Intergenerational Mobility in Education during the 20th Century. A cohort-analysis of Flemish men.

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Abstract

This paper addresses the question: has the influence of father's education on the educational attainment of children decreased in the course of the 20th century? Data are used from various socio-economic surveys conducted in Flanders during the last decades, in which questions were asked about the education (and occupation) of the respondent's father. (Since in most surveys these questions were only asked for the head of household, the analysis is limited to men.) The analysis uses synthetic cohorts constructed from those data. Both descriptive results, and the estimates from an ordered probit model suggest that there has indeed been a tendency towards greater intergenerational equality regarding education during the last century. Yet, important inequalities remain even for the youngest cohorts. The results also suggest, though less clearly, that father's *occupation* has become less important as a determinant of educational attainment than father's education.

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Introduction

In current western societies, education is probably the most important variable determining a person's socio-economic position. Access to education is therefore of crucial importance. This paper examines to what extent persons with different family backgrounds achieve different levels of education, and whether family background has maintained its impact in this respect, or whether its influence has diminished. For this purpose, it looks at the achieved level of education of synthetic cohorts of Flemish men, using data from a number of surveys held during the last quarter of the 20th century.

There are various perspectives on the correlation between the educational achievements of persons and their social backgrounds. Traditionally, sociologists favoured explanations focused on the concept of class: parents with more economic resources were better able to provide their children with a good education than poorer parents were (e.g. Boudon, 1973; Bowles and Gintis, 1976). As economic differences between social classes have decreased in most societies during the last half of the last century, and the personal costs of education have been greatly reduced in many European countries by public subsidies, this perspective has been challenged by an interpretation emphasizing cultural transmission (e.g. Bourdieu and Passeron, 1969). According to this view, the 'cultural' capital inherited from the parents (e.g. mastery of complex language, values attached to education) determines a childs educational career (Bourdieu, 1977). Thus, cultural, rather than socio-economic hurdles still prevent children of less favoured social backgrounds to reach high levels of education. Put differently, selection and allociation mechanisms within the education system still reproduce the existing social stratification. An empirical corollary of the theoretical shift is that during the last century the impact of father's *occupation* (interpreted as a measure of class) on children's educational attainment should have become smaller, while the importance of the *education* of the parents (interpreted as an indicator of 'cultural' capital) should have increased, at least relatively (Jonsson, 1987).

A competing, non-sociological, interpretation regards the correlation between family background and the education of the children as the result of biological heredity. Parents with low education have less innate ability, and they pass their less favourable genes onto their children (Hernstein and Murray, 1994). Both sociological perspectives regard inequalities in educational attainment as partly a reflection of unequal opportunities, which, at least in principle, should or could be removed by policy interventions. If the heredity perspective is accepted, inequality in

opportunities is not a main problem, and the policy implications are less straightforward.

The aim of this paper is mainly descriptive: to show how the impact of father's occupation and education on their son's schooling career has shifted over time during the last century. To test which of the theoretical perspectives mentioned comes closest to the truth is (in my view) beyond what is possible with the data available for Belgium. For this descriptive purpose, I use data for synthetic cohorts of Flemish men, derived from socio-economic surveys conducted in 1976, 1985, 1992 and 1997. Section 2 presents the data in more detail. In section 3 I introduce the method used to analyse the effects of family background on educational attainments. Section 4 presents the results, and section 5 sums up.

Data

Data come from various socio-economic surveys conducted in Flanders or Belgium during the last decades, where questions had been asked about the education and/or occupation of the father (see table 1). All these surveys are socio-economic household surveys of private households. Since the CSB 1976 survey was limited to the region of Flanders (comprising about 54% of the Belgian population), only data for Flemish households were used.

Table 1: Data used

Name of Survey	Number of adults (25+ years)	
	Men	Women
Centre for Social Policy (CSP) Flanders survey, 1976	4550	4738
Belgian Socio-Economic Panel (BSEP), 1985	3196	3354
Panel Study of Belgian Households, (PSBH) 1992	1517	1657
Additional sample for BSEP, 1997	1080	1184
Totaal	10343	10933

Note: Counts are unweighted

In the CSP 1976 and BSEP 1985 surveys, only the head of household was interviewed, which in the case of couples is almost without any exception the husband. Therefore, the analysis is limited to men aged 25 years or over. This age limit is imposed on the assumption that almosts all men have finished their educational career at this age. Excluded is the small but selective minority of men over 25 who live with their parents (or in institutions).

All men were assigned to synthetic cohorts based on their year of birth, using ten-year wide brackets ranging from 1900 until 1970. There was a small number of men born

before 1900, but because of fears that the composition of this cohort could have been affected by differential mortality, this group was not used in the analyses.

The questions about education and occupation of the father in the various surveys used a number of different response formats. The responses were collapsed into the following categories:

Father's Education (between brackets the normal age at which the particular level should be finished):
- Elementary or less (12)
- Lower Secondary (15)
- Higher Secondary (18)
- Higher non-University Education (21)
- University (22)

The latter two levels are sometimes collapsed into Higher Education.

Father's Profession:
- Blue Collar
- White Collar
- Senior Employee
- Self-Employed
- Farmer
- Liberal Profession
- Employer.

The small number of cases in some categories necessitated collapsing in some analyses, as will be indicated below.

The most critical assumption made in this paper is that respondents correctly reported the education and occupation of their father. To some extent the validity of the responses can be assessed by comparing the distribution of the education of the fathers of a cohort, with the educational distribution of a cohort of men 30 years older. (Implicit in this comparison are the assumptions that all fathers irrespective of education get their sons at about the age of 30, and that there are no important differences in fertility according to education.) Table 2 presents this comparison, and shows that the distributions are reasonably similar, though among fathers the proportion with only elementary education is always larger than within the equivalent cohort of men.

As mentioned above, regarding education the assumption is made that there are no more changes in the level of education after the age of 25. A similar assumption cannot be made regarding occupation. We do not know to which moment in the life-cycle respondents refer when they answer the question about their father's occupation; most likely they either mention the current or last occupation, or they think back to

their formative years. In any case, most fathers will have settled into a particular type of occupation by the age of 35, and it does not seem likely that many transitions have occurred after that age between the occupational categories listed above.

Table 2: Comparison of distribution of education level of fathers with that of cohorts of men 30 years older.

	Elementary	Lower secondary	Higher secondary	Higher non-university	University	Total
Fathers of cohort 1930-39	78	12	6	3	1	100
Cohort 1900-09	71	14	8	5	2	100
Fathers of cohort 1940-49	69	16	9	4	3	100
Cohort 1910-19	60	20	13	4	4	100
Fathers of cohort 1950-59	52	19	19	6	5	100
Cohort 1920-29	50	24	18	5	3	100
Fathers of cohort 1960-69	47	19	18	11	6	100
Cohort 1930-39	36	27	23	10	5	100

Methods

In the oldest studies of the effects of family background on education, this relationship was analysed through OLS regression of the highest grade of schooling obtained on measures of social background (e.g. Hauser and Featherman, 1976). This method has also been used in more recent studies (e.g. Blossfeld and Shavit, 1993). For many countries, the results of such analyses suggest that the impact of family background on final educational attainment has diminished over cohorts (e.g. De Graaf and Ganzeboom, 1993 for The Netherlands). Similar results were found for Flanders (see Appendix 1).

Mare (1981) has criticised this model on the ground that the estimated parameters reflect both the associations between background factors and educational attainment and the overall (marginal) distribution of levels of completed schooling. He argues that a more useful way to analyse the formal schooling career is to consider it as a sequence of transitions between grades. The effects of family background can be estimated through logistic regression of those transitions, looking only at the risk-group for the particular transition (i.e. persons who have succesfully made the previous transition). This model has been used extensively in subsequent studies (cf., e.g. Blossfeld and Shavit, 1993).

A typical finding of those studies is that the estimated effects of family background on the probability of transiting from one grade to the next one diminish at higher levels of education. This is interpreted as the result of differential selection on the unobserved variable of mental ability, which is assumed to be correlated with family

background (Mare, 1980). As transition rates are lower at higher levels of education, only the more able students progress, blurring the effects of social origin.

Such a result is also found for Flanders (Appendix 2). Moreover, the results of the logistic regressions do *not* indicate that the impact of family background on educational attainment has become smaller in later cohorts. This would mean that the smaller inequality in completed years of education according to family background, as measured by the OLS model, is due only to the general increase in levels of education across cohorts, and not to a lessening of inequality at particular transitions in the schooling career.

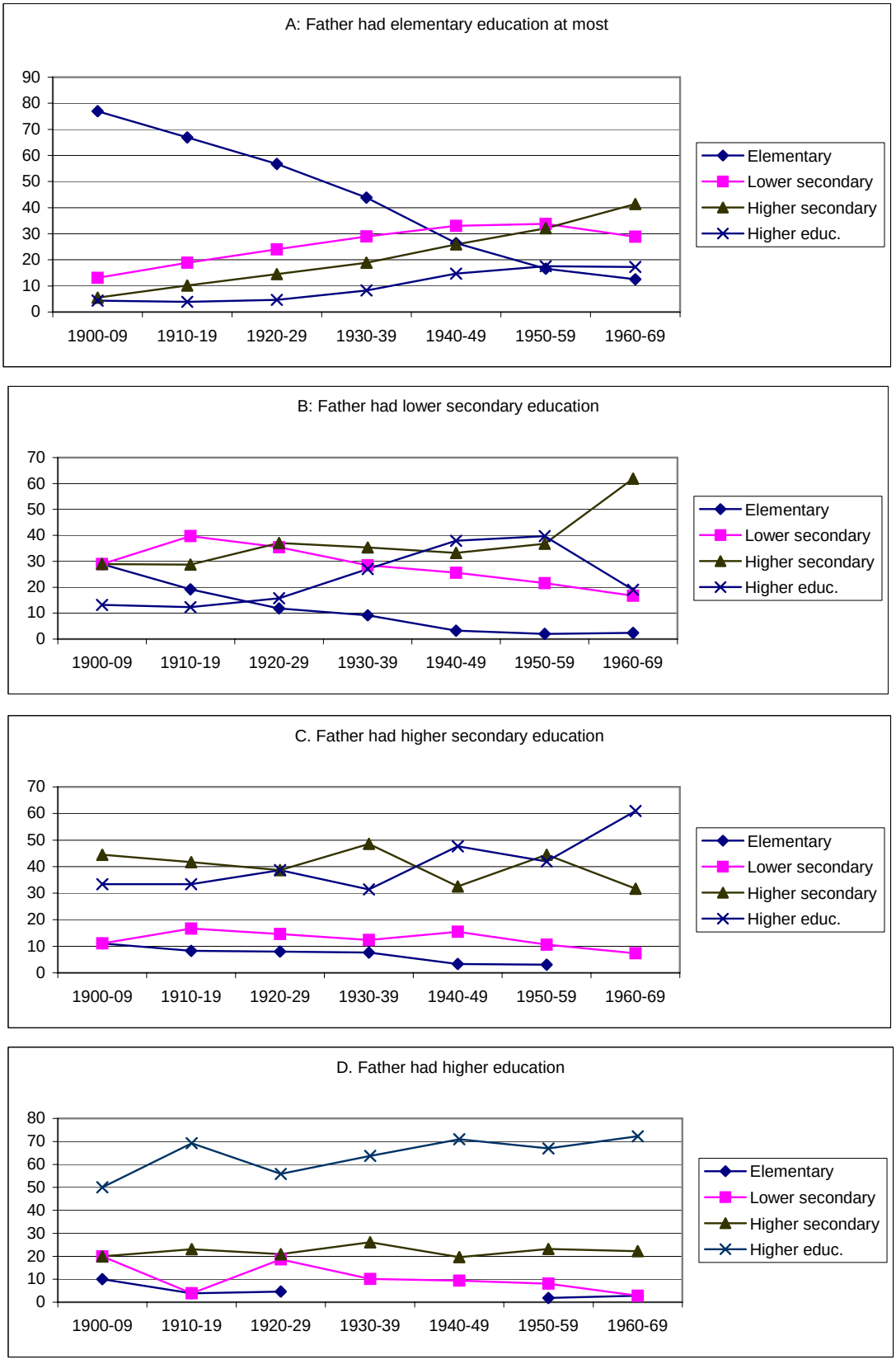
Recently, Cameron and Heckman (1998: 263) have argued that the "pattern of declining logit coefficients for higher-grade transitions is critically dependent on choices of functional forms for the distribution of unobservables". Moreover, the "logit model of grade transitions implicitly assumes myopia on the part of agents", and "is difficult to justify on choice-theoretic grounds". They develop an ordered discrete-choice model based on rational decision making, and show that it fits the data as well as or better than the grade-transition model, even though it has many fewer parameters. Following a suggestion by Cameron and Heckman (1998: 287, footnote 17), I use an ordered probit model to analyse inequality in educational attainment by family background.

Results

Great gains in education for those with less favourable social background

Before discussing the probit estimates, I present some descriptive figures and tables. Figure 1 shows the percentage distribution of educational attainment of Flemish men by birth cohort and father's education. Panel A reveals the enormous gains in education of men whose father had elementary education at most: among those born in the beginning of the century, a large majority also got only elementary education, while in recent cohorts this group has been reduced to a tiny majority. The proportions obtaining higher levels of education have steadily increased; in the most recent cohorts the percentage having a diploma of lower secondary education has slightly fallen, as more persons move onto higher secondary education.

Figure 1: Educational attainment by birth cohort and father's education



Among men whose father had lower secondary education, the gains in educational attainment are smaller, mainly because they started out from a more favourable position. We observe steady decreases in the proportions of men obtaining elementary education or lower secondary education (from the 1910-19 cohort on), while more men have moved onto to higher education. Among men whose father had higher secondary education, the proportions getting only elementary or lower secondary education were quite small to begin with, and the main evolution is an increase in the proportion of men getting higher education. Among men whose father had higher education, no clear trends can be observed.

Great overall increase in educational attainment

As a result of these developments, each cohort is considerably better educated than the previous one, as is shown by table 3. Within half a century, Flanders has moved from a situation where 80 percent of all children finish their school career with only elementary or lower secondary education to one where 74 percent get at least higher secondary education.

Table 3: Educational attainment of Flemish men (25+) by cohort.

(Percentages)	Cohort						
	1900-09	1910-19	1920-29	1930-39	1940-49	1950-59	1960-69
Elementary	71,2	60,2	49,6	36,0	19,3	9,9	7,0
Lower secondary	14,0	20,0	24,3	27,1	28,8	24,3	19,4
Higher secondary	8,4	12,7	17,7	22,9	27,2	34,2	41,9
Higher non-univ.	4,5	3,6	5,4	9,5	15,5	19,1	20,5
University	2,0	3,5	3,1	4,5	9,3	12,5	11,2
Total	100,0	100,0	100,0	100,0	100,0	100,0	100,0

Of course, part of the increase in the level of education is due to the fact that as cohorts are younger, the fathers are also better educated. In order to assess the relative contribution to the rise in educational attainment of, on the one hand 'democratization' (i.e. the development that in younger cohorts children from a given social background obtain higher levels of education), and on the other hand the changing distribution of social background (as indicated by father's education), I have carried out a few simple simulations. Panel A of table 4 shows what the distribution of educational attainment of the 1950-59 cohort would have been, if the distribution of father's education were the actual one, and the degree of 'democratization' would have been that of older cohorts. (That is, the percentages in the column headed '1900-09' indicate what the distribution of educational attainment of the 1950-59 cohort would have been if, given their father's education, they would have had the same chances of obtaining each level of education as the 1900-09 cohort.) As one can see, at the rates of 'democratization' of the older cohorts, the distribution by level of education would have been

dramatically different. (Interestingly, this is less true for university education than for the other levels of education.)

Panel B of table 4 shows the complementary distribution: here the rate of 'democratization' is held constant at the 1950-59 level, while the distribution of father's education is assumed to be that of the older cohorts. The differences across columns are far smaller than in panel A, indicating that the contribution of the increase in father's education to the overall increase in educational attainment is relatively small.

Table 4: Simulated distribution of level of education for the 1950-59 cohort.

A.	Using outflow percentages of cohort:					
	1900-09	1910-19	1920-29	1930-39	1940-49	1950-59
Elementary	48,0%	40,2%	33,6%	25,9%	14,9%	9,7%
Lower secondary	15,7%	20,9%	23,9%	23,7%	25,9%	24,4%
Higher secondary	18,0%	20,8%	24,0%	28,3%	28,1%	34,4%
Higher outside univ.	8,7%	6,6%	9,6%	13,1%	18,6%	18,7%
University	9,6%	11,5%	8,9%	9,0%	12,6%	12,8%
Total	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

B.	Using distribution of father's education of cohort:					
	1900-09	1910-19	1920-29	1930-39	1940-49	1950-59
Elementary	15,2%	14,8%	14,4%	13,4%	12,2%	9,7%
Lower secondary	32,1%	31,5%	31,0%	29,9%	28,1%	24,4%
Higher secondary	32,7%	32,7%	32,8%	33,1%	33,3%	34,4%
Higher outside univ.	13,6%	14,0%	14,4%	15,2%	16,5%	18,7%
University	6,5%	7,0%	7,4%	8,4%	9,9%	12,8%
Total	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

Inequality in educational attainment by social background is still important

Despite the great gains in education made by persons with less favourable social backgrounds (compared with stability in educational attainment for those whose father's were more educated), the levels of education of fathers and sons in the youngest cohorts are still strongly educated, as shown in table 5. Only men whose father had only elementary education have a significant chance of obtaining no more than elementary education themselves, and the proportion moving onto higher education in this group is very much smaller than among men whose fathers had obtained higher levels of education.

Table 5: Son's education by father's education for two recent cohorts.

Cohort 1950-59	Father's education:					
Son's education	Elementary	Lower secondary	Higher secondary	Higher non- univ.	University	Total
Elementary	16,6	2,0	3,0	1,6	2,0	9,7
Lower secondary	33,8	21,6	10,6	11,5	3,9	24,4
Higher secondary	32,1	36,8	44,4	29,5	15,7	34,4
Higher non-univ.	12,4	23,5	22,2	27,9	43,1	18,7
University	5,1	16,2	19,7	29,5	35,3	12,8
Total	100,0	100,0	100,0	100,0	100,0	100,0

Cohort 1960-69	Father's education:					
Son's education	Elementary	Lower secondary	Higher secondary	Higher non- univ.	University	Total
Elementary	12,5	2,4	0,0	4,2	0,0	6,7
Lower secondary	28,8	16,7	7,3	0,0	7,7	18,3
Higher secondary	41,3	61,9	31,7	20,8	23,1	40,2
Higher non-univ.	13,5	16,7	41,5	29,2	30,8	21,9
University	3,8	2,4	19,5	45,8	38,5	12,9
Total	100,0	100,0	100,0	100,0	100,0	100,0

Results of an ordered probit model

In order to test the hypothesis of increasing 'democratization' in a slightly more formal way, I have used an ordered probit model of educational attainment. Since 'higher non-university education' and 'university' do not represent subsequent grades in the educational career, but (for most students) alternative paths after higher secondary education, I have collapsed these levels into one category. The 1960-69 cohort has been left out of the analyss, because of the smaller sample size of this cohort, and because of indications that the data were less reliable. Included in the model were cohort as a categorical variable, and father's education fully interacted with cohort. Compared with a model including father's education and cohort but no interaction terms, the log-likelihood improved from -9178 to -9137 (= 41), which at df = 20 is significant at any conventional significance level.

The probit estimates for the effects of father's education reported in table 6 follow a clear pattern of steady decrease across cohorts. The size of the estimates in the 1950-59 cohort is only about half of those in the oldest cohort. This result confirms the impression gained from figure 1, that there has been a considerable equalization across men from different social backgrounds in the chances to reach higher levels of education. The estimates for the cohort effects increase in each cohort, reflecting the overall rise in educational attainment.

Table 6: Probit estimates of the effect of father's education on the level of education of Flemish men by cohort.

	Cohort											
	1900-09		1910-19		1920-29		1930-39		1940-49		1950-59	
Father's education												
Elementary	0		0		0		0		0		0	
Lower secondary	1,21	**	1,03	**	1,00	**	0,94	**	0,81	**	0,68	**
Higher secondary	1,98	**	1,71	**	1,55	**	1,17	**	1,04	**	0,79	**
Higher non- univ.	2,00	*	2,21	**	1,68	**	1,79	**	1,58	**	1,04	**
University	7,84		3,35	*	1,95	**	2,02	**	1,63	**	1,61	**
Cohort intercept	0		0,26	*	0,51	**	0,82	**	1,24	**	1,46	**

Standard errors of probit estimates

	Cohort					
	1900-09	1910-19	1920-29	1930-39	1940-49	1950-59
Father's education						
Lower secondary	0,35	0,25	0,19	0,15	0,14	0,17
Higher secondary	0,50	0,36	0,25	0,21	0,19	0,18
Higher non- univ.	0,71	0,57	0,46	0,35	0,31	0,30
University	2747,00	1,05	0,50	0,49	0,34	0,38
Cohort intercept	0	0,12	0,12	0,12	0,12	0,14

Note: * $p < 0.05$; ** $p < 0.001$

The role of class (occupation).

As mentioned in the introduction, sociologists of education have devoted much attention to the effects of class (as measured by father's occupation) on educational attainment. A probit analysis of the effects of father's occupation was carried out in the same way as for father's education. In this case the inclusion of interaction terms of father's occupation with cohort produced an improvement in the log-likelihood from -9246 to -9190 (= 56), which at df = 30 is significant at any level of significance. (Incidentally, a comparison with the log-likelihood of the model with father's education indicates that father's education is a better predictor of educational attainment than father's occupation is.)

The estimates reported in table 7 indicate that in all cohorts there are important differences in the level of education attained by sons whose fathers are in different professions. Sons of white-collar workers, senior employees, employers and those engaged in the liberal professions move on to higher levels of education than the sons of blue-collar workers and of farmers. Across cohorts, these differences have been considerably reduced, however. The position of the sons of the small self-employed is somewhat in between, but over time they maintain their relative advantage relative to blue-collar workers.

Table 7: Probit estimates of the effect of father's occupation on the level of education of Flemish men by cohort.

	Cohort					
	1900-09	1910-19	1920-29	1930-39	1940-49	1950-59
Father's occupation						
Blue-collar worker	0	0	0	0	0	0
White-collar worker	1,26 **	1,25 **	1,16 **	1,06 **	0,74 **	0,76 **
Senior employee	2,16 **	1,92 **	1,93 **	1,68 **	1,54 **	1,12 **
Small self-employed	0,72 **	0,47 *	0,63 **	0,55 **	0,46 **	0,50 *
Farmer	-0,05	-0,18	-0,15	-0,05	-0,06	0,35
Liberal profession	2,14 *	1,58 **	1,57 **	1,36 **	1,24 **	1,05 *
Employer	2,43 **	0,97 *	1,68 **	0,53	0,99 *	1,05 *
Cohort intercept	0	0,37 *	0,53 **	0,9 **	1,39 **	1,59 **

Standard errors of probit estimates

	Cohort					
	1900-09	1910-19	1920-29	1930-39	1940-49	1950-59
Father's occupation						
White-collar worker	0,28	0,19	0,14	0,13	0,12	0,14
Senior employee	0,52	0,43	0,31	0,23	0,22	0,23
Small self-employed	0,21	0,16	0,12	0,11	0,12	0,15
Farmer	0,21	0,16	0,13	0,13	0,13	0,22
Liberal profession	0,66	0,42	0,38	0,28	0,27	0,33
Employer	0,67	0,51	0,35	0,39	0,34	0,41
Cohort intercept		0,15	0,14	0,13	0,13	0,14

Note: * $p < 0.05$; ** $p < 0.001$

Of course, people in different occupations have different levels of education, and moreover, these levels change across cohorts. It is therefore interesting what happens to the effect of education if we control for occupation. It seems plausible that the effect of occupation differs according to the level of education: it is likely to be something else to be a blue collar worker if one has only elementary education than if one has higher secondary education. Therefore, occupation was introduced in the model used for table 6 in the form of interaction terms with education, as shown in table 8.

The results reported in table 8 are not as clear-cut as one would have wished. Due to the strong correlation between fathers education and occupation, and thus (very) small sample sizes in some cells, standard errors are rather large. What is clear, however, is that the effects of father's education are much smaller after controlling for occupation, indicating that much of the effect of the former variable is mediated or explained by the latter. We also find a fairly clear pattern of decreasing coefficient estimates for the

occupation interaction effects. Especially the effect of having a father with a blue collar occupation when he also has only elementary education has come down very strongly. At the same time, the size of the estimates of the effects of father's education seem to decrease perhaps less than they did in table 6. This would indicate that the importance of father's education as a determinant of educational attainment has increased, relative to father's occupation.

Table 8: Probit estimates of the effects of father's education and occupation on the level of education of Flemish men by cohort.

	Cohort											
	1900-09		1910-19		1920-29		1930-39		1940-49		1950-59	
Father's education												
Elementary	0		0		0		0		0		0	
Lower secondary	0,55	**	0,60	*	0,50	*	0,66	**	0,42	*	0,53	*
Higher secondary	0,91	**	1,10	**	0,87	**	0,71	**	0,51	*	0,53	*
Higher outside univ.	0,77	*	1,64	**	0,74	*	1,21	**	-		0,69	*
University	6,42		2,81	**	0,96	*	1,39	**	0,69	*	1,23	**
Father's occupation: interaction terms												
Elementary and blue collar	-1,25	**	-1,00	**	-0,98	**	-0,76	**	-0,53	**	-0,47	**
Elementary and small self-employed	-0,57	*	-0,62	*	-0,4	*	-0,23		-0,22		-0,19	
Above elementary and blue collar	-0,47		-0,70	*	-0,76	*	-0,48	*	-0,20		-0,37	**
Above elem. and small self-empl.	-0,45		-0,18		-0,29		-0,40	*	0,11		-0,19	
Above elem. and higher profession(1)	0,45		-0,24		0,41		0,10		0,60	*	0,04	
Cohort intercept	0		0,08		0,27		0,41		0,68	*	0,83	*

Standard errors of probit estimates	Cohort					
	1900-09	1910-19	1920-29	1930-39	1940-49	1950-59
Father's education						
Lower secondary	0,47	0,29	0,20	0,19	0,17	0,20
Higher secondary	0,49	0,31	0,22	0,19	0,17	0,19
Higher outside univ.	0,54	0,43	0,33	0,27		0,24
University	1685	0,75	0,39	0,38	0,29	0,31
Father's occupation: interaction terms						
Elementary and blue collar	0,23	0,16	0,13	0,12	0,12	0,16
Elementary and small self-employed	0,26	0,19	0,15	0,14	0,15	0,22
Above elementary and blue collar	0,52	0,31	0,24	0,18	0,15	0,17
Above elem. and small self-empl.	0,49	0,33	0,22	0,19	0,18	0,17
Above elem. and higher profession(1)	0,49	0,36	0,25	0,20	0,19	0,18
Cohort intercept	0	0,26	0,24	0,24	0,24	0,26

Notes: (1) i.e. senior employee, liberal profession or employer

Conclusion

This paper has addressed the question whether the influence of father's education on the educational attainment of men has decreased or not in the course of the 20th century. Descriptive results, as well as the estimates from an ordered probit model suggest that there has indeed been a tendency towards greater intergenerational equality regarding education during the last century. Yet, important inequalities in educational attainment between men with different social backgrounds remain even for the youngest cohorts. The results also suggest, though less clearly, that father's occupation has become less important as a determinant of educational attainment than father's education.

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Appendix 1: Results of OLS regression of total years in education (imputed) on cohort and father's education and occupation.

Variable	*Estimate*	*Standard error*	*Significance*
Trend white-collar (incl. higher empl.)	-0,19	0,07	**
Trend self-employed (incl. farmers)	0,10	0,04	*
Trend liberal profess., employers	-0,20	0,11	
Trend lower secondary educ.	-0,18	0,06	**
Trend higher secondary educ.	-0,35	0,09	****
Trend higher educ.	-0,45	0,11	****
Intercept white-collar	2,67	0,35	****
Intercept self-employed (incl. farmers)	-0,01	0,21	
Intercept liberal profess., employers	2,92	0,58	****
Intercept lower secondary educ.	2,96	0,35	****
Intercept higher secondary educ.	4,41	0,49	****
Intercept higher educ.	5,83	0,63	****
Cohort 1900-10	0,34	0,24	
Cohort 1910-20	0,75	0,24	**
Cohort 1920-30	1,21	0,24	****
Cohort 1930-40	2,00	0,25	****
Cohort 1940-50	3,13	0,25	****
Cohort 1950-60	3,70	0,27	****
Cohort 1960-70	4,22	0,33	****
Intercept	6,45	0,24	****

Noten: -All variables are dummy-variables. ‘Base’ category: cohort pre-1900, father blue collar, father elementary education only.

- Years in education is imputed and is equal to the number of years needed in a standard educational career to reach the educational level observed.
- 'Trend' refers to a linear estimate of the *change* across cohorts in the effect of the category of father's education or profession.
- 'Intercept' refers to the estimate of the effect of the category of father's education or profession in the *oldest* cohort.
- Significance: * 0,05 > p(F) > 0,01; ** 0,01 > p(F) > 0,001; *** 0,001 > p(F) > 0,0001; **** 0,0001 > p(F).

Appendix 2: Results of logistic regression of transitions between educational levels on cohort and father's education and occupation. .

Variable	*Transition 1*			*Transition 2*			*Transition 3*		
	Estimate	*St. error*	*Sign.*	*Estimate*	*St.error*	*Sign.*	*Estimate*	*St.error*	*Sign.*
Lower Secondary Ed.	1,97	0,13	****	0,60	0,08	****	0,37	0,10	***
Higher Secondary Ed..	1,90	0,20	****	1,36	0,13	****	0,45	0,12	***
Higher Ed.	2,57	0,37	****	1,48	0,18	****	1,44	0,15	****
White-collar	1,31	0,11	****	0,74	0,09	****	0,63	0,11	****
Self-employed	0,21	0,06	***	0,27	0,07	***	0,39	0,10	***
Liberal prof., employer	1,16	0,21	****	1,14	0,19	****	0,71	0,17	****
Cohort pre-1900	-2,90	0,23	****	0,03	0,40	n.s.	0,07	0,48	n.s.
Cohort 1900-10	-2,27	0,11	****	-0,56	0,16	****	-0,18	0,22	n.s.
Cohort 1910-20	-1,78	0,09	****	-0,58	0,12	****	-0,55	0,17	**
Cohort 1920-30	-1,35	0,08	****	-0,52	0,09	****	-0,67	0,13	****
Cohort 1930-40	-0,81	0,08	****	-0,26	0,09	**	-0,42	0,11	***
Cohort 1940-50	0	-		0	-		0	-	
Cohort 1950-60	0,53	0,13	****	0,21	0,10	*	-0,15	0,11	n.s.
Cohort 1960-70	0,84	0,28	**	0,62	0,19	****	-0,29	0,18	n.s.
Intercept	0,88	0,07	****	0,03	0,07	n.s.	-0,71	0,09	n.s.

Notes: Transition 1: Elementary education→ Lower secondary education

Transition 2: Lower secondary education → Higher secondary education

Transition 3: Higher secondary educatino → Higher education

A transition is only measured if the higher educational level has been finished with a diploma.

The 'risk group' includes only those who finished the lower educational level for each transition.

All variables are dummy-variables. ‘Base’ category: cohort pre-1900, father blue collar, father elementary education only.