

# The Perceived Value of Education and Educational Aspirations in the Czech Republic: Changes in the Determination of Educational Aspirations between 1989 and 2003

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## Introduction

This article compares the changes in the determination of educational aspirations from the end of the communist period in 1989 to 2003, focusing on a single postcommunist country, the Czech Republic. The Czech case is particularly relevant for comparative research on educational inequality and aspirations, as previous studies have shown that—contrary to one of the main goals of communist ideology—socialism did not equalize access to higher education in the long run (see, e.g., Boguszak, Matějů, and Peschar 1990; Hanley and McKeever 1997). Furthermore, the Czech educational system currently generates more inequality in access to higher education as well as a stronger determination of educational aspirations by social origin than is the case in other Organization for Economic Cooperation and Development (OECD) countries (Matějů, Řeháková, and Simonová 2007; Matějů et al. 2007). On the basis of those findings, this article examines whether and how these strong determining forces have changed over time. The analysis is made possible by the fact that in 1989, just a few months before the collapse of the Czechoslovak communist regime, a survey was carried out on eighth grade elementary school pupils (around 15 years of age) and their parents, focusing primarily on the process of the formation of beliefs about life success and educational aspirations. By using that survey alongside similar data from PISA 2003, we can historically compare the role of the intergenerational transfer of values about life success, mental ability, and socioeconomic status

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(SES) in the formation of educational aspirations in adolescents in 1989 and 2003.

As background, this article first reviews the literature on the impact of revolutions and other major transitions on educational inequality. The article then contextualizes how the labor market returns of higher education and the continuities and changes in the Czech educational system shaped aspirations during the communist and transition periods. We then develop hypotheses about the change in the relationships between socioeconomic background, measured ability, beliefs about the role of education in life success, and educational aspirations from 1989 to 2003. The core of the article is dedicated to presenting the key findings about the role of social background, ability, and the perceived role of education in life success among parents and their children in the formation of educational aspirations of 15-year-old boys and girls. We then conclude by summarizing what changes in the determination of the educational aspirations of adolescents have occurred during the 15 years of transition.

#### **Educational Aspirations, Inequality, and the Role of Political-Economic Transitions**

Beginning in the 1950s, educational aspirations of adolescents were viewed as one of the strongest predictors of educational and occupational status (Hyman 1953; Kahl 1953; Reissman 1953; Herriott 1963). Over time, research on aspirations focused on their role in mediating the effects of socioeconomic background on educational and occupational attainment. In the pioneering studies of Sewell and his colleagues, educational aspirations of adolescents were largely explained in terms of parental SES, measured mental ability, academic performance, parents' expectations and encouragement, and peers' aspirations, among other factors (see, e.g., Sewell, Haller, and Straus 1957; Sewell 1961, 1963; Sewell and Shah 1967, 1968a, 1968b; Sewell and Hauser 1972). In the 1970s, Kerckhoff argued that proponents of the social psychological model did not pay adequate attention to the structural constraints that individuals take into account when making important decisions about their future educational and occupational goals (Kerckhoff 1976, 1977). As a result of these debates, more recent international research has focused on the interplay between the individual, contextual, and structural levels in the formation of educational aspirations of adolescents in different countries (e.g., Buchmann and Dalton 2002; Buchmann and Park 2005).

The most recent comparative analysis of the formation of educational aspirations in OECD countries (Matějů et al. 2007) corroborated the hypothesis that the Czech educational system, due to its high degree of stratification and vocational specificity (Müller and Shavit 1998; Kerckhoff 2001), generates a significantly stronger determination of educational aspirations by social origin, ability, and gender than is the case in OECD countries with

less stratified (differentiated) systems of secondary education.<sup>1</sup> In particular, the overall degree to which educational aspirations are determined by parental SES, ability, and gender was found to be much higher in the Czech Republic, Germany, Hungary, Poland, and other countries with highly stratified systems (where the Nagelkerke  $R^2$  was more than .40), whereas the coefficient of determination was much less in the United States, Canada, Australia, France, and Scandinavian countries with less stratified and more open educational systems (where the Nagelkerke  $R^2$  was less than .25).

While comparative analyses of the determination of aspirations have already borne interesting results, it has been more difficult to examine how the determination of aspirations has changed through periods of social transformation. In postcommunist countries, the intergenerational transfer of beliefs about life success has taken place in the context of significant social, political, and economic change. Arguably, these changes may have had an important impact on the formation and transfer of these beliefs. Historical comparisons of the determination of educational aspirations before and after periods of rapid social change would thus shed valuable light about whether and how such revolutionary or transition periods affect the degree of educational inequalities, as well as the mechanisms through which those inequalities take place.

Although there have been relatively few analyses of the changes in the formation of educational aspirations in times of revolution, there has been significantly more research on changes in educational and social inequality during such times. In 1927, Pitirim Sorokin, who lived through the Russian Revolution, laid the foundations of “sociological skepticism,” which questioned the ability of either revolutions or reform to bring about significant progress toward increasing the “openness” of stratification systems in modern societies. In his “fifth proposition” from *Social Mobility* (1927), Sorokin argued that societies have not experienced any trend in social stratification and mobility across time but only a “trendless fluctuation”—a view that has never been entirely rejected by sociologists on empirical grounds.<sup>2</sup> In fact, one of the main conclusions of Erikson and Goldthorpe (1992) was also that in-

<sup>1</sup> Stratification “refers to the degree to which systems have clearly differentiated kinds of school whose curricula are defined as ‘higher’ and ‘lower’ . . . . In stratified systems, the program offerings in the types of secondary schools are associated with different degrees of access to opportunities for additional, more advanced schooling” (Kerckhoff 2001, 4). Vocational specificity refers to the degree to which curricula are designed to prepare students for particular jobs. In terms of statistical indicators, it can be represented by the proportion of students leaving the educational system with specific skills (e.g., Buchmann and Dalton 2002).

<sup>2</sup> Though well known, it is worth quoting the proposition here: “As far as the corresponding historical and other materials permit seeing, in the field of vertical mobility, in its three fundamental forms, there seems to be no definite perpetual trend toward either an increase or a decrease of the intensiveness and generality of mobility. This is proposed as valid for the history of a country, for that of a large social body, and, finally, for the history of mankind. Thus, in the field of vertical mobility, the same conclusion of ‘trendless’ change is reached which was met in the field of social stratification” (Sorokin 1959, 152).

dustrialized nations on the whole do not experience a general trend in rising mobility but rather an essentially directionless flux in absolute mobility rates.

To Sorokin, one of the main reasons for this trendless flux is that in any society there are mechanisms controlling the process of vertical mobility circulation that use various criteria to distribute individuals in different social positions. “These institutions, such as a family, army, church, school, political, professional, and occupational organizations are not only a channel of social circulation, but are, at the same time, the ‘sieves’ which test and sift, select and distribute the individuals within different social strata and positions” (Sorokin 1959, 183). Since there are many social institutions that can contribute to the distribution and ordering of persons in a society, whenever one institution, such as the family, is in a decline, other institutions, such as the school system, can take on the same distributive functions of the social machinery (1959, 188–89). This observation suggests that even in a period of rapid social and political transition, there may be an observed change in the mechanisms that generate educational and social inequality but not necessarily a lasting increase or decrease in social inequality per se.

In *Revolution and the Rebirth of Inequality*, Kelley and Klein (1981) illustrate how a revolutionary context—the case of Bolivia in the 1950s—shapes the way human capital and educational attainment reproduce social inequalities over time. The authors found that the socialist revolution led to a short-term decline in class inequalities and privilege, but after a number of years inequality began to increase and ultimately exceeded prerevolutionary levels. One reason for the inability of revolution to bring about a lasting decline in inequality is due to the very nature of redistributive policies: that “redistribution itself increases inequality among the previously exploited,” because “peasants with more land, human capital, or other resources are able to exploit their advantages more fully after the revolution” (Kelley and Klein 1981, 40–41). Increasing inequalities among the previously lower class take place because governments cannot “effectively prevent human capital from being passed from one generation to the next without draconian changes in the family,” and the “knowledge, values, culture, and language skills acquired in elite homes give their children an enormous and enduring advantage in socialist as well as capitalist societies” (21).

Kelley and Klein believed that their theory about the inevitable rebirth of inequality could be applied to any revolutionary context, although they only tested their theory on the case of Bolivia. The evidence on educational attainment and inequality in both Mao-era and reform-era China lends support to their thesis. Hannum (1999) documented how the urban-rural gap in successful transitions from primary to junior high schools narrowed rapidly during the Cultural Revolution, peaking with Mao’s death in 1976. The gap began to widen again, however, in the late 1970s and 1980s as more rural children were compelled to enter the workforce. In the context of economic

transition and educational expansion in China in the 1990s, Wu (2007) found that the effect of family background on school enrollment increased significantly between 1990 and 2000. He also found that while the odds of making a successful transition to a senior high school on the basis of social origin did not increase during that time period in urban areas, there was a significant decline in rural areas. Wu thus concluded that in the context of economic transition, the “effects of family backgrounds have indeed *increased* (rather than remained constant and decreased conditionally), and educational opportunities of the disadvantaged groups have been even more squeezed in 2000 than a decade ago” (2007, 22).

As with Bolivia, postwar communist regimes in Eastern Europe also failed to bring about lasting declines in educational inequality despite their clear intention of doing so (Simkus and Andorka 1982; Róbert 1991; Matějů 1993). In Russia, for example, educational expansion at the secondary level among pupils of peasant backgrounds in the 1950s and 1960s did little to reduce educational inequalities in access to tertiary education, which was one of Khrushchev’s main goals in educational policy (Gerber and Hout 1995). As will be discussed in the next section, the Czechoslovak communist regime also experienced similar long-term policy failures.

It would be a mistake, however, to conclude from these developments that educational reform after periods of revolution is simply doomed to failure. There are a number of important case studies pointing to how educational expansion can increase educational opportunity at different levels of schooling (e.g., Raftery and Hout 1993; Erikson and Jonsson 1996; Post 1996). The above trends suggest rather that the mechanisms through which privileged groups seek to secure the intergenerational transmission of their status can change in times of transition. We thus believe that the focus of analysis should not only be about changes in the level of inequality but also about the possible changes in the social and school mechanisms at work in how inequality is reproduced (Lucas 2001).

Of course, scientific explanations of any observed social phenomenon (e.g., process of change in inequality and the social stratification system) must detail the mechanisms through which the phenomenon to be explained was brought about. As Hedström defined it, such mechanisms involve “a constellation of entities and activities that are linked to one another in such a way that they regularly bring about a particular type of outcome” (Hedström 2005, 11), such as how educational decisions and outcomes are linked to the educational aspirations and opportunities of pupils. In terms of explaining changes in educational aspirations in times of transition, we would thus need to observe how those aspirations are linked to changes in the opportunities for educational advancement, family background, and other social forces at work. As Macleod pointed out in his study of the formation of aspirations in low-income neighborhoods, “the regulation of aspirations is perhaps the most

significant of all the mechanisms contributing to social reproduction; however, aspirations themselves are largely a function of structural mechanisms that should be considered when possible” (Macleod 1995, 112).

This study seeks to consider such structural mechanisms by making temporal comparisons (before and after the democratic and economic transitions in the Czech Republic) of the direct and indirect effects of family background on educational aspirations, such as through the role of intervening variables that may be more prominent in one structural context than in another. We will make these comparisons by juxtaposing 2003 PISA data with data from a 1989 survey on eighth-grade elementary school pupils (around 15 years of age) and their parents, focusing in particular on the role of the intergenerational transfer of values about life success, mental ability, and socioeconomic status in the formation of educational aspirations in adolescents between those time periods.

As will be demonstrated further, this study is by no means a comparative historical analysis *stricto sensu*. The challenge is that the surveys did not use quite the same tools, so the measurement protocols for some variables are not identical. This inconsistency makes a direct comparison difficult. We hold, however, that the causal structures of the relations determining the life plans of 15-year-olds in 1989 and 2003 are an interesting subject for analysis even without the possibility of direct comparison.

#### **Continuity and Change in the Educational System Before and After 1989**

Postcommunist societies provide an excellent opportunity for examining the changes in the determination of educational aspirations in different political and economic contexts. As has been well established, after 1948 the triumphant Czechoslovak communist party embarked on an ambitious policy to eliminate lower-class disadvantages in educational access by implementing quotas for pupils from working-class backgrounds. This process of destratification proved to be initially successful, as both quotas and educational expansion reduced the effect of parents' occupational status on the success of their children to transition to vocational and secondary technical schools in the early communist period.<sup>3</sup> As originally expressed by the socialist transformation hypothesis (Matějů 1990, 1991, 1993), however, by the mid-1970s inequalities in secondary education returned to their precommunist levels, in part because the communist bureaucratic elite was able to use its political connections and positions of authority to ensure its children's access to prestigious secondary schools and universities.

<sup>3</sup> We have carried out a reanalysis of Šafář's replica of Duncan's basic model of social stratification to verify the justification of the destratification thesis and its implications for the basic relationships in the stratification system. Contrary to initial assumptions, the analysis has shown that the classical stratification model could not be applied without substantial modifications to the stratification system of socialist Czechoslovakia (Boguszak, Gabal, and Matějů 1990).

During the communist period, income leveling eliminated large economic returns from tertiary education. Children from traditionally lower-class families had little incentive to pursue higher education since the lack of financial and political advantages meant that it was not an effective strategy for life success (Simonová 2007). On the other hand, children of the bureaucratic elite and students with well-educated parents continued to pursue higher education as a means of maintaining and transmitting their family's cultural status. The elimination of economic returns from tertiary education may help to explain the significant increase in girls' enrollment at the tertiary level. As more "masculine" and prestigious occupations coveted by male pupils required that they pursue a technical education at the secondary level, more university seats were available to female students. Finally, the role of higher education in the cultural reproduction of the elite was possible precisely because such families had the cultural knowledge to succeed in the transition to tertiary education, particularly in the 1980s, when the increased number of secondary school graduates, without a simultaneous increase in tertiary education places, led to a decline in the chances of making a successful transition to a university. In such a context, we would expect that social origin would play a strong and direct role in determining the educational aspirations of pupils.

After the abrupt collapse of the Czechoslovak communist regime following the Velvet Revolution of 1989, the process of economic transition and the emergence of competitive labor markets inevitably led to increased economic returns from higher education, which in turn contributed to steeply rising aspirations for higher education. Večerník (2001, 2005) calculated that the effect of education on personal income more than doubled between 1988 and 2002. While in 1988 each year of education brought a 4 percent salary increase, this "premium" reached 8 percent in 1996 and 9.6 percent in 2002 (controlling for gender and the length of employment). This income differentiation was achieved despite income stagnation in state-controlled enterprises that employed a high proportion of university-educated employees, including health care, education, and science and research.<sup>4</sup> If we disregard those occupations, the wage returns of 1 year of education increased from 4 percent in 1989 to 11 percent in 1996, which placed the Czech Republic at the same level as Austria and other West European countries. This status is also confirmed by OECD data. By the turn of the century, the average earnings of a person with tertiary education in the Czech Republic was 1.8 times higher than the earnings of a secondary education graduate, even above

<sup>4</sup> In real terms (using 2000 as the reference point), the average pretax monthly wage of an academic instructor at a public college or university was 18,310 CZK in 1989, in comparison to 21,147 CZK in 2002 (Institute for Information on Education, accessed on July 2007 from the Web site <http://www.uiv.cz/soubor/893>). This lack of income growth has prevented academic occupations from attaining higher prestige.

the OECD average of 1.63 (Organization for Economic Cooperation and Development 2002).

Given the increase in aspirations for and economic returns from higher education, one would expect that the tertiary education system would also undergo a transition of rapid educational expansion and structural reform. In fact, however, the system of tertiary education changed little from 1989 to 2003, the years that interest us. First, while there has been a significant increase in tertiary education enrollments since 1990, these rates have only kept pace with the increased number of high school graduates, such that the proportion of graduates admitted to and enrolled in tertiary education changed little from 1989 to a decade after.<sup>5</sup> Second, while the 1990 Act on Higher Education removed political control over universities (Matějů and Simonová 2003), it maintained their unitary structure. While in many OECD countries bachelor's degree programs were designed to provide practical skills to a growing number of university graduates, the number of students enrolled in these types of programs in the Czech Republic grew very slowly until 2001, when a legislative amendment obliged universities to speed up the adherence to the Bologna process.<sup>6</sup>

The structure of public financing of higher education also changed little from 1989 to 2003. While the revised 1998 Act on Higher Education provided more formal autonomy to universities, it barred universities from engaging in joint ventures with private companies or from creating spin-off companies. Public tertiary education also remains tuition free. The Czech Republic's average per student expenditure for tertiary education in 2002 amounted to USD/PPP 5,922, compared to the OECD average of USD/PPP 10,080 (Organization for Economic Cooperation and Development 2005). Due to the supply constraints caused by low overall financing, participation in tertiary education among the relevant age cohorts is among the lowest in the OECD, with only 26 percent of Czechs aged between 20 and 24 enrolled in higher education institutions. To the credit of the 1998 Act, however, it provided opportunities to establish "nonuniversity" institutions of higher education (to provide tertiary education, primarily at the bachelor's degree level, rather than at the master's degree or equivalent level) and private colleges. Such institutions continue to face challenges from securing outside financing, perceived lower prestige, and competition with state-subsidized universities.

<sup>5</sup> The acceptance rate (the number of accepted divided by the number of applicants) for all tertiary education institutions was 52.4 percent in the 1999–2000 school year, nearly constant with the 49.9 percent registered in 1988–89.

<sup>6</sup> The Bologna Process, launched by the Bologna Declaration of June 1999, aims to create a European Higher Education Area by 2010. The three priorities of the Bologna process are the introduction of the three-cycle system (bachelor/master/doctorate), quality assurance, and recognition of qualifications and periods of study. For an overview, see [http://ec.europa.eu/education/policies/educ/bologna/bologna\\_en.html](http://ec.europa.eu/education/policies/educ/bologna/bologna_en.html).

### Main Hypotheses

As for the changes that took place between 1989 and 2003, we build on the assumption that under socialism higher education was in demand, but in view of its relatively low economic return, primarily families with the highest education and economic statuses perceived higher education as a strategy of life success. In general, we can say that during socialism higher education played an important role in the perpetuation of the cultural elite. Due to the significant change in the economic returns of education in the transition period, education has been increasingly seen as a more universal strategy for life success than was the case under socialism. We also hypothesize that the changes in economic returns from education and in the role of education in life success after 1989 caused significant growth in educational aspirations between 1989 and 2003.

As a consequence of the empirical trend described above, educational aspirations have grown steeply during the postcommunist transformation. As our previous analyses have shown (Matějů et al. 2007), however, the Czech systems of secondary and tertiary education have remained highly stratified and selective. Therefore, competition for admission to tertiary education has been extremely strong. To increase the chance of being admitted to a college or university, parents seek to place their children in elite secondary schools (*gymnasia*) (Matějů and Straková 2005).

Having empirical evidence about the rapid changes outlined previously, we hypothesize that social origin plays a very strong determining role in shaping educational aspirations. In comparing the two time periods, however, we hypothesize that adolescents' family background had a stronger direct impact on their educational aspirations in 1989, while we expect that in 2003 social origin had a much stronger indirect influence. For building explanatory causal models to be tested on the data from the two surveys, this general hypothesis (represented in fig. 1) has been broken into four simple assertions:

- a) The direct effect social origin on aspirations (coefficient  $g_{41}$  in fig. 2) has diminished between 1989 and 2003;
- b) The effect of ability on aspirations (coefficient  $b_{41}$  in fig. 2) has grown during this period;
- c) The effects of parental SES on the perceived value of education among parents and children (coefficients  $g_{21}$  and  $g_{31}$  in fig. 2) have weakened;
- d) As a result, the total effect of social origin on educational aspirations has not changed, that is, has remained strong.

### Data and Methodology

The 1989 data come from a survey titled *Family '89 (Rodina '89)*, which was carried out in January 1989 on a sample of 3,719 pupils in the Czech

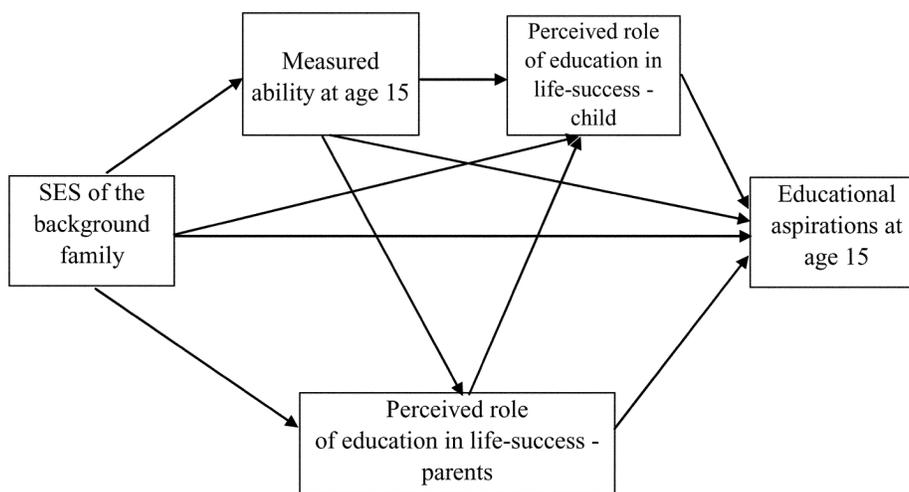


FIG. 1.—Theoretical causal model of the determination of educational aspirations

portion of the former Czechoslovakia. The respondents were sampled from eighth graders (in 1989, eighth grade was the last grade of primary education) in 44 primary schools that were chosen so as to cover different regions, community sizes, and types of residential communities.<sup>7</sup> Pupil questionnaires addressed educational and occupational aspirations and plans, perceptions of social inequalities, beliefs about life success, cultural activities and leisure time, standard of living, and so forth. As part of the survey, pupils were exposed to the Czech version of Cattell's "High School Personality Questionnaire," which Balcar prepared (Cattell 1960; Balcar 1986).<sup>8</sup>

This survey was followed by a survey of the pupils' parents. After several reminders, 2,709 families returned completed questionnaires (73 percent response rate). Respondents (parents) were asked questions about themselves, their partners, and other members of the household. The questionnaire for parents collected basic social and demographic data and information about the family's lifestyle, cultural participation, social contacts, beliefs about life success, expectations regarding their children's future achievements, and so forth.

The 2003 data come from the PISA-L survey, which was carried out by the Department of Education and Stratification of the Institute of Sociology of the Academy of Sciences of the Czech Republic, based on the PISA 2003 international survey. The target group of the PISA-L 2003 survey was pupils

<sup>7</sup> That is, the sampling process involved a combination of stratified and typological selection. Details about the survey may be found in the survey reports by Matějů, Tuček, and Rezler (1991a, 1991b), which is posted on the <http://www.stratif.cz> Web site in the section titled Files to Download.

<sup>8</sup> This personality questionnaire was selected mainly for the reason that, apart from other personality characteristics, it also measured crystalline intelligence (factor B) related mainly to verbal experience and reflecting the ability of logical reasoning (for details, see Matějů et al. 1991a, 30–33; Balcar 1986).

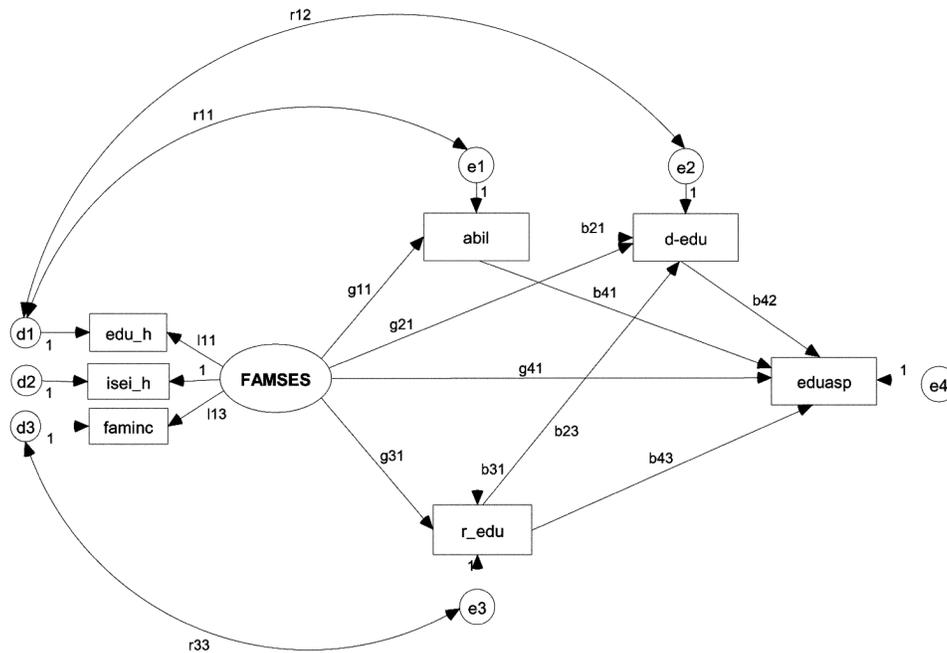


FIG. 2.—Structural model of the changes in the determination of educational aspirations between 1989 and 2003.

born in the calendar year 1987 and attending ninth grade in 2003. A two-stage sampling procedure was used in accordance with the OECD guidelines. First, schools were selected randomly from the database of all schools attended by pupils born in the calendar year 1987 (with the exception of remedial schools and schools for children with disabilities); pupils were then selected randomly from within those schools. The sample was stratified according to the type of school/study program (primary school, multiyear grammar school, 4-year grammar school, secondary vocational program with a school-leaving exam, secondary vocational program without a school-leaving exam, special school). It was possible for schools providing several types of study programs to be selected within all the types of study programs (i.e., they entered the sampling procedure repeatedly). A similar procedure was applied to obtain a larger representative sample of pupils in ninth grade of primary school and the corresponding grades of multiyear *gymnasia*. The data file that was entered into the international data file contained responses from 6,320 pupils from 260 schools (representing a school population of 121,183 pupils). The additional sample of ninth graders contained 6,340 pupils from 148 schools (representing a school population of 116,968 pupils) of this specific target group.

For the analyses presented in this article, we have chosen the sample closest in its nature to the 1989 data set, that is, the ninth grade respondents

from the PISA 2003,<sup>9</sup> as well as from the Addendum to the Student Questionnaire and from the Questionnaire for Parents.<sup>10</sup> Due to the narrowing of the PISA 2003 target population from all 15-year-olds (regardless of the type of school attended) to only ninth graders, and also due to a limited number schools that agreed to participate on PISA-L project, there were only 142 participating primary schools in 2003. There are 2,479 cases in the analytical data file.

The variables for the analysis of the perceived role among parents of education in life success were in both cases chosen from quite extensive batteries of items. Only those items were selected that appeared in the questionnaires for parents in both years. In 1989 the question introducing individual items was “What do you believe your child should be able to do or have in order to be successful in his/her life?” In 2003 the question was phrased in a slightly different way: “What do you believe is important nowadays for a young person to get ahead in life, to be successful?”<sup>11</sup> A four-point Likert scale was used to answer individual items.<sup>12</sup> In 1989 only one parent answered, in 2004 both parents did. The individual items as well as frequency distributions are shown in table A1, available in the online version of *Comparative Education Review*.

Pupils’ beliefs about life success were ascertained in 1989 by the following question: “What should a person do to get ahead in life?” As in the analysis of parents, individual variables were transformed so that a higher value represented higher importance. In 2003, pupils’ beliefs about life success were assessed in the same way as their parents’. The question was “How important do you believe the following items to be for a young person to get ahead in life?” The individual items are listed in table A1 and table A2 (available online).

Educational aspirations of pupils in 1989 were determined by two questions. The first question was “You will finish primary school this year and will be deciding what is next. Try to imagine for a moment that you will be deciding by yourself with no one influencing you. What would you decide to do when you finish the 8th grade?” The response options were (1) I would like to start earning money right away and would not go to school anymore, (2) I would

<sup>9</sup> Due to the change in the length of primary education, which took effect in 1990, ninth grade is currently the last grade of primary education. Therefore, the surveyed pupils in both years were in the last grade of the primary education.

<sup>10</sup> All the named questionnaires may be found on the Web site of the Social Stratification Research Department in the section titled Projects, Educational Inequalities PISA-L, Questionnaires (<http://www.stratif.cz/?operation=display&id=63>).

<sup>11</sup> This difference in wording was intentional and reflected the change in everyday language (Czech phrases for “success in life” and “getting ahead in life” have in fact very similar meaning).

<sup>12</sup> In 1989: (1) definitely yes, (2) rather yes, (3) rather no, (4) definitely no; in 2003: (1) very important, (2) quite important, (3) not very important, (4) totally unimportant. The scales for analyses were transformed so that a higher value represented higher importance. Differences in the wording of scale value labels led us to present the results in figures and tables by using the following symbols: ++ (definitely yes/very important), + (rather yes/quite important), – (rather no/not very important), and -- (definitely no/totally unimportant); see, e.g., figs. 1 and 2.

apply for an apprentice program without a secondary school–leaving exam,<sup>13</sup> (3) I would apply for an apprentice program with a secondary school–leaving exam, (4) I would like to study at a secondary vocational school with a school-leaving exam, and (5) I would like to study at a grammar school. The second question was “Would you like to study at a college or university?” The answer choices were (1) definitely yes, (2) I am not quite sure yet, but probably yes, (3) I am not quite sure yet, but probably not, and (4) definitely not. Principal component analysis was applied to define the analytical variable EDUASP (educational aspirations of pupils; a single factor was extracted).

Educational aspirations of pupils in 2003 were explored through several questions. The first question was “What education would you like to attain?” Answer options included (1) apprenticeship without secondary school–leaving exam, (2) apprenticeship with a school-leaving exam, (3) secondary vocational school with a school-leaving exam, (4) grammar school, (5) tertiary vocational school, (6) university or college. We also used answers to four questions concerning the child’s life plans: “The job I will some day have will depend on my education”; “In order to achieve what I really want I will have to go to a university/college”; “I think I would enjoy going to a university/college”; “I think I am able to successfully graduate from a university/college.” These questions were answered by a four-point scale, from (1) strongly disagree to (4) strongly agree. Similar to the 1989 data, principal component analysis was applied to identify the analytical variable EDUASP (a single factor was identified by the analysis).

In 1989, abilities were measured by a High School Personality Questionnaire (HSPQ). The variable ABIL was created as a normalized coefficient of “crystallized intelligence” (see Cattell 1960, Balcar 1986). The 2003 ABIL variable was calculated from the averages of plausible values—four dimensions of literacy tested in the PISA 2003 survey (mathematical literacy, reading literacy, scientific literacy, and problem solving). The resulting ABIL variable was obtained through a principle component analysis (one sole factor with even factor weights: 0.957, 0.939, 0.963, and 0.971).<sup>14</sup> The socioeconomic status of the family was represented by the education of the more educated parent (EDU\_H), the occupation of the parent with a higher score (ISEI\_H)

<sup>13</sup> Successful achievement on a secondary school–leaving exam (*maturitní zkouška* in Czech) is required for entry to tertiary education (college or university).

<sup>14</sup> Though the “ability” of students was measured by different “measurement protocols” in 1989 and 2003, it is important to stress that both measures partly reflect what students have learned in school. Other studies have shown that the Czech Republic is a country with a highly stratified school system, and thus the achievement and aspirations of Czech pupils are strongly determined by the type of school (see, e.g., Matějů et al. 2007). The reason why we do not separate the effect of the type of school in our analysis, as one of the reviewers suggested, is that most of the between-school variance is attributable to school differentiation at the secondary level. Our analysis is confined only to pupils in the last grade of primary school. There is, of course, between-school variance as well, but it cannot be attributed to the effect of the “type of school,” since formally all primary schools have the same curriculum.

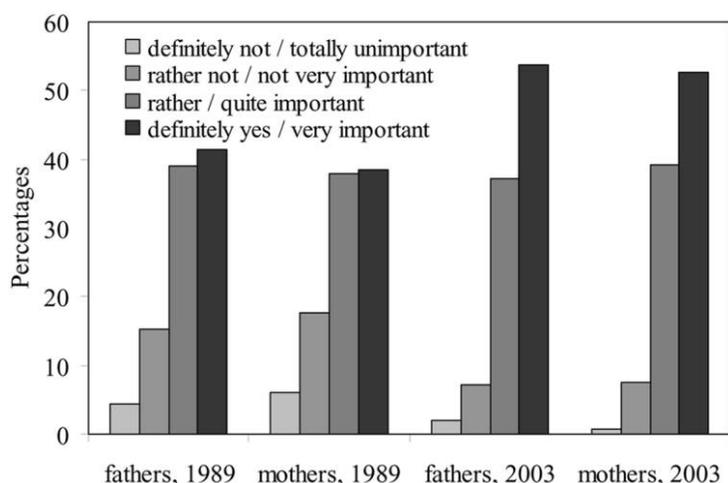


FIG. 3.—Parents' perceived importance of education for life success in 1989 and 2003. NOTE.—Different labels were used in the surveys of 1989 and 2003. In 1989 the labels were “definitely,” “rather,” “rather not,” and “definitely not important.” In 2003 the labels were “very important,” “quite important,” “not very important,” and “totally unimportant.”

based on the International Socioeconomic Index of Occupational Status (ISEI), and the total income of the household (INCOME).

Regarding the methodology, a structural model for each year was designed to assess differences in the internal structure of family socioeconomic status (SES dimension), its direct and indirect impact on educational aspirations, the effects of children's mental ability (cognitive dimension), and the perceived role of education in life success among parents and children (social psychological dimension). The structural model derived from the theoretical causal model (fig. 1) was tested on the data from 1989 and 2003 surveys and is shown in figure 2.

#### Perceived Importance of Education in Life Success and College Aspirations: 1989–2003

Figure 3 compares parents' perceived importance of education for life success in 1989 and 2003. While we should stress that the surveys are not directly comparable, the data suggest a major increase in the number of parents who in 2003 strongly believe in the importance of obtaining as much education as possible. Both fathers and mothers registered similar responses. In addition to the increased value of education for life success, from 1989 to 2003 there was also an increase in parents' perception of the importance of knowing foreign languages, as well as declines in the importance of hard work and political engagement (table A1 and table A2, available online). These findings can be interpreted in light of the structural changes in economic conditions between the two periods.

The change in pupils' perceived importance of education for life success

PERCEIVED VALUE OF EDUCATION AND EDUCATIONAL ASPIRATIONS

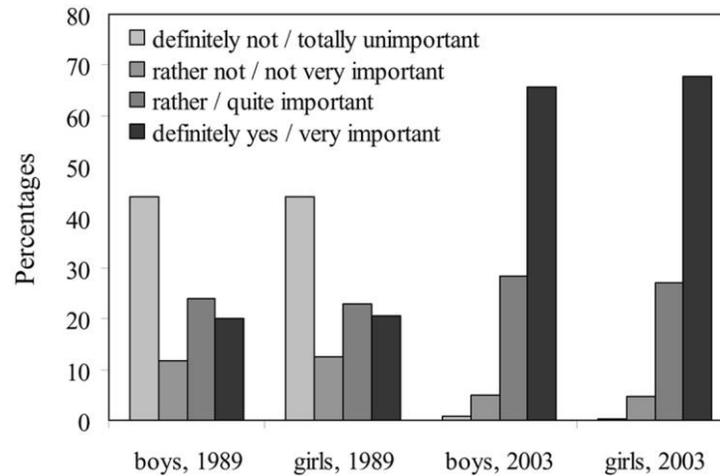


FIG. 4.—Children’s perceived importance of education for life success in 1989 and 2003. NOTE.— Different labels were used in the surveys of 1989 and 2003. In 1989 the labels were “definitely,” “rather,” “rather not,” and “definitely not important.” In 2003 the labels were “very important,” “quite important,” “not very important,” and “totally unimportant.”

from 1989 to 2003 is even more dramatic than that of their parents (fig. 4). While roughly 44 percent of both boys and girls in 1989 believed in the importance of education for life success (i.e., those who agreed and strongly agreed), about 95 percent of boys and girls in 2003 shared the same views. Arguably, the generational differences in perceptions between parents and their children could be attributed to the legacies of communism. While parents in 2003 who had been socialized by the prior regime to believe that hard work was more important than education for life success may have changed their perceptions gradually over time, their children in 2003 did not have those legacies. In fact, they grew up in an environment of rapid change in economic fortunes (in many different senses) in which higher education could be seen as the key to moving up or down the economic ladder.

In addition to the perceived importance of education for life success, from 1989 to 2003 there has been an increase in pupils’ perception of the importance of hard work, as well as political connections (i.e., the opposite trend to their parents’ view). The latter finding is particularly interesting in that it may indicate that at least some pupils are internalizing the belief that those who have benefited the most from the economic transition achieved success partly on the basis of corruption or political ties, rather than because of serious effort (table A1 and table A2, available online).

Finally, figure 5 compares the college aspirations of pupils in 1989 and 2003. The data indicate that there has been roughly a threefold increase in aspirations within this period, with girls showing a larger increase in aspirations than boys. Overall, while in 1989 only 16.7 percent of pupils in eighth

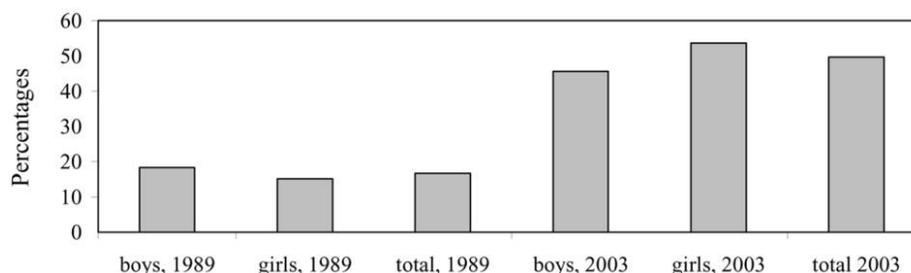


FIG. 5.—College aspirations in 1989 and 2003 among pupils in the last grade of elementary school

grade aspired to postsecondary education, in 2003 49.6 percent of pupils in ninth grade had the same aspirations. Such an increase has been indicated in other surveys as well. According to the 1995 Trends in International Mathematics and Science Study (TIMSS), another major international assessment of student competencies, 29 percent of Czech eighth graders expected to continue to college, and this number increased to 38 percent in 1999 (IEA 1995, 1999). These figures corroborate the trend that we identified on our data from 1989 and 2003. While the data are striking, however, they do not provide any information about the determinants of aspirations at these different periods of time, which we will now seek to uncover.

#### Causal Model for Educational Aspirations

On the basis of our main hypotheses, we have developed a structural model of the determinants of educational aspirations (fig. 2). The measurement part of the structural model defines the latent variable representing the pupil's family's SES (FAMSES), measured by the education level of the more highly educated parent (EDU\_H), the SES of the parent whose occupation has a higher score on the ISEI index (ISEI\_H), and the total income of the family (FAMINC). The structural part of the model is composed of measured ability (ABIL), the perceived importance of education for life success by pupils (D\_EDU) and by their parents (R\_EDU), and the educational aspirations of pupils (EDUASP).<sup>15</sup> The model was tested on correlation matrices (see app. table A3, available online).

The model represents the input hypothesis according to which pupils' educational aspirations are primarily affected by social origin, either directly (parameter  $g_{41}$ ) or through their parents' beliefs about the importance of education for life success (effect  $g_{31} \times b_{43}$ ). In addition, family socioeconomic status also affects aspirations through the mediation of pupils' scholastic ability. This effect is both direct ( $b_{41}$ ) and indirect: ability reinforces the

<sup>15</sup> Due to different scales used in the 2 years, variables FAMINC and ABIL were standardized by transforming them into z-scores.

importance pupils attach to education for life success ( $b_{21} \times b_{42}$ ). We also assume that a pupil's higher level of ability strengthens the importance parents attach to education and therefore strengthens their influence on educational aspirations ( $b_{31} \times b_{43}$ ,  $b_{31} \times b_{23} \times b_{42}$ ).

This complex causal hypothesis proved to be formally acceptable and suitable for the data from both surveys.<sup>16</sup> Before we discuss the model parameters directly linked to the causal hypothesis, we should first mention an important difference in the measurement model for family SES (FAMSES), namely, the role of family income (FAMINC). In 1989, income had a negligible impact on aspirations in comparison with education and SES ( $l_{31} = 0.128$  vs.  $l_{21} = 0.849$ ,  $l_{11} = 0.873$ ), whereas in 2003 this component of the latent variable FAMSES plays a much stronger role ( $l_{31} = 0.623$  vs.  $l_{11} = 0.843$ ,  $l_{21} = 0.797$ ). In other words, the measurement model for the latent variable FAMSES indirectly confirms that there has been a fundamental change in the consistency of socioeconomic status brought about by the economic transition, a conclusion we reached in another article (Matějů and Kreidl 2001).

In terms of the structural part of the model, consisting of the variables FAMSES, ABIL, R\_EDU, D\_EDU, and EDUASP, while interpreting its parameters, we have to consider that two of the variables were not measured in the same way. Measured ability (ABIL) was measured as "crystalline intelligence" in 1989, whereas in 2003 it was measured as an index composed of pupils' literacy skills (reading literacy, mathematical and scientific literacy, and problem-solving skills). The variable EDUASP is represented by a factor score in both years, but the variables entering the factor analysis were not based on questions with the same wording. Therefore, it must be emphasized once again that it is necessary to proceed with caution when comparing the model parameters, which might be directly influenced by the above mentioned variables. For this reason, we concentrate on some clusters of causal relationships that are of particular consequence.

It can be generally stated that the ability of the model to explain differences in educational aspirations is very good: the explained variance of educational aspirations exceeded 40 percent in both years ( $R^2$  0.449 and 0.376). From the results displayed in tables 1, 2, and 3, it is clear that the direct effect of social origin on educational aspirations ( $g_{41}$ ) is much stronger in the model for 1989 (0.421) than for 2003 (0.185). Although there are smaller differences in the total effects of social status on aspirations between the years (0.582 and 0.413), this effect remains stronger in 1989. The same applies to the effect of socioeconomic background on parents' perceived importance of education for life success ( $g_{31}$ ). In 1989, this impact was several times higher than in 2003 (0.227 and 0.069).

<sup>16</sup> All the relevant statistics of model fit are listed in tables 1, 2, and 6 ( $\chi^2$ , df,  $P$ , GFI), which indicates a very good fit.

TABLE 1  
MODEL PARAMETERS, EFFECTS, AND STANDARDIZED COEFFICIENTS—1989

Parameter	Effect	Coefficient	SE	c.r.	<i>P</i>
$g_{11}$	FAMSES → ABIL	.377	.029	13.063	.000
$g_{31}$	FAMSES → R_EDU	.227	.027	8.417	.000
$b_{31}$	ABIL → R_EDU	.120	.025	4.823	.000
$b_{23}$	R_EDU → D_EDU	.076	.024	3.123	.006
$g_{21}$	FAMSES → D_EDU	.119	.031	3.799	.002
$b_{21}$	ABIL → D_EDU	.069	.026	2.675	.000
$l_{31}$	FAMSES → FAMINC	.128	.025	5.090	.000
$l_{21}$	FAMSES → ISEI_H	.849	<i>n</i>	<i>n</i>	<i>n</i>
$l_{11}$	FAMSES → EDU_H	.873	.032	27.065	.000
$b_{42}$	D_EDU → EDUASP	.107	.019	5.662	.000
$b_{43}$	R_EDU → EDUASP	.140	.019	7.402	.000
$b_{41}$	ABIL → EDUASP	.279	.021	13.574	.000
$g_{41}$	FAMSES → EDUASP	.421	.024	17.633	.000
$r_{11}$	$d_1 \leftrightarrow e_1$	-.010	.043	-.234	.859
$r_{33}$	$d_3 \leftrightarrow e_3$	.015	.024	.621	.233
$r_{12}$	$d_1 \leftrightarrow e_2$	-.063	.036	-1.743	.081

NOTE.— $N = 1,820$ ;  $\chi^2 = 5.834$ ;  $p = .371$ ;  $df = 5$ ;  $RMSEA = .006$ ;  $GFI = .999$ ;  $AGFI = .995$ ;  $BIC = 222.8$ ; c.r. = coefficient divided by its standard error;  $RMSEA =$  root mean square error of approximation;  $GFI =$  goodness of fit index;  $AGFI =$  adjusted goodness of fit index; and  $BIC =$  Bayesian information criterion.

TABLE 2  
MODEL PARAMETERS, EFFECTS, AND STANDARDIZED COEFFICIENTS—2003

Parameter	Effect	Coefficient	SE	c.r.	<i>P</i>
$g_{11}$	FAMSES → ABIL	.473	.025	18.988	.000
$g_{31}$	FAMSES → R_EDU	.069	.026	2.653	.008
$b_{31}$	ABIL → R_EDU	.113	.023	4.866	.000
$b_{23}$	R_EDU → D_EDU	.101	.020	5.025	.000
$g_{21}$	FAMSES → D_EDU	.021	.027	.764	.445
$b_{21}$	ABIL → D_EDU	.029	.024	1.196	.232
$l_{31}$	FAMSES → FAMINC	.623	.021	29.025	.000
$l_{21}$	FAMSES → ISEI_H	.797	<i>n</i>	<i>n</i>	<i>n</i>
$l_{11}$	FAMSES → EDU_H	.843	.026	32.501	.000
$b_{42}$	D_EDU → EDUASP	.172	.016	10.660	.000
$b_{43}$	R_EDU → EDUASP	.120	.016	7.385	.000
$b_{41}$	ABIL → EDUASP	.431	.019	22.827	.000
$g_{41}$	FAMSES → EDUASP	.185	.021	8.850	.000
$r_{11}$	$d_1 \leftrightarrow e_1$	.089	.034	2.588	.010
$r_{33}$	$d_3 \leftrightarrow e_3$	.060	.021	2.794	.005
$r_{12}$	$d_1 \leftrightarrow e_2$	.073	.028	2.592	.010

NOTE.— $N = 2,478$ ;  $\chi^2 = 14.464$ ;  $p = .013$ ;  $df = 5$ ;  $RMSEA = .028$ ;  $GFI = .998$ ;  $AGFI = .991$ ;  $BIC = 238.9$ ; c.r. = coefficient divided by its standard error;  $RMSEA =$  root mean square error of approximation;  $GFI =$  goodness of fit index;  $AGFI =$  adjusted goodness of fit index; and  $BIC =$  Bayesian information criterion.

The data consistently indicate that in 2003 the impact of social origin on educational aspirations was influenced to a much greater extent by the abilities of the children (ABIL) and by the perceived value of education both by children and their parents (D\_EDU, R\_EDU), rather than directly by social origin. If we compare direct and total effects of social origin on educational aspirations (see table 3), we find that in 1989 the direct effect represented 72 percent of the total effect, while in 2003 it was only 45 percent. The effect

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TABLE 3  
DECOMPOSITION OF THE TOTAL EFFECT OF SOCIAL BACKGROUND ON ASPIRATIONS

Part of the Model and Composition of the Respective Effect	Standardized Coefficient		Proportion from the Total Effect of FAMSES on EDUASP (%)	
	1989	2003	1989	2003
M1 ( $g_{41}$ ) direct effect of FAMSES	.421	.185	72.3	44.9
M2 ( $g_{31} \times b_{43}$ ) + ( $g_{31} \times b_{23} \times b_{42}$ ) effect of FAMSES through the perceived importance of education among parents	.034	.009	5.8	2.3
M3 ( $g_{11} \times b_{41}$ ) + ( $g_{11} \times b_{21} \times b_{42}$ ) + ( $g_{11} \times b_{31} \times b_{43}$ ) + ( $g_{11} \times b_{31} \times b_{23} \times b_{43}$ ) effect of FAMSES through ABIL and the perceived importance of education among children	.115	.213	19.7	51.8
Total effect	.582	.413	100.0	100.0

of social origin on pupils' aspirations, as mediated through abilities ( $g_{11} \times b_{41}$ ), amounted to 0.105 in 1989, representing 18 percent of the total effect, whereas in 2003 it reached 0.203, representing 49 percent of the total effect. To give an overall evaluation of the causal determination of pupils' educational aspirations, we divided the whole model into three theoretically relevant parts, with the first (M1) representing the direct influence of parents on aspirations ( $g_{41}$ ), the second (M2) representing the indirect influence of parents through the importance they prescribe to education ( $[g_{31} \times b_{43}] + [g_{31} \times b_{23} \times b_{42}]$ ), and the third (M3) representing the influence of family background on educational aspirations solely through the children's abilities and the perceived importance of education among children ( $[g_{11} \times b_{41}] + [g_{11} \times b_{21} \times b_{42}] + [g_{11} \times b_{31} \times b_{43}] + [g_{11} \times b_{31} \times b_{23} \times b_{43}]$ ). The drop in the effect of parents is partly due to the decline in the effect of the perceived value of education by parents (M2 in table 3). In 1989, this part of the model explained 5.8 percent of the total impact of socioeconomic background on aspirations, whereas in 2003 it represented only 2.3 percent. On the other hand, the role of the perceived value of education among children (M3 in table 3) almost doubled (from 0.115 to 0.213), explaining 19.7 percent of the total effect of socioeconomic background on aspirations in 1989 and 51.8 percent of the total effects in 2003.

A multisample analysis was applied to test the statistical significance of differences between coefficients for individual years. To reduce the potential influence of different measurement protocols for the variable ability (ABIL), two equality constraints were set prior to testing the differences between the relevant coefficients: the effect of family background on ability ( $g_{11}$ ) and the

TABLE 4  
TESTS OF EQUALITY CONSTRAINTS IMPOSED ON SELECTED COEFFICIENTS IN MODELS  
FOR 1989 AND 2003 (Multisample Analysis)

Model	Effect set to be equal	df	$\chi^2$	<i>P</i>
$(g_{11} + r_{11}) + g_{41}$	FAMSES $\rightarrow$ EDUASP	1	44.493	.000
$(g_{11} + r_{11}) + b_{42}$	D_EDU $\rightarrow$ EDUASP	1	72.101	.000
$(g_{11} + r_{11}) + b_{43}$	R_EDU $\rightarrow$ EDUASP	1	.464	.496
$(g_{11} + r_{11}) + b_{23}$	R_EDU $\rightarrow$ D_EDU	1	2.640	.104
$(g_{11} + r_{11}) + g_{31}$	FAMSES $\rightarrow$ R_EDU	1	24.105	.000
$(g_{11} + r_{11}) + g_{21}$	FAMSES $\rightarrow$ D_EDU	1	12.340	.000
$(g_{11} + r_{11}) + b_{41}$	ABIL $\rightarrow$ EDUASP	1	31.600	.000
$(g_{11} + r_{11}) + b_{31}$	ABIL $\rightarrow$ R_EDU	1	1.299	.254
$(g_{11} + r_{11}) + b_{21}$	ABIL $\rightarrow$ D_EDU	1	4.846	.028

NOTE.—All test are based on the assumption that the model with coefficients  $g_{11}$  and  $r_{11}$  set equal is correct.

correlation between parents' education and pupil's ability ( $r_{11}$ ).<sup>17</sup> The results of our test of the differences between coefficient estimates for 1989 and 2003, which are displayed in table 4, reveal that our hypothesis predicting a stronger direct effect of family background on aspirations in 1989 has been confirmed ( $\chi^2$  associated with the equality constraint for coefficient  $g_{41}$  amounts to 44.5 with one degree of freedom). In addition, estimates of other relevant coefficients show significant differences between 1989 and 2003, namely,  $b_{42}$  (D\_EDU  $\rightarrow$  EDUASP) and  $b_{41}$  (ABIL  $\rightarrow$  EDUASP), which supports our hypothesis about significant change in the overall structure of the determination of educational aspirations during the transformation period. Differences in the values of these two coefficients for 1989 and 2003 suggest that in 2003 educational aspirations were strongly determined by pupils' individual characteristics (their measured ability and their perceived role of education for getting ahead in life) rather than by family background characteristics and values shared by their parents.

Multisample analysis was applied also to assess gender-based differences in the determination of educational aspirations. Model coefficients, displayed in table 5, were estimated separately for boys and girls for both 1989 and 2003. At first glance, these differences are rather small, especially in 1989, when none of the relevant coefficients shows statistically different estimates for boys and girls. Tests of equality constraints (displayed in table 6) reveal that in 2003, three coefficients show statistically different values for boys and girls, namely,  $b_{41}$  (ABIL  $\rightarrow$  EDUASP),  $b_{23}$  (R\_EDU  $\rightarrow$  D\_EDU), and  $g_{31}$  (FAMSES  $\rightarrow$  R\_EDU). Significantly higher values of  $b_{41}$  for boys and  $b_{23}$  for girls indicate that boys' educational aspirations develop more from the influence of their ability and less by parental values, whereas girls tend to be influenced by parental values more than boys and experience weaker constraints from their own measured ability.

<sup>17</sup> In terms of equality constraints, the baseline model was defined as follows:  $g_{111} = g_{112}$  and  $r_{111} = r_{112}$ .

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TABLE 5  
SELECTED STANDARDIZED REGRESSION COEFFICIENTS OF THE MODELS FOR 1989 AND 2003  
ESTIMATED SEPARATELY FOR BOYS AND GIRLS

Parameter	Effect	Boys 1989	Girls 1989	Boys 2003	Girls 2003
$g_{11}$	FAMSES $\rightarrow$ ABIL	.393	.358	.427	.513
$g_{31}$	FAMSES $\rightarrow$ R_EDU	.215	.237	.150	-.023
$b_{31}$	ABIL $\rightarrow$ R_EDU	.147	.097	.079	.163
$b_{23}$	R_EDU $\rightarrow$ D_EDU	.079	.074	.048	.153
$g_{21}$	FAMSES $\rightarrow$ D_EDU	.107	.129	.068	-.016
$b_{21}$	ABIL $\rightarrow$ D_EDU	.076	.062	.051	.002
$b_{42}$	D_EDU $\rightarrow$ EDUASP	.137	.081	.183	.154
$b_{43}$	R_EDU $\rightarrow$ EDUASP	.111	.171	.110	.126
$b_{41}$	ABIL $\rightarrow$ EDUASP	.312	.283	.455	.419
$g_{41}$	FAMSES $\rightarrow$ EDUASP	.425	.415	.220	.175
$R^2$	EDUSAP	.489	.449	.435	.347
Total effect	FAMSES $\rightarrow$ EDUASP	.600	.567	.453	.396
Total effect	ABIL $\rightarrow$ EDUASP	.340	.306	.473	.443
Total effect	R_EDU $\rightarrow$ EDUASP	.122	.177	.119	.150

TABLE 6  
TESTS OF EQUALITY CONSTRAINTS IMPOSED ON SELECTED COEFFICIENTS IN MODELS  
FOR BOYS AND GIRLS

Model	Effect Set to Be Equal	df	1989		2003	
			$\chi^2$	i	$\chi^2$	P
MM + $g_{11}$ + $g_{31}$	FAMSES $\rightarrow$ R_EDU	1	.015	.901	12.835	.000
MM + $g_{11}$ + $g_{41}$	FAMSES $\rightarrow$ EDUASP	1	1.602	.206	3.826	.050
MM + $g_{11}$ + $g_{21}$	FAMSES $\rightarrow$ D_EDU	1	.094	.759	2.652	.103
MM + $g_{11}$ + $b_{21}$	ABIL $\rightarrow$ D_EDU	1	.104	.747	1.379	.240
MM + $g_{11}$ + $b_{31}$	ABIL $\rightarrow$ R_EDU	1	1.292	.256	3.454	.063
MM + $g_{11}$ + $b_{41}$	ABIL $\rightarrow$ EDUASP	1	1.938	.164	5.884	.015
MM + $g_{11}$ + $b_{23}$	R_EDU $\rightarrow$ D_EDU	1	.005	.943	7.449	.006
MM + $g_{11}$ + $b_{42}$	D_EDU $\rightarrow$ EDUASP	1	2.961	.085	2.041	.153
MM + $g_{11}$ + $b_{43}$	R_EDU $\rightarrow$ EDUASP	1	2.144	.143	.038	.846

NOTE.—MM = coefficients of measurement model and correlation  $r_{12}$  are set equal. All parameters are based on the assumption that the model MM +  $g_{11}$  is correct.

We can interpret these findings to suggest that the socialist education system, at least in 1989, socialized pupils to the degree that gender differences did not play a role in shaping the factors that determined educational aspirations. By 2003, however, highly significant differences between boys and girls in estimates of the coefficient  $g_{31}$  (FAMSES  $\rightarrow$  R\_EDU) suggest that, everything else being equal, higher family SES generates among parents greater emphasis on the role of education in life success for boys than girls. This finding means that parents may have different expectations of boys and girls regarding the role of education in their life success. In other words, boys in higher social status families are exposed to a stronger pressure to achieve higher education than are girls. From a gender perspective, this finding suggests that more traditional or patriarchal norms about the expected behavior of boys and girls have taken root in the transition period.

## Conclusions

The main objective of this study has been to assess historical change in the determination of educational aspirations during the process of political, social, and economic transformation in the Czech Republic, namely, between 1989 and 2003, years during which similar surveys were administered to pupils in the last grade of primary school. Our prior research on educational aspirations has shown that the Czech Republic is among the OECD countries in which educational aspirations are very strongly determined by socioeconomic background and measured ability. This finding is particularly due to the high degree of stratification of the educational system at the primary and secondary levels and the lingering exclusivity of the tertiary system. In the Czech Republic, demand for higher education greatly exceeds the supply of educational opportunities. It is still a quite unitary system that is only slowly adopting binary principles, and so forth.

This study tested four major hypotheses on historical changes in the determination of educational aspirations of adolescents and key relationships between socioeconomic background, measured ability, and the perceived importance of education for life success among parents and their children. First, we hypothesized that the direct effect of social origin on aspirations has diminished during the period under study, while the effect of ability on aspirations has grown. Second, as for the role of the perceived value of education, we assumed that due to a significant increase in economic returns from education (reported by all available studies of wage and income differentiation), there has been a general increase in the perceived importance of education for life success and, therefore, an enormous growth in educational aspirations. Third, as a consequence, we hypothesized that the effect of parental SES on the perceived value of education among parents and children has weakened during the transformation. Finally, since the educational system has not fully reformed its elitist structure (high degree of differentiation and vocational specificity, early tracking, the existence of dead end tracks, a low admissions rate to tertiary education, etc.), we hypothesized that despite changes in attitudes toward education, the total effect of social origin on educational aspirations has not changed and has remained very strong.

We transformed these hypotheses into a causal model, which we subjected to testing. Statistics of model fit have shown that the structural model was an adequate formal representation of our general hypothesis on the causal relationships between variables for both years (1989, 2003). The analysis of the relevant coefficients of the structural model showed that the data strongly supported our hypotheses.

The data indicated that the perceived importance of higher education for life success dramatically increased between 1989 and 2003, particularly among pupils. Consequently, pupils' educational aspirations have significantly

increased as well. While only 17 percent of eighth graders surveyed in 1989 stated that they definitely wished to achieve a university or college education, nearly 50 percent of ninth graders surveyed in 2003 indicated the same desire.

The results from the structural model support the view that during socialism, the low level of educational aspirations combined with the very limited supply of higher education opportunities encouraged the perception of education an exclusive asset. Both directly and indirectly, this perceived value of education became part of the intergenerational transmission of advantages. In other words, under socialism higher education was in demand but, in view of its relatively low economic return, it was a strategy for life success primarily for families whose high cultural status was defined to a decisive degree by their education. In general, we can speak of the key role of higher education in the reproduction of the cultural elite. This assertion was manifested in the model by a very strong direct influence of family SES (in which income played a very small part) on the educational aspirations of children (M1), on the one hand, but also through the fact that most of the indirect effect was transferred through the importance attached to education by parents as an instrument of life success on the other (M2). These two segments of the model (M1 and M2) accounted for more than three-fourths of the total effect of family background on educational aspirations of children in 1989.

As for the situation in 2003, the results support the view that the entire causal structure has changed significantly. The most important difference between coefficients of the models for 1989 and 2003 consists of the finding that the direct effect of SES has dramatically decreased (by 56 percent), while its total effect has weakened to a much lesser degree (by 30 percent).<sup>18</sup> An even greater change has been found in the role of the perceived importance of education for life success among children compared to the role of the value of education among parents. While the role of the former has dramatically increased, the role of the latter has weakened. In addition, it has to be emphasized that even though the change in coefficients pertaining to the role of ability in shaping aspirations must be interpreted with some caution (ability was not measured by identical instruments), the results of multi-sample analysis, which partly controlled the potential effect of different measurement protocols, proved that the increase of its direct and indirect effects on aspirations is evident. In theoretical terms, our analysis supports the view that the overall level of educational inequality before and after the period of political and economic transition has remained relatively constant, whereas

<sup>18</sup> Another study (Matějů et al. 2007) has shown, however, that during the postsocialist period inequalities in the chances of making the transition between secondary and tertiary education significantly increased, due primarily to the substantial decrease of higher education opportunities for children from manual worker backgrounds. The results of the analysis confirmed that this change originated from the class dimension of social stratification (father's class) rather than from its *cultural* dimension (parents' education). Thus, the increase of inequalities in access to higher education that occurred in the Czech Republic after 1989 was caused by factors that can be called structural: the rigid structure of the tertiary education system and the gradually crystallizing social class structure.

there has been a significant change in the mechanisms through which that inequality has been brought about.

We also found that there were important gender-based differences in the determination of educational aspirations in 2003 that did not exist in 1989. In particular, the effect of parental beliefs about the role of education in life success increased significantly for girls between the two time periods, but it declined for boys. This finding suggests that girls have become more strongly rooted in family values compared to the communist past, when both genders were attached to those values to comparable degrees. We also found that while the effect of ability on aspirations increased for both boys and girls between the two time periods, boys' aspirations continued to be more strongly shaped by ability, which may reflect social pressures placed on boys, as future breadwinners, to make fuller use of their abilities. Both findings hint at a heightened patriarchal family environment for the socialization of children compared to the communist past, though there is relatively little that can be concluded from the available evidence.

Despite all of the significant changes in the structure of the causal determination of educational aspirations between 1989 and 2003, which evidence a certain meritocratization of the general pattern of determination, the overall degree of determination has remained very strong. What used to be during socialism the direct intergenerational transfer of education as a predominantly cultural asset has become primarily the outcome of tough competition for a highly valued economic asset. In this context, children from disadvantaged social strata tend to lose largely because, under the given circumstances, they do not develop adequate educational aspirations. This conclusion also corresponds to the results of our prior comparative research of the formation of educational aspirations in OECD countries.

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