

Subjective Perceptions of Poverty:  
A Case Study of the Czech and Slovak Republics a Quarter Century after the  
Split

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# **Subjective Perceptions of Poverty: A Case Study of the Czech and Slovak Republics a Quarter Century after the Split**

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The Czech and Slovak Republics split a quarter century ago. Their economic performance converged and diverged alternately, at the pace of political and economic changes. While both the populations perceived their income and living conditions similarly around the time of the split, the disparity in subjective perception of poverty later mirrored the development of a macroeconomic gap. We aim to quantify the Slovak-Czech subjective poverty gap in the 1990s and the start of the twenty-first century in several steps, where various individual and household characteristics and the regional economic situation are taken into account. We use two main data sources: The Social Consequences of Transition household survey conducted in 1995 and the EU Statistics on Income and Living Conditions (2005-2016) household survey, which captures the last decade. Both surveys provide two variables that can be utilized comparably over time: the scale-evaluated ability to make ends meet and minimum income questions. Both approaches suggest that, controlling for individual and household characteristics, the levels of subjective poverty perceptions among the Czechs and Slovaks converge until 2010, and start to diverge after 2012. This is in accordance with the development of the gap in economic performance of the two countries. Once regional macroeconomic variables are taken into account, Slovak-Czech disparity in subjective poverty mostly decreases throughout the period since 2007.

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## **1. Introduction**

Researchers across different fields have long been skeptical about subjective variables sometimes even considered as inauthentic self-reports rather than true attitudes (Lane 1991; Bertrand and Mullainathan 2001; Vogel 2002). Other researchers consider both subjective and

objective indicators necessary to capture the nature of quality of life (e.g., Hagerty et al. 2001). More importantly, subjective indicators are regarded as missing dimensions of poverty research (Steger and Samman 2012). Veenhoven (2002) identified studying the experiences of the poor as essential for obtaining a complex perspective on a country poverty profile, and ultimately for the social policy. The origins of research on subjective well-being are associated with research on the quality of life and can be traced back to the 1960s, although quality of life was implicitly studied in sociographic studies much earlier (see, e.g., Ogburn 1946).

There has been a debate to what extent subjective perceptions of individuals reflect objective social conditions. Fahey and Smyth (2004) distinguish between two streams of literature – one suggesting the insensitivity of indicators of subjective well-being to objective social conditions, and another suggesting stronger linkages between the two phenomena. For instance, Frey and Stutzer (2002) report a remarkable rise in material well-being in Japan during the period 1958-1991 and in the United States between 1972-74 and 1994-96; they note that the rise was not accompanied by increases in average satisfaction in life. In addition, they reported that countries such as Denmark, Germany, and Italy (and other western countries) experienced considerable economic growth and a small increase in reported satisfaction with life in the 1970s and 1980s. Similarly mixed results were reported by Blanchflower and Oswald (2004) for the United Kingdom, Kenny (1999) for 10 OECD countries, Diener and Suh (1997) for the USA, Japan and France, and by the seminal works of Easterlin (1974) and Easterlin et al. (2010). The ambiguity in empirical findings thus offers space for further investigation.

Whilst most of the more recent empirical studies focus on the relationship between individual subjective well-being operationalized by indicators of happiness or life satisfaction (see, e.g., Diener et al., 1999), we narrow our perspective to subjective perceptions of poverty. This narrower approach allows us to concentrate on a specific, economic dimension of subjective well-being and factors that are expected to be directly related; these factors include what are considered objective economic conditions such as a country's unemployment, personal consumption expenditure per capita, etc. Improvement in general economic conditions are expected to be accompanied by increases in overall income levels of the population, and subsequently with decreases in subjectively perceived poverty. Yet, the relationship between improvements in objective economic conditions and decreases in the rate of subjectively perceived poverty may not be linear (Wong et al., 2006). In contrast to subjective measures of poverty, the broad nature of overall life satisfaction/happiness reflects “people's self-evaluation of their lives or feelings pertaining to their emotional state” (Wong et al., 2006, p. 409) and thus the relationship of subjective well-being with objective economic conditions is expected to be less directly related.

The main objective of this study is to answer the following question: To what extent are improvements in objective economic conditions accompanied by decrease in the subjective perceptions of poverty? We attempt to answer this question with a particular case study of two countries – Czechia and Slovakia (also referred to as the Czech and Slovak Republic at various time in this study depending upon the time period). These two countries were created as a result of the dissolution of socialist Czechoslovakia a quarter-century ago, in 1989. This quasi-experimental natural setting offers a unique environment for the study of this relationship.

To set the stage, we first provide a brief historical review. Between 1949 and 1989, the communist government achieved remarkable economic, social and cultural convergence of Czechs and Slovaks. Nevertheless, it has been noted that Slovakia was more harshly affected by transformation crisis, with Slovaks reacting with feeling of frustration, resignation or even refusal to the new situation (Machonin, 1994). Czechs, on the other hand, were mentally prepared for a “return to Europe” at the end of the 1980s, experienced only a relatively slight deterioration of socioeconomic conditions compared to other transforming countries, and were relatively more satisfied with the development during the first years of economic transition and more optimistic about the future than were Slovaks. After the considerable initial divergence between Czechia and Slovakia in the early stages of transformation, the countries appear to have converged by 2016 when examining objective economic statistics. The GDP gap diminished from 63 percent in 1995 to 88 percent in 2016, and, more importantly, we can observe fast convergence in final consumption expenditure of households (Slovakia reached 66 percent of the Czech level in 1995, and 101 percent in 2016).

Subjective questions can be culturally influenced and hardly comparable across countries. This is another reason why we compare the Czech Republic and Slovakia, countries that used to be a common state a quarter century ago and whose perceptions of income and living conditions were similar that time (back in 1988 Slovaks even perceived their living standards slightly better than Czechs). Given the commonality in language, we would expect individuals in the two nations to understand the subjective questions in the same way. We expect the divergence of subjective poverty perceptions of the Czechs and Slovaks after the split in 1993 to be influenced mainly by the economic situation of the households, regions, and institutional framework. Any remaining differences in subjective poverty for the two countries we expected to be related to differences in expectations, beliefs, in/security or dis/satisfaction with the development of socioeconomic conditions, as suggested, for instance, by Di Tella et al. (2001).

The main question addressed in this study is whether the convergence in objective economic conditions has also been accompanied by a convergence in subjective poverty perceptions. With reference to the adaptation-level theory (Helson 1947), prospect theory (Kahneman and Tversky 1979), and income aspirations hypothesis (Stutzer 2004), we expect that the convergence in subjective poverty will be slower than the convergence of objective economic measures. We based this expectation on an argument put forth by Clark et al. (2015): judgments of current situations depend on the experience of similar situations in the past, which may partly offset current levels of the same experience, due to changing expectations, whereas adaptation to rising incomes occurs within few years (Di Tella et al. 2010).

Households' declarations include objective and subjective elements. The objective elements, which are not covered by expert indicators based on income, are necessary expenditures, whereas costs of living differ by locations. It is generally believed that the subjective assessment of the situation reflects the objective relationship between income and expenses rather than the exaggerated consumer aspirations. The gap in subjective poverty perceptions between Slovaks and Czechs can, in part, reflect unfulfilled expectations and disappointment perceived more intensively by the Slovak population who experienced a much sharper downturn of economic situation in the 1990s. To some extent, this discrepancy in the perceptions has been prevalent even three decades since the transformation. Eurobarometer surveys (European Commission 2005, 2017) suggest that, whilst on the one hand, Slovaks are

less satisfied than Czechs with the way how they lead their lives, on the other hand, a higher proportion of Slovaks in comparison to Czechs expresses positive expectations for the future economic situation in their country.

Most similar to ours are empirical papers investigating the convergence in subjective well-being in Germany after the reunification of East and West Germany in 1990. In this respect, for instance, Easterlin and Plagnol (2008) show that, after a remarkable drop in life satisfaction at the time of reunification, East Germany recovered by the late 1990s to its 1990 level, and the East-West gap was slightly less than that before reunification. Petrunyk and Pfeifer (2016) use the 1992-2013 German Socio-Economic Panel (SOEP) data to analyze the total East-West gap in overall life satisfaction. They show that reported life satisfaction is on average significantly lower in East than in West German federal states, whereas the East-West gap shows a trend towards convergence for younger birth cohorts. Similar findings are reported by Noll and Weick (2010) who showed that the levels of subjective well-being in East Germany were rising until the late 1990s and followed by stagnation since then, but they found only little change in average life satisfaction for West Germans. In addition, Frijters et al. (2004) found that increased household incomes of East Germans contributed to a continued improvement in their life satisfaction by 12 percent. Clark et al. (2015) use SOEP panel data from 1992 to 2012 to assess the relationship between poverty and subjective well-being, and *inter alia*, those who have been poor in the past report lower life satisfaction today, even when out of poverty.

Our paper differs from previous research in two important ways. First, unlike existing literature addressing primarily happiness/satisfaction, in our paper, we assess the relationship between the changes in subjective poverty perception related to the changes in objective (overall) economic conditions proxied by GDP. Second, the Czech-Slovak case differs remarkably from the closest case widely studied in this field – the German case. The German case is about reunification; the Czech-Slovak case is about dissolution. Another difference with regard to Germany is that during the reunification of that country, socialist East Germany and capitalistic West Germany were reunified. In contrast, both Czechia and Slovakia were part of the socialist block before dissolution. We thus contribute to the existing empirical literature on the relationship between subjective poverty and objective (overall) economic conditions, and the empirics on lessons learned from the dissolution of countries.

The paper is organized as follows. The next section is devoted to the state of subjective poverty research with the focus on European studies and definitions of subjective poverty applied in this study. Section 3 describes the sources of households survey data used, as well as the variables and methodology used for the estimations of the Slovak-Czech disparity in subjective poverty. Section 4 is devoted to an overview of the economic development of Czecho-Slovakia and, after that, it comments on subjective perceptions before the split. Finally, it is devoted to the main results: the empirical comparison of the Slovak-Czech disparity in subjective poverty after the split. Section 5 discusses the limitations of the analyses in terms of the (in)consistency of indicators of subjective poverty applied. The final section summarizes and concludes the findings.

## 2. The literature review and concepts of subjective poverty

An important step in the poverty estimation process is the identification of the poverty line. There is no single generally accepted method to estimate the overall level of subjective poverty in a society although methods have been proposed. Those that are most widely accepted in the literature are model-based in the sense that a model is used to explain the inter-household variation in the responses to survey questions; individual responses alone are not used to determine the poverty line directly.<sup>1</sup> Kapteyn et al. (1988) describe two definitions: the Leyden poverty line (LPL), which is based on the so-called income evaluation question (IEQ), and the subjective poverty line (SPL), based on survey responses with a minimum income question (MIQ). For both responses to the subjective perceptions of poverty questions are intersected with reported income, controlling for other household and economic variables. Because survey questions are used to elicit responses and because the resulting poverty thresholds are model based, Kapteyn et al. (1998) have pointed out the importance of correction specification and robustness. Testing their estimation methods on Dutch data from 1982, the latter approach provided lower poverty line estimates.

Although subjective measures of poverty gained the limelight in the 1980s and 1990s, they appear to have taken a backseat in more recent years compared to “objective” measure of poverty in the European Union (see, e.g. Santarelli 2013, for a review) and to general measures of happiness and well-being both in the official statistics and in academic research.<sup>2</sup> A number of studies have emerged for several countries; for instance, Germany gained the interest of researchers owing to data availability (van Praag et al. 2003; Goerke and Pannenberg 2015). However, cross-country comparisons remain scarce.

Related research focused on subjective measures of well-being, including poverty and social exclusion, began in Europe with the launch of the European Community Household Panel (ECHP) survey in 1994. Apart from income, the ECHP provided questions on financial situation, affordability of basic needs, living standard, and well-being, assessed by households or individuals. This rich source of data led to an increasing number of studies on various forms of subjective perceptions, such as non-income poverty by Förster et al. (2004) and financial satisfaction by Bonke and Browning (2009). However, the ECHP survey included EU member states as of 1994, as it was discontinued in 2001. Thus, studies of East-Central Europe were not possible with these data.

The most recent European research on subjectively assessed well-being, living conditions, and poverty relies on the European Union Statistics on Income and Living Conditions (EU-SILC) survey which replaced the ECHP survey in 2004.<sup>3</sup> Being compulsory for all EU members, the enlargement of the EU by the new countries in 2004 brought the first European-wide comparative survey that includes subjective evaluations. With the scale-evaluated question on ability to make ends meet, EU-SILC brought an additional approach to assess subjective poverty. In spite of it, papers analyzing the scale-evaluated question on ability to make ends meet (Cracolici et al. 2011), and studies utilizing the minimum income question (marginally

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<sup>1</sup> See Van den Bosch (1993) for a brief review of the two model based approaches and Deleeck et al. (1992) approach.

<sup>2</sup> Even today, the subjective approach is regarded as one of neglected approaches within the welfare concepts, and remains a conceptually appealing way of defining poverty (Ravallion 2014). Although economists have long been skeptical about subjective variables (Bertrand and Mullainathan 2001), economists’ skepticism about subjective data seems, to some extent, to have been overcome today (Deaton and Stone 2013).

<sup>3</sup> Most of the countries joined the survey in 2005.

used by Večerník and Mysíková 2016 or Želinský 2014) are rather exceptional, although, supporting the assumption that answer to the minimum income questions is an increasing function of income.

Views regarding what subjective poverty questions reflect and mean vary. For example, the belief that poverty is of a subjective matter (for instance, that it is a “feeling,” Van Praag and Ferrer-i-Carbonell 2004, p. 316) is broadly accepted. Regarding what is meant by one’s responses to the MIQ and IEQ, Vrooman (2009) suggests the answers to both mean the same thing when considered relative to an income level that is the minimum needed. Yet, other researchers suggest that income needed to survive is different than income that would sustain one’s current living standard (Garner et al. 1998).

Based on the early Dutch tradition in developing subjective poverty thresholds, Ravallion (2014) describes two main approaches to collecting data on subjective welfare that are used in research. First, applying qualitative categories in the welfare space, including examples such as “economic ladder question” or “satisfaction with life”-like questions; and second, asking for a money-metric of subjective welfare, including approaches such as MIQ and IEQ. As noted earlier, it is conceivable that respondents will consider different issues while answering these two questions and later Ravallion (2016) argues that it is not clear whether the minimum income question provides sensible answers. Pradhan and Ravallion (2000) propose a qualitative model allowing for the identification of a subjective poverty line without a minimum income question. This approach relies on assessing households’ consumption/making ends meet. Examples of this approach include, e.g., Nepal Living Standards Survey 1995-1996<sup>4</sup>, US National Longitudinal Study microdata (particularly NLSY97: National Longitudinal Survey of Youth 1997)<sup>5</sup>, EU-SILC microdata (see Table 2).

In summary, we use questions that are most related to those described in this section and thus base our research on both respondents’ subjective evaluations of economic well-being and subjective incomes to making ends meet.

### 3. Data and methodology

Subjective perception of economic well-being before the split are based on two sets of series. The questions used for these early assessments are presented in Table 1. One is a series of surveys on Economic Expectations and Attitudes (EEA) launched in the early 1990s based on quota samples containing between 1,600 and 1,900 respondents in Czechoslovakia. Inspired by the Dutch-Flemish econometric school of poverty (see e.g. Goedhart et al. 1980), several questions concerning subjective poverty were asked in EEA questionnaires.<sup>6</sup> They were

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<sup>4</sup> Household Questionnaire, Section 17: “Concerning your family’s food consumption over the past one month, which of the following is true?” with the following responses: “1: It was less than adequate for your family’s needs; 2: It was just adequate for your family’s needs; 3: It was more than adequate for your family’s needs; 4: Not applicable”. “Adequate” is defined as: “no more nor less than what the respondent considers to be the minimum consumption needs of the family.”

<sup>5</sup> Variable YINC-7990 with the following question: “Which of the following best describes [yours/yours and your spouse’s/yours and your partner’s] financial condition?” and the corresponding categories: “1- very comfortable and secure; 2- able to make ends meet without much difficulty; 3- occasionally have some difficulty; making ends meet; 4- tough to make ends meet but keeping your head above water; 5- in over your head”

<sup>6</sup> While a targeted sociological survey on the poor population, ready to be launched by the mid-1980s, was not allowed to be carried out, poverty was opened as a research issue right at the beginning of the economic transition.

collected in biannual intervals between 1990 and 1993 (waves 1-7), and annual intervals after that. Here we use only Waves 3 to 6 and focus on the two questions most similar to those used in our own main analyses:<sup>7</sup> MIQ and a simple question about feeling poor.

The Social Stratification in Eastern Europe 1993 (SSEE) survey also provides a brief view on the Slovak-Czech disparity at the time of the split and, furthermore, a retrospective evaluation of the situation at the very end of the communist era (1988). We utilize two questions: subjective evaluation of income and living standard.

**Table 1** Questions Used in Early Assessments – before the Split

Survey	Question	Indicator derived
EEA 1991-1993	<i>“Do you feel that your family is poor?”</i> with a 4-point scale (1 – definitely yes, 2 – rather yes, 3 – rather no, 4 – definitely no).	“Feeling poor” - the first category used to create a binary indicator (panel (1) in Figure 4).
	MIQ - <i>“What would be the minimal monthly income which would be satisfactory for covering the basic needs of your household?”</i>	“Insufficient income” - a binary indicator that equals 1 if the actual income was less than or equal to 75 percent of the minimum income, and 0 otherwise (panel (1) in Figure 4).
SSEE 1993	<i>“Compared with Czech/Slovak families in general, would you say your family income in 1988 was far below average, below average, average, above average, or far above average? What about now?”</i>	“Income” – distribution of answers provided (panels (1a) and (1b) in Figure 3).
	<i>“In our society there are groups which tend to be towards the top and those that are towards the bottom. Here we have a scale that runs from top to bottom. Where would you have placed yourself on this scale in 1988? Where would you place yourself now?”</i>	“Living standard (deciles)” - distribution of answers on a 10-point scale provided (panels (2a) and (2b) in Figure 3).

EEA: Economic Expectations and Attitudes; SSEE: Social Stratification in Eastern Europe

Two other sets of surveys were used for the main analysis of the period after the split in this study. The surveys, questions, and indicators derived from the survey questions are presented in Table 2. In order to compare the subjective well-being of people living in the Czech and Slovak Republics in the past, the Social Consequences of Transition (SOCO) household survey conducted in 1995 is used. The current situation is captured by the EU Statistics on Income and Living Conditions (EU-SILC) household survey, which has been conducted annually since 2005.

In each survey, we utilize two questions on the subjective assessment of one’s own situation. Though the wording of each question differs to some extent in these two surveys, they are aimed to assess the same point and, therefore, we feel confident that SOCO 1995 can be used to demonstrate the differences between Czechia and Slovakia shortly after the split comparably to the later EU-SILC. Keeping the different wording in mind, we can use the scale-evaluated ability to make ends meet and minimum income questions in both of the surveys. In order to analyze the two questions in a similar way, we derive binary indicators

<sup>7</sup> The first wave did not contain the subjective variables of our interest. The second wave collected household disposable income by one single question (as opposed to the next waves), which makes our indicator highly incomparable. The last waves collected income only at intervals, which hinder us in constructing our indicator.



from both questions. The ability to make ends meet question conforms to an approach where people are directly asked whether they consider themselves poor or not. In order to define a poverty threshold, it is necessary to decide which categories will correspond to the subjectively poor and which to the subjectively non-poor. Regarding the MIQ, we use a very simple, a purely subjective way of deriving the poverty line where the actual income is simply compared with the minimum required income, also known as the “individual method” (Vrooman 2009, applied by Vrooman and Hoff 2004, Thijssen and Wildeboer Schut 2005).

**Table 2** Questions Used to Assess Subjective Poverty for This Study – after the Split

Survey	Question	Indicator derived
SOCO 1995	<i>“Was the sum (of the net income of the household in the last month) sufficient to get along, to cover the needs which are customary?”</i> with a 5-point scale (from 5 – absolutely – to 1 – absolutely not).	“Inability” – a binary indicator that equals 1 if respondents replied by the first category, meaning the worst situation and 0 otherwise.
	MIQ - <i>“What would be the monthly sum sufficient to allow a decent way of life for your household?”</i>	“Insufficient income” – a binary indicator that equals 1 if the monthly actual income was less than or equal to 75 percent of the subjective minimum income, and 0 otherwise.
EU-SILC 2005-2016	<i>“A household may have different sources of income and more than one household member may contribute to it. Thinking of your household’s total income, is your household able to make ends meet, namely, to pay for its usual necessary expenses?”</i> with a 6-point scale (1 – with great difficulty, 2 – with difficulty, 3 – with some difficulty, 4 – fairly easily, 5 – easily, 6 – very easily).	“Inability” – a binary indicator that equals 1 if respondents replied by the first category, meaning the worst situation and 0 otherwise.
	MIQ - <i>“In your opinion, what is the very lowest net monthly income that your household would have to have in order to make ends meet, that is to pay its usual necessary expenses? Please answer in relation to the present circumstances of your household, and what you consider to be usual necessary expenses (to make ends meet).”</i>	“Insufficient income” – a binary indicator that equals 1 if the monthly actual income was less than or equal to 75 percent of the subjective minimum income, and 0 otherwise.

SOCO: Social Consequences of Transition; EU-SILC: EU Statistics on Income and Living Conditions

The SOCO survey was conducted on a random sample of 1,000 households in each country. The selected respondents answered personal questions and questions on a household level (such as the subjective evaluation of living conditions). In each household, the selected respondent reported the basic (e.g., demographic and economic status) characteristics of all household members. The pooled Czech and Slovak sample includes information about 4,400 household members, aged 16+. Two of the questions are central to our study. First, scale-evaluated ability to make ends meet (see Table 2). Households responding that the level of sufficiency of their income was between 1 and 4 (less than absolutely sufficient) were also asked a second question of our interest, the minimum income question. Households reporting that their actual income was absolutely sufficient to get along, translating to 23 percent Czech and 6 percent of Slovak households, were thus not asked the MIQ. This question design hinders us from estimating a model-based SPL. However, as it is assumed that “absolutely sufficient” actual income is at least higher than the minimum needed, we can derive a binary

indicator as described below. For the rest of households, the reported minimum income was always higher than or equal to the actual income. Thus, if the respondents' income was not absolutely sufficient, they had to report a higher minimum income needed.

The EU-SILC (2005-2016) cross-sectional personal datasets are limited to adult respondents (aged 16+) where the Czech-Slovak pooled sample size ranged from 21 to 37 thousands of individuals.<sup>8</sup> Similarly to the SOCO survey, we were interested in the two questions indicating subjective poverty: the minimum income question and scale-evaluated ability to make ends meet (see Table 2). We aim at examining the disparity in the subjective poverty perception by the Czechs and Slovaks, assuming similar cultural perceptions of the two populations and similar starting points. We do not estimate poverty thresholds and resulting poverty statistics in comparison of the two countries. The goal of this study is to examine the difference in subjective poverty incidence between the two countries, using the indicators created as described below, while holding various individual and household characteristics as well as regional economic conditions constant. Our analyses are based on logistic regression models, whereas the following dependent variables are considered:

1. “*insufficient income*”:  $Y = 1$  if the monthly actual income<sup>9</sup> was less than or equal to 75 percent of the subjective minimum income; and  $Y = 0$  otherwise. The threshold of 75 percent was arbitrary chosen.<sup>10</sup> In order to demonstrate the validity of this indicator, we provide robustness checks by defining various thresholds – 65, 85, 95, and 100 percent – as well as utilizing the whole information of the stated minimum income value and actual income in terms of their difference, as well as the logarithm of the share of the minimum income to the actual income (see Appendix Figure 12).<sup>11</sup>
2. “*inability*”:  $Y = 1$  if the respondent's household is able to make ends meet with great difficulty; and  $Y = 0$  otherwise (i.e., making ends meet with difficulty or some difficulty; fairly easily, easily, or very easily)<sup>12</sup>. Again, for robustness checks, the results are shown also for an indicator where  $Y = 1$  if the answer was “great difficulty” or “difficulty” (see Appendix Figure 13).

For the sake of simplicity, we refer to the models based on these dependent variables as “*insufficient income model*” and “*inability model*” respectively.

The disparity in subjective poverty between Slovakia and the Czech Republic is expressed by a dummy variable for Slovakia (SK), the variable of our main interest. Depending on the number and type of control variables included in a model, the between-country gap in subjective poverty captures different dimensions. As not all control variables are available in

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<sup>8</sup> The versions of the datasets used are stated at the end.

<sup>9</sup> EU-SILC variable HY020/12 – as actual income corresponds to an annual income. EU-SILC is usually conducted in spring in the Czech Republic and Slovakia, and the income reference period corresponds to the previous calendar year, while the subjective questions are related to the current situation. We are aware of possible inconsistencies between the current and previous year reference periods. However, the income reference period is considered to provide the best approximation of current income, as suggested by Eurostat (2010a), and it is used in this sense even in official statistics.

<sup>10</sup> The clue for the arbitrary chosen threshold of 75% was approximately the same resulting share of the Czech population threatened by “insufficient income” as the share of persons at risk of poverty – the official indicator – in 2015 (documented by Večerník and Mysíková 2016).

<sup>11</sup> Regarding the possible limitations of the chosen “individual” method and the arbitrarily stated poverty line, note that we cannot utilize any model-based estimation of the poverty line (SPL) once a part of SOCO 1995 survey respondents were not asked the MIQ (almost a quarter of respondents in the CR).

<sup>12</sup> Note that the scale differs in SOCO and in EU-SILC.

SOCO 1995 survey, we narrow the dimensions reflected in the disparity gradually, by adding groups of explanatory variables in several steps:

**Model A** demonstrates the “raw” disparity by including only the dummy for Slovakia. Such a raw gap reflects the observed between-country disparity without considering any reasons for it. Given the SK/CR ratios shown in Figure 1, we assume the resulting disparity to be positive in any year. The main results in Section 4.2 are reported as odds ratios instead of regression coefficients of the SK dummy; therefore, it shows the likelihood of Slovaks feeling more subjectively poor.

**Model B** adds the following demographic controls to the Model A: gender, age, education, economic activity, the presence of children in a family, and degree of urbanization of the place of residence. In general, these characteristics are related to different living costs, habits, aspirations and expectations, as well as different reference groups of individuals and families the respondents might compare their situation with.<sup>13</sup> To be more specific about the definitions of the included demographic variables: gender is included as a dummy for men; age is captured by five 10-years dummies with the highest category comprising of individuals aged 65 years and more (reference group is 16-24 years); education involves dummies for secondary (iscd 3-4) and tertiary (iscd 5-6) education (with reference group of low education, iscd 0-2); economic activity consists of two dummies for employed and unemployed at the time of the survey (reference group are inactive respondents); three dummies for children aged 0-2, 3-5, 6-15 present in the family (with reference groups of no child of a particular age in the household). The degree of urbanization is defined differently in EU-SILC and SOCO surveys: while two dummies for densely and medium (thinly as a reference group) populated area are defined in EU-SILC<sup>14</sup>, two dummies for the capital and towns (village as a reference group) are defined in SOCO.<sup>15</sup> Keeping the SK dummy as the variable of our interest, it describes the between-country disparity in subjective poverty were there no differentials in these demographic characteristics now.

**Model C** additionally controls for another type of sociodemographic characteristics which we call “objective” or economic household variables (available in EU-SILC only). This set of variables describes the housing, material, income, and working conditions of a household, serving as an overall proxy for the living standard of a household which is supposed to differentiate the perception of poverty. The size of the flat/house is measured as the number of rooms per household member. Type of ownership of the dwelling mirrors the financial demands of a household. We distinguish a dummy for outright owners (plus free accommodation, e.g. for those living at relatives for free) and a dummy for owners paying a mortgage (the reference group being the tenants, paying either full market or reduced rate). While outright owners are obviously in a better situation, both those paying a mortgage or a rent

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<sup>13</sup> As discussed below, individual characteristics such as gender, age, or education, might seem to be irrelevant (except for households of singles) once the response of one household member is assigned to all other household members, meaning that all the household members are assigned the same subjective poverty.

<sup>14</sup> The categories are derived based on the population size and density of the municipality. The definition of the degree of urbanisation slightly changed over time in EU-SILC definitions (compare Eurostat, 2010b, 2016).

<sup>15</sup> For the sake of space, we do not provide full results of the logistic regressions models or comment on them, but they are available upon request.

might feel similar financial strain related to their perception of poverty. However, even being entitled for a mortgage and the awareness of repaying for own property might differentiate the individuals' perception of their situation; therefore, we distinguish these two categories.<sup>16</sup> Finally, we add three “objective” poverty indicators, included as dummy variables, used under the European Union concept of poverty: at-risk-of poverty, material deprivation (see, e.g., Decancq et al. 2013, for definitions), and work intensity of 16+ aged HH members (share of months worked).<sup>17</sup>

Finally, we employ **Model D** where we add regional macroeconomic explanatory variables in the logistic regression to reflect different economic conditions of the two countries.<sup>18</sup> Controlling for both individual/household and regional characteristics, the dummy for Slovakia is supposed to reveal the residual or the “pure” SK-CR disparity of subjective poverty. Regional characteristics that might affect individuals' perception of poverty include: average gross monthly wage (obtained from EU-SILC), employment rate,<sup>19</sup> GDP (in Euro per capita),<sup>20</sup> and household expenditures (in Euro per capita).<sup>21</sup>

Before proceeding to the main results, we first show the resulting subjective poverty incidence for the two applied indicators as well as the Slovak-Czech ratio using the raw response to the subjective questions converted to the indicator variables (see Fig. 1); in other words, these results are not model-based.

**Fig. 1** about here

The questions on subjective poverty are asked at the household level, meaning that only the household member responsible for answering the household questionnaire answers the questions. Any indicator derived from household-level variables is then assigned to all household members and, thus, allows for analysis on the individual level. This method is in accordance with the official statistics, which derive indicators of e.g. at-risk-of poverty, material deprivation, or social exclusion as a percentage of persons in the population based on EU-SILC household variables (Eurostat 2010a).<sup>22</sup>

Given the subjective nature of the questions of our interest, inconsistent answers could hypothetically be collected were different household members responsible for answering the household questionnaire. For these reasons, the results (on EU-SILC data only) were checked

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<sup>16</sup> The regression results mostly show a statistically insignificant difference for those paying a mortgage and tenants; however, if the coefficient is statistically significant, those paying a mortgage are less likely to feel poor than those paying a rent.

<sup>17</sup> Our definition of the work intensity indicator is different from the one applied by Eurostat in official statistics (see Ward and Ozdemir 2013). Here we simply add up the number of months worked during the year by all household members aged 16+ and divide it by 12\*number of household members aged 16+. Our purpose is to control for the share of household members who actively contribute to the household budget, while the definition by Eurostat is aimed at social exclusion.

<sup>18</sup> NUTS2 level includes 8 Czech and 4 Slovak regions.

<sup>19</sup> Employment rate for population aged 15-64, Eurostat database (variable `lfst_r_lfe2emprr`).

<sup>20</sup> Eurostat database (variable `nama_10r_2gdp`).

<sup>21</sup> Data on expenditures stem from Household Budget Surveys, provided by Czech and Slovak Statistical Offices.

<sup>22</sup> As with the official statistics, all computations based on EU-SILC are weighted by the individual weights provided in the datasets.

for robustness by limiting the sample to household members who were answering the household questionnaire. The results are provided in the Appendix in Figure 14.

Santarelli (2013) argued that the ability to make ends meet question is usually preferred to the MIQ. We believe that it can be easier for the respondents to “rank their poverty” on a limited scale, as opposed to thinking of an exact value of minimum income needed, which can be more demanding and, thus, the results more biased. MIQ is often viewed as too volatile and unstable. The general critique is that sense of minimum income needed is biased by respondents’ tastes, ideals, or aspirations as well as by what they understand by “minimum income needed” *per se*, and that there is no clear pattern of what respondents consider relevant. On the other hand, the limited scale of the ability to make ends meet question can in fact be too “limiting,” leading to the loss of a substantial part of the information.

#### **4. The Case of Czechia and Slovakia**

Before the split on January 1993, the Czechia and the Slovak Republic were parts of a common state, Czechoslovakia. As a common state, both republics had a number of common features, yet they differed in numerous characteristics. They underwent the end of the communist era in 1989 as a one state and continued to experience the early stages of the economic transformation together. But as of January 1, 1993, the two new countries developed independently in terms of choices regarding transition towards open markets, consumer demand, opportunities in labor markets, and the challenges of production. These choices have influenced country policies, economic structures, labor markets, and institutions. At the same time, within-country changes were also influenced by further external factors and changes in the global economy.

Looking back, Slovakia suffered from weaker economic performance than Czechia for decades, followed by a rapid convergence with the Czech level up through the 1980s (Slovakia reached 61 percent of the Czech GDP in 1948, whereas the gap diminished to 88 percent at the end of communist era in 1989).<sup>23</sup> The communist regime not only targeted the economic convergence of Czechia and Slovakia, but also cultural and social aspects of society. In the 1980s, the Slovak population was already comparable to the Czech population in these aspects; some even considered Slovakia more the progressive while Czechia stagnated (Machonin 1994).

The social experience of long-term expansion and emancipation of Slovaks then conflicted with a rapid downturn of socioeconomic conditions after 1989 (see Figure 2). The remarkable decline in economic performance was considerably stronger in Slovakia (decline by 22 percent between 1990 and the turning point in 1993) than in Czechia (decline by 12 percent between 1990 and the turning point in 1993). While Czechia reached the volume of GDP of 1990 in 1996, Slovakia only in 1998 (left panel of Figure 2). Slovakia experienced even slower recovery in terms of final consumption expenditure of household (right panel of Figure 2), the volume of 1990 was reached only in 2002, whereas Czechia reached it in 1996. Put differently, the GDP gap (in terms of purchasing power standard per capita) between Czechia and Slovakia diminished from 63 percent in 1995 to 88 percent in 2016. More importantly, we can observe fast convergence in final consumption expenditure of households per capita, which we believe reflects individuals’ welfare better than GDP (Slovakia reached 66 percent

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<sup>23</sup> See, e.g., Vintrová (2008, 2009) for further details.

of the Czech level in 1995, whilst the Czech level was exceeded in 2008 for the first time, reaching 101 percent in 2016).

**Fig. 2** about here

#### ***4.1 Subjective perceptions in Czechia and Slovakia before the split***

In 1988, there was no difference in the raw responses (not model-based) to the subjective evaluations of incomes and living standards when comparing the two republics. Moreover, Slovaks assessed their living standard slightly better (see Figure 3, panels 1a and 2a). Therefore, despite the lower economic performance of Slovakia, the starting point of the two countries was very similar. The first years of economic transition brought deterioration in self-perceived income and living standard situation in both countries. This held true even when the results are presented by regions. The subsequent drop was much more substantial in Slovakia, where the distribution of the answers moved to the left more rapidly in comparison to the Czech case (see panels 2a and 2b).

In 1993, the Slovaks already evaluated their relative income and living standard slightly worse than did the Czechs. When the respondents were directly asked to compare their financial situation in 1993 and 1988, 50 percent of Czechs assessed their financial situation as worse and 23 percent as better. The corresponding Slovak figures were 62 percent and 17 percent, respectively.

**Fig. 3** about here

“Feeling poor” (Figure 4) exhibits a decreasing tendency in both countries with a strong convergence; however, in 1993, at the time of the split, more people felt subjectively poor in both countries. We can only speculate that the turn in 1993 was related to people’s concerns and insecurities about what was the split going to bring. Slovaks described themselves as suffering from insufficient income (right panel of Figure 4) more often than Czechs, and the share of persons reporting that condition increased in both countries.<sup>24</sup>

**Fig. 4** about here

The opposite development of the two indicators suggests that, even if fewer people felt themselves very poor in general, once it came to money and a concrete expression of how much they would have needed, more people felt a lack. General findings show us that, between 1991 and 1993, Slovaks evaluated their situation as being worse than did Czechs, and the Slovak-Czech disparity was higher when people had to express what income level would be satisfactory for them. Moreover, the split of Czechoslovakia in 1993 did not bring lower subjective poverty in either country.

#### ***4.2 Subjective poverty in Slovak–Czech comparison after the split***

The main results in this study are reported as the odds ratios for the main explanatory variable of interest (SK dummy). Values greater than 1 indicate that Slovaks are more likely to be

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<sup>24</sup> The consistency of the data on actual household disposable income over survey waves is rather low as the income questions varied in each wave. The reason was to improve validity of the variable by dividing originally one summary question into several ones asking for individual sources of income. However, as a consequence, the indicator of insufficient income is unstable over time.

subjectively poor than Czechs, while values lower than 1 would indicate the opposite. In order to capture the development of the level of convergence (odds ratio approaching 1) /divergence (odds ratio diverging from 1) between Czechia and Slovakia, the main results are presented as charts depicting the development in odds ratios over time.

In 1995, Slovaks suffered significantly more from insufficient income and inability to make ends meet than Czechs (Figure 5). Slovaks were almost 3.5 times more likely to have income less than 75 percent of their subjectively perceived minimum, and controlling for demographic characteristics barely changed this result. The perspective of inability to make ends meet offers similar results, translated into numbers: Slovaks had almost three times higher odds of being subjectively poor. Compared to 1993 (figures 3 and 4), where the self-perceived living standard and subjective poverty were very similar in both countries, it seems that the Slovak-Czech disparity was increasing during the early stages after the split.

**Fig. 5** about here

Results based on EU-SILC data suggest that the Slovak-Czech disparity in insufficient income continued to grow until the mid-2000s. Slovaks were 6.7 times more likely to have income less than 75 percent of their subjectively perceived minimum than Czechs in 2005 (Model A in Figure 6). We can see a U-shaped development of the Slovak-Czech ratio with the bottom in 2012. This finding is in accordance with the development at the macroeconomic level of the two countries as the GDP gap was narrowing up to 2012 and started to increase after that. Interestingly, adding more control variables to the models (compare models A to C), i.e., comparing more homogeneous individuals, results in a higher SK-CR ratio in all the surveyed years. Consequently, the “raw” Slovak-Czech subjective disparity seems to be undervalued.

**Fig. 6** about here

Inability to make ends meet is somewhat less comparable between the SOCO and EU-SILC data as the categories differed. As a consequence, the data do not allow us to identify the reason of a drop in the SK-CR ratio between 1995 and 2005. Comparing figures 6 and 7, we can observe numerous patterns. While the odds ratios for the “inability to make ends meet” model lie in the interval between 1.0 and 1.9, the variability of the “insufficient income” model odds ratios is substantially greater: between 2 and 10. Thus, according to both approaches, Slovaks have been more likely to be subjectively poor since 2005. Nevertheless, the “insufficient income” model yields substantially higher odds ratios than the “inability” model, suggesting that, when it comes to income aspirations, Slovak individuals require on average higher minimum income than do Czech individuals with the same characteristics. Moreover, both models indicate a U-shaped curve in time. However, while the “insufficient income” model suggests a sharp drop in odds after 2006, the “inability” model indicates a decrease only after 2008. Nevertheless, we have to keep in mind that the odds ratios in the latter model were between 1.4 and 1.7 between 2006 and 2008. We will offer a more detailed discussion of these results in Section 5.

**Fig. 7** about here

Note that our results are robust to the arbitrary choice about the definition of the indicators and their poverty thresholds. Regarding insufficient income, the resulting pattern over time is very much the same once we apply a higher threshold (compare figures 6 and 12). The only noticeable difference can be seen when a lower threshold (65%) is applied, meaning a stricter

definition of poverty: the difference can be seen at both tails of the U-shaped curve, especially in model C. It supplements our main results with the fact that the more extreme definition of poverty reflects the disparity in economic performance of the two countries to an even higher degree.

As far as the inability is considered for robustness, the overall pattern remains (compare figures 7 and 13). The less strict poverty threshold, including the two worst categories of inability to make ends meet, shows a somewhat more volatile pattern, lower influence of additionally controlled variables, and, most importantly, a lower SK-CR ratio. The latter again suggests that, the more extreme definition of subjective poverty we use, the higher the Slovak-Czech disparity is.<sup>25</sup>

Although the Czech Republic and Slovakia are small countries (from both the population and land size perspectives), regional economic disparities are large (see Figure 15 in Appendix depicting spatial distribution of mean wage and GDP and the two analyzed indicators). Consequently, in figures 8 and 9 we continue to extend the models taking into account regional variables reflecting the economic conditions of each region (models D).

The regional controls further increase the SK-CR disparity in insufficient income (Figure 8). This suggests that the “pure” difference in insufficient income between Slovaks and Czech is even higher than observed: if we consider Slovaks and Czechs with not only comparable individual and household characteristics but also similar regional performance, Slovak people perceive a lack of money substantially more often. Despite the unexplained jump in 2007, we observe a convergence after that. Slovaks were more likely to suffer from insufficient income throughout the whole period.

**Fig. 8** about here

Similar development can also be seen when the inability model is controlled for regional characteristics (Figure 9). Several common patterns can be observed: Slovaks are more likely to be unable to make ends meet than Czechs throughout the whole period, regional controls makes the SK-CR disparity higher, and there is a decreasing trend after 2007. However, the coefficients of the SK dummy are not always statistically significant; taking only years with significant results into account, the trend decreases.

**Fig. 9** about here

## **5. Discussion on the insufficient income and inability indicators**

To our knowledge, there is no literature analyzing the relation between the two subjective variables utilized in our study that would indicate their reliability or their stability over time. Figure 10 shows that these two indicators overlap only marginally and cover different parts of populations. We are aware of arbitrary chosen poverty lines in the construction of our indicators. However, the estimated trends of the indicators remain the same regardless of the version of the poverty line used, as shown in the Appendix.

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<sup>25</sup> Finally, we conclude that the fact that the subjective questions are responded to by one household member and transmitted to all other household members has only a negligible impact on the results (compare Figure 6 and the left panel of Figure 14 for insufficient income, and Figure 7 and the right panel of Figure 14 for inability). The results differ somewhat more for the inability regression model, which again points to a lower stability of the ability to make ends meet question.



**Fig. 10** about here

Considering the population whose actual income comprises less than 75 percent of the minimum income needed, we can see that only about one-fifth of that sector also report having great difficulties making ends meet. Even if we consider both “great difficulties” and “difficulties” making ends meet, we just barely get half of the population with insufficient income (see the top panels of Figure 10).

From the opposite view, roughly 40 percent of those with inability (great difficulties making ends meet) perceive their actual income as insufficient, meaning less than 75 percent of what they would need. Considering a less strict poverty line, 60-70 percent of those with inability to make ends meet have actual income lower than that required as a minimum (see the bottom panels of Figure 10). There are two interesting points. First, the share of the population with insufficient income (determined by any of the depicted poverty thresholds) within the population with great difficulties making ends meet is substantially higher for 2005-2008 than for 2009-2016. Second, the overlap is considerably higher in Slovakia than in the CR, and decreases over time. The difference is especially high in 2005-2008, the period for which we observe the highest inconsistency in the trend of the results for our two indicators (Model C without regional controls in figures 8 and 9).

Figure 10 does not provide any evidence of which indicator is a “better” one, or more reliable. Nevertheless, it suggests that ability to make ends meet and minimum income needed represent different points of view for most people. On the one hand, the magnitudes of the estimated odds ratios differ considerably; on the other hand, after 2008, the trends in figures 8 and 9 are similar.

We can only suspect the inconsistencies being caused by a variation in exchange rates and conversion of data from the national currencies into Euro, and/or the adoption of Euro currency in Slovakia. Indeed, the inconsistency of the results of our models for the period 2005-2008 might be hidden in the Slovak data. As depicted in Model C (without regional controls) in figures 8 and 9, the odds ratios for insufficient income decrease until 2010, while the odds ratios for the inability indicator increase until 2008 and only then start to decrease.

Figure 11 shows the median values of actual monthly household income and the minimum income needed in Euros. In the Czech Republic, the gap between median actual income and median minimum income was consistently increasing, meaning that the situation of Czechs was getting better. Slovakia experienced an improving situation as well; however, it offers a somewhat different picture: the median minimum income was relatively stable between 2005 and 2008, but it was higher than the median actual income, with these values being equal in 2008. Consequently, the proportion of subjectively poor (in terms of insufficient income) was rapidly decreasing over that period in Slovakia.

**Fig. 11** about here

More interestingly, the median levels of minimum income are represented by values rounded to hundreds since 2009 – the year of Euro adoption in Slovakia.<sup>26</sup> This points to an apparent fact that people round the stated minimum income in the current currency (regardless of the exchange rate which, moreover, brings certain volatility in our results). The adoption of the

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<sup>26</sup> The Czech Republic has not adopted the Euro, and the exchange rate moved from 32 CZK/EUR in 2005 to 25 CZK/EUR around 2012 and to 27 CZK/EUR in 2016. In Slovakia, the exchange rate dropped from 40 SKK/EUR to 34 SKK/EUR between 2005 and 2008.

Euro in Slovakia in 2009 thus could have impacted the levels of minimum income needed. Nevertheless, the gap between median actual income and median minimum income increased after 2008 in Slovakia to a degree which cannot be accounted for by the Euro adoption.

## **6. Concluding remarks**

The dissolution of Czechoslovakia in the early 1990s offers an environment that enables us to study the question of whether the shrinking differences in economic performance led to the convergence in perceived (subjective) poverty in the present-day Czech Republic and Slovakia. Due to the pre-existing differences between the Czech and Slovak parts of the country on the one hand, and the different economic policies and choices adopted by the two independent countries on the other hand, this study cannot be perceived as a natural experiment. Nevertheless, this case study provides new insights into how perception of poverty at the individual level is related to real economic outcomes in two post-socialist countries in Europe.

The initially low differences in perceived poverty between Czechia and Slovakia (before the split of Czechoslovakia) increased considerably during the early stages of transformation. The implementation of a representative EU-SILC survey in 2005 and onwards allows us to track the differences in a detail. In this paper, we use two indicators as proxies for capturing subjective poverty at the individual level: one based on monthly minimum household income needed compared to actual income, and another one based on households' inability to make ends meet.

Although the two indicators capture different dimensions of subjective poverty, they ultimately provide similar trends in the results. Both approaches suggest that, controlling for individual and household characteristics, the levels of subjective poverty perceptions among the Czechs and Slovaks converge until 2010, and start to diverge after 2012. This is in accordance with the development of the gap in economic performance of the two countries which started to grow to the detriment of Slovaks after 2012. Once regional macroeconomic variables are taken into account, Slovak-Czech disparity in subjective poverty generally decreases throughout the period since 2007.

This residual or remaining disparity reflects unobserved characteristics of Slovaks and Czechs, which could include different expectations, beliefs, in/security or dis/satisfaction with the development of socioeconomic conditions. As it is decreasing over time, these unobserved factors seem to ease off to be substituted by socioeconomic situation of households, regions, and countries as main factors of the Slovak-Czech disparity in subjective perception of poverty.

Undisputedly, subjective poverty measures provide supplementary information to the official "objective" poverty measures. While the latter are often critiqued as having a high degree of arbitrariness in their construction, a generally accepted methodology does not even exist for the former. Different subjective indicators typically provide different results, with the subjectivity *per se* being the most frequent critique. We believe that research on subjective poverty has been neglected in recent decades, especially compared to its boom in the 1980s. By this empirical study, we do not aim to supplement the methodological concepts but we intend to spur this research area: further research on subjective poverty methodology with the

possibilities provided by EU-SILC data and the linkage of “subjective” and “objective” poverty measures would shed more light on people’s well-being.

### EU-SILC datasets versions:

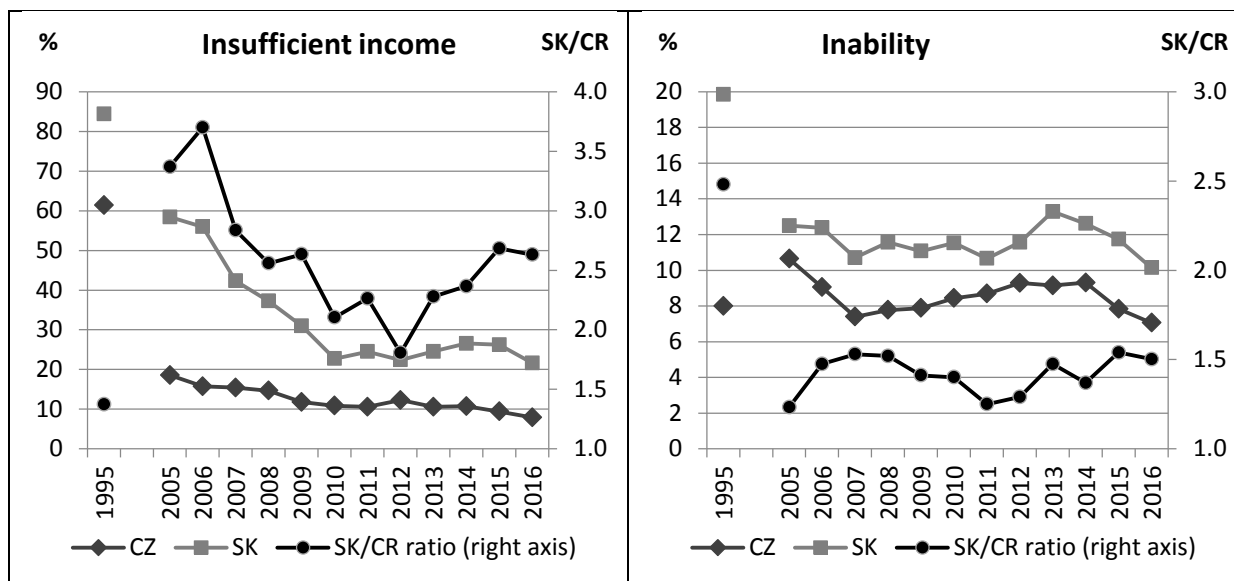
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2006	EUSILC UDB 2006 – version 4 of March 2010	2012	EU-SILC CROSS-SECTIONAL UDB 2012 – version 5 of March 2017
2007	EUSILC UDB 2007 – version 6 of August 2011	2013	EU-SILC CROSS-SECTIONAL UDB 2013 – version 4 of March 2017
2008	EUSILC UDB 2008 – version 7 of March 2015	2014	EU-SILC CROSS-SECTIONAL UDB 2014 – version 3 of March 2017
2009	EUSILC UDB 2009 – version 7 of March 2015	2015	EU-SILC CROSS-SECTIONAL UDB 2015 – version 2 of March 2017
2010	EUSILC UDB 2010 – version 6 of March 2015	2016	EU-SILC CROSS-SECTIONAL UDB 2016 – version of October 2017

### References:

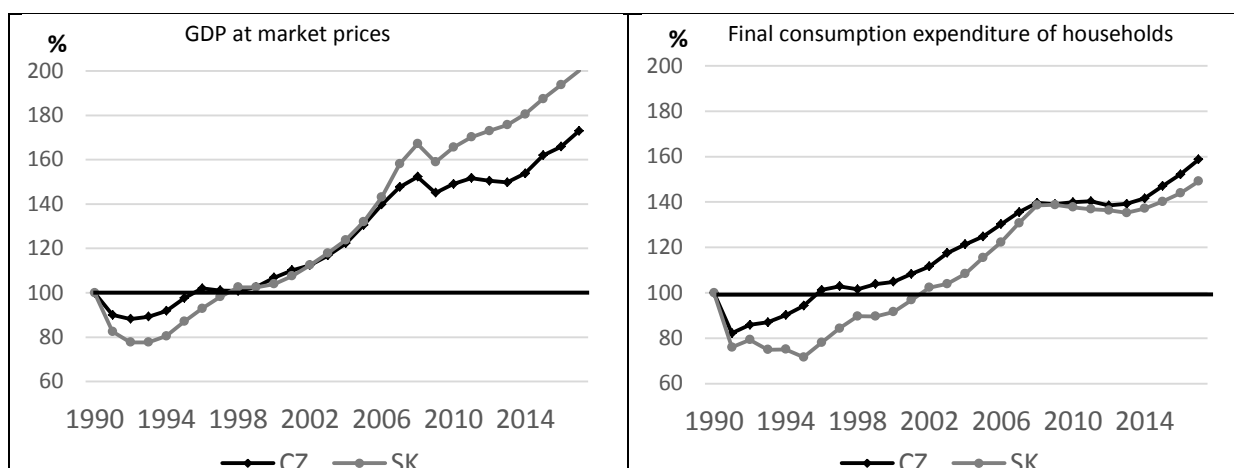
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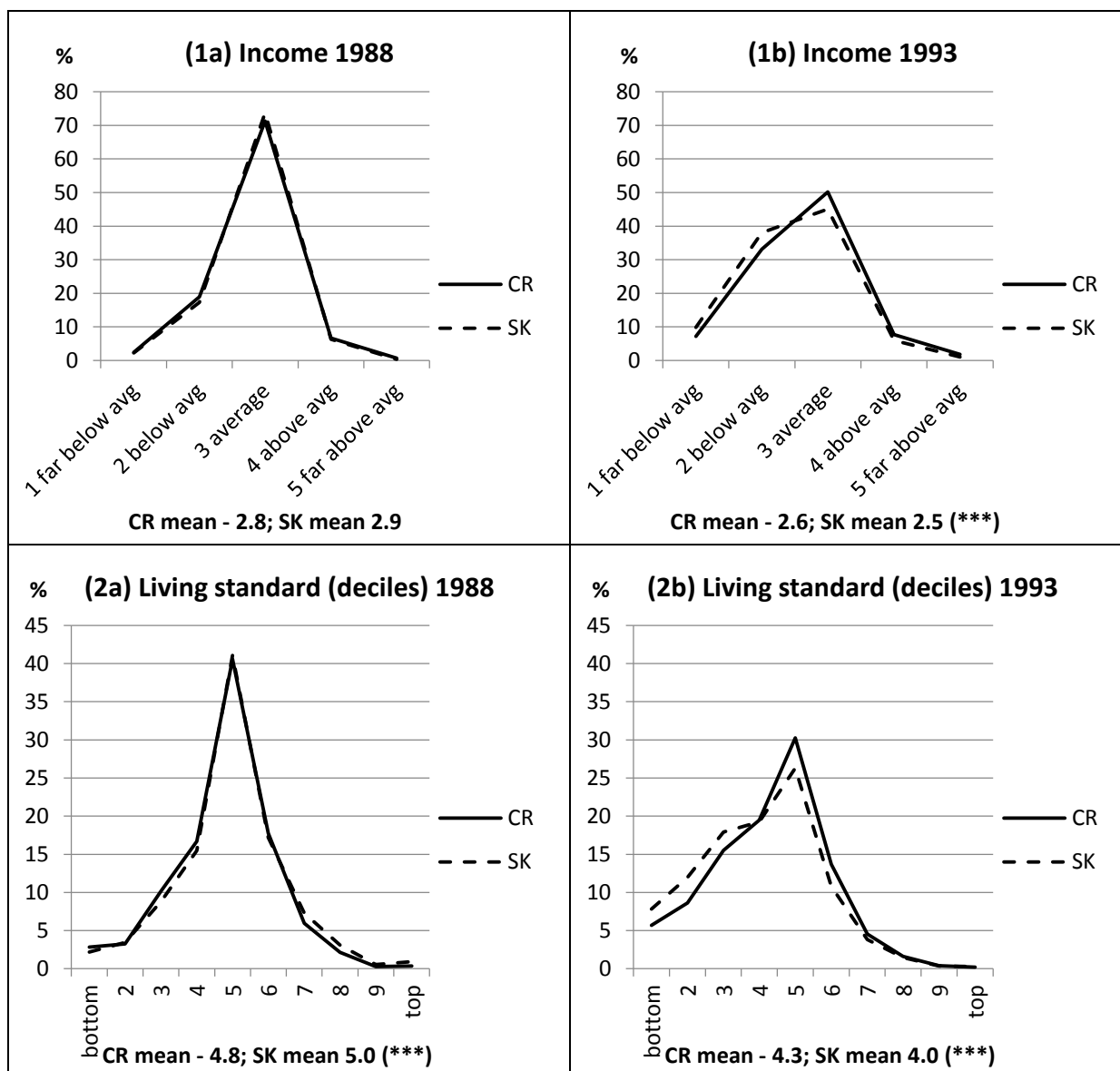
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**Fig. 1** Insufficient income, inability (%), and SK/CR ratio  
 Source: SOCO 1995, EU-SILC 2005-2016 (own computations).



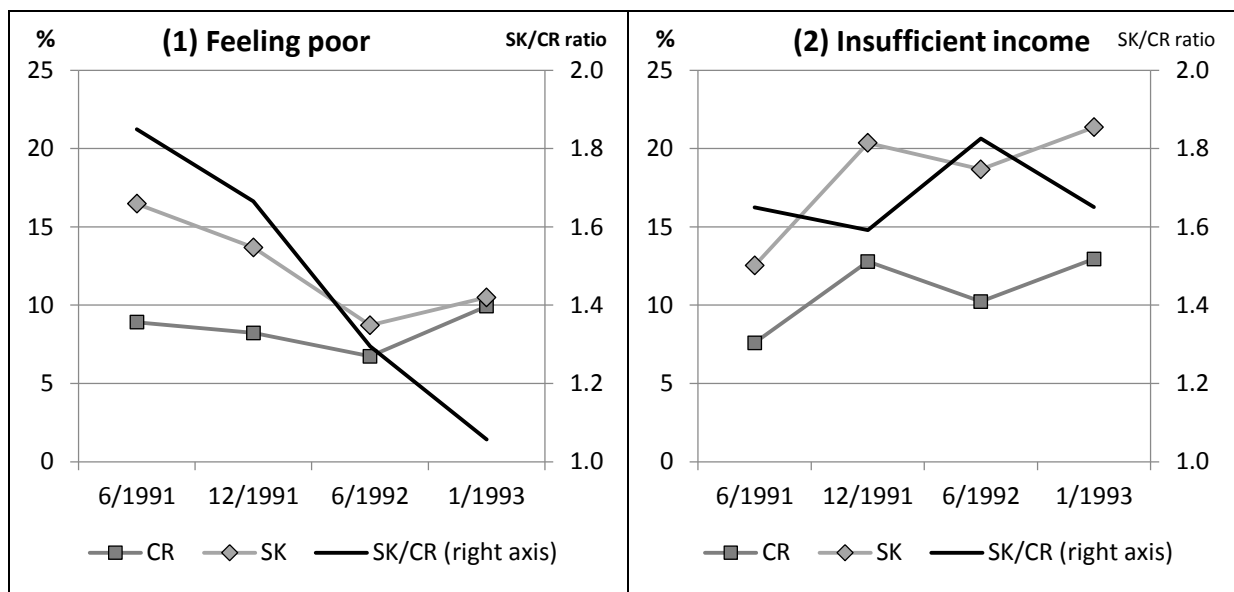
**Fig. 2** Development of macroeconomic indicators (Chain linked volumes, index 1990=100)  
 Source: The period 1990-2009 is based on the CZSO (2012) data, the period 2010-2017 is based on Eurostat data variable nama\_10\_pc). Break in series in 2010.



**Fig. 3** Subjective evaluation of income and living standard (1988 – retrospectively, 1993)

Source: Social Stratification in Eastern Europe 1993. Own computations.

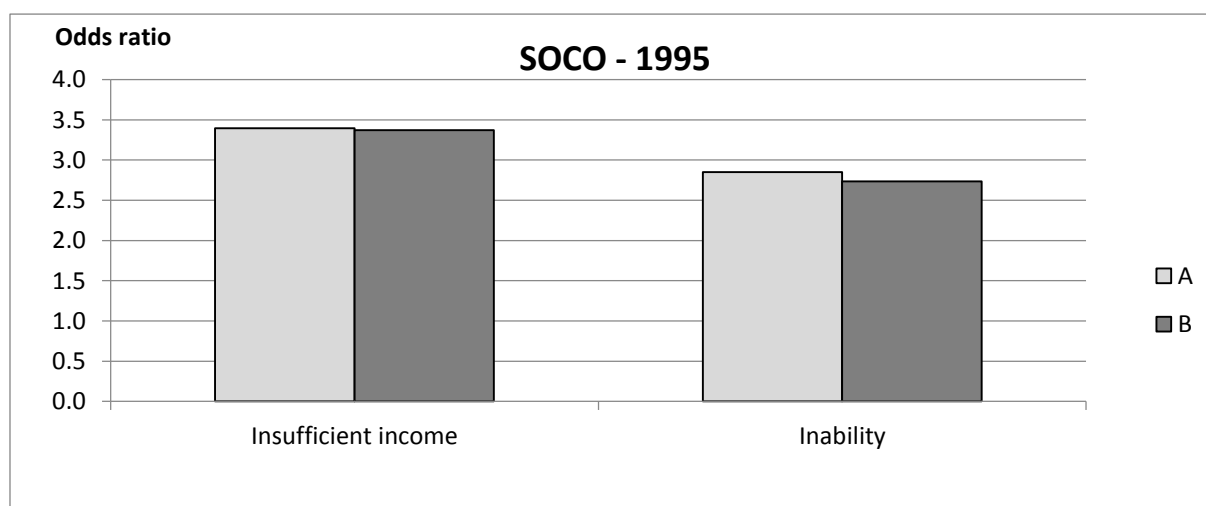
Notes: Sample size – CR 4,418, SK 4,636. Respondents aged 19+. (\*\*\*) mean values statistically different at a 1% level. Panels 1a-1b reflect the distribution of question 1 on a 5-point scale; panels 2a-2b the distribution of question 2 on a 10-point scale.



**Fig. 4** Feeling poor and insufficient income (1991–1993)

Source: EEA W3-W6. Own computations.

Notes: Sample size – CR about 1,100, SK 600-1,000. The survey applied quota sampling. Respondents aged 18+.

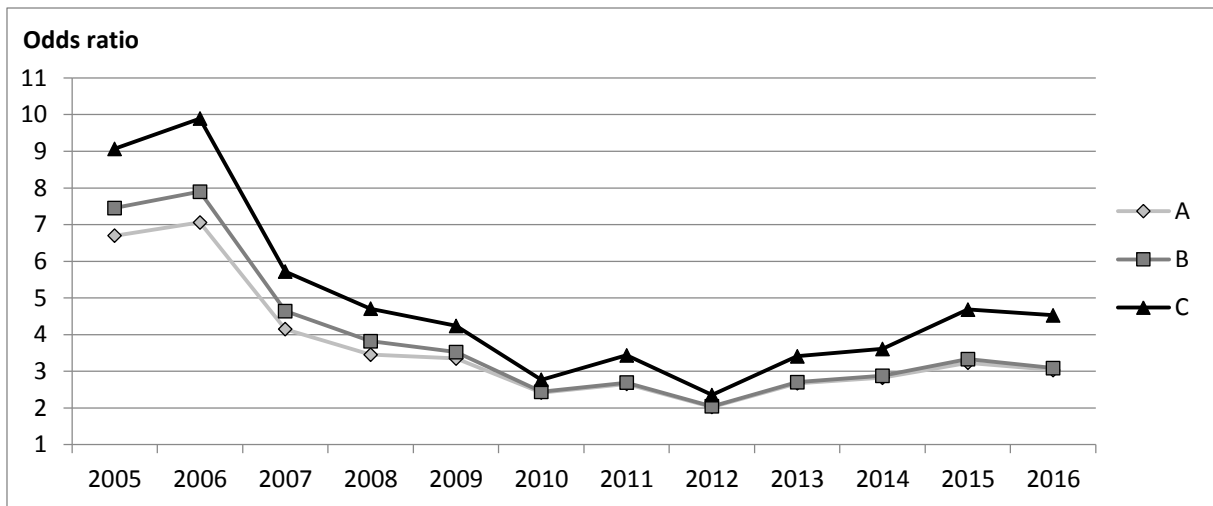


**Fig. 5** Logistic regression of insufficient income and inability – SK dummy (odds ratio), 1995

Source: Social Consequences of Transition data (1995). Own computations.

Notes: Sample size – CR 2,064, SK 2,358. Respondents aged 16+. Model A includes only the SK dummy, and Model B controls for demographic characteristics. Values greater than 1 indicate that Slovaks are more likely to be subjectively poor than Czechs, while values lower than 1 would indicate the opposite. All coefficients of the SK dummy are statistically significant at the 1% level. (Robust standard errors were used.)

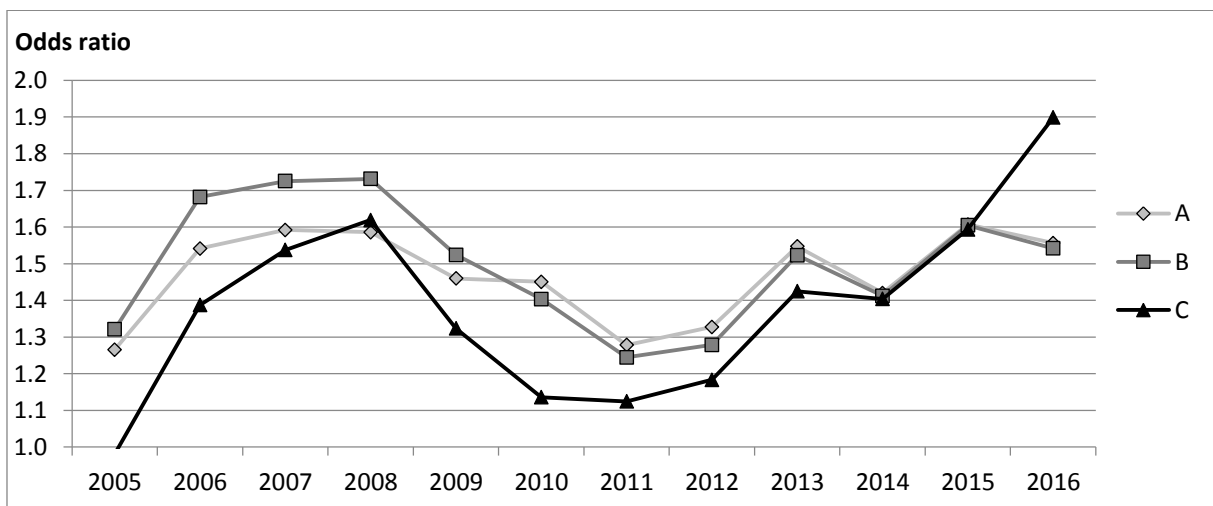




**Fig. 6** Logistic regression of insufficient income – SK dummy (odds ratio), 2005-2016

Source: EU-SILC 2005-2016. Own computations.

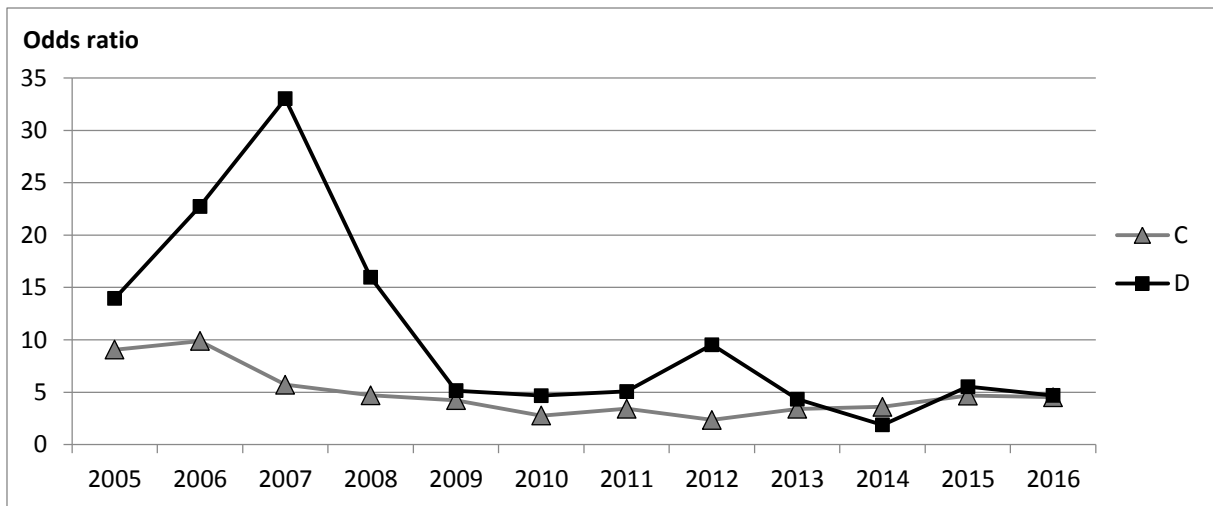
Notes: Respondents aged 16+. Model A includes only the SK dummy, model B controls for demographic characteristics, and model C controls additionally for “objective” characteristics. All coefficients of the SK dummy are statistically significant at the 1% level. (Robust standard errors were used.)



**Fig. 7** Logistic regression of inability – SK dummy (odds ratio), 2005-2016

Source: EU-SILC 2005-2016. Own computations.

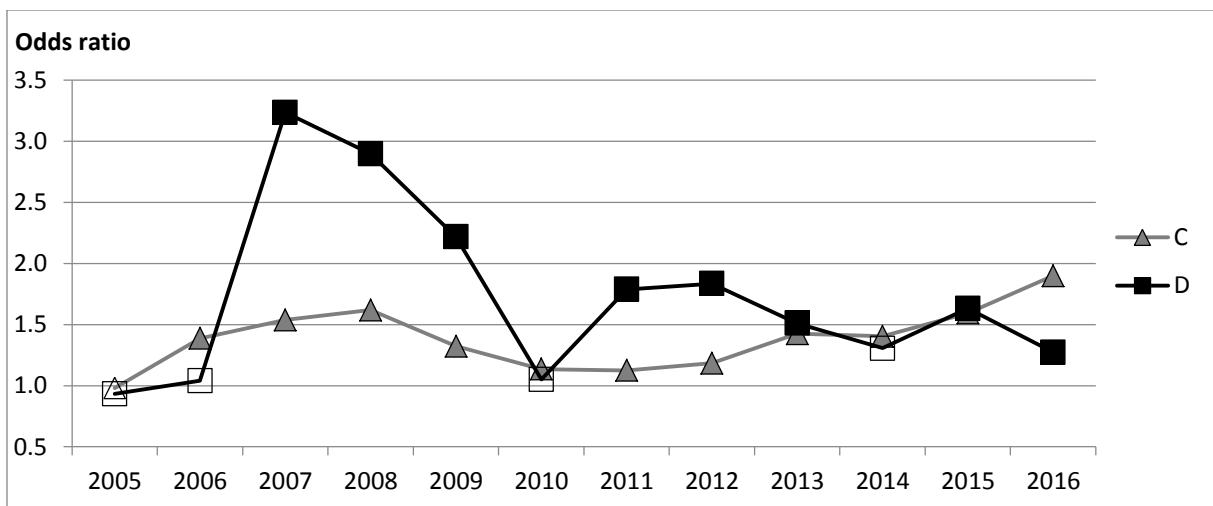
Notes: Respondents aged 16+. Model A includes only the SK dummy, model B controls for demographic characteristics, and model C controls additionally for “objective” characteristics. The coefficient in model C in 2005 is statistically insignificant; all other coefficients of the SK dummy are statistically significant at least at the 5% level. (Robust standard errors were used.)



**Fig. 8** Logistic regression of insufficient income – SK dummy (odds ratio), 2005-2016

Source: EU-SILC 2005-2016; regional data stem from Eurostat database and Czech and Slovak Statistical Offices, see Section 4. Own computations.

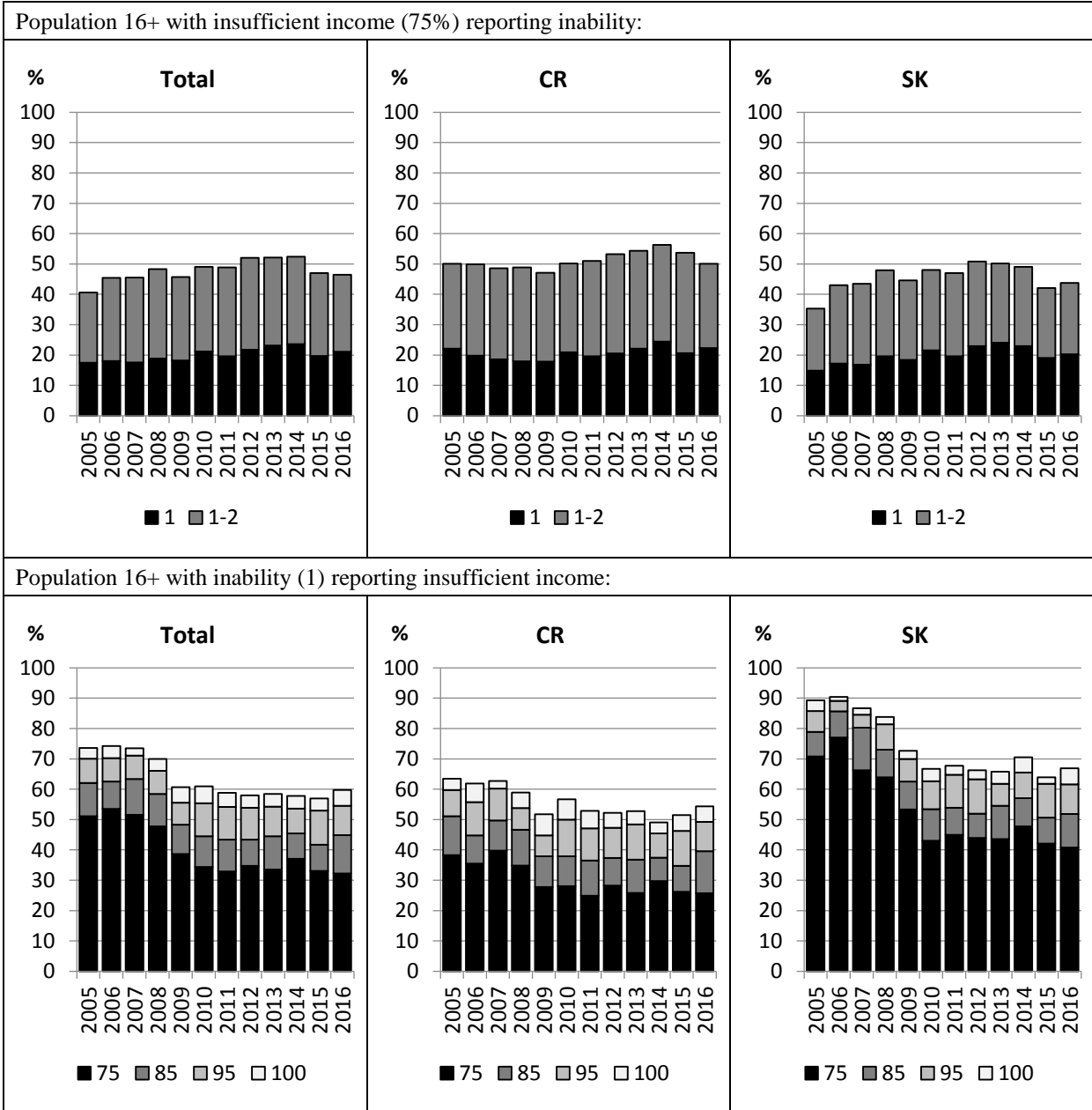
Notes: Respondents aged 16+. Results of Model C include the dummy for SK, controlling for demographic and “objective” characteristics. Model D additionally controls for regional characteristics. GDP is missing in 2016. All coefficients of the SK dummy are statistically significant at the 1% level. (Robust standard errors were used.)



**Fig. 9** Logistic regression of inability – SK dummy (odds ratio), 2005-2016

Source: EU-SILC 2005-2016; regional data stem from Eurostat database and Czech and Slovak Statistical Offices, see Section 4. Own computations.

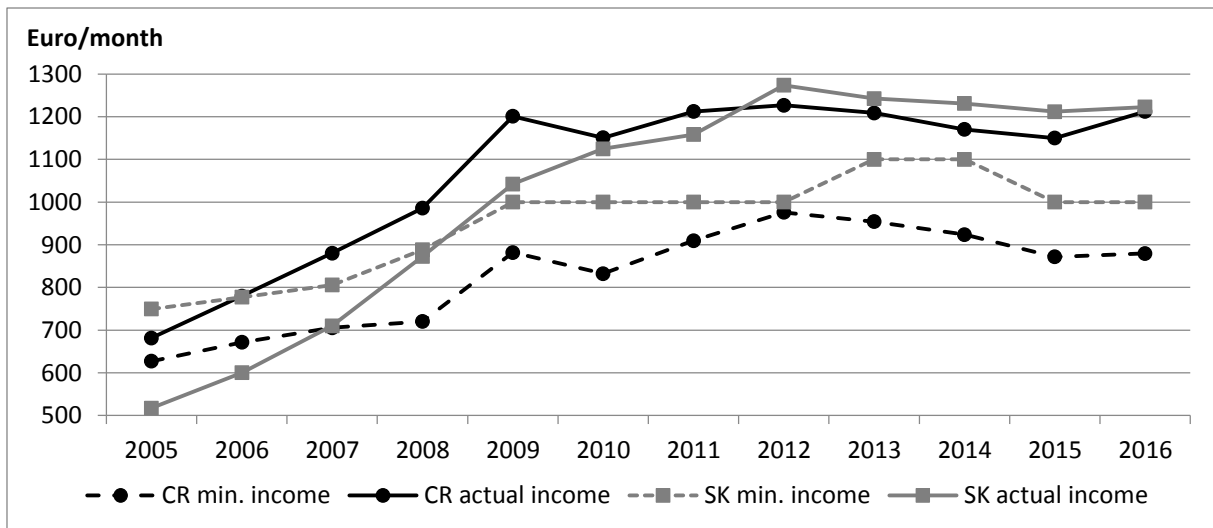
Notes: Respondents aged 16+. Results of Model C include the dummy for SK, controlling for demographic and “objective” characteristics. Model D additionally controls for regional characteristics. GDP is missing in 2016. Empty marks represent coefficients which are not statistically significant at the 10% level. (Robust standard errors were used.)



**Fig. 10** Insufficient income and inability, 2005-2016 (%)

Source: EU-SILC 2005-2016. Own computations.

Notes: Respondents aged 16+.



**Fig. 11** Median monthly minimum income needed and actual income, 2005-2016 (Euro)

Source: EU-SILC 2005-2016. Own computations.

Notes: Respondents aged 16+. The values are in Euro in both countries for the sake of comparability; however, certain fluctuations in the Czech data are caused by the variation of the exchange rate.

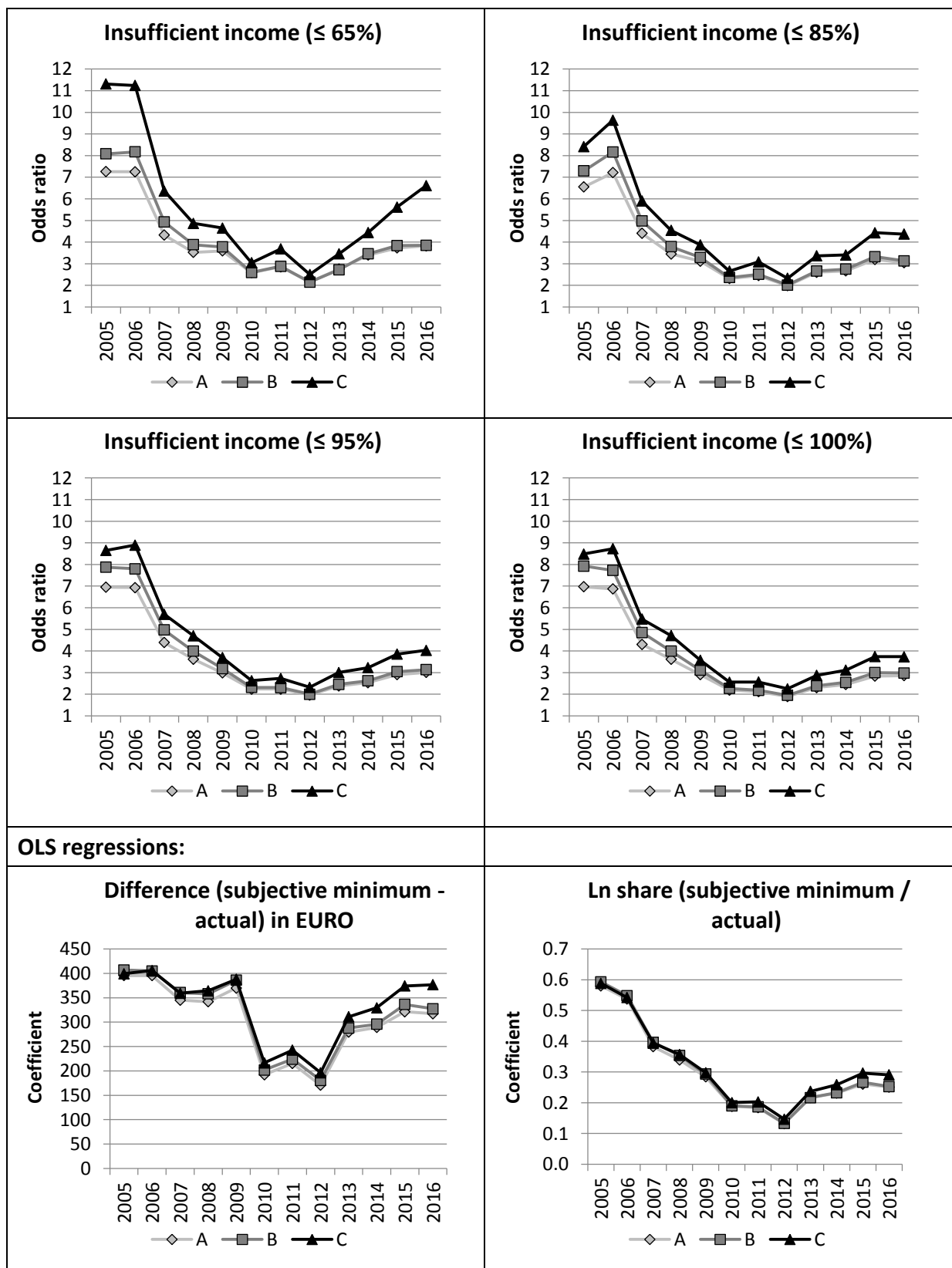
## Appendix

**Fig. 12**

**Fig. 13**

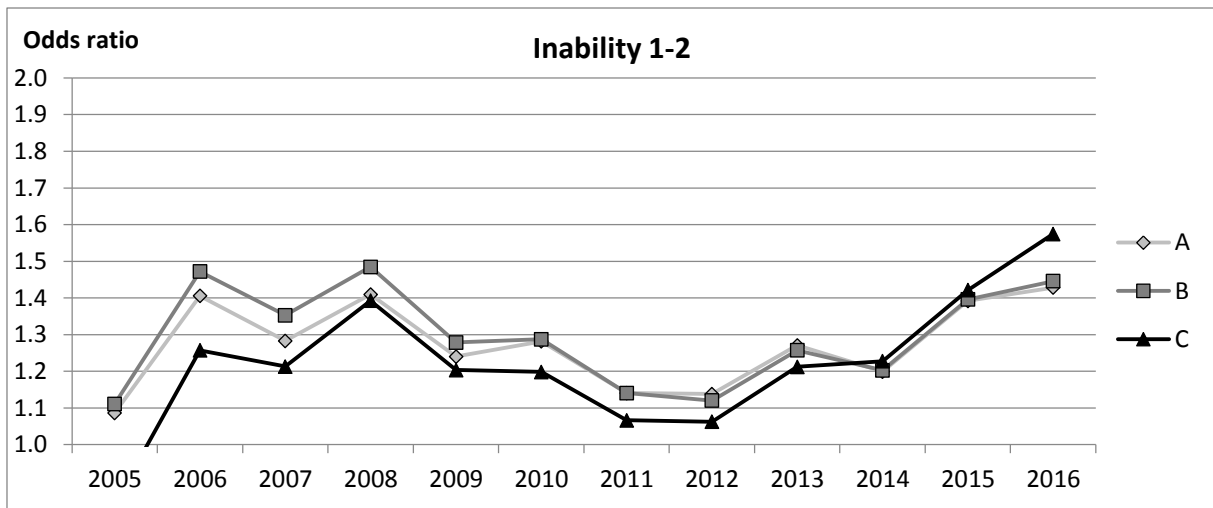
**Fig. 14**

**Fig. 15**



**Fig. 12** Regression analysis of insufficient income – SK dummy (odds ratio), 2005-2016  
 Source: EU-SILC 2005-2016. Own computations.

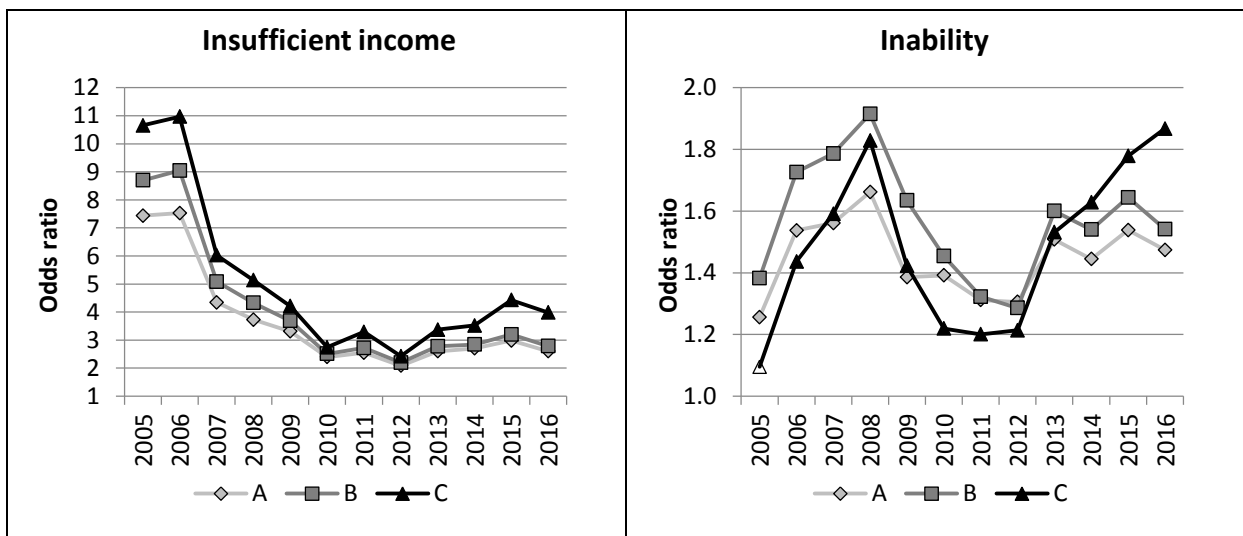
Notes: Respondents aged 16+. Model A includes only the SK dummy, model B controls for demographic characteristics, and model C controls additionally for “objective” characteristics. All coefficients of the SK dummy are statistically significant at the 1% level. (Robust standard errors were used.)



**Fig. 13** Logistic regression of inability (1-2) – SK dummy (odds ratio), 2005-2016

Source: EU-SILC 2005-2016. Own computations.

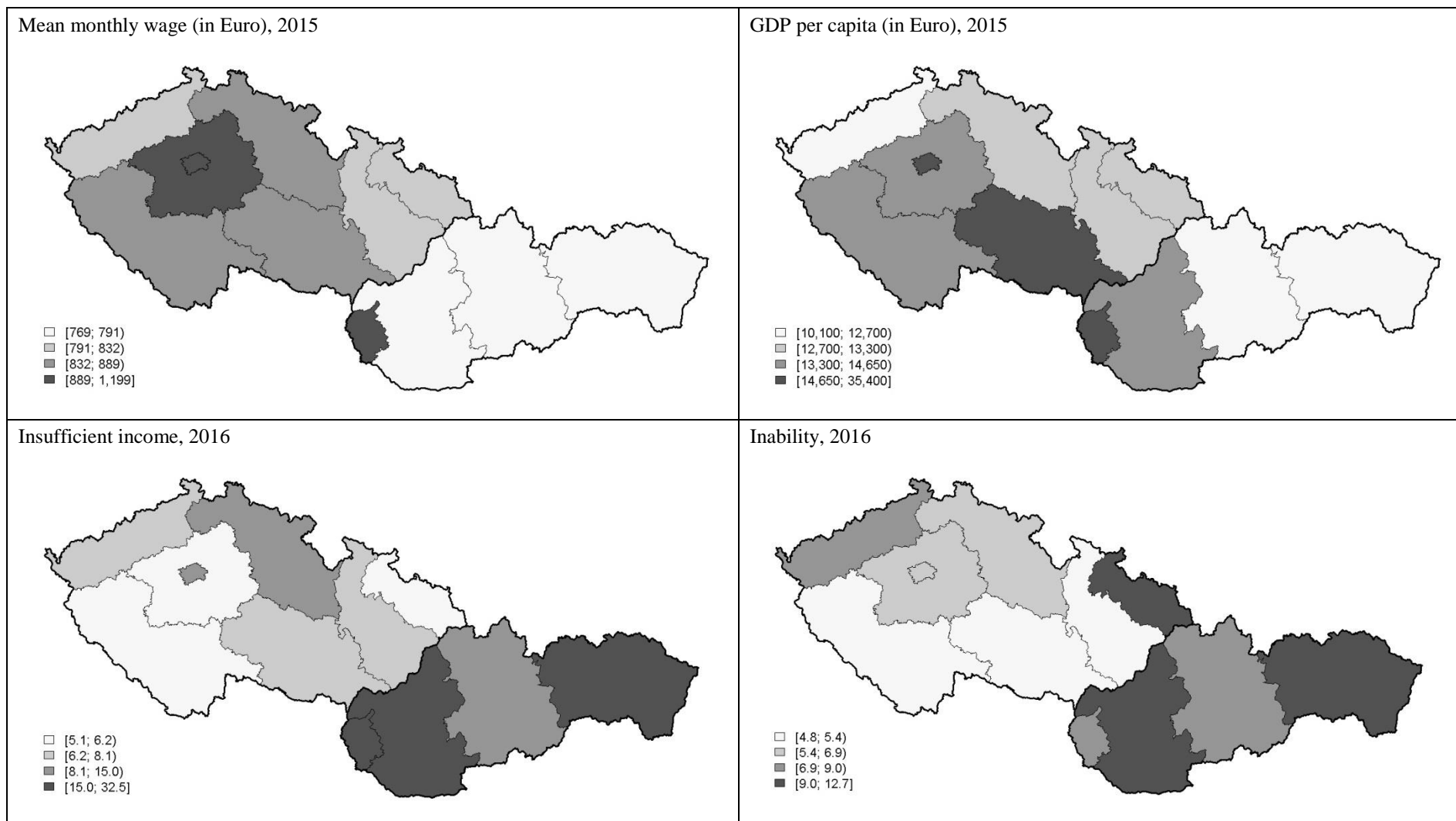
Notes: Respondents aged 16+. Model A includes only the SK dummy, model B controls for demographic characteristics, and model C controls additionally for “objective” characteristics. Coefficients in model C in 2011 and 2012 are statistically significant at the 5% and 10% level, respectively; all other coefficients of the SK dummy are statistically significant at the 1% level. (Robust standard errors were used.)



**Fig. 14** Logistic regression of insufficient income and inability – SK dummy (odds ratio), only respondents answering household questionnaire, 2005-2016

Source: EU-SILC 2005-2015. Own computations.

Notes: Respondents aged 16+ responsible for household questionnaire. Model A includes only the SK dummy, model B controls for demographic characteristics, and model C controls additionally for “objective” characteristics. All coefficients of the SK dummy in the regression of insufficient income are statistically significant at the 1% level. In the regression of inability in model C, the coefficient for 2005 is statistically insignificant, and coefficients for 2010 and 2011 are statistically significant at the 5% level; all other coefficients of the SK dummy are statistically significant at the 1% level. (Robust standard errors were used.)



**Fig. 15** Spatial distribution of mean wage and GDP (NUTS2 regions), 2015/2016

Source: EU-SILC 2015 and 2016 (own computations); Eurostat database for GDP (current prices, Euro per capita – variable nama\_10\_pc).