Education and Economic Rewards
Variations by Social-Class Origin and Income Measures

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The main question raised here is whether the levels of reward among people with similar education, both with respect to level and field, vary by social-class origin. It is argued that social-class origin is likely to have greater impact on economic rewards among those educated in 'soft' than in 'hard' educational fields, because performance is more easily measured in the latter category. A further question is how the choice of income measure affects the conclusions about variations in economic rewards. Do the conclusions based on analyses of wages and salaries differ from conclusions based on broader measures including self-employed income and stock returns? The data used to answer these questions consist of 10 per cent of the Norwegian population between the ages of 30 and 41 in 1996. These data contain very detailed information on education. Various forms of income are included, based on information from the public tax register. The analysis documents that those originating in the higher classes tend to obtain the highest level of economic rewards, even when educational level and field are controlled. Economic inequality is greatest when a broad income measure is used that includes various forms of income. Those who originate in the economic sector of the higher classes tend to have the highest level of rewards. Finally, the impact of social-class origin varies to a large extent among educational fields, and tends to be largest in 'soft' educational fields. These findings indicate that processes occurring in the labour market contribute to enduring patterns of class inequality over generations.

Introduction

One of the major changes in the twentieth century was the increased opportunity of acquiring higher education. A widespread and influential view is that educational expansion is part of a general development towards greater equality. This interpretation enjoys broad political support, and is evident in educational policies in most countries. In sociology this development is often expressed as the replacement of ascription by achievement values. When larger parts of the population gains access to higher education, this extends equality of opportunity. Moreover, a common assumption is that once people have obtained the necessary credentials the impact of social background on access to upper-level positions and on economic rewards declines or disappears

(Parsons 1949, 1954, 1977; Blau and Duncan, 1967; Ramsøy, 1977; Featherman and Hauser, 1978: 303–11; Colbjørnsen *et al.*, 1987: 82–6, Hout, 1988, Ringdal, 1990: 75–8, Ishida, Müller, and Ridge, 1995). This does not imply that social origin ceases to influence one's level of rewards. The implication is, however, that mechanisms leading to inequality in recruitment to higher education are responsible for inequality enduring over generations rather than mechanisms situated in the labour market.

From the 1970s onwards some critical voices have been raised within the social sciences against the idea that educational expansion necessarily promotes social equality (e.g. Boudon, 1974; Collins, 1979). An important argument in this critique

concerns educational inflation and its consequences. When an increasing proportion of the population attain higher education this leads to inflation in the value of educational credentials. Not all credentials will be inflated to the same extent, however. We may expect increasing differences in economic rewards between educational establishments, educational fields, and by the characteristics of those attaining higher education (cf. Brown, 1995). One important characteristic is social-class origin. Those who experience upward social mobility may be expected to have less economic success than those who originate in the higher classes (Bourdieu, 1984, 1996). This means that processes occurring in the labour market contribute to persistent patterns of class inequality over generations.

This critique is not generally accepted, most likely due to lack of convincing empirical support. In my view a major problem in empirical studies so far is that they are usually based on samples that are limited both in size and with respect to information on education and economic rewards. A problem concerning the measurement of economic rewards is that they tend to be too narrow. For example, a very common procedure is to base the measure on hourly wage. This procedure will give a biased view, and especially for groups with high levels of economic rewards. Concerning the measurement of education, the arguments referred to above pertain to economic rewards in higher-level educational groups that are small in ordinary-sized surveys. To be able to single them out it is necessary with information on educational field, among which there may be large differences in economic rewards. If social-class origin has a small or negligible effect on economic rewards in studies controlling only for educational level, which is the common procedure, this may be a mean effect concealing important variations between educational fields.[1] It might, for instance, be the case that social origin is important for success in small, but important, elite educational groups. This assumption has been supported for some selected higher-level educational groups (Hansen, 1996).

The aim of this paper is to increase our knowledge about the impact of social-class origin on economic success. The main questions that are raised are: first, does the level of economic rewards among people with similar educational levels and fields vary by social-class origin? Secondly, does the choice of measure affect conclusions about the impact of social-class origin on economic rewards?

These questions are answered on the basis of analyses in which the problems outlined above are diminished. The sample consists of 10 per cent of the Norwegian population between the ages of 30 and 41 in 1996. The large sample allows the use of a detailed measure of education, both with respect to educational level and educational field. The data on income are obtained from the Norwegian tax register, and contain various measures of income, including the income of employees and the self-employed, and returns on stocks. These measures combined give a better impression of economic rewards than has been possible in previous studies.

The Measurement of Economic Rewards

The question of how economic rewards for labour-market activity should be measured is a complex one, with no simple answer. One problem noted above is that the measures tend to be too narrow. For example, the procedure of using hourly wage does not seem to be best suited for all jobs. In many jobs there is no overtime payment, and this especially is the case in higher-class jobs, such as among managers, university professors, various counselling services, etc. In such jobs estimates of hourly wages are uncertain, because payment is in terms of monthly salary, and the working hours may vary to a great extent. Therefore monthly or annual salaries may be a better estimate of the level of rewards in such groups.

However, it is also common to acquire labour-market rewards as returns, bonuses, shareholding agreements, etc., rather than as wages or salaries. Such practices are common in the business world: many firms reward higher-level employees with stocks and shares, in addition to their salaries (cf. Gulbrandsen, 1999: ch. 4). Because returns are taxed at a lower rate than earnings, the practice of establishing companies and receiving returns is increasingly common also in other groups, for example among professionals, academics, and various sorts of artists.[2] Excluding rewards in the forms of returns, bonuses, shares, etc., means that labour-market rewards will be underestimated, and

especially for groups that tend to have a high level of rewards.

A second problem concerns those who are self-employed. Wages or salaries are the most appropriate measures for those who are employees. Those who are self-employed receive income through their independent activity, and it is far more difficult to estimate the size of such income. One solution to the problems concerning the self-employed is to calculate their hourly wage by using some measure of typical working hours (e.g. Kalmijn and van der Lippe, 1997). Such measures are likely to become unreliable, due to the variations in working hours, and the difficulties with measuring income outlined above.

Another solution is to exclude them from the analysis altogether (e.g. Erikson and Jonsson, 1998). Excluding the self-employed may seem a reasonable choice, because it may be difficult to compare the earnings of employees and the self-employed. However, excluding income from self-employment is likely to lead to biases in estimates of income, and especially in higher-class groups such as professionals and proprietors of various types of firms. Many among these are self-employed, and tend to have especially high incomes. If they are excluded the estimates of the actual level of rewards in such groups will be too low.

A further problem with the strategy of excluding those who are self-employed is that the boundaries between different forms of rewards tend to be diffuse (cf. the section below on classifications). It is, for example, hard to differentiate between self-employed professionals and professionals who are employees. As Erikson and Goldthorpe put it, when they argue that all professionals be classified in the same class irrespective of their employment status, 'among professionals, a number of legal and conventional arrangements are to be found through which independent practice and salaried employment is effectively blurred' (Erikson and Goldthorpe, 1993: 4). The more this is true, the more common will it be to receive income both as an employee and from self-employed activity. Excluding the latter part of the income will have the same consequences as when excluding everyone who is self-employed – the estimates of income will be too low, and will not reflect the economic rewards they receive for their work.

The more diffuse the boundary between self-employment and salaried employment, and the more common it is acquire economic rewards in other forms than wages and salaries, the more will an income measure be biased that does not reflect these arrangements. It is especially important to include various forms of income when estimating the impact of social-class origin if the composition of economic rewards is affected by social-class origin. This is likely to be the case because those originating in the higher classes more often than others tend to choose educational fields and occupations that provide especially good opportunities for acquiring income in other forms than wages or salaries, e.g. business management and the professions (Erikson and Jonsson, 1993; Hansen, 1995).

Although it is easy to point to likely biases in the measurement of economic rewards, it is hard to find easy solutions to these problems. This study seeks to reduce them as far as possible by using better quality data on income than usually is available. Three income measures are constructed on the basis of tax-register information. The first measure is income from employment. The second measure is the sum of employment income and self-employed income. The third measure in addition to these forms of income includes stock returns. The results of analyses based on these three forms of income are compared. If it is true that social origin affects the composition of economic rewards, the association between social-class origin and economic rewards may be expected to increase the more inclusive the income measure.

Social Origins, Education, and Economic Rewards

In the introduction it was assumed that due to educational inflation, increasing differences in economic rewards between educational fields and by the characteristics of those attaining higher education may be expected. One important characteristic is social-class origin: Those originating in the lower classes may be expected to receive the lowest level of economic rewards. Three main reasons for variations by social-class origin may be distinguished (cf. Hansen 1996). People with similar education but different class origins may tend to have 1) different

levels of job performance, 2) different job and career opportunities, or 3) different preferences and therefore make different job and career choices. These three reasons will be described more closely below. Then hypotheses about consequences for variations between educational fields and social-class origins will be developed.

Differences in Levels of Job Performance

The simplest reason why economic rewards should vary by social-class origin among people with similar educational levels and fields is that those originating in the higher classes have the highest level of job performance. This explanation does not seem convincing in light of the strong and well-documented social selection in the educational system (e.g. Boudon, 1974; Erikson and Jonsson, 1993, 1996; Gambetta, 1987; Hansen, 1997; Shavit and Blossfeld, 1993). At every stage in the educational system, those with lower class origins have a lower probability of reaching the next stage than people with higher-class origins. This means that lower-class individuals who manage to survive in this selection process should be extraordinary, both with respect to ability and willingness to put effort into their career.

However, two further arguments may be raised in favour of this explanation: First, it is possible that those originating in the higher classes in general have a higher level of aspiration, and therefore tend to put more effort into their career. One could assume, for instance, that a person with lower class origins who studies medicine feels that he or she has come such a long way that having an especially successful career within medicine seems unimportant. In contrast, a son of a professor of medicine may feel that he has to reach the level of his father, and therefore chooses to put more effort into his career within medicine (cf. Boudon, 1974; Erikson and Jonsson, 1998).

A second argument is that it is possible that class-specific traits increase productivity. Job performance may depend on mastering a body of tacit knowledge, which is more easily acquired through socialization in upper-class homes than through the educational system. One might assume, for example, that businessmen with their origins in the business community will have advantages compared to businessmen with other origins because they have superior knowledge helping them plan investment strategies, gaining access to important people, etc. The latter may be easiest for them because they are most familiar with the cultural codes in these environments. Self-employed businessmen originating in the economic sector may also tend to have access to family-based wealth enabling them to pursue various economic investment strategies. Another example is higher-level public officials, who need to interact with other officials and political leaders. Especially in occupations that require representation or ability to interact with members of the upper classes, mastering the cultural practices in these classes may increase the level of work performance.

Different Job and Career Opportunities

Two mechanisms leading to different opportunities, irrespective of potentials for job performance, are usually pointed out (Hansen, 1996; Erikson and Jonsson, 1998). The first is that social networks, or 'social capital' influence occupational success (cf. Bourdieu, 1984; Coleman, 1990): Those originating in the higher classes have advantages when finding jobs or when competing for promotions because they have larger networks and more contacts with influential people than people originating in lower classes. This hypothesis has received some support through findings that weak ties, i.e. distant social contacts such as business associates, former school friends, or other casual acquaintances, do not in general seem to lead to better jobs than other search channels (Bridges and Villemez, 1986; De Graf and Flap, 1988; Marsden and Hurlbert, 1988). But they may do so for high-prestige job-seekers (Granovetter, 1983; Wegener, 1991).

The second mechanism can be designated a 'cultural capital effect' (cf. Bourdieu, 1984). The idea is that people who hire and promote others tend to prefer people who are similar to them. These applicants will demonstrate cultural traits linked to higher-class cultures, and therefore they are likely to be most appreciated among organization leaders who hire and promote others. It has for instance been argued that cultural conformity is important for managerial careers, and recruitment practices rewarding conformity have been designated

'homosocial reproduction' (Kanter, 1977: ch. 3). If conformity is important for managerial careers, due to preferences for cultural similarity, it seems likely that cultural conformity is rewarded in other occupational environments as well.

Different Preferences Leading to Different Levels of Economic Rewards

Jobs that entail a high level of economic reward usually yield symbolic rewards and high cultural status. A general tendency is therefore that people will tend to have similar preferences, because they are inclined to prefer a higher to a lower level of rewards. However, job and career choices after completing education may sometimes involve trade-offs between cultural and economic rewards. For example, academic careers usually yield lower economic rewards than successful careers in private-sector companies. Because the requirements concerning academic performance tend to be high for academic positions, those who choose them usually would have had other job opportunities.[3]

If it seems reasonable to believe that individuals may differ in their preferences concerning trade-offs between cultural status and economic rewards, it may be more doubtful whether such preferences vary systematically by social-class origin. One argument supporting the idea that these preferences vary by social-class origin is that classes vary with respect to culture and life-style, or put in Weber's terms, that classes tend to develop into status groups (Weber, 1978 [1968]). Cultural divisions run between classes on different levels of the stratification structure, but also between class factions on similar vertical levels.

According to those who emphasize cultural class divisions, the most important differences are those between the economic and the cultural factions of the higher classes. One example is Bourdieu, who distinguishes between groups basing their position on economic capital, on the one hand, and on the other, cultural capital (Bourdieu, 1984, 1996). Cultural class divisions are less important at the lower levels, because people there score low with respect to both cultural and economic capital. Cultural class divisions have also been made on the basis of other arguments, such as distance to profit-making. Those who have economic-sector occupations, according to this view, will be inclined to make

evaluations on the basis of market considerations, whereas in other occupational groups cultural or moral evaluations will be more prevalent (Parsons, 1949; Lipset, 1963; Lamont, 1992).

The main consequence of these arguments is that we may expect differences in preferences between those originating in economically and culturally higher classes. Those originating in the economic sector will most consistently prefer economic rewards because, according to the values of their culture, symbolic status is attained through economic rewards. The idea that there are symbolic and cultural rewards that may be distinguished from economic rewards is based on the culture of the cultural-sector higher classes. Therefore those originating in these classes may be less likely to as consistently pursue economic rewards in situations where they have to make some trade-off between different types of rewards. Those originating in the lower classes have not been socialized into the values of the higher-level cultural class factions. Therefore these values should not be so important for them, so their preferences should be more similar to those originating in the higher-level economic-sector classes. This means that potential class differences in preferences only are expected to lead to differences in economic rewards between those originating in cultural- and economic-sector higher-level classes, not differences between those originating in higher and lower social classes.

Differences between Educational Fields

The proponents of the achievement view do not maintain that achievement would replace ascription in all sectors of society. Their argument is rather that social-class origins will have the greatest significance in unimportant parts of society, such as in local communities – which the most ambitious have left – and in declining parts of the economy, such as among farmers and shopkeepers. In more important sectors of the economy, such as in the business elite or among professionals, other factors than origins determine success (Parsons, 1954; Colbjørnsen et al., 1987). The consequences of this argument for variations between educational fields, which is the concern here, must be that social-class origins may be expected to have the lowest impact on economic rewards among those educated in the

important fields of business administration and professional fields such as law and medicine.

A prerequisite for selection based on achievement is that measures of achievement exist and are used in selection processes. Measures of achievement are developed and used both in the educational system, in which academic performance is judged and graded, and in work organizations. However, educational fields vary according to the extent to which consistent and explicit criteria for judging performance exist. Within educational fields the criteria will be more consistent and explicit the more the field rests on a well-defined body of knowledge. Biglan (1973) makes a distinction between 'hard' and 'soft' educational fields according to whether or not the field is based on a single paradigm (cf. Kuhn, 1964). Hard fields are single-paradigmatic, soft fields are not. Examples of hard fields are mathematics, physics, engineering, and other fields within the natural sciences. Typical soft fields are languages, history, philosophy, economics, and the social sciences. If educational fields vary with respect to the consistency of evaluation criteria, it seems likely that this will also be reflected in the criteria for judging performance among those who practise in the fields in work organizations. This will be less true the more divergence there is in job and career choices among people who have received the same educational training. However, if fields differ with respect to evaluation criteria, it is likely that such differences are also reflected when the work performance of those practising in these fields is evaluated.

Several of the arguments raised above imply that social-class origin should have a greater impact on economic rewards in 'soft' than in 'hard' educational fields. First, if cultural skills acquired through an upbringing in higher-class social environments increase productivity, this cannot be true for all kinds of jobs. Above it was argued that cultural skills will be especially important for economic success in occupations that require representation or social skills typical among the upper classes. These are not important requirements in all types of jobs. It seems likely that social-class origins will have less importance the more consistent and explicit the criteria are for judging performance. We may therefore assume that if cultural skills acquired through an upbringing in higher-class social environments increase productivity, this will be truer for those

who practise within the 'soft' than in the 'hard' educational fields.

Secondly, concerning the idea that social networks or social capital influence job and career opportunities, it would not seem rational for an employer to recruit though social networks if information about performance is readily available. A recruitment policy that rewards network contacts rather than performance does seem irrational, especially for important positions. However, it is not irrational to trust information obtained through social networks concerning characteristics that one believes are hard to measure through formal credentials (cf. Granovetter, 1988). The social-network mechanism is therefore most likely to be at work in fields where job performance may require characteristics that are hard to measure, characteristics that may ease interaction and be a basis of trust. This means that the social-network mechanism is most likely to be at work in the same fields as it was expected that social-class origins might influence productivity, i.e. the 'soft' educational fields.

Finally, the same reasoning holds true for the cultural-capital mechanism. If preferences for 'one's own kind' are important for employers who evaluate job applicants and promotion seekers, this is likely to be more common the more unclear the criteria for measuring work performance, and the more social skills may be expected to influence productivity. This means that the cultural-capital mechanism should be more prevalent in the 'soft' than in the 'hard' educational fields.[4]

Summary

The discussion above about variations in economic rewards when education is controlled can be summarized in the following hypotheses.

H1: Inequality in economic rewards by social-class origin will be greater the more inclusive the income measure.

H2: Those with economic-sector higher-class origins will tend to have the highest level of economic rewards.

H3: Inequality in economic rewards by social-class origin will be greater in 'softer' than in 'harder' educational fields.

The argument behind the first hypothesis is that social-class origin affects the composition of different forms of income. Those with higher-class origins more often than others tend to seek educational fields and sectors of the labour market which give opportunities of receiving income in other forms than wages.

The second hypothesis is based on two arguments. The first is that those with economic-sector origins have more information obtained through their family and social network than others have about economic opportunities, investment strategies, etc. and are more likely to have access to family-based wealth enabling them to pursue such strategies. The second argument is that according to their evaluations symbolic status is attained through economic rewards. Therefore they are less likely than those originating in the cultural-sector higher-level classes to prefer the symbolic and cultural rewards that are regarded highly in these classes. This second argument thus emphasizes differences between economic- and cultural-sector higher-level classes.

The third hypothesis is based on the idea that social-class origin is likely to have the least impact on economic rewards the less relevant social competence is for job performance and the more easily job performance can be measured. Social-class origin should have a greater impact if self-presentation is important for job performance, and the criteria for judging job performance are unclear. If educational fields can be divided into 'soft' and 'hard' fields, as has been suggested, it seems reasonable to believe that such differences in subject-matter will also appear when people practise their education in work environments.

Data, Classification, and Method

Data

The data used in this study are assembled from various registers in the Central Bureau of Statistics, Norway. The sample consists of 10 per cent of the birth cohorts born between 1955 and 1966. These cohorts are chosen so they will have had time to be established in the labour market at the time the labour-market returns are measured. Among the younger cohorts, larger proportions will not yet have finished their education, and consequently be outside the labour force or working part-time. Those who are reported as being students are omitted from the analysis. The upper age limit is set to obtain comparable data on social-class origin as far as possible.[5]

The data on income is from the central tax register. Several types of income are registered: The earnings of employees and the self-employed, returns of investments, income from the social services, etc. Among the advantages of using information from tax registers is that, in contrast to self-reported income, individual difference in memory and reporting are minimized. However, people will clearly have interests in reporting incomes as low as possible, to the tax authorities, to limit their taxes. Moreover, those who are self-employed or receive irregular income will have an interest in 'tax-planning,' for example, presenting their income as returns from investments, rather than a result of work. Direct tax evasion has become more difficult in recent years in Norway, because the tax authorities have access to databases that enable them to compare the self-reported figures in the tax forms with information from employers on salaries, bank reports, company registers, etc. Opportunities for 'tax-planning' still exist, of course; this is a rewarding line of work for tax lawyers. These opportunities are clearly greater in some groups than others, and easier the more complex one's economic situation. Thus, when using tax information as a source of income information, the incomes that are least likely to be underestimated are those of employees with fixed salaries and wages. Underestimates of incomes are more likely to occur for those who have income as self-employed or acquire income from sources such as stocks, shares, returns, or various forms of bonuses.

The idea is to measure rewards from labour-market activity. Income from other sources, such as the social services and savings, are excluded. Stock returns are included in the broadest income measure. This may seem a questionable choice, because stock returns may be the result of investments of inherited capital. In that case, returns cannot be considered a result of labour-market activity. However, as argued above, owners or managers of firms and other top-level employees may receive income in the form of stocks. In that case this will be a part of

the earnings in the job. Because this reward practice is quite common, omitting stock returns will influence the measure of income greatly in some groups.

No effort will be made here to estimate the extent to which direct inheritance influences the results: that would be difficult, and in many instances meaningless. Consider, for example, the quite common case where a son or a daughter is employed as a well-paid manager in the family firm. Would it be appropriate to consider the salary of this person the result of labour-market activity, with no element of inheritance in it? Moreover, if he or she receives stocks, as do other high-level employees in the firm, should this be regarded solely as inheritance? As different choices would all involve some 'error' in the estimates of the impact of social-class origin, the strategy here is to use different income measures and compare the results of the analyses based on these measures.

Classifications

Three income measures are thus constructed. All three are based on the mean income of the two years in which income information is available, 1995 and 1996. Having the opportunity of using two observations has the advantage of limiting annual variations, which may be especially great for those who are self-employed and for those who acquire income as stocks, shares, returns, or various forms of bonuses. The first measure is the mean annual earnings of employees. Those who have income from self-employment above Nkr.10,000 or stock returns of the same size are excluded in the analyses based on this measure. Thus, employees with a very limited stock income, or a very small self-employed addition to their salaries, are included in the analyses of variations in earnings. The second measure is the mean annual earnings of employees and the self-employed, and the third measure in addition includes mean annual stocks returns.

As pointed out earlier, the division between employees and the self-employed is diffuse because it is quite common, especially in some groups, to have both types of income. The blurred distinctions between professionals who are employees and independent professionals, noted by Erikson and Goldthorpe (1993), are evident in the data used in this study. The largest proportions of self-employment in the educational fields distinguished in this study is found among health and law professionals, among which 66 and 35 per cent, respectively, of men have self-employed income. However, the majority of those who have earnings as self-employed also tend to have earnings as an employee. Among male health-service professionals, 60 per cent of those having income in 1996 have income both as an employee and from self-employment. For the law graduates the proportion is 26 per cent. Although on a lower level, the proportions in some other fields are not negligible either. For example, 14 per cent of men with higher-level natural science degrees, and 20 per cent of men with social science degrees have income both as employees and self-employed.[6]

There is no information about hourly wage in the data, which is especially useful if one wants to compare groups with large differences in working hours that affect annual earnings, for instance, if one wants to compare the returns of women and men. The consequence of using annual earnings is that it will be hard to compare men and women, because women on average work shorter hours than men: large proportions of women, around 50 per cent, work part-time, and women far more often than men are absent from work during periods when they take care of children, something that affects their annual pay in the long run.

Those who have an income below Nkr.125,000 based on any of the three income measures are excluded from the analyses. This is done to exclude as far as possible those who have a limited level of labour-market participation. However, it is possible to obtain an income of this size through working part time, so the limit is somewhat arbitrary. Several analyses with different income levels have been performed. If no limit is set, the consequence is that the models have a very limited predictive power, and the estimated effects become far smaller than in models with some limitations on income. When higher-income levels are set, the predicted effects vary somewhat, but are fairly similar and lead to the same main conclusions.[7]

Education is measured in a detailed way in the data, by the six-digit code in the Norwegian Standard Classification of Education. The first digit of this standard distinguishes between six educational levels. The lowest level is compulsory

education, the highest is the doctoral level, which usually requires 17 to 18 years of schooling, starting at age 7.

The second digit distinguishes between six main educational fields. The next four digits further differentiate these fields. Ten educational fields are distinguished on the basis of this classification: health service, law, economics, administration, engineering, natural sciences, transport, agriculture and military education, social sciences, humanities and aesthetics, and teaching and social work. The first field consists of health-service professionals, medicine, dentistry, pharmacy, nursing, etc. The second field contains those who have an economics-based education within macro or social economics and business economics.[8] The field of administration consists of a large variety of educational titles within this field. The field of engineering contains those with higher or lower technical engineering degrees. Natural science consists of fields such as mathematics, physics, biology, etc. Agriculture, transport, etc. is a mixed category consisting of higher or lower agricultural degrees, fishery subjects, maritime, and military education. The social sciences include sociology, political science, anthropology, and psychology. The humanities and aesthetics consist of language and literature studies, philosophy, religion, music, art, etc. The final category consists of teacher training, at all levels, social work, and education studies.[9] The division between fields according to whether they are hard or soft developed by Biglan (1973) is shown in Table 1.[10]

The data contain information about the respondents' parents from the 1970 and 1980 censuses. The 1970 census is used for those born between 1955 and 1960; the 1980 census for those in the youngest cohorts, born between 1961 and 1966. This means that social origin is assessed between the ages of 10 and 19, varying somewhat between the cohorts.[11] Social-class origin is based on information about the father, if he was present in the household at the time of registration, and if not, by the mother. Information on occupation is the basis of the classification, but educational level and industry code are used as additional criteria for some widely defined occupations.[12]

An important point above was that cultural variation between higher-level class factions might influence economic rewards, either because of infor-

mation differences or because of differences in preferences concerning trade-offs between symbolic and cultural rewards and economic rewards. To study possible effects of-class cultural variation one has to use a class scheme that may represent this variation. The analyses below use a relatively simple scheme that accentuates the division between the economic and cultural factions of the higher classes. The idea about cultural and economic class factions, set out above, applies to the greatest extent to the higher classes; therefore a horizontal distinction is made only at this level. The first-class category consists of managers and business executives. These are differentiated from top-level groups with more cultural capital. This class category consists of higher-grade professionals, teachers, and engineers, public administrators, and various cultural-sector occupations. These divisions are expected to be less important for the lower-level classes, so they are divided into a medium- and a lower-class level. The third class category consists of medium-level classes. This category contains public- and private-sector medium- and lower-level employees and the self-employed groups commonly designated the petite bourgeoisie – shopkeepers, owners of small firms, self-employed artisans, and farmers. The fourth and final class category consists of skilled and unskilled workers.

The distributions of the main variables are shown in Table 1.

Method

The analysis is divided into two steps. In the first step the impact of social-class origin on economic rewards is estimated, controlled for educational level. The second step focuses on the outcomes of different fields of higher education, so those with education below the tertiary level are omitted. The sample then consists of those with college- or university-level education (levels 3–6 in Table 1). At each of these two steps OLS regression analysis is performed separately for the two genders and for the three income measures.

The variables included in the first step are age (and age-squared), social-class origin – measured as three dummy variables – and educational level. In addition, the interactions between social-class

Table 1. *Distributions of the variables in the analyses*

Income (in Nkr.)	Mean	Std. Dev.
Income 1. Annual earnings of employees	238721	92981
N	46028	
Income 2. Annual earnings of employees and self-employed	248115	142072
N	54009	
Income 3. Annual earnings of employed and self-employed and capital income	253378	182913
N	54106	

	Frequency	Per cent
Gender		
Female	22066	40.5
Male	32357	59.5
Total	54423	100.0
Social-class origin		
Managers, executives	2642	5.2
Higher level cultural sector (higher-grade professionals, teachers, engineers, administrators)	3134	6.2
Medium-class level	20441	40.2
Skilled and unskilled workers	24671	48.5
Total	50888	100.0
Educational level		
0. Compulsory level (9 years)	4679	8.8
1. 10 years	10311	19.3
2. 11–12 years	20508	38.4
3. 13–14 years	6074	11.4
4. 15–16 years	7885	14.8
5. 17–18 years	3597	6.7
6. Doctoral level	286	0.5
Total	53340	100.0
Educational field		
No higher education	35579	66.6
'Soft' fields		
Social sciences	899	1.7
Humanities and aesthetics	1871	3.5
Law	419	0.8
Economics	533	1.0
Administration	2720	5.1
Teaching, social work	3192	6.0
'Hard' fields		
Engineering	3259	6.1
Natural sciences	902	1.7
Agriculture, transport, etc.	1207	2.3
Health service	2840	5.3
Total	53421	100.0

origin and age are included, to study whether the effect of social-class origin changes across cohorts.

A question is how the possible interaction between age and social-class origin should be interpreted in cross sectional data such as is used in this study — as changes over time or as changes during the life course. It must be noted that there are only eleven cohorts included in the study. It is

doubtful whether the relationship between class origin and earnings changed during this relatively short period of time. Important changes in the lives of individuals, however, must be expected between the ages of 30 and 41. During these years, careers usually take off or come to a halt. A change in the impact of social origin on earnings must be expected if social-class origin influences the probability of being in either one of these two categories.

In the second step of the analysis educational field, as described in Table 1, is included. The goal is first, to study the impact of social origin class on income, when educational field is controlled. Secondly, the variations in the impact of social-class origins between educational fields are measured. Including a number of dummy variables measuring interaction effects between educational field and social-class origin in the model achieves this. The interactions between educational field and educational level are also included: because different fields may have different profiles with respect to how well an additional educational level is rewarded, and social origin affects the choice of educational level, the estimates of origin effects may be influenced by such differences. This is avoided when the interaction between educational field and level is included.

Results

Social Origin and Educational Levels

Table 2 shows the results of regression models including the effects of age and age-squared, social-class origin, and educational level for the two genders and the two income measures. Concentrating on the men first, in Model 1 we see that social-class origin affects economic rewards in the analyses based on all three income measures. The impact of social origin increases, though, the broader the income measure. This finding is in agreement with the expectations of the first of the three above hypotheses. The difference in estimated income advantages compared to sons of workers are especially large for those with economic-sector origins whose fathers (usually) are managers or executives. Those originating in the higher-level cultural classes may expect incomes on a somewhat lower level. This finding supports the second hypothesis, according

to which economic rewards should vary between factions of the higher classes.

In the analysis of variation in earnings among employees, those with manager/executive origins may expect on average 10 per cent higher earnings than those originating in the working classes, controlled for educational level.[13] Using the income measure which includes self-employed income (income 2), the corresponding difference is 15 per cent. Finally, when stock income is included, sons of managers and executives may expect 20 per cent higher incomes than sons of workers, controlled for educational level. The expected differences between those originating in the higher-level cultural sector and the working classes are lower – 7, 10, and 11 per cent, respectively, for the three income measures. Among those with medium-level origins the expected difference from those with working-class origins is 4 per cent, no matter what income measure is used.

In Model 2 the interactions between social origin and birth cohort are included. The estimates for the earnings of employees indicate that the gap between those with manager/executive and working-class origins is expected to increase across cohorts. In contrast, a stable gap is expected between the remaining three classes. This is illustrated in Figure 1(*a*). We see that men with manager/executive origins may expect earnings at about the same level as those with medium- and lower-class origins at the age of 30. By the age of 41 the difference between them and medium- and lower-level groups has increased. At this age they also may expect higher earnings than those with cultural-class origins; this was not the case at the age of 30.

Larger differences between those with manager/executive and working-class origins across cohorts are expected in the model based on the broader income measure including both annual earnings from employment and self-employment (income 2). When this measure is applied the gap is also expected to increase between those with higher-level cultural-sector origins and those originating in the working classes, but stability is still expected between medium-class and working-class origins. These results are illustrated in Figure 1(*b*). Figure 1(*c*) shows the result when stock income is included (income 3). The differences across cohorts then increases again, compared to the results illustrated

Table 2. *Effects of age, social origin, and education on annual income*

	Income 1		Income 2		Income 3	
	B	**S.E.**	**B**	**S.E.**	**B**	**S.E.**
Men						
Model 1						
(Constant)	12.174	0.006	12.174	0.006	12.171	0.006
Age (30=0)	0.028	0.002	0.027	0.002	0.028	0.002
Age^2	−0.001	0.000	−0.001	0.000	−0.001	0.000
Social-class origin						
Managers, executives	0.103	0.009	0.137	0.009	0.182	0.009
Higher-level cultural sector	0.072	0.008	0.093	0.009	0.101	0.009
Medium-class level	0.037	0.004	0.035	0.004	0.038	0.004
(Working class=0)						
Educational level	0.074	0.001	0.080	0.001	0.081	0.002
R^2	0.157		0.150		0.150	
Model 2						
(Constant)	12.207	0.007	12.222	0.008	12.224	0.008
Age (30=0)	0.022	0.002	0.018	0.002	0.019	0.002
Age^2	−0.001	0.000	−0.001	0.000	−0.001	0.000
Social-class origin						
Managers, executives	0.060	0.014	0.091	0.014	0.110	0.015
Higher-level cultural sector	0.061	0.014	0.063	0.014	0.062	0.015
Medium-class level	0.024	0.007	0.030	0.007	0.031	0.007
(Working class=0)						
Educational level	0.063	0.003	0.061	0.003	0.061	0.003
Educational level*age	0.002	0.000	0.003	0.000	0.003	0.000
Age*managers, executives	0.009	0.002	0.010	0.002	0.015	0.002
Age*higher-level cultural sector	0.003**	0.002	0.007*	0.002	0.008*	0.002
Age.*medium-class level	0.003*	0.001	0.001**	0.001	0.001**	0.001
R^2	0.159		0.153		0.154	
Number of cases	23472		29057		29086	
Women						
Model 1						
(Constant)	11.984	0.006	11.984	0.006	11.982	0.006
Age (30=0)	0.007	0.002	0.008	0.002	0.009	0.002
Age^2	0.000**	0.000	0.000**	0.000	0.000**	0.000
Social-class origin						
Managers, executives	0.046	0.008	0.064	0.008	0.100	0.009
Higher-level cultural sector	0.066	0.008	0.071	0.008	0.073	0.008
Medium-class level	0.021	0.004	0.020	0.004	0.024	0.004
(Working class=0)						
Educational level	0.061	0.001	0.063	0.001	0.063	0.002
R^2	0.122		0.120		0.114	

(Continued)

Table 2. (*Continued*)

	Income 1		Income 2		Income 3	
	B	**S.E.**	**B**	**S.E.**	**B**	**S.E.**
Model 2						
(Constant)	12.005	0.008	12.007	0.008	12.007	0.009
Age (30=0)	0.003**	0.002	0.003**	0.002	0.004**	0.002
Age^2	0.000**	0.000	0.000**	0.000	0.000**	0.000
Social-class origin						
Managers, executives	0.049	0.013	0.061	0.013	0.077	0.014
Higher level cultural sector	0.054	0.013	0.055	0.013	0.056	0.014
Medium class level	0.020*	0.007	0.020*	0.007	0.024	0.007
(Working class=0)						
Educational level	0.053	0.003	0.055	0.003	0.055	0.003
Educational level*age	0.001	0.000	0.001*	0.000	0.001*	0.00
Age*managers, executives	−0.001**	0.002	0.000**	0.002	0.005*	0.002
Age*higher-level cultural sector	0.003**	0.002	0.004**	0.002	0.004**	0.002
Age*medium-class level	0.000**	0.001	0.000*	0.001	0.000**	0.001
R^2	0.122		0.121		0.115	
Number of cases	17643		19467		19529	

Note: Income 1 is annual earnings of employees, income 2 is annual earnings of employees and self-employed, income 3 is annual earnings of employees and self-employed and stock income.
No asterisk: significant at the 0.001-level. *: significant at the 0.05-level; **: Not significant at the 0.05-level.

in figure 1(*b*), and again it is those with manager/ executive and higher-level cultural-sector origins who increase their distance from the medium- and lower-level classes.

Note that the differences in the income expectations based on the three measures are small for those with medium- and lower-class origins, whereas the measure used has greater significance for the income expectations of the higher classes.

The most likely interpretation of the pattern illustrated in Figure 1, it was argued above, is that it is due to changes during the life course. The relationship between class origin and income is not likely to change during this short period, but the years between 30 and 41 are important in the careers of individuals. The results illustrated here indicate that the association between social origins and economic reward increases during this period, and this is true especially for those with manager/executive origins. Moreover, the pattern indicating an increasing impact of social-class origins on economic rewards is more evident when the broad income measures are applied than the narrower measure based on earnings of employees.

The results for the women show the same basic pattern as for the men: Those originating in the higher classes tend to receive the highest incomes, when educational level is controlled. The largest expected differences in income (based on income 3) from those with working-class origins are 10 per cent, for those with manager/executive origins, 7 per cent, for those with higher-level cultural-sector origins, and, finally, 2 per cent, for those with medium-level origins.

Three important differences between men and women can be emphasized. First, the estimated effects of social-class origin are smaller for the women than for the men, and the differences between economic- and cultural-sector origins are not so pronounced. Secondly, the differences between the estimates based on the three income measures are smaller for the women than for the men. Thirdly, the effects of social-class origin are not expected to change across cohorts for the women, as they are for the men.

These tendencies may probably be accounted for by the differences in the patterns of women and men's labour-market participation: women
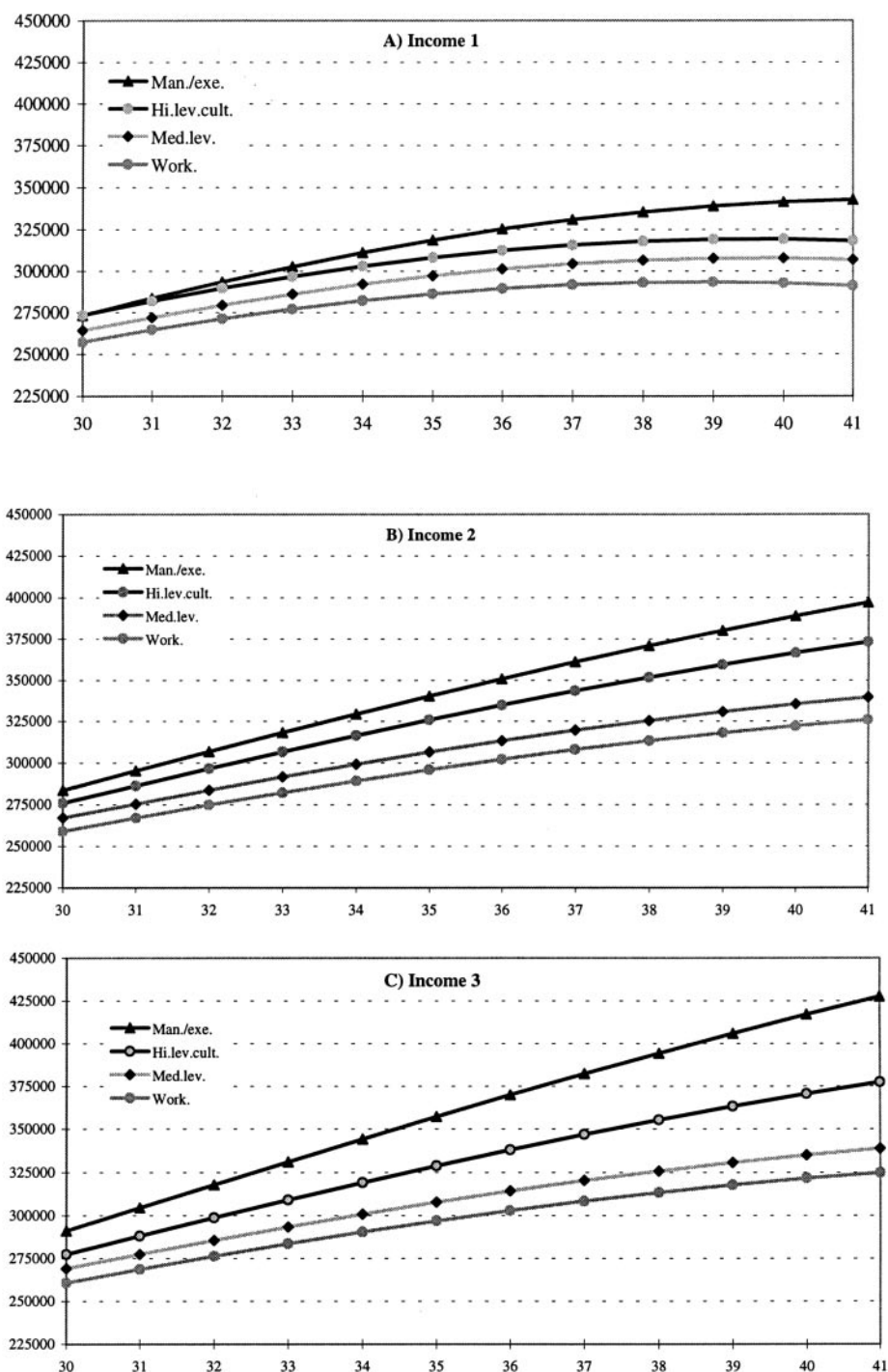
* Income 1 is annual earnings of employees, income 2 is annual earnings of employees and self-employed, income 3 is annual earnings of employees and self-employed and capital income.

Figure 1. *Income by social origin, men aged 30–41 with 15–16 years of education*

are less likely than men to have successful careers in private-sector companies, and therefore do not reap the economic advantages of such careers. Further, even if women differ in hours worked, absence patterns, etc., by occupation and educational level, women from all classes share a common pattern of having more absence from work than men.

Social Origin and Educational Fields

Table 3 shows the results for the second step of the analysis, including only those with higher education. Model 1 shows the results when only educational level is controlled. In Model 2 the fields of education are introduced. The estimates of the effects of social origin in Model 1 are similar to those of Model 1 in Table 2, which are based on the whole sample.[14] The impact of social origin on economic rewards for both genders is somewhat smaller in Model 2. This was to be expected. Because those with higher-class origins more often than others tend to choose prestigious educational fields leading to high incomes, estimates of the impact of social-class origin that do not take heed of educational fields will tend to overestimate the significance of social-class origin (cf. Erikson and Jonsson, 1993, 1998; Hansen, 1995, 1997).

We see that educational field has a strong effect on income. Concentrating on the men, first, all the coefficients referring to educational field are positive, indicating that those in the reference category – teaching and social work – tend to receive the lowest incomes. The coefficients tend to be larger in the models based on the broader income measures. Especially large differences in the estimates based on different income measures are found for the fields of health, law, and economics. This was expected, because these educational fields tend to lead to labour-market positions with good opportunities for having large incomes though self-employment and acquiring forms of income such as stock returns and bonuses.

There are also large differences in expected income by educational field for women, and the lowest incomes among women are expected in the same field as among the men – teaching and social work. Again, as in Table 2, the coefficients tend to be smaller for the women than for the men, and there

are small differences in the estimates based on the three income measures.

The main point in this second step of the analysis is to find out whether the impact of social-class origin varies by educational field. To do this, the interactions between social origin and educational field are entered into the analysis, as well as the interactions between educational field and level. Table A1 in the Appendix shows the results of these analyses for the men. The significance levels of the coefficients are reported as well as the coefficients and their standard errors. Due to the small, and few significant, differences found among the women, the results are not presented for them.

Table 4 summarizes the results for men, as expected percentage differences between men originating in the higher- and medium-level classes and men originating in the working classes, with the same level and field of education. We see that most percentage differences are positive, but that the size varies to a great extent between the fields. The first row shows the results for higher education in general, controlled for educational field (cf. Table 3). The results in the following rows clearly indicate that the effects of social-class origins on economic rewards vary greatly between fields.

The hypothesis raised above about variations between educational fields was that the differences in economic rewards by social-class origin should be greater in the 'soft' than the 'hard' educational fields. In Table 4 we see that the expected percentage differences to men originating in the working classes tend to be greater in the upper part of the table pertaining to the 'soft' educational fields. This pattern is especially evident when we concentrate on the class faction that tends to receive the highest economic rewards: those with higher-class economic-sector origins. The expected difference from men with working-class origins based on the most inclusive income measure (income 3) is as high as 42 per cent among those with economic education. The percentage differences are also high in 'soft' fields such as the humanities, the social sciences, and law. The expected percentage differences are considerably lower in the 'hard' fields of engineering and the natural sciences. The main tendency is thus that the hypothesis about differences between educational fields is supported.

Table 3. *Effects of age, social origin. educational level and educational field on annual income, men and women with tertiary level education*

	Income 1		Income 2		Income 3	
	B	**S.E.**	**B**	**S.E.**	**B**	**S.E.**
Men						
Model 1						
(Constant)	12.275	0.021	12.207	0.022	12.214	0.024
Age (30=0)	0.042	0.004	0.046	0.004	0.050	0.005
Age^2	−0.002	0.000	−0.002	0.000	−0.002	0.000
Social-class origin						
Managers, executives	0.095	0.016	0.129	0.016	0.187	0.017
Higher-level cultural sector	0.069	0.013	0.105	0.013	0.117	0.014
Medium-class level	0.040	0.009	0.053	0.009	0.056	0.010
(Working class=0)						
Educational level	0.042	0.005	0.058	0.005	0.055	0.005
R^2	0.064		0.078		0.082	
Model 2						
(Constant)	12.065	0.024	12.011	0.026	11.995	0.027
Age (30=0)	0.040	0.004	0.043	0.004	0.047	0.004
Age^2	−0.002	0.000	−0.002	0.000	−0.002	0.000
Social-class origin						
Managers, executives	0.080	0.015	0.106	0.015	0.160	0.016
Higher-level cultural sector	0.073	0.012	0.098	0.013	0.109	0.014
Medium-class level	0.041	0.008	0.053	0.009	0.055	0.009
(Working class=0)						
Educational level	0.036	0.005	0.044	0.005	0.043	0.005
Educational field:						
Health service	0.153	0.021	0.346	0.019	0.346	0.021
Law	0.211	0.026	0.357	0.026	0.361	0.028
Economics	0.424	0.021	0.471	0.022	0.515	0.023
Administration	0.258	0.015	0.289	0.016	0.315	0.017
Engineering	0.307	0.013	0.308	0.014	0.324	0.015
Natural sciences	0.281	0.018	0.286	0.019	0.288	0.021
Agriculture etc.	0.219	0.016	0.235	0.017	0.239	0.018
Social sciences	0.190	0.020	0.230	0.022	0.247	0.023
Humanities and aesthetics	0.070	0.017	0.091	0.018	0.101	0.019
(Teaching, social work=0)						
R^2	0.171		0.164		0.166	
Number of cases	6734		8162		8173	

(Continued)

However, there are two main exceptions to this pattern. The first is that the expected differences in the field of teaching and social work, which is classified as a 'soft' field, are very small. This is probably due to the rigid reward structure of those who practise within these fields. The overwhelming majority tend to work in the public sector, with small opportunities for wage differences except those based on seniority. The second exception concerns the category of agriculture, transport, etc., for which the expected percentage difference between those originating in the economic faction of the higher classes and those with working class origins is as high as 17 per cent, based on the most inclusive

Table 3. (*Continued*)

	Income 1		Income 2		Income 3	
	B	**S.E.**	**B**	**S.E.**	**B**	**S.E.**
Women						
Model 1						
(Constant)	12.004	0.021	11.975	0.021	11.993	0.022
Age (30=0)	0.012*	0.003	0.012*	0.003	0.014	0.004
Age^2	−0.001**	0.000	0.000**	0.000	−0.001	**0.000
Social-class origin						
Managers, executives	0.067	0.013	0.092	0.013	0.131	0.014
Higher-level cultural sector	0.065	0.011	0.072	0.011	0.073	0.012
Medium-class level	0.016*	0.007	0.017*	0.007	0.019*	0.008
(Working class=0)						
Educational level	0.054	0.005	0.063	0.005	0.058	0.005
R^2	0.031		0.040		0.038	
Model 2						
(Constant)	11.823	0.023	11.767	0.023	11.776	0.025
Age (30=0)	0.015	0.003	0.015	0.003	0.016	0.004
Age^2	0.000**	0.000	0.000**	0.000	0.000**	0.000
Social-class origin						
Managers, executives	0.036*	0.012	0.060	0.012	0.100	0.013
Higher-level cultural sector	0.035	0.010	0.044	0.010	0.044	0.011
Medium-class level	0.008**	0.007	0.010**	0.007	0.011**	0.008
(Working class=0)						
Educational level	0.077	0.005	0.091	0.005	0.088	0.006
Educational field						
Health service	0.004**	0.008	0.029*	0.009	0.028*	0.009
Law	0.153	0.022	0.159	0.022	0.159	0.024
Economics	0.376	0.024	0.379	0.024	0.374	0.026
Administration	0.181	0.010	0.198	0.010	0.203	0.011
Engineering	0.198	0.013	0.197	0.013	0.195	0.014
Natural sciences	0.199	0.018	0.193	0.019	0.190	0.020
Agriculture etc.	0.136	0.020	0.144	0.020	0.141	0.022
Social sciences	0.119	0.016	0.124	0.016	0.124	0.017
Humanities and aesthetics	0.112	0.011	0.127	0.012	0.135	0.012
(Teaching, social work=0)						
R^2	0.137		0.129		0.117	
Number of cases	6843		7533		7563	

Note: Income 1 is annual earnings of employees, income 2 is annual earnings of employees and self-employed, income 3 is annual earnings of employees and self-employed and stock income.
No asterisk: significant at the 0.001-level. *: significant at the 0.05-level; **: Not significant at the 0.05-level.

income measure. One possible explanation is that this educational category is too broad and includes educational fields that vary according to the characteristics that are emphasized in the classification used here (cf. the section above on classifications).

We also see, as was expected on the basis of the first hypothesis outlined above, that the models based on the broader income measure yield the greatest differences, as was the case for the results of the analysis of the total sample. For all the fields except the health service, the effects of social-class

Table 4. *Social-origin effects by educational field among men: percentage differences compared to men with working-class origins and the same level and field of education[a]*

Educational field	Managers, executives			Higher-level cultural sector			Medium class level		
	Inc. 1	Inc. 2	Inc. 3	Inc. 1	Inc. 2	Inc. 3	Inc. 1	Inc. 2	Inc. 3
Any higher education	10	14	21	7	11	12	4	1	6
'Soft' fields									
Social sciences	15	26	35	12	15	22	2	10	11
Humanities and aesthetics	8	12	28	13	17	18	8	10	10
Law	18	25	27	9	22	23	5	8	10
Economics	9	24	42	−6	0	7	7	13	17
Administration	9	9	17	10	13	13	3	3	5
Teaching, social work	8	0	2	1	2	2	5	5	6
'Hard' fields									
Engineering	4	5	10	5	5	6	3	3	3
Natural sciences	1	6	9	9	11	12	7	8	8
Agricult., transport, etc.	13	16	17	3	5	6	0	2	2
Health service	12	10	9	19	13	13	5	5	5

Note: Income 1 is annual earnings of employees, income 2 is annual earnings of employees and self-employed, income 3 is annual earnings of employees and self-employed and stock income.

origin are larger in the model based on the broader income measures. The differences in the impact of social-class origin are especially notable among those with economic education.

The choice of income measure has the greatest significance for the estimates concerning those with manager/executive origins. The differences between the effects of social-class origin pertaining to educational fields are smaller among those originating in the higher-level cultural-sector classes, and the estimates based on the three income measures are more similar. However, large effects of social-class origin are found in three of the same fields as among those originating among managers/executives: law, the social sciences, and the humanities. Social-class origin also has a large impact on economic rewards among health-service employees. Those with their origins in the higher-level cultural sector may expect 19 per cent higher earnings (income 1) than those originating in the working classes, but the differences are somewhat lower when the broader income measures are applied.

There is one additional conspicuous difference between the two higher-class categories. Having higher-level cultural-class origins is not advantageous among those with an economics-based education. In comparison, those originating in the

higher-level economic classes can expect especially high incomes if they have an economic education, when income is measured by the broader income measures. The probability of economic success among graduates in economics is thus considerably higher if they have their origins among managers and business executives than other class origins.

Summary and Conclusion

The first goal set out in the introduction was to find out if the level of economic rewards among people with similar educational levels and fields varies by social-class origin. We have seen that social origin has an impact on economic rewards among the population at large and among those with higher education. These findings accentuate the importance of understanding how processes occurring in the labour market contribute to enduring patterns of class inequality.

A further conclusion, however, is that the extent of inequality depends on the choice of income measure. Inequality in economic rewards is greater the more inclusive the income measure. The impact of social-class origin is greatest for the broadest income measure applied here, including stock

income as well as earnings of employees and self-employed income. This was expected on the basis of the first hypothesis set out above about variations in levels of economic rewards.

The second hypothesis was that those with economic-sector higher-class origins should be expected to have the highest level of economic rewards. This hypothesis also received support. Men with manager/executive origins tend to receive the highest income in whatever way income is measured, but their income compared to the other groups becomes especially high when the broader income measures are applied.

These findings indicate that economic strategies in addition to those leading to high wages or salaries influence the level of inequality in economic rewards. Among such strategies are self-employment, investments, and acquiring labour-market rewards in forms such as shares, returns, and bonuses. Moreover, such strategies must be more common, or applied with greater success, among those originating in the economic-sector higher classes than among those with other class origins.

The third hypothesis that has been examined is that the impact of social-class origins on economic rewards varies between educational fields, and is greater in 'soft' than in 'hard' educational fields. We saw that the effect of social origin tended to vary between educational fields. Because this was only the case to a small extent among the women, only the results for the men were shown. The social origins of the men hardly affected income in some educational fields, whereas in other fields men with their origins in the higher classes may expect earnings 30 to 40 per cent above those with origins in the working classes. The main pattern, with two exceptions, was that the variation by social-class origins tended to be larger in the 'soft' than in the 'hard' educational fields. Large differences were found within fields such as law and economics. These findings are in accordance with the idea that social origin has the greatest importance the more relevant social competence is for job performance and the more easily job performance can be measured. The three mechanisms outlined above may account for this result: cultural competence acquired in a higher-class environment may increase productivity, or social or cultural capital may influence job and career opportunities.

Notes

1. Erikson and Jonsson's recent study of Swedish employees, in which controls for educational fields are included, indicate that social origin affects income (Erikson and Jonsson, 1998). The origin effect seems weak though; social origin accounts for around 3% of the variation in income from employment. Thus, taking educational field into account does not alter the conclusions based on previous research, holding that the impact of social origin on economic rewards is weak when education is controlled. However, variation between educational fields, which is the point of the present argument, is not analysed.

2. That hired managers receive large incomes in shares and different forms of bonuses is a recurring theme in Norwegian newspapers, especially at the time when the organizations are involved in wage bargaining. In many large companies these sources of income seem to be far larger than the managers' salaries.

3. The fact that it is often possible to combine different types of careers in professional groups and thereby obtain different sorts of income does not alter the argument that a trade-off between cultural status and economic rewards is sometimes involved in career choices.

4. The other mechanisms described above do not lead to such clear-cut assumptions about variations between fields, and they are therefore omitted in this discussion.

5. To obtain data on social origin among older cohorts one would have to use information from the 1960 population census, in which different coding procedures are used for some important variables.

6. One reason for this is that the Norwegian tax system uses the so-called 'Partition tax model'. An aim of this model is to single out a part of the income of the firm and define it as the result of the work of the owner, or owners, and tax that part higher than the remaining income. This means that the size of work income of the owners of firms depends on the income of their firm.

7. The results of limits between Nkr.75,000 and Nkr.200,000 have been tested.

8. The Norwegian titles are *sosialøkonom* and *siviløkonom* The latter title is acquired from specialized universities for business economics. The category also contains some people who gained their degrees abroad.

9. It must be noted that some of those registered at the lower levels will not have completed their degrees. For instance, if one has a lower-level law degree, one will not have finished one's studies because it is a

professional degree requiring in total 17–18 years of schooling. In contrast, it is possible to have completed lower-level degrees within the social or natural sciences or the humanities.

10. Biglan (1973) also differentiates between fields on the basis of whether the fields are pure or applied and whether their task areas concern life or non-life systems. Because these critera seem of less significance for the research questions explored here, they are omitted from the present discussion. Law is not included in Biglan's taxonomy. However, it seems reasonable to classify it as a soft educational field, something that is also supported by Kolb's work (1985).

11. Analyses have also been performed exclusively on the basis of the 1970 census, when the respondents were between the ages of 4 and 15. One consequence of this choice is that there is then a correspondence between the age of the respondent when income is registered and when the parents' jobs are registered. This may be unfortunate when interpreting the findings concerning age, because one may expect the impact of social origin to be strongest among those whose social origin is measured at a higher age. However, the results concerning change by age based on the two classification practices show similar tendencies. This supports the interpretations of age differences below.

12. The industry code is used to differentiate between managers and small businessmen. A certain educational level is required for some occupational groups to belong to the higher classes. For details see Hansen (1995).

13. The difference can be calculated on the basis of the formula $(e^{B}-1)*100$, where B is the regression coefficient.

14. To test for differences in the impact of social-class origin by educational level, analyses including interactions between educational level and class origin have been performed. The results indicated that the effects of social-class origin are similar across levels.

Acknowledgements

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Table A1. *Effects of age, social origin and education on annual income, men with tertiary-level education*

	Income 1			Income 2			Income 3		
	B	**S.E.**	**Sig.**	**B**	**S.E.**	**Sig.**	**B**	**S.E.**	**Sig.**
(Constant)	12.373	0.151	0.000	12.408	0.155	0.000	12.406	0.166	0.000
Age (30=0)	0.040	0.004	0.000	0.042	0.004	0.000	0.046	0.004	0.000
Age^2	−0.002	0.000	0.000	−0.002	0.000	0.000	−0.002	0.000	0.000
Social-class origin									
Managers, executives	0.077	0.068	0.258	0.001	0.068	0.990	0.015	0.073	0.833
Higher-level cultural sector	0.012	0.038	0.743	0.019	0.042	0.654	0.019	0.045	0.667
Medium-class level	0.049	0.025	0.047	0.050	0.027	0.057	0.054	0.028	0.058
(Working class=0)									
Educational level	−0.042	0.038	0.266	−0.053	0.039	0.169	−0.057	0.041	0.169
Educational field									
Health service	−0.897	0.188	0.000	−1.229	0.184	0.000	−1.257	0.196	0.000
Law	−0.533	0.224	0.017	−0.792	0.227	0.000	−0.793	0.240	0.001
Economics	0.378	0.210	0.071	0.330	0.219	0.133	0.401	0.234	0.087
Administration	−0.200	0.162	0.218	−0.255	0.167	0.127	−0.248	0.179	0.165
Engineering	−0.147	0.154	0.339	−0.193	0.158	0.224	−0.192	0.169	0.255
Natural sciences	0.176	0.160	0.272	0.112	0.166	0.500	0.114	0.177	0.520
Agriculture, transport, military	−0.016	0.157	0.920	−0.037	0.162	0.820	−0.041	0.173	0.812
Social sciences	0.043	0.176	0.808	0.000	0.182	0.999	0.024	0.194	0.900
Humanities and aesthetics	0.072	0.161	0.653	0.070	0.166	0.674	0.039	0.177	0.825
(Teaching, social work=0)									
Ed. lev.*health service	0.245	0.046	0.000	0.355	0.045	0.000	0.363	0.048	0.000
Ed. lev.*law	0.165	0.051	0.001	0.242	0.052	0.000	0.244	0.055	0.000
Ed. lev.*economics	0.016	0.050	0.742	0.026	0.053	0.617	0.011	0.056	0.844
Ed. lev.*administration	0.122	0.042	0.003	0.143	0.043	0.001	0.146	0.046	0.001
Ed. lev.*engineering	0.115	0.038	0.003	0.127	0.040	0.001	0.132	0.042	0.002
Ed. lev.*natural sciences	0.027	0.039	0.492	0.043	0.041	0.295	0.044	0.044	0.318
Ed. lev*agriculture etc.	0.062	0.039	0.115	0.068	0.041	0.094	0.070	0.043	0.107
Ed. lev*social sciences	0.037	0.043	0.391	0.046	0.045	0.303	0.040	0.048	0.398
Ed. lev*human./aesthetics	−0.015	0.040	0.712	−0.015	0.042	0.721	−0.006	0.044	0.897
Health service									
Managers, executives	0.040	0.103	0.702	0.094	0.095	0.319	0.074	0.101	0.463
Higher-level cultural sector	0.158	0.068	0.019	0.104	0.060	0.085	0.105	0.064	0.102
Medium-class level	−0.002	0.047	0.960	0.002	0.045	0.969	−0.002	0.048	0.968
Law									
Managers, executives	0.091	0.102	0.374	0.224	0.101	0.026	0.222	0.107	0.038
Higher level cultural sector	0.078	0.078	0.321	0.181	0.079	0.022	0.188	0.084	0.026
Medium-class level	−0.003	0.068	0.962	0.031	0.068	0.648	0.038	0.072	0.600
Economics									
Managers, executives	0.005	0.094	0.960	0.216	0.093	0.020	0.334	0.099	0.001
Higher level cultural sector	−0.078	0.070	0.264	−0.020	0.074	0.785	0.052	0.079	0.507
Medium-class level	0.015	0.053	0.773	0.073	0.055	0.189	0.100	0.059	0.090
Administration									
Managers, executives	0.011	0.076	0.888	0.086	0.076	0.255	0.138	0.081	0.088
Higher-level cultural sector	0.083	0.051	0.105	0.103	0.056	0.064	0.106	0.059	0.074
Medium-class level	−0.023	0.032	0.465	−0.019	0.034	0.581	−0.008	0.037	0.825

(Continued)

Appendix 1 (*Continued*)

	Income 1			Income 2			Income 3		
	B	**S.E.**	**Sig.**	**B**	**S.E.**	**Sig.**	**B**	**S.E.**	**Sig.**
Engineering									
Managers, executives	−0.042	0.074	0.566	0.049	0.074	0.505	0.078	0.079	0.323
Higher-level cultural sector	0.036	0.043	0.411	0.033	0.048	0.493	0.037	0.051	0.461
Medium-class level	−0.016	0.028	0.584	−0.019	0.031	0.546	−0.028	0.033	0.390
Natural sciences									
Managers, executives	−0.063	0.088	0.474	0.059	0.091	0.519	0.068	0.097	0.486
Higher-level cultural sector	0.074	0.055	0.183	0.088	0.061	0.146	0.092	0.065	0.156
Medium-class level	0.023	0.039	0.552	0.030	0.043	0.483	0.027	0.046	0.557
Agriculture, transport, military									
Managers, executives	0.042	0.086	0.624	0.145	0.088	0.099	0.144	0.094	0.126
Higher-level cultural sector	0.021	0.063	0.744	0.033	0.066	0.616	0.043	0.070	0.542
Medium-class level	−0.046	0.033	0.170	−0.031	0.036	0.383	−0.031	0.038	0.417
Social sciences									
Managers, executives	0.065	0.090	0.468	0.227	0.089	0.011	0.283	0.095	0.003
Higher-level cultural sector	0.099	0.063	0.115	0.117	0.067	0.083	0.176	0.072	0.014
Medium-class level	−0.034	0.048	0.478	0.045	0.051	0.370	0.052	0.054	0.335
Humanities and aesthetics									
Managers, executives	−0.002	0.086	0.984	0.110	0.085	0.197	0.230	0.091	0.011
Higher-level cultural sector	0.111	0.053	0.038	0.142	0.058	0.014	0.145	0.062	0.018
Medium-class level	0.029	0.038	0.452	0.045	0.041	0.270	0.042	0.043	0.338
R^2	0.191			0.194			0.193		
Number of cases	6734			8162			8173		

Note: Income 1 is annual earnings of employees, income 2 is annual earnings of employees and self-employed, income 3 is annual earnings of employees and self-employed and stock income.

No asterisk: significant at the 0.001-level. *: significant at the 0.05-level; **: Not significant at the 0.05-level.