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# SUITABLE AGE FOR THE FIRST CHILDBEARING: A CASE STUDY OF MALACKY AND DUNAJSKÁ STREDA, SLOVAKIA

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**Abstract:** This paper examines the effects of transformation process and value changes on the young females' perception of „suitable age for the first childbearing." Using the survey data collected in Malacky and Dunajská Streda, Slovakia, the analysis displayed a tendency that respondents with the positive evaluation of transition in the last 12 years are likely to select higher age as „suitable" for the childbearing. It is indicated that the recent fertility change in Slovakia cannot be explained by a few simple factors, and that the decline of fertility seems to be a product of the complex societal transformation process.

**Keywords:** fertility postponement, suitable age for the first childbearing, transformation, value changes, socio-economic change

## 1. INTRODUCTION

Since the beginning of the 1990s, the rapid decline of fertility in Slovakia has attracted attention of social scientists in this country. As it is widely known, Slovakia and her neighbours in Central and Eastern Europe had a long tradition of higher fertility in comparison with Western Europe, where many countries encountered the large-scale fertility declines in the 1960s. Nevertheless, the transformation process, or so-called 'transition', beginning in the late 1980s has completely changed demographic profiles in Slovakia. The Total Fertility Rate (TFR), which used to be over 2.0 in the 1980s, hit an unprecedented 1.29 in 2000, and the number of births reached 55,366 in 2000, that is more than 30% decrease from 80,390 in 1990. Repercussions of these changes, whether they are short-term or long-term, could be serious. Total population, for example, seems likely to get into a phase of the long-term decrease, if the present situation continues. Eventual rise of the percentages of the aged population accompanied by the decrease in birth will also impact

the structure of the whole society. To understand the wide range of socio-economic phenomena in Slovakia, it would thus be necessary to grasp the details of ongoing fertility change, and possibly reveal its determinants.

The purpose of this paper is to obtain some ideas on determinants of the recent fertility decline by looking into survey data concerning the young adults' perception on fertility. To be specific, we would examine such issues as: what factors would lead youngsters to prefer later childbearing; or what types of people are inclined to postpone parenthood. While the survey, with the data it collected, was not a large-scale, its data would provide us with at least a tentative basis for fertility analysis. In the following section, recent demographic trends in Slovakia and previous arguments on the determinants of fertility decline are summarised. Basic information on survey methods and a framework for the present analysis are then provided in section 3. Results of the analysis and their implications follow in section 4 and 5.

## 2. FERTILITY DECLINE IN SLOVAKIA

As is well documented in the publications of the Institute of Informatics and Statistics, Slovak Republic (INFOSTAT) (e.g. INFOSTAT 2000, 2001), the recent trends of fertility and related demographic indicators have demonstrated a drastic deviation from the patterns observed until the 1980s. These trends could be characterised by such changes as a decrease in marriages, postponement of the first childbearing, a decrease in fertility, and an increase in extra-marital births. For example, the number of marriages was 40,435 in 1990, but it declined to 25,903 in 2000. The crude marriage rate also decreased during the same period from 7.63 to 4.80. As for births, while the TFR displayed a steep decrease in the 1990s, the mean age of the first childbearing moved up swiftly, e.g., from 22.67 years in 1990 to 23.93 years in 2000. Extra-marital births have also grown, both in crude numbers and in percentages of total births. The number of extra-marital births increased from 6,085 in 1990 to 10,132 in 2000, despite the rapid decrease in total births.

Previous studies on demographic trends in Slovakia have generally associated such drastic changes with two factors. One is a complicated socio-economic situation under transition, and the other is socio-cultural value changes among young adults (e.g. Chovancová 1999, Mládek 1999, Mládek 2000).[1] The first factor is exemplified by socio-economic changes such as rising costs of childcare, decline of household income, shortage of affordable housing, and unfavourable changes in family-related policy. Scholars have argued that these elements have discouraged young adults from getting married and having children. The second factor includes phenomena like growing individualism and the emancipation of women. This argumentation is basically in line with „the second demographic transition" theory (van de Kaa 1987, Lesthaeghe and Moors 2000),[2]

[1] Basically, similar explanations have been used for the recent fertility decline in some Central and Eastern European countries. For example, see Sobotka (1999) and Conrad, et al. (1996).

[2] While the theory of the second demographic transition seems to have attained wide popularity among demographers, it has also been criticized by some scholars. For example, see Cliquet (1991).

proclaiming that these value changes, like in Northern and Western Europe in the 1960s, have distracted youngsters from traditional reproductive behaviours and actualised the convergence to below-replacement fertility patterns.

The common ground for the current understanding among professionals seems to be that both factors play a certain role in suppressing the current fertility level. This view is undoubtedly right. Nevertheless, more concrete features in the relationships between fertility and these determinants need to be revealed, especially since Slovakia is about to join the EU in a short time and further „westernization" among youngsters may be expected. Indeed, details on the determining structure of fertility would help us solve more impending questions, such as whether the present fertility decline will end in the short-term or continue as a lasting trend, or whether the recovery of the Slovak economy will pull up the lowest-low fertility.

## 3. STUDY FRAMEWORK

The present study aims at clarifying the relationships between young women's perception of „suitable age for the first childbearing" (hereafter abbreviated as „suitable age") and the variables concerning recent socio-economic transformation and value changes. While this attempt is designed to meet the above-mentioned demands for more details on the mechanism of the recent fertility decline, the rationale for the selection of variables should be firstly elaborated because of their rather peculiar nature.

As is well known, the age of the first childbearing generally serves as a good indicator of cohort or period TFR change (e.g. Ryder 1980). It also represents the trend of fertility postponement, which is one of the main factors of the recent period TFR decline. However, fertility „intention" or „perception," whether it is desired number of children, intention for fertility termination or whatever, has been acutely criticised by some demographers for its vulnerability or „softness" as an indicator of future behaviours of respondents (e.g. see Westoff 1990). The reason why „suitable age" was selected here despite such unreliability comes mainly from technical difficulties of data collection. When we study the effects of individual socio-economic situations or value orientations on „hard" actual fertility, we need data at two time points, since the former causative factors must precede the latter resultant fertility behaviour by at least 9 months. Longitudinal surveys fulfil this condition, but this type of survey is usually not easy to undertake. On the other hand, perception of fertility needs basically no time interval to be affected by the present individual situations. One survey is enough. Facilitation of data collection, however, pulls us away from the analysis of actualised fertility. The present attempt is thus to investigate the perception of respondents exclusively. Whether it is geared into actual fertility is a different story.

The data used here come from a survey undertaken in 2002 by the Department of Human Geography and Demogeography, Comenius University in Bratislava. The survey was basically designed as a demographic survey but it also contained some characteristics as a geographic case study in adjacent areas surrounding Bratislava. Moreover, the surveyors could not manoeuvre a random sampling method. The geographic scope and demographic representativeness of the data is thus limited. Nevertheless, under the situation

where nation-wide fertility surveys, such as FFS, have been seldom conducted, these survey data had better be utilised fully.[3] Data were collected by the students of the Department who visited the areas and interviewed inhabitants, and 629 people provided their individual information. From those data, the present analysis uses the records of 126 women who were born in 1970 and after, in order to focus on the fertility behaviours of young females. As basic information of the survey, Figure 1 and Table 1 show the survey areas and their brief demographic/socio-economic situations. Among various indicators in the table, the data of the ethnic composition show a sharp difference between the two areas. Ethnic Hungarians are the dominant group in Dunajská Streda. Therefore, the data of these two areas seem to represent, to a certain degree, the behaviours of the two major ethnic populations in Slovakia.

**Table 1** Basic data on Malacky and Dunajská Streda (2000)

| | Malacky | Dunajská Streda | Slovakia total |
|---|---|---|---|
| Population | 64 202 | 112 489 | 5 402 547 |
| Population density | 68 | 105 | 110 |
| **Age structure** [2] | | | |
| pre-productive (%) | 17,8 | 18,0 | 19,2 |
| productive (%) | 64,3 | 65,1 | 62,7 |
| post-productive (%) | 17,9 | 16,9 | 18,1 |
| **Population change** [3] | | | |
| population increase | 4,3 | 1,3 | 0,7 |
| natural increase | -1,3 | -0,2 | 0,4 |
| social increase | 5,6 | 1,5 | 0,3 |
| marriage | 4,2 | 4,8 | 4,8 |
| live birth | 9,2 | 9,3 | 10,2 |
| abortion | 5,4 | 4,8 | 4,4 |
| **Ethnic composition** | | | |
| Slovak (%) | 97,0 | 14,0 | 85,8 |
| Hungarian (%) | 0,3 | 83,3 | 9,7 |
| **Employees by industry** [4] | | | |
| agriculture (%) | 10,4 | 19,2 | 7.2* |
| industry (%) | 42,2 | 28,5 | 33.0* |
| manufacturing (%) | 36,2 | 24,6 | 28.4* |
| construction (%) | 4,2 | 3,9 | 4.3* |
| trade (%) | 3,6 | 5,1 | 5.5* |
| **Other** | | | |
| average monthly wage of employees [5] | 11 670 | 9 659 | 11,799* |
| unemployment rate [6] | 14,0 | 17,5 | 17,9 |

**Source:** Štatistický Úrad Slovenskej Repubuliky (2001): *Regionálne porovnania v Slovenskej republike*

[1] as of December 31.

[2] pre-productive = age 0-14; productive = male aged 15-59, female aged 15-54; post-productive = male aged 60+, female aged 55+.

[3] per 1,000 population (as of July 1)

[4] based on average registered number of employees in 2000 for enterprises with 20 and more employees.

[5] for enterprises with 20 and more employees. unit = Slovak koruna.

[6] rates for dispensable registered unemployed

* including employees in abroad

[3] FFS, or Family and Fertility Surveys, are designed to obtain internationally-comparable data on fertility and family formation mainly in European countries (e.g. Schoenmaeckers and Lodewijckx1999). Slovakia did not join this project, but it is participating in the second round of FFS.

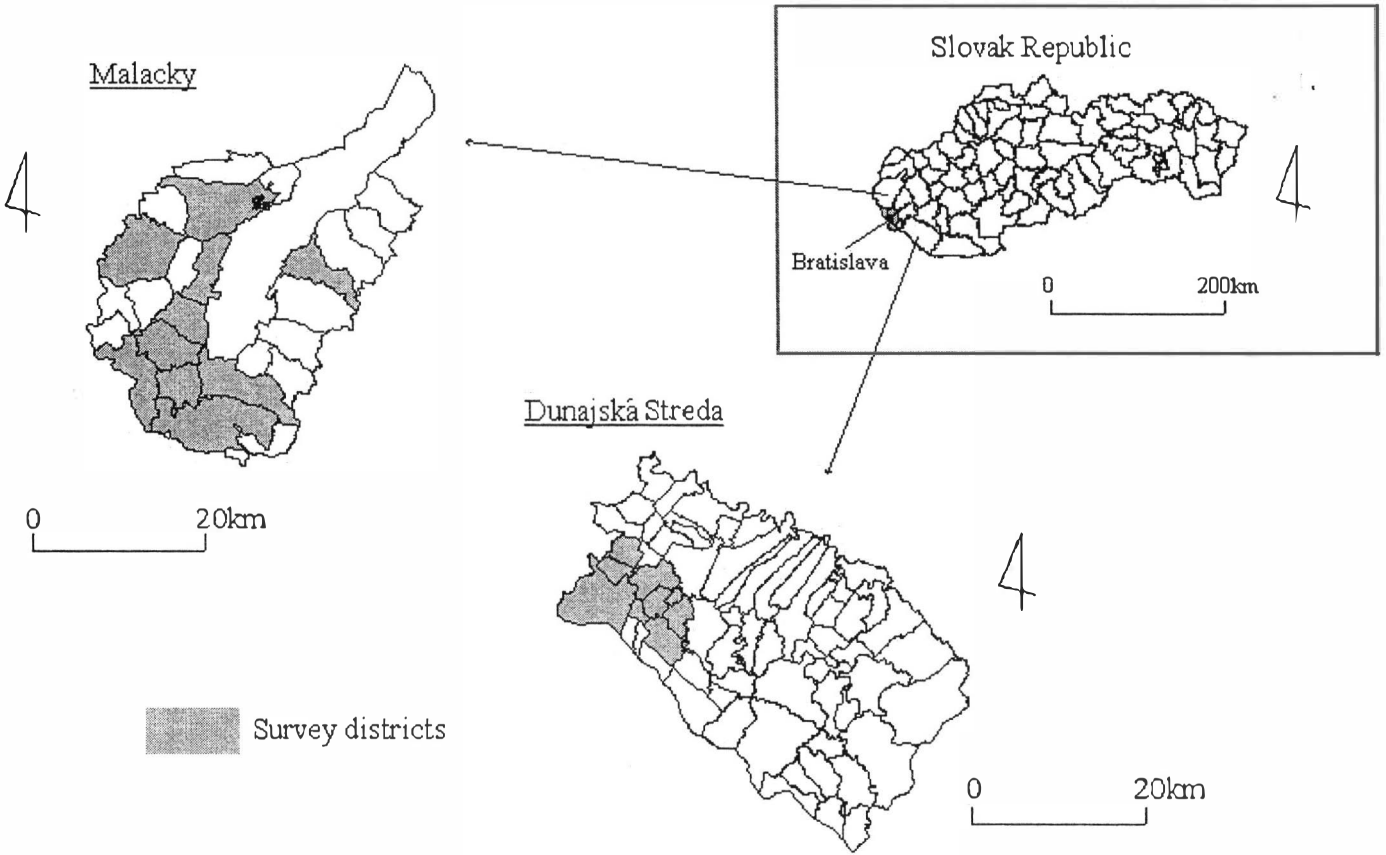


**Figure 1** Study area

The following analysis consists of two parts. The first part displays the basic statistics of „suitable age" and its relationship to various personal attributes of respondents. „Suitable age for the first childbearing" is the answer to the question „In your opinion, what is the most suitable age for childbearing of the first child?" Respondents were asked to choose their answers from 7 alternatives of two-year age groups, i.e., „18 – 19", „20 – 21", ... „30 and over". Personal attributes used for analysis consist of area of residence, year of birth, marital status, educational attainment, use of contraception, and number of siblings. The second part establishes a study framework in which three socio-economic and ideational indicators are chosen as explanatory variables, and their effects on the dependent variable, i.e. „suitable age," are tested. The three indicators selected here are „recent change in individual socio-economic situation," „evaluation of 'transition'" and „attitude toward premarital birth." Questions asked were; „How has your social and economic situation changed during the last 5 years?", „What is your judgement of the transformation process in the last 12 years?" and „In your opinion, is it important to be married before having children?", respectively. To the first two questions, the survey requested respondents to answer in a 5-point scale – from 1 (improved substantially, or very positive) to 5 (worsened substantially, or very negative) –, and in the third question, alternatives were „yes/no/don't know". In the analysis, we reclassified 5-point answers into 3-point scale (i.e. improved substantially/slightly – not changed – worsened slightly/substantially, or very positive/positive – positive as well as negative – negative/very negative) because of small sample size. These three levels are denoted in the tables simply as „++/+", „+/–", and „–/—." The analyses check the relationships between independent and dependent variables firstly by simple cross tabulations and chi-square tests (in some cases, Fisher's exact tests), and secondly by logistic regression analysis in which we control the effects of various variables.

## 4. ANALYSIS

### 4.1 Distribution of „suitable age for the first childbearing"

Figure 2 exhibits the distribution of the respondents' answers of „suitable ages for the first childbearing". The graph illustrates a one–peak distribution; while the youngest category „18 – 19" contains no response, frequency increases as the age moves up, reaching a peak at 24 – 25 (37.3%). After the peak, the frequency decreases. „30 and over" was chosen by less than 5 % of the respondents. The mean age, calculated by allocating the midpoint of the two years to each category,[4] e.g. „18.5" to „18 – 19", is 24.6 years. As already indicated, the actual mean age of the first childbearing was 23.93 years in 2000. Taking into account the facts that the survey did not use random sampling, and that the data were collected in the vicinity of Bratislava, where mean age of the first childbearing would be higher than the national mean, the perceptions of the respondents seem to correspond relatively well to the actual vital statistics.

[4] For „30 and over", 30.5 was used for calculation.

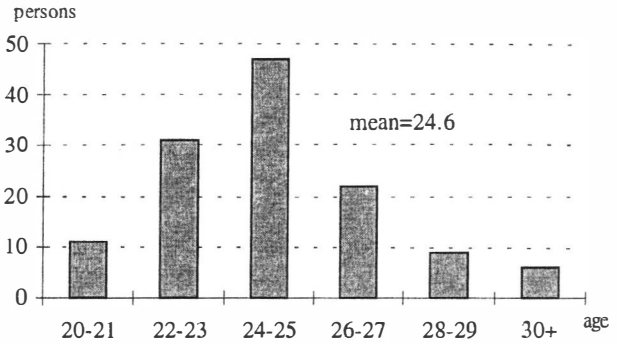


**Figure 2** Distribution of „suitable age for the first childbearing"

## 4.2 Distribution by personal attributes

Judging from the distribution and the mean years illustrated above, respondents' answers of „suitable age" can be roughly divided into 3 groups with relatively similar frequency, i.e., below mean (18 – 23), mean (24 – 25), and over mean (26 –) groups. Because of the paucity of data, Tables 2 – 10 use this categorisation to portray the distributions by various personal attributes. In the tables, *p*-values are indicated as a result of chi square test or Fisher's exact test, as well as mean age for each row category (calculated based on the original 7 categories of „suitable age"). The following is a brief summary of the results.

The relationship between area of residence and „suitable age" (Table 2) indicates a slight tendency that respondents in Dunajská Streda prefer higher ages for the first childbearing than those in Malacky. A larger percentage (38.8%) of the former group selected „26", compared to 23.4% of the latter, although the difference of their mean ages is small (24.7, 24.5, respectively). One of the main factors producing such discrepancy is the higher percentage of Hungarian population in Dunajská Streda. Cross tabulation by ethnicity (not shown) identifies a higher mean of „suitable age" for Hungarians than for Slovaks (24.7, 24.5, respectively), indicating the existence of some ethnic differences in perceptions of fertility.

**Table 2** Area of residence and „suitable age for the first childbearing" (upper: person, lower: %)

| | 18-23 | 24-25 | 26- | total | mean* |
|---|---|---|---|---|---|
| Malacky | 25 | 34 | 18 | 77 | 24,5 |
| | (32,5) | (44,2) | (23,4) | (100) | |
| Dunajská Streda | 17 | 13 | 19 | 49 | 24,7 |
| | (34,7) | (26,5) | (38,8) | (100) | |
| Total | 42 | 47 | 37 | 126 | 24,6 |
| | (33,3) | (37,3) | (29,4) | (100) | |

**Source:**survey data
chi square test p = 0,084
* mean = mean „suitable age"

Years of birth and marital status play some role in defining the level of „suitable age" (Table 3, 4). The tables show different mean ages: as for year of birth, the highest mean „suitable age" is that of „1970 – 74" (25.0), followed by „1980 –" (24.7) and „1975 – 79" (24.1). Regarding marital status, never married people display a higher mean (24.8) than the ever married (24.3). We need to keep in mind, however, that the influences of variables observed here may be proxies for another factor's effects: Table 3 possibly illustrates not the effects of birth cohort but those of age, and marital status is surely affected by age.

**Table 3** Year of birth and „suitable age for the first childbearing" (upper: person, lower: %)

| | 18-23 | 24-25 | 26- | total | mean* |
|---|---|---|---|---|---|
| 1970-74 | 10 | 16 | 14 | 40 | 25,0 |
| | (25,0) | (40,0) | (35,0) | (100) | |
| 1975-79 | 19 | 11 | 10 | 40 | 24,1 |
| | (47,5) | (27,5) | (25,0) | (100) | |
| 1980- | 13 | 20 | 13 | 46 | 24,7 |
| | (28,3) | (43,5) | (28,3) | (100) | |
| Total | 42 | 47 | 37 | 126 | 24,6 |
| | (33,3) | (37,3) | (29,4) | (100) | |

**Source:** survey data
chi square test p = 0,208
* mean = mean „suitable age"

**Table 4** Marital status and „suitable age for the first childbearing" (upper: person, lower: %)

| | 18-23 | 24-25 | 26- | total | mean* |
|---|---|---|---|---|---|
| Never married | 22 | 27 | 25 | 74 | 24,8 |
| | (29,7) | (36,5) | (33,8) | (100) | |
| Ever married | 20 | 20 | 12 | 52 | 24,3 |
| | (38,5) | (38,5) | (23,1) | (100) | |
| Total | 42 | 47 | 37 | 126 | 24,6 |
| | (33,3) | (37,3) | (29,4) | (100) | |

**Source:** survey data
chi square test p = 0,382
* mean = mean „suitable age"

**Table 5** Educational attainment and "suitable age for the first childbearing" (upper: person, lower: %)

| | 18-23 | 24-25 | 26- | total | mean* |
|---|---|---|---|---|---|
| Basic, secondary1** | 19 | 11 | 5 | 35 | 23,6 |
| | (54,3) | (31,4) | (14,3) | (100) | |
| Secondary2** & over | 22 | 36 | 32 | 90 | 25,0 |
| | (24,4) | (40,0) | (35,6) | (100) | |
| Total | 41 | 47 | 37 | 125 | 24,6 |
| | (32,8) | (37,6) | (29,6) | (100) | |

**Source:** survey data
chi square test p = 0,004
* mean = mean „suitable age"
** secondary 1: without graduate exam secondary 2: with graduate exam

Higher educational attainment significantly functions to raise „suitable age" (Table 5). For example, the mean „suitable age" for respondents with secondary education (with

graduate exam) or higher is much higher than that for those with only basic or secondary education (without graduate exam) (25.0 and 23.6, respectively). The *p*-value for chi square test (<0.01) also confirms the role of education in determining the perceptions of respondents. This result seems to correspond well to situations in many parts of the world where educational advancement among females generally serves to raise their childbearing age.

The table of the use of contraception (Table 6) shows a tendency that those using contraception prefer later childbearing. It has been documented that while adoption of efficient contraceptive methods has promoted the decline of fertility in the West (Lesthaeghe and Moors 2000), the utilisation of modern contraception had been low in Eastern Europe, and abortion had functioned as a popular method to control fertility at least until the 1980s (for the case of Slovakia, e.g., see Stloukal 1998). The high percentage of modern method users („other method" in the table) among respondents suggests that contraceptive modernisation has been playing a certain role in the recent fertility behaviours.

**Table 6** Use of contraception and „suitable age for the first childbearing" (upper: person, lower: %)

| | 18-23 | 24-25 | 26- | total | mean* |
|---|---|---|---|---|---|
| No | 23 | 15 | 13 | 51 | 24,3 |
| | (45,1) | (29,4) | (25,5) | (100) | |
| Non-supply method | 0 | 8 | 4 | 12 | 25,3 |
| | (0,0) | (66,7) | (33,3) | (100) | |
| Other method | 18 | 23 | 18 | 59 | 24,7 |
| | (30,5) | (39,0) | (30,5) | (100) | |
| Total | 41 | 46 | 35 | 122 | 24,6 |
| | (33,6) | (37,7) | (28,7) | (100) | |

**Source:** survey data
Fisher's exact test p = 0,022
* mean = mean „suitable age"

**Table 7** Number of siblings and „suitable age for the first childbearing" (upper: person, lower: %)

| | 18-23 | 24-25 | 26- | total | mean* |
|---|---|---|---|---|---|
| 0 | 0 | 3 | 6 | 9 | 26,3 |
| | (0,0) | (33,3) | (66,7) | (100) | |
| 1 | 16 | 18 | 18 | 52 | 25,0 |
| | (30,8) | (34,6) | (34,6) | (100) | |
| 2 | 12 | 17 | 4 | 33 | 23,8 |
| | (36,4) | (51,5) | (12,1) | (100) | |
| 3 and over | 14 | 9 | 9 | 32 | 24,3 |
| | (43,8) | (28,1) | (28,1) | (100) | |
| Total | 42 | 47 | 37 | 126 | 24,6 |
| | (33,3) | (37,3) | (29,4) | (100) | |

**Source:** survey data
Fisher's exact test p = 0,016
* mean = mean „suitable age"

Number of siblings (Table 7) is included in the analysis to observe whether past experience in a large family promotes preference for early childbearing. The table reveals that, despite some inconsistency, respondents who were raised in a big family tend to select

lower ages as „suitable." The mean „suitable age" for respondents without siblings is 26.3. On the other hand, the mean for those with 2 siblings is 23.8. This implies the importance of childhood and family background for the trend of fertility postponement.

### 4.3 Effects of transformation and value change

Before looking into the effects of transformation and value change, we present a couple of expectations or working hypotheses to be examined, mainly to set a focus on the analysis. These expectations are produced in line with the discussion in the previous studies. Firstly, by judging from the argument on the effects of the recent socio-economic hardships on fertility, we would expect that respondents who have experienced a downturn of personal socio-economic conditions are likely to delay childbirth and thus prefer higher „suitable age". Secondly, discussions on value changes allow us to assume that respondents who display tolerance to premarital birth have assimilated to individualistic values and thus to a western fertility pattern, in that they may show inclinations for fertility postponement. Thirdly, evaluation of transformation seems to contain mixed effects on perception of childbearing. If transformation is evaluated mainly as a process of assimilation to a Western European societal system, its effect on „suitable age" would be expected to be similar to that of opinion on premarital birth, that is, those positively evaluating transformation prefer later childbearing. But if the success of transition is judged mainly in economic terms, respondents who negatively evaluate transition may share much in common with those experiencing personal economic degradation, thus showing a tendency of postponing childbirth. The effect of the evaluation of transformation seems to depend on each respondent's impression of the term „transformation."

**Table 8** Recent personal socio–economic change and „suitable age for the first childbearing" (upper: person, lower: %)

| | 18-23 | 24-25 | 26- | total | mean* |
|---|---|---|---|---|---|
| ++/+ | 10 | 23 | 16 | 49 | 24,8 |
| | (20,4) | (46,9) | (32,7) | (100) | |
| +/– | 23 | 16 | 16 | 55 | 24,5 |
| | (41,8) | (29,1) | (29,1) | (100) | |
| –/— | 7 | 7 | 5 | 19 | 24,5 |
| | (36,8) | (36,8) | (26,3) | (100) | |
| Total | 40 | 46 | 37 | 123 | 24,6 |
| | (32,5) | (37,4) | (30,1) | (100) | |

**Source:** survey data
chi square test p = 0,184
* mean = mean „suitable age"

Table 8 shows the cross tabulation of individual socio–economic improvement and „suitable age". It indicates that while „suitable age" differs by individual socio–economic evaluation, their relationship is weak. Mean „suitable age" is highest for the respondents who have experienced socio–economic improvement (category „++/+", 24.8), but this figure is close to the others (24.5 for both „+/–" and „–/—" categories). A large *p*-value (0.18) also suggests a weak connection between the two variables. It is thus safe to say that the hypothesis is not confirmed by the examination of cross tabulation. Indeed, some parts of the table even indicates a possibility that fertility postponement may be preferred by

respondents whose socio–economic conditions have been improving (compared to „+/–", „++/+" displays a much higher percentage in „24 – 25"). This tendency may be portraying economic relationships between fertility postponement and growing opportunity costs among females, which have been observed in many industrialised countries. Evidence provided here, however, seems insufficient to support this proposition.

Cross tabulation of „suitable age" and opinions on premarital birth (Table 9) indicates that the hypothesis on the two variables has little validity. As is expected, mean „suitable age" for those stating that marriage before childbirth is important (24.3) is lower than that for those who do not mind premarital birth (24.9). The *p*-value for Fisher's exact test is, however, very large (0.662). Furthermore, exclusion of a small-frequency category of „don't know" from the table does not warrant statistical significance in chi square test at a 0.10 level, suggesting difficulties to confirm the above hypothesis.

**Table 9** Opinion on „marriage before childbearing" and „suitable age for the first childbearing" (upper: person, lower: %)

| | 18-23 | 24-25 | 26- | total | mean* |
|---|---|---|---|---|---|
| Important | 23 | 19 | 15 | 57 | 24,3 |
| | (40,4) | (33,3) | (26,3) | (100) | |
| Not important | 17 | 24 | 19 | 60 | 24,9 |
| | (28,3) | (40,0) | (31,7) | (100) | |
| Do not know | 2 | 4 | 3 | 9 | 24,3 |
| | (22,2) | (44,4) | (33,3) | (100) | |
| Total | 42 | 47 | 37 | 126 | 24,6 |
| | (33,3) | (37,3) | (29,4) | (100) | |

**Source:** survey data
Fisher's exact test p = 0,662
* mean = mean „suitable age"

**Table 10** Evaluation of transformation process „suitable age for the first childbearing" (upper: person, lower: %)

| | 18-23 | 24-25 | 26- | total | mean* |
|---|---|---|---|---|---|
| ++/+ | 3 | 15 | 9 | 27 | 25,2 |
| | (11,1) | (55,6) | (33,3) | (100) | |
| +/- | 24 | 20 | 23 | 67 | 24,7 |
| | (35,8) | (29,9) | (34,3) | (100) | |
| -/-- | 12 | 8 | 3 | 23 | 23,5 |
| | (52,2) | (34,8) | (13,0) | (100) | |
| total | 39 | 43 | 35 | 117 | 24,6 |
| | (33,3) | (36,8) | (29,9) | (100) | |

**Source:** survey data
chi square test p = 0,012
* mean = mean „suitable age"

Evaluation of transformation turned out to be the effective factor in defining „suitable age". Table 10 shows a straightforward tendency: more positive evaluation coincides with higher mean of „suitable age". Mean „suitable age" for those with negative evaluation is 23.5 years, and it rises as the evaluation level improves (24.7 for „+/–", 25.2 for „++/+"). While the percentages of „26 –" are almost the same for „+/–" and „++/+" categories, the differences in „18 – 23" by the level of evaluation are quite clear. *P*–value (0.012) also seems to confirm the effectiveness of the explanatory variable. Positive relationships between these two variables suggest that success of transformation is judged, at least partly,

in terms of overall „liberalisation" of the society. At the same time, however, since evaluation of transition would contain some connotation of general (not personal) economic changes, this variable may better be interpreted as a comprehensive measure of respondents' perception on recent societal changes.

## 4.4 Logistic regression analysis

As the final attempt of the analysis, we carried out multivariate analysis on the data. This is to observe whether the validity of the hypothesis confirmed above holds true when we take into account the effects of individual attributes. Because the answers to the questions on transformation and value change are supposed to be more or less affected by respondents' personal attributes, we need to control them to check the statistical significance of these explanatory variables. The statistical model selected here is a logistic regression model. Logistic regression is usually used to examine binominal dependent variables (e.g. answers such as „yes/no" or „1/0"). Effects of independent variables are expressed as odds ratios, which indicate how likely respondents with a certain attribute (such as college graduate) answer „yes" or „1" in comparison to those with the „reference" attribute (such as high school graduate). In the present analysis, 3 categories of „suitable age" are selected as a dependent variable. The below–mean category „18 – 23" is set as 0 in dummy variables so that the model calculates the odds ratios of respondents choosing the mean category „24 – 25," or the above-mean category „26 –", instead of „18 – 23". Independent variables consist of those examined in the earlier sections. Year of birth and number of siblings are put as continuous variables.[5] The others are specified as categorical data.

Table 11 shows the result of two logistic regression analyses. Models 1 to 3 include personal attribute variables and only one key variable. Model 4 contains personal attribute variables and all three key variables. While the table portrays various explanatory powers of the independent variables and statistical validity of each model, the most important feature is that among the three key variables, only the evaluation of transition retains statistical significance. Although odds ratios seem too high, Model 4 shows that compared to respondents evaluating transition negatively (reference group), those with positive evaluation are 7.437 times more likely to choose „24 – 25" category, and 10.073 times more likely to choose „26 –" category rather than „18 – 23" category. In model 4, the effects of year of birth and marital status are also turned out to be significant. Nevertheless, individual socio-economic improvement and opinion on premarital birth do not show statistical significance at 0.10 level in any models. As for the latter variable, regressions were also run without samples of „don't know" category, but this trial did not basically improve its explanatory power. It could thus be concluded that the validity of the hypothesis holds true only for transformation evaluation when we control the effects of personal attributes. Considering the all-inclusive nature of transition evaluation and the small effects of other two key variables, it is implied that the recent fertility change cannot be explained by a few simple factors. Although it sounds too general, the decline of fertility in Slovakia seems to be a product of a complex societal transformation process, where various factors have been at work.

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[5] Respondents' answers for the number of siblings are actual numbers except for „5 and more." This category was assumed to be 5 in the analysis.

Table 11 Logistic regression on three categories of „suitable age for the first childbearing": odds ratio

| Explanatory variables | Model 1 (a) 24 – 25 / 18 – 23 | Model 1 (b) 26 – / 18 – 23 | Model 2 (a) 24 – 25 / 18 – 23 | Model 2 (b) 26 – / 18 – 23 | Model 3 (a) 24 – 25 / 18 – 23 | Model 3 (b) 26 – / 18 – 23 | Model 4 (a) 24 – 25 / 18 – 23 | Model 4 (b) 26 – / 18 – 23 |
|---|---|---|---|---|---|---|---|---|
| **Area of residence** | | | | | | | | |
| Malacky | 2,459 | 1,083 | 2,229 | 1,063 | 2,669 | 1,118 | 3,002 | 0,805 |
| (Dunajská Streda) | | | | | | | | |
| **Education** | | | | | | | | |
| (basic, secondary 1) | | | | | | | | |
| secondary 2 & over | 1,868 | 3,135* | 2,444* | 3,304* | 2,076 | 2,33 | 1,552 | 1,895 |
| **Year of birth** | 0,906 | 0,810** | 0,913 | 0,831* | 0,841* | 0,811** | 0,867 | 0,787** |
| **Number of sibling** | 0,704 | 0,727 | 0,714 | 0,7 | 0,628* | 0,630* | 0,652 | 0,658 |
| **Marital status** | | | | | | | | |
| never married | 2,369 | 5,626** | 2,089 | 6,487** | 3,711 | 5,830** | 3,309 | 7,023** |
| (ever married) | | | | | | | | |
| **Use of contraception** | | | | | | | | |
| yes | 1,374 | 1,576 | 1,76 | 1,883 | 1,632 | 1,48 | 1,371 | 1,78 |
| (no) | | | | | | | | |
| **Individual socioeconomic change** | | | | | | | | |
| ++/+ | 1,996 | 1,289 | | | | | 1,518 | 0,895 |
| +/– | 0,706 | 0,51 | | | | | 0,726 | 0,574 |
| (–/—) | | | | | | | | |
| **Opinion on marriage before childbearing** | | | | | | | | |
| (important) | | | | | | | | |
| not important | | | 1,207 | 2,022 | | | 1,087 | 2,143 |
| do not know | | | 3,004 | 1,309 | | | 2,944 | 1,339 |
| **Evaluation on transformation** | | | | | | | | |
| ++/+ | | | | | 7,177** | 8,752** | 7,437* | 10,073* |
| +/– | | | | | 0,882 | 2,438 | 0,619 | 1,893 |
| (–/—) | | | | | | | | |
| **Chi square** | 15,458* | 19,094** | 13,495* | 19,712** | 21,899*** | 22,022*** | 24,057** | 23,447** |
| (likelihood ratio test) | | | | | | | | |
| n | 83 | | 73 | | 86 | | 75 | |

**Source:** survey data
( ): reference category *:p<0.10, **:p<0.05, ***:p<0.01

## 5. DISCUSSION

One of the main points of interest in the fertility situation of Slovakia is what would be the prospects of fertility hereafter. While the above results may provide a variety of implications, we limit discussion to the following four points.

Firstly, the positive relationship between the evaluation of transition and choice of „suitable age" implies that as long as transition process is succeeding, young females' inclination for fertility postponement might be kept at a high level, under the condition that such relationship remains in the future. It should be noted, however, that since the present data only deal with the present perception of „suitable age" and not the *change* of perception, it is unclear whether preference for delayed childbirth would be intensified or not.

Secondly, the low effect of personal socio-economic improvement on „suitable age" implies that even if the economic situation of the whole society (certainly related to personal situations) improves, preference for delayed fertility may not be reversed drastically. This proposition casts some doubts on the idea that the present fertility decline is just a temporary phenomenon.

Thirdly, the examination of opinions on premarital birth suggests that while the evaluation of premarital birth represents a certain aspect of overall value changes, not every change stimulates preference for fertility postponement. This interpretation may be backed up partly by the strong relationships of extra–marital birth with high teenage fertility in Eastern Europe (Lesthaeghe and Moors 2000), and also by the situations in Scandinavian populations where high percentages of premarital birth coincide with the highest standard of fertility in Europe.

Fourthly, while the data of „suitable age" do not necessarily predict fertility, differences between the actual and „suitable age" of the first childbearing among respondents are suggestive to the prospect of fertility behaviours. Comparison of these two figures reveals that the number of respondents who select a higher „suitable age" category than the actual one is far greater than that of those who choose a lower category than the actual (28, 8, respectively. 15 respondents answered the same age category for both questions). This result may lure us to think that the fertility postponement would be less intense than what the perception data suggest. It is also possible, however, that a number of respondents changed their perceptions and raised „suitable age" after having a child. If this is the case, the differences between the actual and suitable age would evidence that in the present situation, giving birth and raising a child is harder than those respondents formerly imagined, thus implying a possibility that younger generation females may wait for the betterment of situation and delay childbearing than their predecessors.

## 6. SUMMARY AND CONCLUSION

This paper examined the effects of transformation and value changes on the young females' perception of „suitable age for the first childbearing" by using the survey data

collected in Malacky and Dunajská Streda, Slovakia. Cross tabulations and logistic regression analysis revealed the following points:

1. Respondents positively evaluating transition process in the last 12 years are likely to select higher ages as suitable for the first childbearing. This tendency is observed even when we control personal attribute variables.
2. Individual socio-economic improvement or deterioration in the last 5 years does not effectively influence the level of „suitable age."
3. Tolerance toward premarital birth, used as an indicator of individualistic attitudes, is not significantly related to preference for fertility postponement. These points imply that the recent fertility change in Slovakia cannot be explained by a few simple factors, and that the decline of fertility seems to be a product of a complex societal transformation process. It is also suggested that as long as the observed relationships between the variables are maintained, successful transition process may keep the young females' preference for late childbearing, and that changes in personal socio-economic situation, or even the recovery of the Slovak economy, may not reverse the present trend of delayed fertility.

Since the data used here have some limitations created by their geographical scope and survey method, the results presented here are at best tentative. For further understanding of the Slovak fertility decline, we may need more comprehensive data by a large scale survey. This demand seems likely to be met by the Family and Fertility Survey in Slovakia and various in-depth analyses of the data.

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**Resume**

**Vhodný vek pre narodenie prvého dieťaťa: prípadová štúdia v Malackách a Dunajskej Strede, Slovensko**

Súčasné štúdie klesania fertility na Slovensku dokazujú, že sociálno-ekonomické ťažkosti sprevádzané transformáciou a zmenou hodnotového systému, ktoré vedú k individualizmu mladých ľudí, sú dvoma hlavnými faktormi dramatického poklesu fertility v 90. rokoch.

Tento príspevok skúma efekty transformácie a hodnotových zmien v percepcii mladých žien na vhodný vek pre narodenie prvého dieťaťa, ktoré sa analyzovali pomocou anketových dát zozbieraných v regiónoch Malaciek a Dunajskej Stredy.

Krížové tabuľky a logaritmická regresná analýza ukázali, že:

- u respondentov, ktorí hodnotili pozitívne transformačné procesy v ostatných dvanástich rokoch je pravdepodobnejší výber vyššieho veku pre narodenie prvého dieťaťa,
- individuálne hodnotenie sociálno-ekonomického zlepšenia alebo zhoršenia sa situácie ostatných piatich rokoch nemalo výrazný vplyv na výšku „vhodného veku",
- tolerancia k narodeniu dieťaťa mimo manželstva, použitá ako indikátor individuálnych názorov, nie je signifikantná pri rozhodovaní sa o oddialení narodenia dieťaťa.

Uvedené fakty naznačujú, že súčasné zmeny fertility na Slovensku nemožno vysvetliť niekoľkými faktormi, ale že pokles fertility sa zdá byť výsledkom komplexu transformačných procesov spoločnosti. Dá sa taktiež predpokladať, že ak pozorované vzťahy medzi premennými pretrvajú, úspešný transformačný proces môže mať vplyv na preferenciu neskoršieho pôrodu u mladých žien a zmeny sociálno-ekonomickej situácie jednotlivca, či dokonca zotavenie ekonomiky Slovenska, nebudú môcť zvrátiť klesajúci trend fertility.

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# 「第一子出産適齢期」の規定要因

## - スロバキア首都近郊２地域における調査結果の分析 -

清水　昌人

体制転換後、スロバキアでは出生力の低下や出産延期傾向の進展が著しい。既存研究によれば、これは①資本主義経済への移行にともなう経済不況、②個人主義の台頭に代表される価値観の変動、などにより引き起こされたといわれる。本研究では、コメニウス大学が首都ブラチスラバ近郊で 2002 年に実施した住民へのアンケート調査の結果を用い、1970 年以降に生まれた女性が「第一子出産適齢期」と考える年齢と、それに対する個々人の社会経済的状況の変化や価値観の影響を分析した。分割表の検討とロジスティック回帰分析の結果、以下の点が明らかになった。①過去 12 年間の体制転換の過程を肯定的にとらえる人は、そうでない人に比べ、第一子出産適齢期としてより高い年齢をあげる傾向がある。②過去５年間に各人の社会経済的状況がどう変化したかは、出産適齢期の評価に有意には影響しない。③価値観を示す指標として、婚前出産の評価（出産前に結婚していることが重要か否か）をとりあげたが、この変数も出産適齢期の評価に有意には影響しない。以上の点から、スロバキアにおける近年の出生力低下や出産延期傾向は、少数の比較的単純な変数で説明される現象ではなく、体制転換という複雑な過程のなかで、様々な要因が絡み合った結果引き起こされたものであること、体制転換の評価と出産適齢期の評価との関係に変化がなければ、今後、体制転換が「成功」していく限り、若年女子が高い年齢での出産を好む傾向は継続する可能性があること、将来的な経済状況の好転は、出産延期傾向を反転させる決め手とならないかもしれないこと、などが推察される。