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Which socio-economic comparison groups do individuals choose and why?

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ABSTRACT

Socio-economic comparison among individuals is the process by which individuals assess their own socio-economic position in relation to others. In this study we identify which are the most salient groups in socio-economic comparisons among individuals, clarify the role of individual-level characteristics in the selection of specific comparison groups, and test if contextual factors explain variation in individuals' choices regarding their socio-economic comparison groups. We utilise a unique data-set that allows the choice of socio-economic comparison groups in 34 countries in Central, Southern and Eastern Europe and Central Asia to be investigated. The results indicate that individuals make socio-comparisons not only with close groups, such as friends and neighbours, but also within their own families, cross-nationally, and over time. Multilevel and multivariable and analyses suggest that individuals' demographic and socio-economic characteristics and the extent of their social trust are significantly linked with the selection of specific comparison groups. We also find that the distance from the city of Frankfurt in Germany of countries where individuals live is an important factor in why people compare their own socio-economic position with those who live in Western Europe.

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Introduction

The process of comparing one or more other people in relation to oneself is referred to as social comparison (Wood 1996). We know that individuals

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have an innate tendency to compare with others by, among other characteristics, their socio-economic position, but they also differ according to the nature of these comparisons. Social science research investigating the nature of socio-economic comparisons has typically focused on individuals' general comparisons with others in a society (Ostrove *et al.* 2000), but the evidence from social psychology suggests that people are likely to compare their conditions to more specific groups of individuals with whom they have different types of connections (Wolff 2010). According to the reference group theory, the benchmark in such comparisons could be either a group with whom individuals have actual relationships or a group without any actual contacts (Boudon 1991). These groups of others may consist of their family members, friends, neighbours or co-workers (Alderson and Katz-Gerro 2016). Existing research also suggests that the choice of reference groups in socio-economic comparisons is not a random process but depends on an individual's socio-demographic, socio-economic and other personal characteristics (Suls and Wheeler 2000).

Scholarly inquiry into the nature of socio-economic comparisons in a society is not motivated only by pure academic interest. The relevance of socio-economic comparison groups has been shown in public health and social epidemiology research. For instance, a study of the Melbourne metropolitan region in Australia revealed that respondents' subjective comparison with 'others in your local area' was associated with the higher prevalence of smoking (Siahpush *et al.* 2006). A study from Canada showed that subjective socio-economic status in comparison to 'other Canadians' was significantly associated with self-reported health (Dunn *et al.* 2006). Another study from the United States found that socio-economic comparison with 'others in American society' had a stronger association with self-reported health than comparison with other reference groups (Wolff 2010). Further, it has been shown that in Eastern European and Eurasian societies, those men who compared themselves with their parents and their own families before the start of the post-communist transition were less likely to report good health (Gugushvili, Jarosz *et al.* 2019). A recent meta-analysis in health psychology suggests that having low status in comparison to immediate others may manifest in negative health-related behaviours, such as smoking, and worse physical health, such as cardiovascular morbidity and diabetes (Zell *et al.* 2018).

Researchers in economics have also conducted studies to estimate the effect of having specific socio-economic comparison groups on individuals' subjective wellbeing and redistribution preferences. It was shown, for example, that people in rural china confined their reference groups

to the village they lived in and this type of socio-economic comparison was important for their levels of happiness (Knight *et al.* 2009). Research using data for post-communist countries provided evidence that comparison with high school mates, work colleagues, parents, and own households' socio-economic situation before the start of the post-communist transition had a significant effect on individuals' subjective wellbeing (Senik 2009). In addition, socio-economic comparisons are also linked to a greater demand for income redistribution by the state and this effect was stronger for those who selected family members as their main comparison group (Clark and Senik 2010).

The above-described and other related studies have almost exclusively looked at the consequences of having specific socio-economic comparison groups, while, from a sociological perspective, little is known about which comparison groups individuals are more likely to select and why. Therefore, the current study intends to shed more light on the following research questions: we first identify which are the most salient groups for socio-economic comparison among individuals in nationally representative probability samples across a large number of societies; secondly, we clarify the role of socio-demographic and socio-economic characteristics in individuals' selection of specific comparison groups; and thirdly, we reveal if, in addition to individual-level characteristics, macro-level contextual factors explain variation in individuals' preferences across countries. Although Clark and Senik (2010) have already explored factors associated with the selection of comparison groups, their study is based only on income comparison and excludes other important aspects of economic welfare such as wealth, is limited to only four predefined cross-sectional and within country comparison groups, considers a smaller number of explanatory variables in significantly fewer countries than our study, and does not investigate the macro-level determinants of the preferred socio-economic reference groups. In turn, the large number of countries included in a unique data-set we use permits studding the importance of the contextual environment in which individuals live for their preferences for specific socio-economic comparison groups.

Theoretical framework

Reference group types in socio-economic comparisons

Among possible socio-economic comparison groups, the first to consider are family members with whom individuals have the closest links.

Individuals are likely to compare their current socio-economic position to that which was ascribed to them due to their family circumstances at the time of their birth and during their childhood. This type of comparison is probably reinforced through processes described by the theory of relative risk aversion (Breen and Goldthorpe 1997), which assumes that families seek to ensure via various channels that their children acquire a socio-economic position in the social hierarchy at least as advantageous as that from which they originate. In other words, families seek to avoid intergenerational downward mobility. In this process, they view educational qualifications as investment goods, and families' main concern is that their children should obtain qualifications sufficient to preserve intergenerational stability in respect of socio-economic position (Goldthorpe 2010). Despite these parental intentions, research suggests that the substantive proportion of individuals is intergenerationally downwardly mobile – the process known as 'falling from grace' (Gugushvili, Zhao *et al.* 2019; Bukodi *et al.* 2020). Furthermore, according to social learning theory, children are consistently and positively reinforced when they learn to be like their fathers and mothers and imitate their behaviours (Bandura 1977). These various mechanisms suggest that individuals are likely to make socio-economic comparisons with their parents.

Beyond their own families, other important dimensions of socio-economic comparison are those groups which individuals know and have personal communications with, such as their friends and neighbours. These explicit comparison benchmarks seem more realistic than the type of comparison which is often assumed in the empirical research on relative deprivation (Cojocaru 2016). These studies usually imply that the comparison with all other members of a society has a detrimental effect on individuals' wellbeing (Pickett and Wilkinson 2015). Further, friends and neighbours can be considered as a more valid socio-economic comparison group than people from individuals' professional networks. For instance, let us consider an example of a senior judge in a country whose social network consists of other senior lawyers in their city or even in the entire country; however, this does not mean that this network would be an accurate representation of their socio-economic reference group. It is much more likely that the described judge's reference groups would comprise some judges, law professors or professionally elite non-lawyers with whom they maintain friendships, interact with, or live in the same prosperous neighbourhood (Chan and Goldthorpe 2004; Pham-Kanter 2009).

For less affluent individuals belonging to the middle class, social comparison theory suggests that they are likely to compare themselves with those in more advantaged positions (Gerber *et al.* 2018). Many individuals engage in upward comparison to improve their perceptions of self or to create more positive perceptions of their present environment (Suls *et al.* 2002). Moreover, while the described modes of comparison exclusively refer to within country reference groups, it is increasingly likely that, due to the rapid surge of cross-country links, internet, mass media, and other advances in communication technologies, individuals living in their home countries have become progressively more aware of the economic wellbeing in foreign, especially neighbouring, countries (Mooney and Evans 2007). This is why it is likely that individuals might chose to compare their own economic situation with that of foreigners in other countries. An illustrative example is the enlargement of the European Union when some individuals in the new member states began to contrast their own welfare with that of the residents of the older member states (Whelan and Maitre 2010). Another study showed that individuals' welfare across European countries had an independent association with the level of income in the neighbouring countries suggesting that other countries could potentially be an important reference group in socio-economic comparisons (Becchetti *et al.* 2013).

Some individuals may prefer to make comparisons across time by considering their own selves or others in the past or in the future (Reh *et al.* 2018). In other words, selection of a socio-economic benchmark can theoretically take place in relation to time (Benabou and Ok 2001; Knight *et al.* 2009). This can be particularly relevant in countries that have experienced major political and social transformations in Central and Eastern Europe. It is known that many individuals in these countries express nostalgia for the failed communist past, which could then serve also as a reference point for socio-economic comparisons (Ådnanes 2007; Bartmanski 2011). The importance of socio-economic comparison across time is also implicated in Hirschman and Rothschild's (1973) 'tunnel effect' thesis, which suggests that, when assessing their relative standing, individuals are likely to make temporal socio-economic comparisons (Gugushvili 2020).

Individual-level characteristics and the selection of comparison groups

In this section, we discuss our expectations related to individual-level variables which are potentially related to the selection of socio-economic

comparison groups (Suls and Wheeler 2000). Firstly, systematic inequalities between men and women are obvious in terms of labour market outcomes and other aspects of life (Dema-Moreno and Díaz-Martínez 2010), and these can also be manifest in different preferences in the selection of socio-economic comparison groups. For instance, if men are paid more than women, then men are likely to compare themselves to more advantaged socio-economic groups. In addition, psychological differences between men and women, which, according to feminist theorists, are primarily due to gender-specific socialisation during childhood and adolescence (Gilligan 1993), can affect gender inequalities and types of socio-economic comparisons in adult life. The mode of socio-economic comparison is also likely to be shaped by personal relationships, marital status and the levels of social trust which individuals have in other people (Rözer and Volker 2016).

Individuals' age is a potentially important dimension affecting modes of socio-economic comparison. According to the life-span theory of control (Schulz and Heckhausen 1996), as individuals become older they have lower capacity to manage the environment and therefore motives for comparison, such as self-enhancement through reference groups, become stronger (Cheng *et al.* 2007). Different life course stages are associated with individuals changing their social environment, which also affects their socio-economic comparison groups. For example, a friendship network decreases in size throughout adulthood, and the role of a work-related network (including co-workers and supervisors) is particularly important in the attainment of a stable job, while the family network remains largely unaffected from adolescence to old age (Wrzus 2013).

Another important aspect for socio-economic comparison can be the type of residence where individuals live. Those who are settled in urban areas are better interconnected with various social groups and have more opportunity for socio-economic comparisons (Gayen and Raeside 2007), while people in rural settlements tend to be more concerned about threats from outgroups and are more inwardly oriented (Burger 2006). In addition to spatial location, individuals' educational attainment has been shown to be associated with a higher likelihood of socio-economic comparison, as education increases individuals' structural opportunities to compare with others (Clark and Senik 2010). Socio-economic position and labour market status can be significant factors in the selection of socio-economic comparison groups. Some studies suggest that those who have lived in poverty do not want to be associated with material

deprivation and morally condemn 'the poor' (Shildrick and MacDonald 2013). It is also important to consider the perception of the situation, as opposed to the real material conditions, which may affect preferences for specific socio-economic comparisons more strongly than objective material deprivation (Pfeifer 2009).

Lastly, considering the importance of families in socio-economic comparisons, awareness of experiencing downward or upward intergenerational mobility can also be important in the selection of reference groups. Subjective perception of intergenerational mobility is a sociologically important topic of research because of the growing realisation of the consequences of social mobility on individuals' attitudes, health-related behaviours and wellbeing (Chan 2018; Gugushvili, McKee *et al.* 2019; Jaime-Castillo and Marqués-Perales 2019). To conclude, we do not formulate specific hypotheses on the role of social mobility, or any other individual-level characteristics, in socio-economic comparisons, largely because it is one of the first large scale investigations of its kind which intends to identify salient aspects of this phenomenon to be scrutinised in future research.

Does country context matter?

After outlining the potential roles of individual-level factors, it is also important to describe whether or not the contextual environment in which individuals live matters for selection of socio-economic comparison groups. Previous research has investigated the moderating effect of country-level characteristics on the links between social comparison orientation and self-reported health (Präg *et al.* 2014), but it is unknown if country differences and macro-level factors also play a role in individuals' selection of socio-economic comparison groups.

Probably the most salient contextual factor differentiating countries from each other is their level of modernisation. Economic development, which is often taken as a proxy for modernisation, is associated with major societal changes, such as new types of family relationships, reshuffling of occupational structure, emergence of elites, and rising expectations of further economic development (Harrison 2003). These transformations are also likely to change the salience of specific groups in socio-economic comparisons due to their effects on temporal, spatial and social relations in a society. Further, income inequality on a macro-level has been shown to be associated with the extent of socio-economic comparison. For instance, multilevel analysis of 1.7 million individuals in the United

States has shown that, when income inequality was high, people were more likely to compare their income to that of their neighbours' (Cheung and Lucas 2016).

Lastly, for those who make comparisons of their socio-economic position with individuals in different countries, probably one of the main factors is cultural and geographic similarities between them. The recently created transnational human mobility on a global scale data-set suggests that individuals in Europe predominantly travel and migrate to neighbouring countries (Recchi *et al.* 2019). This would also imply that the distance between countries would be an important aspect of selecting individuals in neighbouring countries as their socio-economic comparison groups. However, before investigating the role of geography and other contextual factors, we elaborate on which socio-economic groups are most popular and how individual-level characteristics explain these preferences.

Research design

Data-set

The present study analyses data from the third wave of Life in Transition Survey (LITS), collected by the European Bank for Reconstruction and Development (EBRD) (EBRD 2016) at the end of 2015 and the beginning of 2016 in four Southern European countries – Cyprus, Greece, Italy and Turkey – and in the following 30 post-communist countries: Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Estonia, North Macedonia, Georgia, Germany (including the former communist eastern part of the country), Hungary, Kazakhstan, Kosovo, the Kyrgyz Republic, Latvia, Lithuania, Moldova, Mongolia, Montenegro, Poland, Romania, Russia, Serbia, Slovakia, Slovenia, Tajikistan, Ukraine and Uzbekistan. LITS III is a nationally representative data-set which has been previously used in comparative social research (Gugushvili 2019; Gugushvili and Jarosz 2019; Gugushvili, Reeves *et al.* 2020; Jarosz and Gugushvili 2019). The original sample size and the detailed profiles of respondents by country gender, and age are given in online supplementary materials, Table S1.

After list-wise deletion of missing information and censoring of observations below and above a working age of 25-64, 34,703 individuals are available for our analysis. One of the reasons why we restrict the sample to the working age population is that the available answer options on

the survey question which asks individuals about their socio-economic comparison groups excludes co-workers. Limiting the sample to those aged 25–64 mitigates this problem as participants are structurally in the similar position to make an informed selection of their main socio-economic comparison groups. In online supplementary materials, Table S2, however, we also present the output from regression models without age restrictions. The latter results are substantively similar to those reported in the main analysis, but they also suggest that in the uncensored sample individuals' age has a stronger effect on not selecting any socio-economic comparison group.

Dependent variable: reference group in socio-economic comparisons

LITS 2016 wave explicitly asks respondents about their main reference group in socio-economic comparisons with the following survey question: 'when thinking of your current economic situation, which of these is most likely to be your benchmark?' In each country, respondents had the following four answer categories to choose from: 'how your parents lived at your age'; 'how your friends and neighbours live'; 'how the domestic elite lives'; and 'how people live in Western Europe'. Respondents could also select 'no comparison group'. In addition to these options, in post-communist countries two further answer categories were available: 'how you/your family lived before 1989/1991'; and 'how people live in neighbouring ex-communist countries'.

Independent variables: individual-level explanations

We accounted for respondents' gender in our analysis. Age was analysed with the categorical variable of eight age groups of five years each, which also served as a cohort variable because of the cross-sectional nature of the data. Among various marital statuses, we differentiated between single, married, widowed and divorced individuals. Settlement type differentiated between rural and urban residents. The educational level of respondents was given by the 1997 version of the international standard classification of education (ISCED), from which we created categorical variable for individuals with primary, secondary and tertiary education. LITS III does not include detailed information on labour market characteristics, yet it allowed differentiation between those who were employed, unemployed, or out of the labour market.

For the role of material deprivation, we used the number of the following items that respondents' households wanted to have but could not afford: telephone, colour TV set, computer, washing machine, car, bicycle and motorcycle. As for subjective socio-economic position, respondents were asked to place their households on a ten-step ladder, with 1 representing a country's poorest 10% of people, and 10 representing the richest 10%. For subjective social mobility, LITS III asked respondents whether they agreed or disagreed with the following statement: 'I have done better in life than my parents'. From a five-point Likert scale, respondents chose 'strongly disagree,' 'disagree,' 'neither disagree nor agree,' 'agree' or 'strongly agree'. We transformed the answers to this question into three categorical variables: strongly disagree and disagree = downwardly mobile, neither disagree nor agree = immobile, agree and strongly agree = upwardly mobile (Gugushvili 2016).

The selection of socio-economic comparison groups among individuals could also be affected by how much trust they had in others. The following question was used: 'generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?' We created a variable with four categories: (1) those who thought people could be trusted; (2) those who neither trusted nor distrusted; (3) those who thought people could not be trusted; (4) and those who thought it was difficult to say.

Independent variables: macro-level factors

To test how economic development was associated with the selection of specific socio-economic comparison groups, we used GDP per capita based on purchasing power parity (PPP). Data were in constant 2011 international dollars and were derived from the World Bank's (2017) World Development Indicators (WDI) database. The descriptive statistics for GDP PPP per capita indicate that the analysed countries were very different in their levels of economic development with a mean value of USD 19,098 and standard deviation of USD 10,107.

For income inequality, we used the Standardised World Income Inequality Database (SWIID). The SWIID standardises the United Nations University's World Income Inequality Database using a custom missing data algorithm (Solt 2016). We used net Gini coefficients that show how real disposable incomes were distributed in these societies in 2016 (or in the closest year for which data were available). The descriptive statistics indicated that the mean Gini coefficient was equal to 33.1 (SD

5.2). As some scholars question the validity of the multiple imputation procedure used to generate the SWIID database (Jenkins 2015), in online supplementary materials, Table S3, we also use Gini coefficients from the actual World Income Inequality Database (UNU-WIDER 2019).

For the spatial distance variable, we calculated flight distance from the capital cities of the respective countries to the German city of Frankfurt, which can roughly be considered as the economic centre of Western Europe (Distance measurement 2019). The average measured distance was 1,962 kilometres (SD 1,518). Tables S4 and S5 in online supplementary materials show the descriptive statistics of all individual- and contextual-level explanatory variables.

Statistical analyses

To test individual-level associations between described characteristics and selection of reference groups, and to simultaneously observe if contextual variables explain cross-country variation in the outcome variable, we employed a multilevel statistical approach. This approach combines individuals from separate countries and assumes that observations within these countries show stronger similarity than those between countries (Bryan and Jenkins 2016). Mixed-effects models allow testing for, on the one hand, how observations grouped in countries explain variance in the dependent variable and, on the other hand, how specific characteristics of those countries are related to the dependent variable. Although there is no consensus on a minimum number of groups required for multilevel analysis, having 30 clusters is considered as sufficient to utilise the multilevel research framework.

We separately constructed seven binary dependent variables that took a value of 1 if respondents selected parents, time before 1989, friends and neighbours, domestic elites, people living in other post-communist countries, people living in Western countries, and having no reference groups, when asked about their socio-economic comparison groups. For each comparison group, we fitted a multilevel logistic regression model, which allowed accounting for macro-level contextual variables at the country-level, and adjusted estimates for a heterogeneous error term distribution by nesting individuals in their respective countries. We do not use multilevel multinomial regression models in the main analysis due to substantive and interpretive concerns as we are interested in variables associated with the selection of a specific socio-economic comparison group out of all alternatives and not how selection of one comparison

group contrasts with a pre-defined base category. In online supplementary materials though, Tables S6 and S7, we present results from multinomial logistic regressions.

For individuals living in Southern European countries, which have different dependent variables, we fitted multivariable logistic regressions with country fixed effects and also estimated country-specific characteristics by generating post-estimation predicted probabilities. For a further robustness check, we also fitted multilevel and multivariable linear probability models, Tables S8 and S9, in online supplementary materials.

Results

Description of socio-economic comparison groups

Figure 1 shows the treemap chart of the preferred socio-economic comparison groups in post-communist and Southern European societies. We must be cautious with directly comparing answer distributions between these two samples because individuals in Southern European countries have fewer reference groups to choose from. Nonetheless, in both sets of countries, friends and neighbours were the most prevalent answer option with, respectively, 34% and 43% of individuals declaring this socio-economic group for comparison. The next most popular answer options in post-communist countries were parents and individuals living in Western European societies, while in Southern European countries the share for parents was higher, even after rescaling this answer option by removing two additional categories in post-communist countries (100-13-3 = 84) and then dividing 24% by 0.84 = 19%.

In post-communist countries, about 13% of individuals selected the period before the start of the transition as their benchmark, while in Southern Europe about one in five individuals compared themselves

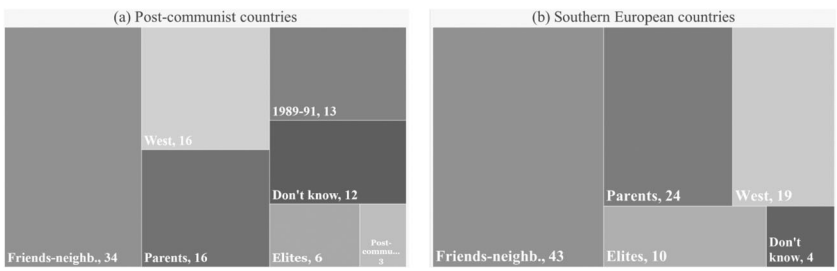

Figure 1. Patterns of socio-economic comparison groups, %. Source: LITS III (EBRD 2016).

with those in Western Europe. Comparing with elites was slightly more popular in Southern Europe than in post-communist countries even when this answer option was rescaled. Comparing with other post-communist countries was the least popular reference group. Lastly, having no comparison group was more than three times more prevalent in post-communist than in Southern European countries, yet even this share was considerably lower compared to the European Social Survey (ESS) data from 18 European countries where about a third of respondents declared that they did not compare own income to any particular group (Clark and Senik 2010).

Multivariable analyses

Bivariate associations between individual-level independent variables and reference groups for socio-economic comparison are shown in Table S5 in online supplementary materials. Tables 1 and 2, in turn, present odds ratios of selecting specific reference groups in socio-economic comparisons from multilevel mixed-effects and multivariable logistic regressions. Respondents' age turned out to be one of the main explanations of the selection of specific comparison groups in post-communist countries. Individuals in every age category above 29 were more likely to compare with their own, or their families' socio-economic wellbeing before the collapse of the Berlin Wall. For instance, individuals aged 60–64 were 2.5 ($p < 0.001$) times more likely to select this category of socio-economic comparison than individuals aged 25–29. On the other hand, individuals aged 45 and above were much less likely to have neighbours and friends as their primary reference group. Older individuals were generally also less likely to compare with people living in the Western European countries.

The only significant associations which we observed for gender was that men were slightly less likely to compare with their parents and 1.25 ($p < 0.01$) times more likely to select the option of comparing with residents of other post-communist countries. Although no systemic associations were observed in terms of individuals' marital status, divorced people were less likely to compare their situation with that of their own parents. The type of settlement mattered in both post-communist and Southern European contexts. Those who lived in urban areas were more likely to compare their socio-economic condition with friends and neighbours and more likely to declare having a reference group or to compare with people living in Western Europe. Further, in post-communist countries, urban residents were also less likely to compare with other post-communist

Table 1. Individual-level variables' odds ratios of selecting specific reference groups in socio-economic comparisons from multilevel mixed-effects logistic regressions in post-communist countries.

	Model 1 Parents	Model 2 1989	Model 3 Friends and neighbours	Model 4 Domestic elites	Model 5 Post-communist	Model 6 Western Europe	Model 7 No reference group
Intercept	0.27 (0.03)***	0.11 (0.01)***	0.42 (0.06)***	0.03 (0.01)***	0.02 (0.00)***	0.08 (0.02)***	0.23 (0.04)***
Male	0.93 (0.03)*	1.01 (0.04)	1.00 (0.03)	1.08 (0.06)	1.26 (0.09)***	0.95 (0.03)	1.04 (0.04)
Age groups (ref. 25–29)							
30–34	1.01 (0.06)	1.20 (0.10)*	1.01 (0.05)	1.00 (0.10)	0.89 (0.13)	0.85 (0.05)*	1.08 (0.09)
35–39	1.01 (0.06)	1.35 (0.11)***	0.89 (0.05)*	1.00 (0.10)	1.06 (0.15)	0.93 (0.06)	1.08 (0.09)
40–44	0.97 (0.06)	1.61 (0.13)***	0.93 (0.05)	0.95 (0.10)	1.27 (0.18)	0.78 (0.05)***	1.05 (0.09)
45–49	0.95 (0.06)	1.93 (0.16)***	0.84 (0.04)**	1.09 (0.11)	1.38 (0.19)*	0.77 (0.05)***	0.99 (0.08)
50–54	0.91 (0.06)	2.02 (0.16)***	0.81 (0.04)***	1.05 (0.11)	1.50 (0.21)**	0.74 (0.05)***	1.17 (0.10)
55–59	0.91 (0.06)	2.35 (0.18)***	0.80 (0.04)***	1.04 (0.11)	1.16 (0.17)	0.63 (0.04)***	1.22 (0.10)*
60–64	0.93 (0.07)	2.52 (0.21)***	0.80 (0.05)***	0.88 (0.10)	1.24 (0.19)	0.58 (0.05)***	1.22 (0.11) *
Marital status (ref. single)							
Married	0.94 (0.05)	1.12 (0.06)	1.06 (0.04)	0.94 (0.07)	0.92 (0.10)	1.07 (0.05)	0.85 (0.05)**
Widowed	0.92 (0.07)	1.17 (0.10)	0.99 (0.06)	0.92 (0.12)	1.03 (0.17)	0.96 (0.09)	0.97 (0.09)
Divorced	0.85 (0.06)*	1.15 (0.08)	1.01 (0.05)	0.89 (0.10)	1.06 (0.15)	1.11 (0.08)	0.96 (0.08)
Education (ref. primary)							
Secondary	0.93 (0.04)	0.98 (0.05)	0.97 (0.03)	1.01 (0.07)	1.00 (0.10)	1.24 (0.06)***	0.88 (0.05)*
Tertiary	0.87 (0.05)**	0.86 (0.05)*	0.93 (0.04)	1.27 (0.10)**	1.12 (0.13)	1.45 (0.08)***	0.79 (0.05)***
Urban settlement	1.07 (0.04)	1.02 (0.04)	1.11 (0.03)***	1.04 (0.05)	0.81 (0.06)**	0.92 (0.03)*	0.83 (0.03)***
Labour market (ref. never worked)							
Unemployed	0.77 (0.04)***	1.13 (0.06)*	1.21 (0.05)***	0.85 (0.07)	1.07 (0.13)	1.20 (0.08)**	0.73 (0.05)***
Working	0.80 (0.04)***	0.89 (0.05)*	1.15 (0.04)***	0.86 (0.06)*	1.08 (0.11)	1.58 (0.09)***	0.74 (0.04)***
Material deprivation (ref. 0 items)							
1–2 items deprived	0.99 (0.04)	1.09 (0.05)*	1.05 (0.04)	0.87 (0.06)*	1.02 (0.09)	1.01 (0.05)	0.90 (0.05)*
3–4 items deprived	1.10 (0.06)	1.09 (0.06)	0.96 (0.04)	1.07 (0.09)	0.98 (0.11)	0.75 (0.05)***	1.05 (0.07)
5–7 items deprived	1.04 (0.09)	1.07 (0.10)	0.81 (0.06)**	1.00 (0.15)	1.04 (0.19)	0.75 (0.10)*	1.36 (0.13)**
Subjective social ladder	1.00 (0.01)	0.92 (0.01)***	1.02 (0.01)**	1.13 (0.02)***	1.01 (0.02)	1.04 (0.01)***	0.93 (0.01)***
Subjective mobility (ref. immobile)							
Downward	1.20 (0.05)***	1.34 (0.07)***	0.77 (0.03)***	1.17 (0.08)*	0.97 (0.09)	0.92 (0.04)	1.01 (0.06)
Upward	0.91 (0.04)*	1.16 (0.06)**	0.97 (0.03)	1.13 (0.07)	0.91 (0.08)	1.03 (0.04)	0.98 (0.05)
Social trust (ref. distrust)							

Neither trust nor distrust	0.91 (0.04)*	0.86 (0.04)***	1.20 (0.04)***	1.17 (0.07)**	1.04 (0.09)	1.00 (0.04)	0.81 (0.04)***
Trust	0.92 (0.04)	0.89 (0.04)**	1.24 (0.04)***	1.13 (0.07)	1.07 (0.09)	0.93 (0.04)	0.77 (0.04)***
Difficult to say	0.59 (0.06)***	0.56 (0.07)***	0.69 (0.05)***	0.97 (0.14)	0.94 (0.19)	0.91 (0.09)	4.19 (0.34)***
Random intercept	1.16 (0.05)***	1.24 (0.07)***	1.42 (0.13)***	1.55 (0.19)***	1.27 (0.09)**	8.25 (4.68)***	1.65 (0.22)***
Model statistics							
BIC	26200.71	22993.85	37076.89	13366.60	8430.37	23264.81	19055.15
McKelvey & Zavoina's R^2	0.01	0.06	0.01	0.02	0.02	0.03	0.04
Observations/countries	30,536/30	30,536/30	30,536/30	30,536/30	30,536/30	30,536/30	30,536/30

Notes: ***, **, and * denote statistical significance at the 0.001, 0.01, and 0.05 levels, respectively. Robust standard errors are in parentheses. Source: Own calculations based on data from LITS III (EBRD 2016).

Table 2. Individual-level variables' odds ratios of selecting specific reference groups in socio-economic comparisons from multivariable logistic regressions in Southern European countries.

	Model 1 Parents	Model 2 Friends and neighbours	Model 3 Domestic elites	Model 4 Western Europe	Model 5 No reference group
Intercept	0.40 (0.09)***	1.59 (0.32)*	0.02 (0.01)***	0.07 (0.02)***	0.07 (0.04)***
Male	0.96 (0.07)	1.04 (0.07)	1.02 (0.11)	0.99 (0.08)	0.96 (0.16)
Age groups (ref. 25–29)					
30–34	1.00 (0.14)	0.96 (0.12)	0.96 (0.20)	1.08 (0.18)	0.96 (0.41)
35–39	1.06 (0.15)	0.90 (0.11)	1.33 (0.26)	0.90 (0.15)	0.87 (0.38)
40–44	0.89 (0.13)	1.01 (0.13)	1.14 (0.24)	0.98 (0.17)	1.14 (0.48)
45–49	0.89 (0.14)	1.19 (0.16)	0.71 (0.17)	1.03 (0.18)	1.01 (0.44)
50–54	1.09 (0.18)	0.81 (0.12)	0.86 (0.21)	1.06 (0.20)	1.69 (0.70)
55–59	1.12 (0.18)	0.93 (0.14)	0.99 (0.24)	0.83 (0.16)	1.34 (0.55)
60–64	0.65 (0.12)*	1.10 (0.17)	0.89 (0.25)	1.20 (0.24)	1.44 (0.61)
Marital status (ref. single)					
Married	0.88 (0.10)	0.91 (0.09)	0.95 (0.14)	1.22 (0.15)	1.59 (0.44)
Widowed	1.22 (0.28)	1.06 (0.23)	1.18 (0.43)	0.68 (0.20)	0.75 (0.44)
Divorced	0.93 (0.16)	0.93 (0.14)	0.87 (0.22)	1.30 (0.24)	1.17 (0.46)
Education (ref. primary)					
Secondary	0.82 (0.08)*	1.00 (0.08)	1.30 (0.19)	1.13 (0.12)	0.91 (0.19)
Tertiary	0.81 (0.10)	0.78 (0.08)*	1.70 (0.29)**	1.41 (0.18)**	0.79 (0.20)
Urban settlement	1.05 (0.10)	1.23 (0.11)*	1.05 (0.14)	0.81 (0.09)*	0.52 (0.10)***
Labour market (ref. never worked)					
Unemployed	0.80 (0.10)	1.13 (0.13)	1.45 (0.32)	0.84 (0.12)	1.31 (0.43)
Working	0.68 (0.07)***	1.24 (0.12)*	2.15 (0.38)***	0.74 (0.09)*	1.21 (0.37)
Material deprivation (ref. 0 items)					
1–2 items deprived	0.67 (0.08)***	1.33 (0.13)**	0.91 (0.16)	1.08 (0.13)	0.80 (0.25)
3–4 items deprived	0.89 (0.13)	0.90 (0.12)	2.17 (0.43)***	0.80 (0.15)	0.78 (0.58)
5–7 items deprived	2.69 (1.32)*	0.26 (0.15)*	0.79 (0.83)	1.94 (1.06)	1.00 (0.73)
Subjective social ladder	1.03 (0.02)	0.87 (0.02)***	1.04 (0.04)	1.13 (0.03)***	1.11 (0.06)*
Subjective mobility (ref. immobile)					
Downward	1.12 (0.11)	1.14 (0.10)	0.62 (0.09)***	1.00 (0.11)	0.87 (0.20)
Upward	0.84 (0.08)	1.07 (0.09)	0.98 (0.12)	1.08 (0.11)	1.08 (0.22)
Social trust (ref. distrust)					
Neither trust nor distrust	1.36 (0.12)***	0.97 (0.08)	0.93 (0.12)	0.89 (0.09)	0.51 (0.11)**
Trust	1.52 (0.15)***	0.78 (0.07)**	1.05 (0.15)	1.00 (0.11)	0.60 (0.14)*
Difficult to say	0.99 (0.34)	0.59 (0.20)	0.70 (0.31)	1.12 (0.34)	3.41 (1.43)**
Model statistics					
BIC	4720.08	5585.72	2780.94	4044.68	2393.91
McKelvey & Zavoina's R^2	0.05	0.06	0.11	0.06	0.14
Observations/countries	4,167/4	4,167/4	4,167/4	4,167/4	4,167/4

Notes: ***, **, and * denote statistical significance at the 0.001, 0.01, and 0.05 levels, respectively. Country fixed effects are accounted for. Robust standard errors are in parentheses. Source: Own calculations based on data from LITS III (EBRD 2016).

countries than rural residents (OR 0.81, $p < 0.01$). In terms of respondents' educational attainment, a higher level of education in both sets of countries was related to a higher likelihood of comparing with domestic elites and residents of Western Europe. In addition, in post-communist countries, more educated were less likely to compare themselves to their

parents, the situation before the 1989, and to not select any comparison group.

Similarities across the two sets of countries were observed in terms of individuals' labour market status. In comparison to those who were out of labour market, working individuals had lower odds of comparing themselves with their parents and higher odds of comparing with friends and neighbours. The main difference across the two sets of countries was that, in post-communist countries, working individuals compared their conditions with people in Western Europe, while the opposite was true for individuals interviewed in Southern European countries. The most salient association of material deprivation with the selection of a specific reference category was that people with the greatest lack of items indicating deprivation were less likely to compare themselves to individuals living in Western Europe.

In post-communist countries, a higher position on the subjective socio-economic ladder was positively associated with comparing one's own well-being with friends and neighbours, domestic economic elites, and individuals from Western Europe, while it was negatively associated with comparison with the period before 1991 and having no comparison group at all. In Southern European countries, in turn, higher socio-economic status was associated with a lower likelihood comparing with friends and neighbours and a higher likelihood of comparing with people in Western Europe.

Subjective intergenerational mobility had statistically significant links with the selection of specific reference groups. Firstly, in post-communist societies, those who perceived being intergenerationally downwardly mobile were 1.20 ($p < 0.001$) times more likely to select their parents as the main reference group. On the other hand, those who thought they were doing better in life than their parents were 9 ($p < 0.05$) percentage points less likely than immobile individuals to select their parents as the reference group. Subjective downward mobility also had a positive association with the selection of the period prior to 1989 and a negative association with the selection of one's own friends and neighbours as reference categories. Additionally, in post-communist countries, subjective perception of intergenerational downward mobility had a positive association with selecting the time before the collapse of the communist system as the comparison group with an odds ratio of 1.16 ($p < 0.01$).

Lastly, those with a higher level of social trust were less likely to compare their economic situation to their own, or their families' conditions before the collapse of the communist system, but they were more likely to

compare it to that of their friends and neighbours and of the domestic elites. Those individuals who declared that it was difficult to say if people can be trusted were much more likely not to have any reference group.

Analyses of contextual effects

In Figure 2, for post-communist societies, we did not find systematic and significant links between macro-level characteristics and the selection of specific socio-economic comparison groups as the confidence intervals of the estimated coefficients overlap with the horizonal reference line of 1.00. Nonetheless, there are some interesting associations related to economic development and distance from the centre of Western Europe. Individuals in more affluent societies were less likely to compare their socio-economic conditions to the domestic economic elites (OR 0.57, 95% confidence intervals (CI) 0.45, 0.73) and to people who lived in other post-communist countries (OR 0.71, CI 0.59, 0.85). On the other hand, geographic closeness to Europe was associated with greater likelihood of individuals comparing socio-economic status with that of people living in Western European countries. As shown in online supplementary materials, Table S10, the described statistically significant associations are maintained even after applying a Bonferroni correction procedure which involves adjusting the critical significance level of 0.05 by dividing it by the number of statistical tests shown in Figure 2 (Sedgwick 2012).

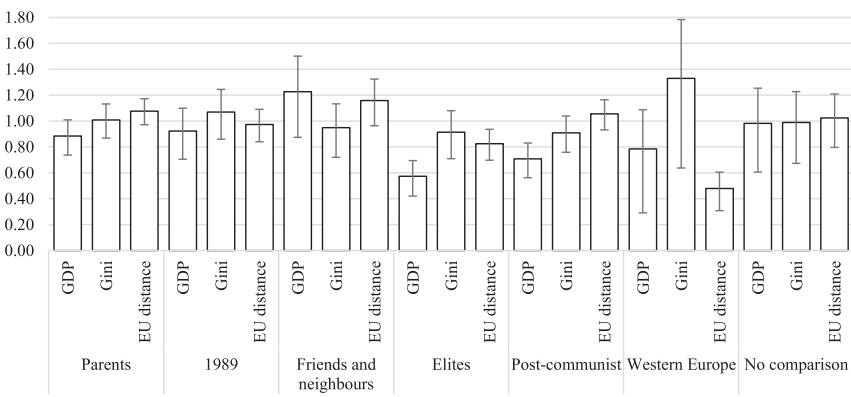

Figure 2. Macro-level variables' odds ratios of selecting specific reference groups in socio-economic comparisons from multilevel mixed-effects logistic regressions in post-communist countries. Notes: Error bars represent 95%. Models account for individual-level variables shown in Table 1. Source: Own calculations based on data from LITS III (EBRD 2016).

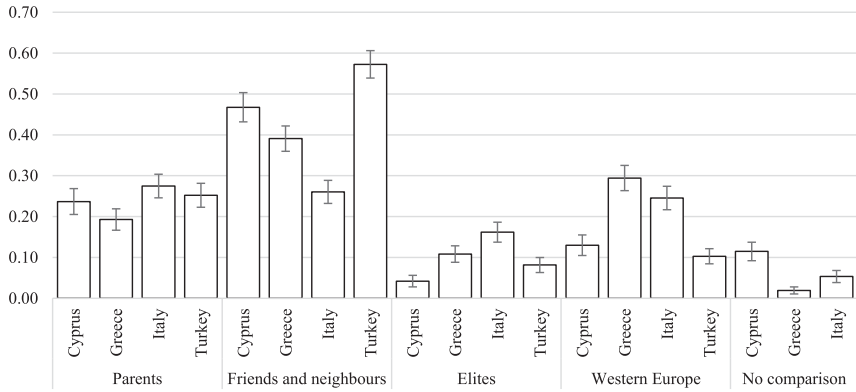

Figure 3. Predicted probabilities of selecting specific reference groups in socio-economic comparisons from multivariable logistic regressions in Southern European countries. Notes: Error bars represent 95%. Models account for individual-level variables shown in Table 2. Source: Own calculations based on data from LITS III (EBRD 2016).

For Southern European countries, after accounting for the effects of individual-level variables in Table 2, we were able to observe if there were remaining country differences in the patterns of socio-economic comparisons. In Figure 3 we calculated predicted probabilities of selecting different socio-economic comparison categories in four Southern European countries. We found that respondents in Turkey, for instance, were more likely to compare their condition with friends and neighbours than respondents in Greece and Italy. In turn, individuals in Cyprus and Turkey were much less likely to compare themselves to the domestic elites than people in Italy. Lastly, comparison with individuals living in Western European countries was much more prevalent in Greece (0.29, CI 0.26, 0.32) and Italy (0.25, CI 0.22, 0.27) than it was in Cyprus (0.13, CI 0.10, 0.15) and Turkey (0.10, CI 0.08, 0.12).

Discussion and conclusions

In this study, we have explored the patterns of individuals' socio-economic comparisons with specific groups across a large number of societies. We have identified that friends and neighbours were the most popular comparison group, followed by parents and those who lived in Western European societies, while a significant share of individuals also compared their situations with the situation before the start of transition, and with domestic elites, respectively, in post-communist and Southern European countries. One of the main observations from these descriptive results was that almost one fifth of individuals across the 34 countries considered

comparing themselves with those who lived in Western Europe. Further strengthening of cross-national links and expected advances in communication technologies should intensify cross-European socio-economic comparisons, yet recent developments related to Brexit, migration crisis, and the governments' handling of the Covid-19 pandemic might negatively affect the perception of Europe as a reference for socio-economic comparisons. In addition, the fact that after more than a quarter of century the sizable share of individuals select the communist period as the benchmark in their socio-economic comparisons suggests the major politico-economic transition is far from being over in the considered countries.

Although these are one of the first large scale findings of their kind, one of the main limitations of the data-set employed is that the preferred reference groups were not freely declared by individuals participating in the survey but rather they were chosen from a pre-defined set of answer options, which did not allow individuals, if they wanted, to state any other socio-economic comparison group. For instance, the answer option list did not include co-workers which could make up an important category for many individuals at least for income comparisons as shown by ESS data (Clark and Senik 2010). Consequently, our description of alternative socio-economic comparison groups was not exhaustive but was largely determined by the available answer options in LITS III.

We have also tried to explain which individual and contextual factors are associated with the selection of specific groups in socio-economic comparisons. Unlike findings reported by Clark and Senik (2010), gender and marital status in our study did not have a significant effect, but the year respondents were born did make a major difference in post-communist societies. Due to cross-sectional nature of the data-set, we could not differentiate the effect of age from the effect of birth cohort, but previous research suggest that the later has been more important for political attitudes in the described countries (Pop-Eleches and Tucker 2014). Apparently, individuals' socialisation and the major historical events during their life courses have had a lasting effect on what they considered as a benchmark in socio-economic comparisons. For instance, older individuals were more likely to compare themselves to the period before the start of the transition at the end of the 1980s, while younger individuals were more likely to compare themselves with those living in Western Europe. These findings correspond to research on winners and losers of post-communist transition which suggests that the age of individuals was an important aspect of adaptability to new politico-economic

conditions (Verhoeven *et al.* 2008). Younger people more easily fitted in free market environment, expressed entrepreneur talents, acquired new skills such as English comprehension, travelled abroad, and developed cross-national social networks (Roberts 2009). On the other hand, many of those who established themselves during communist regime have been shown to be nostalgic towards communist past and associated more stable and prosper lives (Gugushvili and Kabachnik 2019; Todorova and Gille 2010).

We have also showed that individuals' socio-economic characteristics – type of settlement, educational attainment, labour market status, material deprivation, subjective social position and perception of intergenerational mobility – affected their selection of specific reference groups, either due to structural opportunities they had or due to some other personal characteristics and incentives. The closer connections and interactions with friends and neighbours might be the reason why urban residents and those who are employed were more likely to name them as the preferred reference group. More advantaged individuals in terms of education and subjective socio-economic position were more likely to compare their economic situation to domestic elites and to those who live in Western Europe, which can be possibly explained individuals' aspirations to be equal of the most advantaged groups and to perceive themselves as global citizens. Further, subjective social mobility perceptions were associated with the selection of within family and over-time comparison groups which probably is not surprising as intergenerational mobility takes place within families over a long period of time. Interestingly, we have also identified that social trust played an important role. Those who were ambivalent in trusting others were less likely to select any comparison groups. In addition, one of the main findings of this study was that certain described variables had contradictory manifestations depending on the type of countries in which these effects were analysed.

For contextual effects, we have revealed that, in some instances, economic development mattered for comparing with domestic elites and with people living in other post-communist countries. Arguably, in less prosperous and more unequal post-communist societies domestic elites were able to accumulate wealth, power, and other resources which serve as the reference group in socio-economic comparisons for the local populations. Rapid economic development increased the difference between communist past and contemporaneous economic conditions which is apparently reflected in the lower likelihood of selection of other post-communist countries as a socio-economic comparison group. The most

intriguing finding, however, was that the distance of countries where individuals lived from the centre of Western Europe was a statistically strong and significant factor in why people compared their own socio-economic conditions with their peers in Western Europe. Furthermore, apparently cultural and geographic differences in Southern European countries also matter in the selection of socio-economic comparison groups. People from more traditional societies in this region – Turkey and Cyprus – were much more likely to compare with friends and neighbours than respondents in Italy and Greece. On the other hand, Italians and Greek were more likely than Turks and Cypriots to compare with Western Europeans, arguably due to their cultural and geographic proximity.

So far, the domain of socio-economic comparison scholarship among individuals has been predominantly undertaken by social psychologists, epidemiologists, and economists, while more general reference group theory has developed in sociology, mainly emphasising individuals' comparisons with groups that occupy positions which these individuals aspire to (Boudon 1991). More theoretical and empirical scholarship, which would explicitly consider socio-economic comparisons within families, between generations, over time, and across different countries, is required. Research from across social sciences suggests that there is a clear practical implication of socio-economic comparisons for individuals' health, well-being, and redistribution preferences. Socio-economic comparison is one of the central components of research into the psychological aspects of the socio-economic gradient in health, at an individual level (Marmot 2004), and it is also an important dimension of the negative association between income inequality and social dysfunction, at a macro-level (Wilkinson and Pickett 2009). Better understanding of what type of socio-economic comparisons people make and why, will be the key for knowing if there are any options to remedy negative implications of socio-economic comparisons in Europe and beyond.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Notes on contributor

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