that were contacted (completed the individual questionnaire) in at least the last two waves they were eligible are coded 'ever out'

'Dropped out'. Households (individuals) that were not contacted (did not respond) in the last two waves they were eligible are coded 'dropped out'.

The distribution of the categories "dropped out", "ever out", or "always in" by nationality, for households with respect to obtaining contact and individuals with respect to obtaining cooperation, are shown in *Table 1*. The first values listed is the frequency, the second the expected frequency if the response category variable would be independent of the nationality variable, and the third the cell chi^2 contribution. The latter is a measure of the discrepancy between the expected frequency (assuming independency of the crossed variables) and the actual frequency. All cell chi^2 add up to the total chi^2 (lower right figure).

[5] Note that acculturation issues like the number of years in the country – although collected, e.g., in the ESS – are not analysed in the cross-sectional surveys because they are not included in the census data.

Table 1: Household and individual response patterns by nationality. First values in crossed cells are the frequencies, the second the expected frequency if the response category variable were independent of the nationality variable, and the third the cell chi^2 contribution to the total chi^2. Data: SHP 2000-2009.

	Household (Contact)				Individual (Cooperation)			
	Swiss	Neighbour	Other	Total	Swiss	Neighbour	Other	Total
Always in	6101	420	322	6843	7788	478	420	8686
	6020	443	381		7753	505	428	
	1.1	1.2	9.1	11.3	0.2	1.5	0.1	1.8
Dropped out	417	48	75	540	453	32	33	518
	475	35	30		462	30	26	
	7.1	4.9	67.3	79.3	0.2	0.1	2.2	2.5
Ever out	376	39	39	454	1490	124	84	1698
	399	29	25		1516	99	84	
	1.4	3.2	7.5	12.0	0.4	6.5	0	6.9
Total	6894	507	436	7837	9731	634	537	10902
	9.6	9.2	83.8	102.6	0.8	8	2.3	11.2

The total chi^2 value on the household level (102.6) is significant on the 1% level; the total chi^2 value on the individual level (11.2) on the 5% level. The large difference gives a first indication that nationality explains variances in contactability much better than variances in cooperation. As far as response patterns with respect to household contactability are concerned, by far the highest chi^2 contribution comes from dropping out foreigners other than from a neighbouring country (67.3; grey cells).[6] This group also exhibits the highest likelihood to be ever out. But also foreigners from neighbouring countries have slightly increased drop out and ever out rates. On the individual (cooperation) level, we find that the highest chi^2 contribution stems from foreigners from neighbouring countries who drop out temporarily (6.5; grey cells). Foreigners other than from a neighbouring country have the highest drop out rates.

4.2. Independent Variables and Models

To check whether the lower household contactability of foreigners other than from a neighbouring countries due to dropping out permanently and the lower individual cooperation of foreigners from neighbouring countries due to dropping out temporarily persist if additional variables are controlled for, we conduct multivariate analyses. To model household drop-out or individual ever out (both versus always in) participation patterns, we control for possible other co-varying factors. Specifically,

[6] This can in parts be explained by their presumably higher probability to move out of the country and thus leaving the sample. If these households cannot be tracked, they are not treated as ineligible, but count as dropping outs as a consequence.

we use the following independent variables in the models, see Voorpostel and Lipps (2011) for details:

1. control variables (coefficients not listed in tables)
    - whether the household could not be contacted in at least one wave (vs. always contact) (only individual level)
    - sample (1999 vs. 2004)
    - number of waves in the panel
    - whether the person is household reference person or not (see section introducing the SHP)
    - whether there is a partner in the household
    - children under the age of 18 years in the household
    - age-group: 14-25, 26-34, 35-59 (base), 60+
    - gender
    - ownership of a house/flat (vs. tenants: base)
    - education (3 levels, below high school level (ref.), high school, above high school level)
    - employed vs. not (base)

2. research variables that will be included in the models in two steps:
    - Nationality: Swiss (base), neighbouring country, other country;
    - Nationality (other than Swiss) interacted with years living in Switzerland: 0-2 years (base), 3-5 years, 6-10 years, 11+ years[7]
    - Participation in clubs or associations (only individual level)
    - Political interest (only individual level)

We use logit models for the different attrition groups ('ever out' vs. 'always in', and 'drop out' vs. 'always in'), distinguished by the inclusion of additional independent variables:

1.) control plus cultural background,

2.) 1) plus acculturation (number of years in Switzerland for foreigners).

Reference category is always in. According to the high cellchi^2 (*Table 1*), for the household contact models we compare dropped out with always in households, for the individual cooperation models ever out with always in individuals.

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[7] This variable does not only measure residence duration, but also distinguishes also different groups of migrants: people migrated from the former Yugoslavia in 1990 are not the same than those in the 2000s.

4.3. Modelling Results

a.) Drop out versus always in households

Results of the logit models that compare dropped out households with households that were always in are listed in *Table 2*.

Table 2: Coefficients of logit model: "drop out" vs. "always in" households. Models controlled for sample (1999 vs. 2004), number of waves, partner in household, children in household, gender, age-group of reference person, owner vs. tenant of the house. Data: SHP 2000-2009. Sig. Levels: * p<0.05, ** p<0.01.

Drop out versus always in: Contact	Model 1	Model 2
Nationality: neighbor	.39	.91**
Nationality: other	.79**	.98**
Education: high school[8]	-.38*	-.38*
Education: above high school	-.58**	-.60**
Employed	.14	.13
Neighbor x 3-5years		.00
Neighbor x 6-10 years		-.70
Neighbor x 11+ years		-.96
Other x 3-5years		-1.10
Other x 6-10 years		.30
Other x 11+ years		-.40
N	7078	7078
Log Likelihood	-908	-904
McFadden Pseudo R^2	.145	.149

On the household level, similar to the bivariate cross-tabulated results, we find more dropping-outs due to noncontact among households with a nationality from another country, compared to neighbours and especially the Swiss, also in the controlled logit model. The acculturation factors do not seem to have an effect on contactability of other national minorities. However, as for neighbours, a longer stay in Switzerland appears to increase contactability: although the acculturation terms are not significant, a long acculturation renders the nationality term significantly positive. In line with findings from Voorpostel and Lipps (2011), higher education increases contactability of households.

Next, we model cooperation on the individual level, where we control for clustering within households by using a random intercept modelling approach.

b.) Ever out versus always in individuals

Results of the logit models are listed in *Table 3*.

[8] reference: below high school level. Interaction terms nationality times education levels have no effects.

Table 3: Coefficients of 2-level logit model: ever out vs. “always in” individuals. Models conditional on contact success of household. Models controlled for sample (1999 vs. 2004), number of waves, partner in household, children in household, gender, age-group, owner vs. tenant of the house. Data: SHP 2000-2009. Sig. Levels: * p<0.05, ** p<0.01.

Ever out versus always in: Cooperation	Model 1	Model 2
Nationality: neighbour	.45**	-.46
Nationality: other	.06	-.34
Education: high school	-.03	.00
Education: above high school	-.09	-.02
Employed	.21*	.20*
Neighbor x 3-5years		1.48**
Neighbor x 6-10 years		.91
Neighbor x 11+ years		.92*
Other x 3-5years		.74
Other x 6-10 years		.32
Other x 11+ years		.40
Participation in clubs (vs. not		-.11
Political interest (0-10 scale)		-.02
N	10384	10384
Log Likelihood	-4292	-4283
rho	.30	.30

Expected from the bivariate cross-tabulation, the (neighbour) nationality variable significantly increases the likelihood to be ever out as compared to being always in. Controlled for acculturation and the social inclusion variables however, it turns out that the positive ever out effect becomes insignificant. It appears that more temporary drop outs due to noncooperation by foreigners from neighbouring countries come from those with a medium and longer duration of stay in Switzerland (more than 2 years). Social inclusion variables do not seem to have an effect.

To summarize, from the cross-tabulations, we mainly find more temporary drop outs due to individual noncooperation patterns among foreigners from a neighbouring country, and more permanent drop outs due to household noncontact among the other foreigners in the SHP. The multivariate analyses show that both phenomena are in parts determined by the duration of stay in Switzerland. Foreigners from a neighbouring country with a longer stay tend not to cooperate temporarily to a higher extent. To the contrary, those who are in the country for a short time, rather tend to drop out permanently due to noncontact. Other foreigners rather drop out permanently due to noncontact, irrespective of duration of stay. Generally all foreigner groups are always reporting to a smaller extent than native Swiss.

5. Analysis of national minorities' longitudinal representation in the LFS

5.1. Mediation

In this section we analyse the relationship of attrition, minorities, and socio-economic status in much more detail than is possible with data from the SHP. Specifically we test if controlled for educational level and social class, higher attrition of national minorities becomes weaker (Schmeets and Michiels 2003; Feskens et al. 2007). This hypothesis is tested using the rotating panel of LFS. In the models, the dependent variable is the binary outcome of whether the individual stays in the sample or drops out between the 2001 and the 2002 LFS. We use nested binomial logistic regression models.

As control variables (coefficient not listed in the tables) we use:

- Age-group (15-24; 25-39; 40-54; 55-64; 65 +) to capture non linear relationships (Pisati 2003)
- Gender
- Household size, assuming that larger household are less likely to move and easier to contact

We add some control variables related to the survey design like:

- The number of contact attempts
- Wave of interview, hypothesising that the probability of attrition decreases as individuals participate to further waves in the survey

Research variables (Model II, Model III) are:

- Education (1 Primary/Secondary I; 2. Secondary II; 3 Tertiary; 4 In training)
- The Occupation is measured by the International Standard Classification of Occupations (ISCO), as indicator of social class position, using three categories. A fourth category gathers all those respondents that are unemployed or not active.

Furthermore, we use nationality recoded in 10 categories: 1) Swiss, 2) Italian; 3) Spanish; 4) French; 5) Portuguese; 6) German; 7) Turkey; 8) Ex-Yugoslavian and Albanian, 9) Rest of Europe; 10) Other non European. The dependent variable is binary attrition between the 2001 and the 2002 LFS. From *Table 4* we find that national minorities have a higher likelihood of attrition, especially Ex-Yugoslavians and Albanians (24%), those from other non European countries, and Turks (28%). Those from neighbouring countries behave similar to the Swiss.

Table 4: Rate of stay by national minority status in the LFS sample. Data: LFS 2001-2002.

	Stay [%]	N
French	85.37	123
Swiss	82.60	14'526
Italian	80.65	672
Spanish	80.15	131
German	79.67	241
Portuguese	78.29	152
Rest of Europe	77.78	207
Ex-Yugosl. and Albanian	75.73	206
Other non Europ. countries	72.65	117
Turkey	71.74	46
Total	82.19	16'421

Table 5 presents the results from the models successively controlled for education and social class. We expect that attrition decreases with increasing educational level and social class.

Table 5: Logit model results for the effect of educational level, social class on attrition probability. Model controlled for age, sex, no. of contact attempts, wave and household size. Data: LFS (Panel samples), 2001-2002. Sig. Levels: * p<0.05, ** p<0.01.

	Model I		Model II		Model III	
	β	σ(β)	β	σ (β)	β	σ(β)
National Minority groups (Ref. Swiss)						
Italian	0.155	0.102	0.116	0.104	0.118	0.104
Spanish	0.249	0.224	0.197	0.225	0.2	0.226
French	-0.072	0.262	-0.071	0.262	-0.065	0.263
Portuguese	0.504*	0.204	0.401	0.208	0.407	0.209
German	0.139	0.163	0.155	0.165	0.139	0.167
Turkish	0.799*	0.332	0.735*	0.334	0.733*	0.334
Ex-Yugoslavian and Albanian	0.520**	0.167	0.486**	0.168	0.494**	0.169
Rest of Europe	0.297	0.171	0.319	0.172	0.321	0.172
Other country	0.701**	0.213	0.680**	0.214	0.697**	0.214
Education (Ref. Secondary I)						
Secondary II			-0.129*	0.053	-0.118*	0.054
Tertiary			-0.195**	0.07	-0.181*	0.075
In education			-0.038	0.132	-0.069	0.135
Table 5 (continued)						
Social class (Ref. Higher non						

manual)					
Lower non manual				-0.016	0.07
Manual				0.026	0.072
Not active or unemployed				0.053	0.072
Constant		-0.796***	0.112	-0.812***	0.12
N	16421	16373		16308	
Pseudo R2	0.034	0.035		0.035	

The explained variance, expressed by the Cragg & Uhler's R^2, is quite low. It ranges from 3.5% to 4% with control variables included. Further, introducing the research variables seem to have a low impact on attrition. We find that national minorities, mostly from non-neighbouring countries, exhibit higher attrition. Ex-Yugoslavians and Albanians have a 68%, those from "other countries" a 99% higher risk of attrition than Swiss citizens.[9] We find that the processes leading to an under-representation of national minorities seems independent from the research variables. In fact, while in the baseline model the risk of attrition of Ex-Yugoslavians and Albanians is 68% higher than that of the Swiss, when controlling for educational level and social class, this figure decreases to 63%, only 5 percentage points less. The conclusion is that national minorities exhibit higher attrition levels than natives, a process that cannot be explained in terms of social class and education.

5.2. Moderation

The previous results showed that national minorities have different levels of under-representation and attrition and that the national minorities' under-representation cannot be explained by education and social class.. However, it is possible that within different categories of national minorities attrition varies by education and social class. To test this we estimated two models with interaction effects between social class and nationality and education and nationality. The model has been specified as before. To simplify the interpretation of the results we aggregate the national minority status variable into three categories: 1) Swiss; 2) foreigners from neighbouring countries; 3) foreigners from other than neighbouring countries.

[9] The odds ratios have been obtained using the formula: [exp(β)-1]*100

Table 6: Logit model results for the effect of educational level, social class and type of employment on attrition probability. Age, gender, number of contacts attempts, wave, household size, Type of contract, education, industry, occupation. Data: LFS (Panel samples), 2001-2002. Sig. Levels: * p<0.05, ** p<0.01.

Moderation Hypothesis: Education			Moderation Hypothesis: Social Class		
	β	σ(β)		β	σ(β)
National groups			*National groups*		
Swiss (Ref.)	0.000	0.000	Swiss (Ref.)	0.000	0.000
Neighbouring country	-0.024	0.143	Neighbouring country	0.235	0.157
Other country	0.660***	0.135	Other country	0.354	0.192
Education			*Social Class*		
Secondary I (Ref.)	0.000	0.000	Higher non manual (Ref.)	0.000	0.000
Secondary II	-0.099	0.058	Lower non manual	-0.001	0.074
Tertiary	-0.202*	0.08	Manual	-0.034	0.079
			Not Active or Unemployed	0.095	0.074
Interaction effects:					
Education*Nationality			Social class*Nationality		
Upper secondary*neighbouring	0.182	0.194	Lower non manual * neighbouring	-0.195	0.273
Tertiary*neighbouring	0.376	0.226	Neighbouring * Manual	0.052	0.228
Upper secondary* Not neighbouring	-0.503*	0.202	Neighbouring * NAorUnempl	-0.338	0.219
Tertiary* Not neighbouring	-0.039	0.232	Not neighbouring * Lower non manual	0.07	0.264
			Not neighbouring * Manual	0.431	0.248
			Not neighbouring * NAorUnempl	-0.199	0.257
N	16308		N	16308	
Pseudo R2	0.036		Pseudo R2	0.035	

Considering education, while the Swiss or those from neighbouring countries with elementary/lower secondary educational levels exhibit a similar level of attrition, foreigners from other than neighbouring countries with elementary/lower secondary degree have a significantly higher attrition.

Considering national minorities with upper secondary degrees, the difference decreases by 39.3%, indicating a moderating effect of education. The effect of education is similar for respondents with tertiary levels but not significant, owed to the small sample size. The model therefore shows that the more excluded are not only those from non-neighbouring countries but especially the lower educated among this group. As for the social class dimension of social exclusion, the model confirms the bivariate analysis bias above: the absence of significant interaction effects between social class and national minority status.

6. Conclusions

The present paper investigates the representation of national minorities in social surveys in Switzerland. We distinguish between non-response in cross-sectional surveys, and attrition in panel surveys.

The paper focuses on two aspects related to the differences of under-representation of national minorities: the heterogeneity of the countries of origin and the inter-relation with socio-demographic variables. Switzerland represents an interesting case because of the high heterogeneity of its national minority population and the availability of the variables education, social class, and gender in the census. We expected these variables to have moderating effects of under-representation of special foreigner groups.

From the results, two main conclusions can be drawn. First, *the heterogeneity of national minority populations cannot be adequately analysed using one single foreigner* category only. National minorities exhibit different degrees of non-response and attrition, and probably have different reasons for non-response and attrition (contact and cooperation). Second, we find *a large under-representation of those national minorities that are more subject to exclusion*, like Former-Yugoslavs, Albanians, and generally those from non-neighbouring countries. The analyses indicate that while neither gender nor social class are able to explain under-representation of national minorities, education seems to have a larger impact. Under-representation is high for the lowest educated of all categories of national minorities. These results hold for both longitudinal (attrition) and cross-sectional representation. Generally, it seems that Swiss social surveys tend to under-represent the more marginal categories.

The *mediation hypothesis* must be *rejected*. In fact, in both *the cross-sectional and the attrition analyses national minorities especially from non-neighbouring countries tend to be present to a smaller extent than natives even after controlling for education*. As for the *moderation hypothesis,* we find that under-representation is higher for the lower-educated foreigners from more “distant” countries. The most underrepresented are thus not foreigners in general but the lowest educated among them. We wonder about the social mechanisms that cause these evidences. The weak effects of social class suggest that under-representation is not only induced by “economic factors”. Rather, the importance of education and nationality indicate that survey inclusion is inversely related to the “proximity” to the “core” of the society.

Among the factors determining under-representation of foreigners there could be different explanations:

Insufficient language competences are undoubtedly one barrier to participation (Ngo-Metzger et al. 2004). In the ESS, language problems are mentioned by about 3% of the sample members. In

addition, refusal of the respondent might come from a feeling of incompetence or lack of interest because of being a “foreigner”. This is not only related to language skills but also to general knowledge of the local context. Both being unable and not being interested to answering survey questions are important elements of participation. Last but not least, also the interviewer may play a role. It would probably make sense to look at the interactions between interviewers and respondents Does the interviewer draw interest in the survey, e.g., by tailoring the survey request to the respondent (Groves and Couper 1998)? For reasons of cost-benefit calculations (usually the interviewer is paid by completed interview), interviewers assess if sample members are “worth” the effort. A smaller investment is made if the assumed probability of participation is lower, and non-participation would be less damaging because of an anticipated less pleasant interview.

The consequences of representing only a part of the target population are mainly three: *first,* surveys concentrate on prototypical citizens with boundaries defined by the nation-state (Spot-lighting effect); *second,* surveys produce a division between different nationality groups (Contrasting effect), which blurs the differences between and within national minorities. This has consequences not only on social indicators that are estimated from such data which exclude parts of the population particularly exposed to social exclusion, but also how societies are considered.

In future research we will make use of the fact that the samples for both the ESS 2010 and the 2011 Swiss part of the International Social Survey Program (ISSP) are drawn from the new nationally harmonized individual register. Besides virtually complete coverage of the population, the register includes information on the nationality of each sample member, amongst others. In addition, call data of the ESS 2010 and the Swiss ISSP 2011 will allow distinguishing the two main reasons for non-response, non-contacts and non-cooperation. As a consequence, we will be able to analyze non-contact and non-cooperation behavior for sample members of known nationality. This will show in more detail which national minority groups are more difficult to contact, and which are more difficult to convince to participate in surveys.

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8. Appendix: characteristics of the surveys used in the analysis.

Survey Characteristic	CH Census 2000	SHP	ESS	LFS
Population	Residents in CH	Residents - institutionalised Population (e.g., jail, hospital, old age home, in military service)	Residents - institutionalised	Permanent Residents - institutionalised
Lower/upper age limit		14 / (unlimited)	15 / (unlimited)	15 / (unlimited)
Sampling Frame	(registers of CH-communes)	SRH - CH Telephone register	CH Telephone register (2002, 2004, 2006), building register of Swiss Post (2008)	LFS Standard: SRH - CH Telephone register LFS Foreigners: Central Foreigner Register
… this excludes		those without listed phone numbers	those without listed phone numbers (2002, 2004, 2006)	LFS standard: those without listed phone number
Languages covered (Questionnaire available)		3 national Languages	3 national languages	3 National Languages + English, Serbo-Croat, Albanian (from 2003) + Portuguese and Turkish (from 2005)
… this excludes		those not able to answer in D, F, I over the Phone	those not able to answer in D, F, I in f2f*	those not able to answer in available languages.
Survey Period(s)		yearly, since 1999	bi-annually since 2002	yearly since 1991
Sample Size (Individuals)		7799 (in 1999) + 3645 (refreshment Sample in 2004)	About 3500-4000 in each round	LFS Standard: from 1991 to 1994:16000-18000; from 1995 to 2001: 33000; from 2002 to 2008: 40000 - Reduction of Standard sample in the period 2003-2006. Standard sample stable afterwards. LFS Foreigners from 2003-2008: 15000 immigrants)
Stratification		Large Regions in CH (N=7)	Large Regions	Cantons
Design weights: Units		Households (cross-sectional) and Individuals (cross-sectional + longitudinal)	Individuals (2 steps)	Households (cross-sectional) and Individuals (cross-sectional + longitudinal)
Variables used to construct cross-sectional **Weights**		Agegroups - Sex - Civil Status, Nationality (binary: CH / non-CH)	Only inclusion probability	SLFS Standard: Civil Status – Nationality - Sex - Region - Agegroups SLFS Foreigners: Nationality, Years since living in CH
Contact / Survey Mode(s)		Telephone	Telephone (mostly used mode in 2002) / f2f (after 2002)	SLFS Standard: Telephone; SLFS Foreigners: Interview in English, Serbo-Croat and Albanian - Interview face to face after contact by telephone
Longitudinal Component		Pure Panel (everybody is tried to be interviewed in each Year - indefinite Duration)	no	Rotating Panel (Everybody is tried to be interviewed for five years)
Non-response information		no	2006 non-response survey	no