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Published in:
European Sociological Review

Publication date:
1988

European Sociological Review, Vol. 4 No. 3, December 1988

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ABSTRACT It is proposed here that there are two reasons for extending the standard set of family factors predicting educational outcomes, such as parents' educational and occupational status, parents' income and family size. First, this standard set is not exhaustive, as is shown by sibling research; and second, the standard variables are merely descriptive and do not reveal the mechanisms which link family background and educational attainment. The notion of 'status group culture' might fill both gaps. It is hypothesized that for children of low status group parents a cultural mismatch exists between family culture and school culture, while no such mismatch is present for children of high status group parents. The higher the status group of parents, the more cultural resources children have at their disposal. Using data from a West German survey, in which information is collected on parents' characteristics and leisure-time activities and children's grades and transition to secondary education, indicators for parents' cultural resources are constructed. The findings suggest that parents' cultural resources indeed affect grades in German language and the transition to the *Gymnasium*, the most prestigious form of secondary education in Germany.

INTRODUCTION

It is a truism of research on social stratification that educational attainment is the main agent in transmitting social inequality from one generation to the next. Family factors, such as parents' educational and occupational positions, family income, number of siblings and region of origin, together account for around a half or more of the variance in individual educational attainment (Blau and Duncan, 1967; Hauser and Featherman, 1976; Halsey, Heath and Ridge, 1980; Hauser and Sewell, 1986). Multiple regression analysis further shows that, when educational attainment is controlled for, there remain only small direct effects of family factors on occupational achievement. At least three-quarters of the association between origin and destination status is explained by schooling. Therefore, when we focus on the explanation of intergenerational inheritance of social inequality, it is the explanation of the effects of family factors on educational attainment that must be investigated with most emphasis.

The important role of family factors has long been recognized, but it has been modelled adequately only in the 1960s. The Wisconsin model of educational attainment and structural models inspired by it stress the twofold importance of family factors (Sewell, Haller and Portes, 1969; Sewell and Hauser, 1975). In the early phase of educational careers family factors have a major impact on the development of those cognitive skills—commonly labelled as ability—that are rewarded in the further development of the educational career. Boudon (1974) labels this the 'primary' effect of social stratification on educational inequality.

But children apparently need more than just ability to perform well at school. After the early period of educational socialization the influence of the origin—the effects of family factors—becomes partly indirect by way of the effects of abilities on grades, enrollment and educational attainment in general. However, structural models also have displayed significant *direct* effects of family on educational outcomes after

ability has been taken into account. This Boudon records as the 'secondary' effect of social stratification on educational inequality.

After Blau and Duncan's monograph *The American Occupational Structure* (1967) had been published and the strength of family effects on educational outcomes had been established, American researchers tried to incorporate indicators of inequality in talent into their models (Duncan, Featherman and Duncan, 1972; Sewell and Hauser, 1975; Jencks *et al.*, 1972, 1979). Through path models they investigated how far the effects of family factors on educational attainment evaporate when talent is introduced. All the American results display strong effects of talent. For example, Duncan, Featherman and Duncan (1972) showed that the effects of father's occupational status, father's educational attainment and mental ability have (standardized) effects of 0·24, 0·22 and 0·44 respectively on completed years of schooling. When mental ability was not included in the model, the effects of father's occupational status and educational attainment were estimated as 0·31 and 0·28. This makes clear that, although the effect of ability is the strongest, the effects of family factors also remain strong: only a fourth of them is mediated by ability. This in turn suggests that the effects of ability on educational attainment are largely independent of family background. Jencks and associates (1972) reach the same conclusion. The secondary effects of social stratification on educational attainment seem to be larger than the primary effects. Mare (1981) showed that effects of social stratification are present at all stages of educational careers. At every transition in the American educational system there are selection mechanisms with regard to family background; parents' education attainments would seem to be chiefly operative.

For England and Wales Halsey, Heath and Ridge (1980: 55–60) revealed the strength of secondary effects of social stratification by showing that pupils from lower social strata need a higher score on ability tests to have an equal probability of entering higher education to that of pupils from higher strata. To prove this, they developed models in which curves were estimated similar to economists' indifference curves. These show that British grammar schools are 'indifferent' as between pupils with an average mental ability from higher strata and pupils with above average ability from lower strata.

In the Netherlands the transition from elementary to secondary education has been intensely investigated (Dronkers, 1983; Vrooman and Dronkers, 1986). This transition is the key one in the Netherlands' school system, because type of secondary schooling is the prime predictor of highest level of education attained. It has been established that about one-half of the effects of family factors on this choice is indirect and can be interpreted by way of ability—the other half is direct.

In research practice the effect of ability on educational attainment, and hence Boudon's primary effect, is often perceived as a meritocratic device. The effects of measured mental ability on the outcomes of schooling are interpreted as being fair, while secondary effects are evaluated as being unjustified. However, this way of reasoning has its opponents, too, mainly because ability tests, like Scholastic Aptitude Tests and other IQ-tests, survey largely the same individual characteristics that are tested in school examinations and selection processes. The content of these tests is strongly confounded with what is learned in schools, and relationships have thus a tautological character. Ratings on ability tests might therefore be more accurately regarded as interim scores in educational careers than as meritocratic predictors of educational outcomes. Of course, this is by no means an argument for not including ability test results in models of educational attainment; such models provide valuable insights into the development of educational careers that can not be gained when test results are left out of the model.

In this paper I have two goals. First, some developments in the sociology of education, with implications for the measurement of family background and for the interpretation of family effects, are discussed. It is argued that, if neo-Weberian theory is to be taken seriously, explicit measurements of status group culture and membership should be included in the set of predictor variables for educational attainment. Recent empirical results from the United States and the Netherlands are discussed.

Second, a data-set from the Federal Republic of Germany is added to the collection of those containing items on cultural resources, which is a welcome supplementary body of information. This data-set allows one to investigate the association between, on the one hand, parental commodities and resources and, on the other, children's grades at the end of elementary school (at age ten) and the educational choice parents made for their child after elementary school, between extended elementary school (*Hauptschule*), a middle level (*Realschule*) and *Gymnasium*. The relative impacts of parents' education, occupation, financial resources and 'neo-Weberian' cultural resources are ascertained. Because the recorded grades are those the pupils had attained just *before* the transition to secondary school, primary and secondary effects of social stratification in educational careers can be distinguished.

DEVELOPMENTS IN THE SOCIOLOGY OF EDUCATION

There are two major arguments for the assertion that the usual set of predictor variables that are seen as governing the relationship between family factors and educational attainment is not exhaustive.

First, formal arguments lead to the conclusion that there must exist family factors that have not been taken into account. Research on inter-sibling similarities in schooling has revealed that only 55 or 60 per cent of the family factors that predict educational attainment is represented by known background variables, *after* individual ability has been taken into account (Hauser and Featherman, 1976; Hauser and Sewell, 1986). Father's occupation, father's education, number of siblings all have effects on schooling, but together they cannot represent all family factors that influence educational attainment. Hauser and Featherman (1976: 117) therefore conclude that 'it is not clear what the remaining 45 per cent of the family effect represent, and we think this a fertile ground for investigation'. Here we see two of the important advantages of sibling research over research which takes only one child from each family into account: it exactly reveals what proportion of the variance in individual schooling can be explained by family factors and it shows whether measured family characteristics represent all family factors completely.

Second, demographic characteristics such as parents' educational attainment and occupational prestige are not only incomplete indicators of family factors; they are also not the indicators of the family factors that one is really interested in when one sets out to *explain* the dependence of educational careers on family background. The explanatory educational resources present in the family of origin are indicated by these demographic measures, but their contents and working remain unclear (Teachman, 1987). The effect of another standard predictor variable, parental income, is easier to understand: this family factor represents the financial resources available in the family of origin. However, the question of why the number of siblings in the family of origin has a direct effect on educational outcomes is again not so easy to answer. This relationship can be interpreted as a proxy for the effect of financial resources but also for that of the time parents are able to invest in each individual child (Blake, 1985).

As soon as the financial resources of the family of origin are adequately dealt with in models of educational attainment, the question of how the direct effects of educational and occupational parental characteristics can be interpreted becomes salient. In the Wisconsin tradition, parents' and children's aspirations and plans are introduced as explanatory variables. But then the next question follows quite automatically: how can differences in aspiration levels and in educational plans be explained? Using aspirations or plans as explanatory variables is much like introducing norms or values. They all stand more or less for the same unspecified idea that some parents just send their children into higher education and others do not, without making clear why the norms, or aspirations, or plans are distributed as they are.

Recently, it was argued that the set of variables indicating educational resources should be extended with explicit measures of status group membership, in Weberian terminology: *Ständezugehörigkeit* (DiMaggio, 1982). This

idea comes from the 'conflict sociology' of educational stratification which has gained momentum after it was established that the modernization process in the Western world has hardly effected a decline in the association between social origins and educational attainment.

However, functionalist theory predicted such a decline as the result of rapid technological innovation. According to this macro-sociological theory, society could no longer afford allocative processes in which family background controls entry into the educational system. A shift to meritocracy was predicted. Achievement instead of ascription would become the key determinant of educational attainment and socioeconomic status. This hypothesis can be given a individualistic turn via human capital theory. This theory suggests that individual investment in education becomes more opportune as the modernization process advances and increases the demand for qualified personnel.

This supposed trend toward meritocracy was seen as being supported by two further tendencies, one purposive, one accidental. First, in Western countries legislation was promoted which aimed at equality of opportunity. In the 1950s and 1960s states started to sell education below its real cost, partly because they thought that international economic competition demanded a well-educated labor force, and partly because a value came to be placed on individual development. Secondly, rising affluence and increasing job security caused declines in both the direct and the opportunity costs of education. In sum, modernization theory hypothesized that financial resources available in the family of origin would no longer affect educational outcomes directly, and that, for this reason, the dependence of educational attainment on family background would necessarily weaken.

Although there has been massive educational expansion in the Western world, the relationship between parents' educational and occupational positions and the educational outcomes of their offspring has in fact been remarkably stable (Blau and Duncan, 1967; Hauser and Featherman, 1976; Halsey, Heath and Ridge, 1980; Simkus and Andorka, 1982; Meulemann and Wiese, 1984; Vrooman and Dronkers, 1986). Responding to these facts, neo-Weberian theory has stressed the importance of cultural factors in the status attainment process as an explanation of the persistence of inequalities in educational success.

In the neo-Weberian view, the educational system is not a neutral testing device for the capabilities of individuals, but functions as a biased screen that favors those children who bring with them from their homes the cultural preferences and competencies that are rewarded in schools. For this reason, and because selection within the educational system is often self-selection produced by a mismatch between the cultural background of children and the (perceived) cultural patterns of the school, equality of results has not been reached although equality of financial opportunities has been created for some time.

The proper test for such a conflict theory of stratification lies in the prediction that the association between family background and children's educational attainment will be explained by control over cultural resources. Measures of participation in status group culture have been included in several studies of educational achievement (DiMaggio, 1982; Ganzeboom, 1982; Robert, 1984; DiMaggio and Mohr, 1985; De Graaf, 1986a, 1986b; Teachman, 1987). Usually, such status group membership is called 'cultural capital', a phrase originating with Bourdieu (1973), in a flirtation with Marxist terminology. I suggest that the expression 'cultural resources' is more appropriate. Just like financial resources, and perhaps genetic ones, pupils have, or have not, cultural resources at their disposal.

To get empirical evidence relevant to these ideas, one should introduce explicit measures of status group membership into models of educational attainment, following the example of DiMaggio. In two articles (1982, 1985) DiMaggio has reported his analyses based on the panel study 'Project Talent', and has shown that high school students who were relatively active in 'high culture', who visited theaters and concert halls and who had a cultured self-image performed better and attained higher levels of

education than students without such activities and traits, even when scores on scholastic aptitude tests were controlled for. Research by Ganzeboom (1982) and De Graaf (1986a, 1986b) has demonstrated that there are also independent effects of parents' cultural assets and activities on the educational outcomes of their children. The offspring of parents who are responsive to high culture and familiar with the humanities and the written word, and of parents having intellectual occupations (the professions) tend to perform especially well at schools, and even when parental schooling and occupational prestige are controlled for. Measures of parental status group culture have substantial effects on educational attainment. It is plausible that in the early stage of an educational career the cultural resources of the parents are of prime importance, and in the later stage those of the students themselves. This is because parents may do the decision-making initially, while this role passes to the children afterwards.

One of the main obstacles in all research on educational careers is that the indicator of both parents' and students' cultural status which probably has the largest impact, *linguistic skills* (Bernstein, 1971), has never entered into models of educational attainment. Investigations have shown that the linguistic skills of parents are strongly related to their educational and occupational characteristics, and their impact on children's educational attainment could be very strong. However, in all quantitative research on educational stratification information is sampled via a survey design; and in such a design it is apparently not feasible to acquire information about the linguistic skills of parents.

Again, in some studies the theoretical issues are posed differently than in status group culture research (e.g. Leibowitz, 1974, 1977; Teachman, 1987). Within a human capital framework, it has been argued that demographic measures of family background do not fully represent the investments, including investments in time parents make in their children, nor do they stand for straightforward educational resources, such as the presence of books and pencils in the home environment.

The introduction of explicit measures of 'status group participation' or of 'educational resources' could remedy both the above weaknesses of the practice of using only demographic measures in the prediction of educational attainment. First, the proportion of family factors which are identified could be enlarged, and, second, the mechanisms by which family factors affect educational outcomes—the mismatch between home environment culture and school culture—could be made explicit. Thus we would have an interpretation of family effects which has not the tautological character of the hypothesis that high SES parents merely set higher educational standards for their children than do low SES parents.

DATA FROM THE FEDERAL REPUBLIC OF GERMANY

In the formal school system of the Federal Republic of Germany the most important decision in educational careers has to be made relatively early compared to other systems; that is, when children have completed four years of elementary schooling. Then, the pupils are approximately ten years old and their parents have to choose between extended elementary school (*Hauptschule*), a middle level (*Realschule*) and the highest level, the *Gymnasium*. This choice is a crucial one: without a *Gymnasium* diploma (the *Abitur*) entrance to university is effectively closed, and without the certificate for completion of the middle level (*mittlere Reife*), there are strong barriers to many intermediate and higher grade occupations. Therefore, the study of family factors that have impacts on the transition to secondary school is an excellent instance through which to evaluate the merits of status group theory.

Findings have revealed that, not unexpectedly, family factors have a strong influence on educational attainment in West Germany as elsewhere (Baur, 1972; Müller, 1975). Research which compares the relationship between father's occupation and overall educational attainment for successive birth cohorts (1920 until 1954) shows that educational inequality has not weakened (Handl, 1985: 719). It has been found, too, that there have been no changes in the inequalities that arise at the transition

after four years of elementary schooling (Meulemann, 1983; Meulemann and Wiese, 1984). Although in the process of educational expansion *Gymnasium* participation had increased quickly in the period investigated, from approximately 12 per cent in 1952 to 25 per cent in 1978), relative chances for children of different family backgrounds (classified by father's occupation) had not equalized. Likewise the association between family background and success rates within the *Gymnasium* seems not to have changed in recent decades.

In 1968 the *Arbeitsgruppe für empirische Bildungsforschung* ('Working Group for Empirical Educational Research') in Heidelberg carried out a survey among 1,279 parents and teachers of pupils in Baden-Württemberg who in the autumn of 1967 had made the transition to secondary school.[1] The sample was twice stratified, by family background (six occupational categories) and by educational choice (three categories), to produce equal numbers of observations in each of the 18 subsamples. In the analysis performed here, the sample was weighted back, while holding constant the number of observations; and a listwise missing data selection was made over all variables used in the models applied. The sample analyzed consists of 1,031 pupils for whom complete information is available. Most of the information analyzed originates from pupils' parents, but the actual educational choice made comes from official records, while the grades were reported by the teacher in the fourth year of elementary school.

Table 1 shows that 71·3 per cent of the reweighted sample had made the transition to the extended elementary school, 10·2 per cent went to the middle level school and 18·4 per cent went to the *Gymnasium*. In the light of official statistics, this distribution does not fully represent the transition rates in Baden-Württemberg as a whole. Transition rates after four years of elementary education are not known, but of 13–14 year olds in 1970—corresponding to 10–11 year olds in 1967—higher proportions were at the middle level and at *Gymnasia* than in the sample analyzed here. To an unknown degree, this is due to the influence of postponed choice. After five or six years of elementary education it is still possible to advance to the middle level or to the *Gymnasium*.

The data-set does not contain information about the gender of pupils.[2] Although it is generally known that gender affects educational careers, these effects have decreased in the early stages of educational careers in the Federal Republic of Germany. The last two columns of Table 1 show that among the 13–14 year olds in 1970 there was only a slight under-representation of girls in the *Gymnasia*, while there was a small over-representation at the middle level.

In Table 2 the variables available for our purposes are described, and their means and standard deviations are given, broken down by the educational level chosen. Father's and mother's educational attainments are both coded on a seven-point scale, roughly expressing years of education completed with slight adjustments to include the level of their qualifications, while father's occupation is coded on a prestige scale. Only small differences can be observed between parents who sent their children to the middle level and parents who chose extended primary school for their offspring. Parents of *Gymnasium* children, however, are clearly higher educated and are situated in higher grade occupations.

The financial resources of the family of origin are measured in two ways: by the total family income—i.e. the sum of the father's and mother's income—and by the number of consumption goods (from a list of 13) present in the household. The latter indicator might be less affected by temporal changes and therefore more reliable. These material affluence measures vary strongly with the level of education chosen. Table 3 displays the bivariate (zero-order) and the multiple correlations between the three demographic indicators of family background and the indicators of the financial and cultural resources present in the family. Family income is somewhat more strongly associated with educational and especially occupational characteristics than with the consumption goods index. The number of siblings in the family, which might also be an indicator of financial resources, is only loosely associated with parents' educational and occupational levels; thus, family size cannot

TABLE 1 *Educational choice at age ten*

	Baden-Württemberg sample (10–11 year olds in 1967)		Statistical data for Baden-Württemberg (13–14 year olds in 1970, whole population, N = 131,552)			
				All	Boys	Girls
	N	%		%	%	%
Extended elementary (*Hauptschule*)	735	71·3		55·3	55·1	55·5
Middle level (*Realschule*)	105	10·2		17·0	14·5	19·6
Gymnasium	190	18·4		22·4	24·1	20·7
			Sonderschule	5·1	6·0	4·2
Total	1,031	100		100	100	100

Sources: Baden-Württemberg data 1967, pupils with complete information, N = 1,031. Official statistics, Köhler (1987).

TABLE 2 *Means and standard deviations of predictor variables*

	All		Extended elementary		Middle level		*Gymnasium*	
	Mean	s.d.	Mean	s.d.	Mean	s.d.	Mean	s.d.
Father's educational attainment[a]	2·49	1·23	2·26	0·87	2·25	0·89	3·51	1·88
Mother's educational attainment[a]	2·24	0·88	2·08	0·55	2·16	0·71	2·94	1·48
Father's occupational achievement[b]	116·44	61·03	103·94	52·45	114·75	54·95	165·80	70·02
Family income[c]	1,053·83	466·36	989·10	416·39	1,002·75	376·73	1,332·82	580·48
Consumption goods[d]	5·06	2·29	4·65	2·12	5·57	2·26	6·34	2·42
Number of siblings[e]	3·19	1·62	3·36	1·67	2·86	1·38	2·70	1·40
Interests of parents[f]	0·01	0·75	–0·06	0·70	–0·03	0·68	0·30	0·88
Reading behavior of parents[g]	–0·01	0·83	–0·16	0·77	0·04	0·73	0·55	0·84
Grades: arithmetic[h]	3·88	1·07	3·52	1·00	4·52	0·66	4·92	0·58
Grades: German language[h]	3·89	0·94	3·58	0·87	4·46	0·56	4·79	0·54
Number of cases	1,031		735		105		190	

Notes: (a) Seven-point scale: 1. uncompleted elementary school; 2. elementary school; 3. *Realschule* or *Gymnasium* without *mittlere Reife*; 4. *mittlere Reife* (middle level completed); 5. *mittlere Reife* and unfinished *Gymnasium*; 6. *Gymnasium* (*Abitur*); 7. University.

(b) Mayer's occupational prestige score divided by 100 (Mayer, 1977).

(c) Sum of father's and mother's incomes in DM divided by 100.

(d) Number of consumption goods present in the household out of 13: dishwasher, ironing set, transistor radio, tape recorder, pickup, camera, small film camera, slide projector, grill, car, vacuum cleaner, carpet, arm-chair.

(e) Number of siblings (respondent excluded) in family.

(f) Factor scale, four items: interest in politics, interest in philosophy, interest in other countries and peoples, reading a nationwide paper.

(g) Factor scale, three items: number of books in household (logarithm), number of books read in last year (logarithm), interest in books.

(h) Six-point scale: 1. very bad; 6. very good (reversed order of standard German grading).

Source: Baden-Württemberg data 1967, pupils with complete information, N = 1,031.

TABLE 3 *Bivariate and multiple correlations between social background and resources variables and grades, and correlations between resources and variables*

	Father's education	Mother's education	Father's occupation	Multiple correlation
Family income	0·48	0·39	0·63	0·65
Consumption goods	0·36	0·32	0·50	0·51
Number of siblings	–0·11	–0·06	–0·22	0·22
Interests of parents	0·30	0·28	0·34	0·38
Reading behavior of parents	0·44	0·37	0·51	0·55
Grades: arithmetic	–0·22	–0·17	–0·22	0·25
Grades: German language	–0·23	–0·21	–0·27	0·29

	(2)	(3)	(4)	(5)
(1) Family income	0·49	–0·06	0·34	0·42
(2) Consumption goods		–0·16	0·28	0·44
(3) Number of siblings			–0·10	–0·12
(4) Interests of parents				0·40
(5) Reading behavior of parents				

Source: Baden-Württemberg data 1967, pupils with complete information, N = 1,031.

serve to interpret a large part of family effects.

The indicators of cultural resources of the family of origin are summarized in two factor scales. The first one, labelled 'parents' interests' has four indicators: whether parents are interested in politics, in philosophy, and in other countries or peoples, and whether they read at least one of four prestigious and national papers or magazines (*Süddeutsche Zeitung*, *Frankfurter Allgemeine Zeitung*, *Der Spiegel*, *Die Zeit*). The second factor scale is labelled 'parents' reading behavior'. Its indicators are the number of books present in the household, the number of books read in the last year and self-reported interest in books. All individual items—i.e. reported interests and reading behavior—relate to the parent questioned; half of them are mothers, half of them fathers. Both factor scales are strongly related to the three demographic background variables (Table 3) but no differences between 'extended elementary' and 'middle level' parents can be observed (Table 2). *Gymnasium* parents, however, clearly score higher on both scales.

It is possible that the indicators of parental life-style and status group membership lean too heavily on 'introvert' items. The theory of status group *participation* might be more plausibly connected with 'extravert' items, such as high cultural participation and the social networks in which the individual is involved. Comfortingly, empirical findings suggest that reading behavior is in fact strongly related to more extravert cultural consumption, such as visiting theaters and concert halls (Ganzeboom, 1982).

Cognitive skills, or intellectual ability, are measured by the pupil's grades for arithmetic and German language in the fourth class of elementary schooling. These grades are reported directly by the teacher concerned.[3] The relevant columns in Tables 2 and 3 show that grades vary strongly across all three school types and across the demographic background characteristics.

As suggested earlier, caution about the validity of ability tests might be justified because ability tests measure more or less the same competencies that schools reward. When ability tests are used as predictor variables for schooling outcomes, the direct effects of family background will be biased: they will be smaller than their true values. However, we are not troubled by this problem, because both grades and educational choice will be treated as dependent variables in the analysis, and thus their relationship can be made clear. First, the social determinants of grades will be analyzed. Secondly, the transition to secondary education

TABLE 4 *Ordinary least squares regressions of grades for arithmetic and German language attained in the fourth class of elementary school on family factors, standardized coefficients (*denotes significance, p<0·05)*

	Grades: arithmetic		Grades: German language	
Father's education	0·14*	0·11*	0·07	0·06
Mother's education	0·05	0·05	0·08*	0·09
Father's occupation	0·11*	0·10*	0·19*	0·12*
Family income		–0·02		–0·03
Consumption goods		0·04		0·03
Number of siblings		–0·10*		–0·20*
Parental interests		–0·03		–0·06
Parental reading		0·04		0·11*
R^2 adjusted	0·060	0·068	0·082	0·128

Source: Baden-Württemberg data, pupils with complete information, N = 1,031.

will be analyzed, and grades will be included in the model. In this way, it is possible to distinguish Boudon's primary and secondary effects of social stratification on educational outcomes.

Most explanatory variables vary strongly over the families with different educational and occupational levels and over the three educational groups of pupils. Comment on this variation is, however, premature, since much of it could be spurious. Only multivariate methods can display the relative impacts of the variables on educational choice.

ANALYSIS

The analysis of the data is divided in two parts. First, the determinants of the grades reached just before the important decision on which level of secondary education a child is going to enter will be evaluated, since they are widely recognized as a major predictor variable of that decision. Secondly, the social determinants of parents' decision to send their children to extended elementary school, middle level secondary education or to the *Gymnasium* are established.

Table 4 presents ordinary least squares estimates of family effects on grades in arithmetic and German language attained in the fourth year of primary education. In the left-hand columns only parents' educational and occupational levels are included in the regression equation; in the right-hand columns the explanatory variables are added. It is striking that, on the whole, we observe only small effects, the smallest when grades in arithmetic is the dependent variable.

Father's educational and occupational levels both have significant effects on grades in arithmetic in the left-hand column and mother's education has no effect. In the right-hand column only the number of siblings adds something to the variance explained in the left-hand column. The variance in grades in German language can be explained about twice as well. Here, not only mother's education and father's occupation have significant effects but also the number of siblings and the family's reading climate affect the grades directly. In human capital theory (Leibowitz, 1974, 1977) the number of siblings reflects the attention parents can give their children. Our findings provide some support for this hypothesis. Important for the status group theory is that the reading climate in the family does not affect grades in arithmetic but does influence grades in German language, which seems to be plausible given that language facility is taken to be one of the crucial indicators of status group membership.

The dependent variable of educational choice has three categories which are highly skewed, so that ordinary least squares analysis is not suitable to estimate the impacts of the demographic and explanatory family factors. Therefore, two dependent dummy variables were created and analyzed as the dependent variables, and logit

TABLE 5 *Logit regressions of educational choice at age ten on family factors (t-values between brackets), selected contrasts*

	Gymnasium versus middle level + extended elementary (N = 1,031)			Middle level versus extended elementary (N = 840)		
Father's education	0·277 (3·55)	0·231 (2·43)	0·182 (1·88)	–0·177 (1·26)	–0·213 (1·43)	–0·270 (1·70)
Mother's education	0·465 (4·31)	0·462 (3·30)	0·423 (2·99)	0·218 (1·28)	0·162 (0·75)	0·161 (1·24)
Father's occupation	0·894 (5·45)	1·049 (5·08)	0·756 (3·03)	0·410 (2·01)	0·447 (1·95)	0·146 (0·50)
Grades: arithmetic		1·307 (6·76)	1·334 (6·80)		0·830 (5·00)	0·879 (5·14)
Grades: German language		1·343 (6·11)	1·324 (5·81)		1·016 (5·29)	0·953 (4·76)
Family income			–0·008 (0·27)			–0·064 (1·75)
Consumption goods			0·057 (0·97)			–0·214 (3·13)
Number of siblings			–0·094 (1·15)			–0·093 (1·10)
Parental interests			0·188 (1·16)			0·079 (0·43)
Parental reading			0·361 (2·20)			0·220 (1·21)
Constant	–4·506 (15·72)	2·316 (4·07)	2·804 (4·27)	–2·452 (6·22)	1·217 (4·41)	3·228 (3·99)
df	3	5	10	3	5	10
Deviance L^2	189·3	462·8	474·1	6·2	140·9	158·6

Source: Baden-Württemberg data 1967, pupils with complete information, N = 1,031.

analysis was used. These dummy variables represent the two appropriate contrasts in educational choice. The contrasts are indicated in the headings of Table 5: first, the contrast between the choice of *Gymnasium* versus the choice of middle level or extended elementary schooling and, secondly, the contrast between the choice of middle level and of extended elementary schooling. This reflects the more or less commonsense strategy that parents first decide whether their child goes to the *Gymnasium* or not and, if not, whether they will send her or him to the middle level or not. In the analysis of this latter decision pupils going to the *Gymnasium* were omitted.

For both contrasts three structural models are estimated. First, only the three demographic variables are used as predictor variables, father's educational attainment, mother's educational attainment and father's occupational achievement. In the second model the grades of the pupils in arithmetic and German language are introduced. The third model then includes the explicit measures of financial and cultural resources.

The first contrast of Table 5 analyzes the choice to go for the *Abitur*, the *Gymnasium* diploma and the highest in German secondary education. Choosing the *Gymnasium* is coded as success and not choosing as failure. The first two columns of the Table show that family background has very strong effects on this choice, whether ability is included in the model or not. The effects of ability seem to be largely additive to the background effects. This is an interesting result; findings from other countries, as reviewed above, did not display this phenomenon to the same extent. Maybe the relatively early stage in a child's educational career at which parents in Germany choose the future educational path for their children, accounts for this finding.

The third structural equation shows that the inclusion of the resources variables in the model decreases family effects, but does not decrease the effects of ability. Father's educational attainment no longer has a significant effect on the decision to go to the *Gymnasium*, and the effects of mother's educational attainment and father's occupational status are weakened. Further, as predicted by status group theory, there are no direct effects of financial resources of the background family, whether measured by family income, the number of consumption goods present in the household or the number of siblings. The reading climate in the family has a direct effect on the choice to go to the *Gymnasium*, but the cosmopolitan interests of

the parents have not.[4] This confirms the status group hypothesis even more directly. These results are paralleled by those from earlier investigations in the Netherlands and the United States (De Graaf, 1986a, 1986b; Teachman, 1987).

The second contrast in Table 5 uses data only about families who have sent their child either to the middle level or to the extended elementary school. Middle level is coded as success and extended elementary school as failure. The findings strongly deviate from the results of the first comparison. Family background as measured by parents' educational and occupational characteristics barely predicts this choice, as the first column reveals. The L^2 statistic for the three demographic effects together equals 6·2 for three degrees of freedom, which is just below the borderline of significance. Only the effect of father's occupation is significant in itself. The middle column shows that grades here have too strong effects; in this equation, all direct effects of demographic family factors are insignificant. When the explanatory resources variables enter the model, we observe a significant increase in the likelihood of the model ($L^2 = 17{\cdot}7$, df = 5). However, only one effect is significant: the decision as between middle level and extended elementary schooling is affected by the available financial resources. The scales for cultural resources in the background family do not show an effect on this decision. It is interesting to note that it is not the family income but the consumption goods index that is significant here. This indeed suggests that the material conditions of a family are not entirely adequately measured by family income alone.

If in West Germany parents' strategy in deciding on a secondary school type for their offspring is like the one earlier suggested, in that parents first decide between the *Gymnasium* and the other two types, and then, if necessary, between middle level and extended primary, we come to the straightforward conclusion that the decision to go to the *Gymnasium* is governed by cultural resources and the decision to go to the middle level by financial resources. However, we have to keep in mind that there are large unexplained effects of demographic family factors on *Gymnasium* choice, and that the effects of grades, which could only to a small degree be explained by family factors, seem to be the dominant ones in the transition to secondary education. But, when we seek for the explanation of the direct family effects, the extension of the standard set of family factors with indicators of status group membership seems to be fruitful. The introduction of explanatory variables in the educational attainment models can both increase predicted variation and help interpret demographic family effects.

DISCUSSION

The empirical finding that for different countries, such as the United States, Britain, the Netherlands, Hungary and Germany the effects of demographic characteristics of family background on educational attainment are stable over time, in a period of rapid educational expansion, has prompted us to question the explanatory variables that govern this relationship. After a period of increasing affluence and increasing state expenditure on education, the hypothesis that unequally distributed financial resources still explain the association between family background and schooling is not very plausible.

In the Wisconsin tradition, talent and ambition are regarded as the most promising explanatory variables. Both concepts have serious pitfalls. The measurement of talent is cumbersome because it is confounded with school selection procedures, and, moreover, talent can explain only a small part of overall family effects. The idea of using ambition as a predictor variable for educational attainment lacks theoretical relevance for our purposes. As soon as one finds that ambition functions as an intermediary variable between family background and educational attainment, one then wonders why different levels of ambition are associated with family background. The notion of a cultural mismatch between home environment and the cultural patterns of schools suggests a valuable interpretation of the effects of family background on both educational attainment and ambitions or plans. It may explain why family background has strong effects on ambition and

school continuation decisions by pointing to mechanisms of self-selection.

The German data presented here largely corroborate the hypothesis that financial resources of parents do not make a difference for educational transition to the most prestigious form of secondary education, the *Gymnasium*. This transition is strongly associated with family background, but the decision of parents to send their child to the *Gymnasium* is not dependent on their income or other economic assets. Rather, the strong association between parents' financial assets and parents' decisions to send their children to the *Gymnasium* is completely spurious. Parents' cultural resources, measured in terms of reading behavior do, however, have direct effects on this choice.

The finding that, while demographic measures strongly influence the decision to send a child to the *Gymnasium*, no such influence exists on the decision to send a child to the middle level, corroborates our assumption that logit analysis is an appropriate instrument for analyzing the transition to secondary education in Germany. The determinants of choosing for *Gymnasium*, middle level or extended primary are very dissimilar. Our findings suggest that the decision to send a child to the middle level school (*Realschule*) and not to the extended primary school is dependent on parents' financial resources and not on their cultural ones. The tripartite formal educational system in the Federal Republic of Germany hosts different (self-) selection mechanisms. The choice of the *Gymnasium* is strongly dependent on family background and our findings suggest that this dependency is culturally determined, while the choice of the middle level *Realschule* is only slightly dependent on family background and financial resources seem to be the prominent ones.

The importance of cultural resources in our models is clear. We not only observed a direct effect of the reading climate in the family of origin on the transition rate to the *Gymnasium*, but also that the reading climate affects the grades attained in German language. Over all, the findings support our theoretical expectations. Although large direct effects of the non-explanatory demographic measures of *Gymnasium* choice remain persistent, positive effects of cultural resources were displayed, as in other countries. Better information about the social networks in which parents participate, about their linguistic skills, about their extravert high culture leisure-time activities, about the time and effort they invest in their children, will assist us in finding explanations for the association between family background and educational attainment that are sociologically more satisfying than simple demographic characteristics can possibly be.

ACKNOWLEDGEMENTS

This article was written during my stay at the Max Planck Institute for Human Development in Berlin. I am grateful to Karl Ulrich Mayer and Susan Olzak for their helpful comments on an earlier draft, and to the *Zentralarchiv für empirische Sozialforschung* in Cologne for their valuable services.

NOTES

1. The original investigators for the most part renounced multivariate analysis. Baur (1972) created so-called 'educational strata', based on father's occupational position, parents' educational level, parental income and number of books owned. She showed that higher 'educational strata' have stronger links to higher education than do lower strata. This research strategy impedes conclusions about the relative influence of variables. Gresser-Spitzmüller (1973) found that the grades the pupils had in the fourth class and father's occupation both had direct effects on educational choice; other parental characteristics she did not analyze. In a secondary analysis Wiese (1982) applied multivariate analysis, but concentrated for his purposes only on father's occupation and found this had strong effects net of school grades and teacher's recommendations.
2. Although this valuable piece of information was collected, the data-set in the German *Zentralarchiv für empirische Sozialforschung* in Cologne (nos. 893 and 894) displays a lacuna in this respect. Contacts with the research agency who collected the data (*Institut für Demoskopie, Allensbach am Bodensee*) did not lead to the retrieval of the pupil's gender. It is comforting to know that Baur (1972), the principal investigator, did not find any gender differences in her analysis.
3. The teacher supplied this information from memory, without consulting official documents. This practice could inflate the effects of grades on the school continuation decision, because the teacher might have conflated his/her knowledge about this decision with his/her recollection of grades.
4. The comparison of effect sizes in logit analysis is not straightforward. When we rely on the t-values as indicators for the magnitude of effects, we get the plausible result that the school grades have the highest

effects, followed by the demographic variables relating to the occupational and educational level of the family, while parental reading behavior has the smallest effect. But t-values, of course, mix up effect sizes and their standard deviations.

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Manuscript received: June, 1988.

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