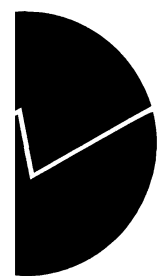


Statistics Norway  
Department of Social Statistics

*Kari Skrede*

Documents

**Gender Equality in the Labour  
Market - still a Distant Goal?**



## Contents

<b>I. Introduction .....</b>	<b>3</b>
<b>II. Background: Educational attainment and formation of opportunity structures - socio-demographic change in an intercohort perspective .....</b>	<b>4</b>
<b>III. Empirical analysis: Design, data and definitions .....</b>	<b>9</b>
<b>IV. Transition processes in early adulthood .....</b>	<b>11</b>
<b>V. Qualifications, responsibilities and rewards: Income returns by educational level, gender and parental status .....</b>	<b>20</b>
<b>VI. Conclusion.....</b>	<b>26</b>
<b>References.....</b>	<b>27</b>
<b>Appendix .....</b>	<b>30</b>
<b>Recent publications in the series Documents .....</b>	<b>33</b>

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## **I. Introduction**

The Nordic countries are often focused as the leading division of gender equality, both with regard to women's integration in political institutions and in the labour market, and with regard to the integration of gender equality concerns in social welfare policies. The strong emphasis on the integration of gender equality in family roles and responsibilities as a central goal of family policy, is generally described as the Nordic model of family welfare. At present, all Nordic countries have allocated substantial amounts of public resources to extensive family support schemes directed towards facilitating the combination of occupational activity and family obligations for both men and women, and as stimulation to more equal sharing of the responsibility for care and household work within the family.

Undoubtedly, women's integration in the labour market has changed substantially over the generations that have grown up in the Nordic countries in the period after WW II. The productive life courses of women have become more similar to men's life courses, with a continuous participation in paid employment. Women have also become more similar to men with respect to the responsibility for economic support of their families, in two-parent families and as lone parents. In contrast to most other European countries, the Nordic countries are also generally characterized by increasing and relative high total levels of fertility over the period from the mid 1980's to the beginning of the 1990's. Although trends over the later years have diversified the picture of uniform development somewhat, the present fertility level of the Nordic countries still must be considered high in a broader European context (Eurostat 1998). In this respect, the Nordic model of family welfare may be described as a successful endeavour (Skrede 1995).

However, in spite of considerable achievements with respect to a policy directed towards the reconciliation of family life and labour market integration, the present state of the process also indicate that there still is room for considerable achievements with respect to gender equality in the labour market in all the Nordic countries. In spite of close to equal participation rates among younger generations of women and men, the Nordic labour markets are still characterized by considerable gender differences in average working hours and wage levels. Generally, studies both by ECE/UN and OECD have documented that the Scandinavian countries was in the leading division also with respect to occupational and industrial segregation in the end of the 1970's and the early 1980's (OECD 1984, UN 1986). The development in the late 1980's and the early 1990's did not change these structures (Ellingsæter and Rubery 1997). Substantial gender differences remain with respect to average income, also between full time working men and women (Nord 1994, TemaNord 1999). Several empirical studies of wage differences between women and men in the Nordic countries have documented that the highly gender segregated labour market of the Nordic countries is an important factor behind the substantial gender differences (Skrede 1987, Petersen et al. 1993, Asplund et al. 1995). It is well documented, also in a broader international context that female dominated occupations tend to be lower paid than male dominated (see e.g. Blau and Kahn 1992). However, part of the differences in the average wage level of women and men could also be related to the fact that employed women on the average had less labour market resources.

The empirical analysis presented in this paper focus differences in family formation and earned income over the period 1993-1995 by gender and educational attainment (level of highest completed education) for Norwegian birth cohorts born 1961 -1975. The analysis is based on register data (total population) from the tax and income registers including register data on marital status, children and educational attainment. By focusing young generations at the time of their entrance to the labour market, the paper also aims at a closer look at the present state of the process towards gender equality in Norway.

In a life course perspective, young individuals' transitional period from adolescence to established adulthood is very important with respect to shaping individual opportunity structures, for the transitional period as well as for the later life course. Today, not only young men, but also young women meet expectations about structuring the foundations for their economic independence and self

support through occupational choices and labour market participation. Occupational and educational choice, educational activities and attainment are decisive determinants for individual opportunities at the labour market, at entrance as well as later in life. In particular, gender equality with respect to educational attainment is generally regarded as a necessary requirement for achieving gender equality in labour market opportunities in a not too distant future. But this transitional period is also the period of search and adjustment in terms of partner-seeking and family formation, when young individuals of both genders also will meet imperatives and conflicts of balancing double expectations with respect to work and family. Timing of family formation and establishment of family obligations and responsibilities are other important determinants for the individual opportunity structure, in the transitional period as well as later in life course.

With regard to the demographic aspects of women's changed roles integration in the labour market, the focus on the effects of educational attainment on these formative processes in the present young generations of Norway should be of interest also in a broader comparative perspective. Individual educational attainment is generally considered as an important determinant both for young individuals' opportunity structures in the labour market and for the family formation processes. Education is also regarded as a decisive factor for socio-economic change in a broader context. The role of education for the formative processes of the present young generations of Norway is particularly interesting, because the important goal of gender equality by educational level is reached for the cohorts born after 1960. These generations have also to a greater extent than earlier generations benefited from an extensive expansion of the amount of resources allocated to family policy measures directed at the reconciliation of family and working life from the mid 1980's.

## **II. Background: Educational attainment and formation of opportunity structures - socio-demographic change in an intercohort perspective.**

The formation of individual opportunity structures in early adulthood may to a larger or lesser degree be seen as influenced by the individuals and their activities and adjustment at various arenas of life. No one is able to determine completely their own opportunity structures and life chances, but the role of individual agency and young individuals' ability to formulate goals and strategies for their later life course are beyond doubt influential factors in this process. However, individual opportunity structures are not created in an economic and social vacuum. Consequently, to get to grips with the role of educational attainment in the formation of opportunity structures for the present young generations, the analytic approach must consider both individual factors at the micro level, as well as changes in socio-demographic structures at the macro level.

### ***Educational attainment and formation of human capital***

Educational attainment is a key variable in economic and sociological theories focusing on the formation of individual opportunity structures in the labour market. The development of theories of individual human capital formation following the seminal works of Mincer (1958) and Becker (1964) is a well-established tradition in economics. The central assumption of this theory is that the costs of educational activities (among others the income foregone by time spent in educational institutions) are rewarded and compensated by higher wages at the later entrance to the labour market. In sociology, individual educational attainment plays an equally important role in the research tradition focusing on social mobility and formation individual life chances (see for instance Blau and Duncan (1967) and Coleman (1971)). At societal and political level nation states increasingly regard access to education as a resource for social change and modernization, both with regard to development and growth and with regard to shaping in more equal life chances through a broader access to educational opportunity. In this respect, women's access to educational attainment on level with men was regarded as an important aspect of the equalization of educational opportunities in the Nordic countries, also prior to the integration of gender equality as an explicit goal of public policy (Skrede 1994, 1998, 1999b).

Empirical analyses at country level have documented that the gradual increase in women's educational attainment over the generations growing up in the post WW II period, was an important driving force behind the gradual integration of married women in the paid labour markets of the Western industrialized world (UN 1980, 1986). Norway is no exception in this respect, although the strong increase in married women's participation came later in Norway than in the neighbouring Nordic countries (Skrede 1986). In general, empirical studies also indicate that women on the average get positive returns of their individual investments in educational attainment, although findings as earlier mentioned also point towards lower returns of human capital investment for women than for men. However, women's access to education has also contributed to considerable changes in women's opportunity structures in a broader context. The "deferred gratification" perspective with respect to entrance in the labour market, has also relevance for the family establishment process.

***The second demographic transition- changes in family formation with delayed childbearing and increased rates of cohabitation without marriage***

It is well known that the process of family formation and childbearing has undergone major changes in virtually all Western industrialized countries over the last two to three decades. The social phenomenon labelled the second demographic transition is characterized by a transition from traditional family patterns with marriage and children early in the life course, to postponed marriages and later births, combined with a marked decline in the average number of children (van de Kaa 1987). In some countries, particularly the Nordic countries with Sweden as a forerunner, this development is also combined with increasing proportions of couples cohabiting without formal marriage, both prior to formal marriage and increasingly also as more permanent alternative to marriage<sup>1</sup>. The timing of the changes varies from country to country, but the tendencies towards deferred childbirth and later marriage are by now present in all European countries, whereas the rates of cohabitation prior to marriage or as alternative to marriage still varies considerable at country level (Klijzing and Macura 1997). The growth in women's educational attainment and women's increased participation in the paid labour market, also in periods with small children, have taken place parallel to the demographic changes.

Different theories and perspectives to explain these socio-demographic changes tend to assume a linkage between the growth in women's educational attainment and the demographic changes. Theorists do not however, agree on the closer relationship between the processes. According to Lesthaeghe (1995,1997) the second demographic transition has been explained from three angles: (i) via the theory of increased female autonomy (Becker 1981), (ii) via the theory of relative economic deprivation (Easterlin 1976, Easterlin et al. 1990, 1991) and via (iii) the theory of ideational shifts (e.g. Preston 1986; Lesthaeghe and Meekers 1986 ; Thornton et al. 1987; Lesthaeghe and Surkyn 1988; Bumpass 1990). Regardless of angle however, increased educational attainment for women is integrated directly or indirectly in the theories.

Analyses from different countries also indicate that women's increased educational attainment did contributed to the demographic changes. At the Nordic level, closer analyses of the Norwegian Family and Occupation Survey from 1988 (Blom, Noack and Østby 1993)<sup>2</sup> and the Swedish Fertility Survey 1981 (Hoem and Hoem 1988) show that increased educational attainment did play an important role in

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<sup>1</sup> Data from the Norwegian Medical Birth Register indicate that the strong growth of births for unmarried mothers from the mid 1980's are explained by the growth in cohabiting mothers. At present close to fifty percent of annual births are by unmarried mothers. The share of mothers not reporting that they are cohabiting with the father at the time of the birth has remained relatively constant around ten per cent of the annual number of births from the late 1980's to the mid 1990's (Noack 1996).

<sup>2</sup> The Family- and Occupation Survey 1988 is a retrospective study of single birth cohorts of women (1945, 1950, 1955, 1960, 1965 and 1967) and two cohorts of men (1945 and 1960). This survey was the first one carried out with links to the Family and Fertility Survey Research Programme collaboration initiated by the Economic Commission of Europe (ECE). Cf. Noack and Østby (1996) for a presentation of the FFS programme and the Standard Country Report for Norway.

both countries. There was however, also a tendency towards postponing first birth also among women with less education. In this respect, the changes were more radical than would be expected from the increased educational attainment of the young female cohorts born in the 1950's and later.

The introduction of new and female-administered birth control technology in the 1960's (the Pill and the IUD) was beyond doubt an important factor for the timing of the transition process at country level, together with increased educational attainment in the birth cohorts of women born in the early 1950's. Norway was not a particular early country in terms of transitional shifts, at least in a Scandinavian context. The tendencies towards postponing marriages and first birth did not appear at cohort level until the birth cohorts from the early 1950's started this process in the early 1970's, whereas the corresponding tendencies according to Lesthaeghe appeared in Sweden already in the 1946 birth cohort (Lesthaeghe 1995).

However, seen in a longer time perspective, the tendency for well-educated women to defer births was present also in earlier cohorts of Norwegian women. Analyses of the Norwegian Fertility study of 1977 indicate that the process of postponing first birth started among well-educated women of the cohorts born in the 1940's. This was before the new reproductive technology was generally available, and at a time when the median age at marriage and first birth still were falling in the birth cohorts that these women belong to compared with older birth cohorts (Noack and Østby 1981, Skrede and Sørensen 1983).

#### ***Deferred gratification and increased autonomy***

In this respect, the development for well-educated women falls in line with processes that also are present for well-educated men. With men's longstanding lead with regard to educational attainment, the development for men may also be studied in a longer time perspective. Natalie Rogoff Ramsøy (1978) discusses an observed deferred gratification pattern among well-educated men in a survey of three cohorts Norwegian men (born in 1921, 1931 and 1941 respectively) in a broader time perspective. She finds support of a similar pattern towards deferred gratification also among young women and men with relatively good economic standing, in the writings of Eilert Sundt from the 19th century (Sundt 1855, 1857, reprinted 1967, 1976) as well as in Easterlin's theories (Easterlin 1976). In this respect, Ramsøy sees the tendencies towards deferred gratification as a means to ease the life cycle squeezes that early marriages and early childbirth often led to for the young starters.

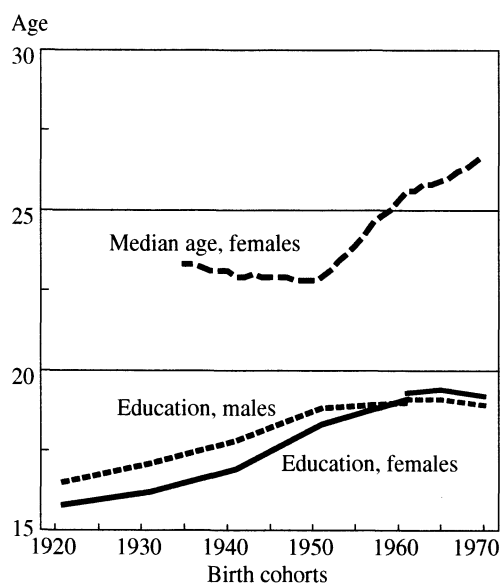
The deferred gratification pattern is also a relevant approach to understand the relationship between increased educational attainment for women and delayed births, at least in societies where women are allowed to combine childrearing with paid work in the labour market. In principle, women born in the 1930's and 1940's cohorts were allowed this possibility. The family policy to support a labour market career for women with small children, was not however, present to any great extent at the Norwegian arena until the late 1970's, and even more so from the mid 1980's (Skrede 1994, 1998, 1999b). For the well-educated women from the 1930 and 1940 cohorts postponement of childbirth may be seen as a "virtue of necessity". By postponing the childrearing period to later phases of the life course, the chances for some gains in terms of increased individual autonomy were larger. Completed education increased the possibility for a stronger foothold in the labour market and prospects of higher income, which in turn would increase the possibility for combining childrearing and paid employment, for instance by hiring help for child care.

#### ***Changed opportunity structures in younger generations***

The increase in women's educational attainment and the changes in the family establishment processes, in particular the postponed births have changed the opportunity structures of young generations of women compared to their predecessors. These changes are however, also an important aspect for the analysis of differences *within* the present generations of young women. Figure 1 shows that the median duration of the transitional period between adolescence and family establishment has increased considerably at cohort level over the decades following the transitional shift of the cohorts born in the early 1950s.

Compared to the opportunity structures for older generations of women, the present young generations of Norwegian women have better possibilities to form their opportunity structures and to lay a solid foundation for a combination of family responsibilities with continuous participation in the labour market. The possibility for such combination is facilitated through the extensive expansion of family policy measures directed at facilitating such combination, such as extended rights to parental leave at childbirth and increased supply of day care facilities of children. An analysis of data from the Norwegian Family and Occupation survey from 1988 and similar Finnish data collected in 1989 indicated that the extension of family policy measures during the period covered, contributed significantly to increased labour market participation. There were also indications that the extensions of the maternal leave had positive effects on fertility in the two countries, especially on higher order of birth (Rønsen 1998). This analysis however, did not include data from the period with the substantial extensions of the leave in the late 1980's and the early 1990s<sup>3</sup>.

**Figure 1 Median age at first birth for female birth cohorts 1935 -1970 and estimated average duration of completed education by gender for selected birth cohorts born 1921 -1970**



Education: Age-standardized estimated average duration of highest completed education (compulsory schooling included)

Sources: Lappegård 1998, Populational and Housing Census 1990, Register of income 1995 (for birth cohorts 1961-1970), Statistics Norway

Figure 1 also illustrates that the important goal of gender equality of education is reached within the present young generations. Together with incentives for a larger involvement by the father (cf. note 3), equality of educational attainment is expected to contribute towards more equal parental sharing of family tasks and responsibilities. Traditionally, the presence of children has affected the mothers' labour market careers more than the fathers'. As long as mothers on the average had lower educational attainment and corresponding lower labour market value than fathers, both economic rationality and traditional gender roles worked towards reduced labour market activity by mothers rather than fathers.

<sup>3</sup> From 1987 the total duration of the parental leave at childbirth has been extended several times. With the 1993 extension (from 33 weeks to 42 weeks with income replacement at approximately 100 per cent (up to a given level of income)), four weeks of the leave was reserved for the father. See Koren (1997) for details.



Consequently, given the recent development towards gender equality of education and the extended family policy reforms directed towards facilitating the reconciliation of family obligations and labour market participation for parents of both genders, it was reasonable to expect that intracohort gender differences in labour market integration and earned income should be fairly low in the young birth cohorts 1961-1975, where individuals of both genders still are at an early stage of their labour market career.

***Increased diversification and individualization:***

On the other hand, there are also trends that may point towards larger, but less predictable differences within the present young generations than for older generations. Sociologists concerned with societal trends described as the reflexive modernity, with Giddens (1991) and Beck (1992) as the most prominent contributions, challenge the theories of life course strategies and educational attainment as investment for future gains in the labour market, as too linear and narrow to capture essential features of contemporary societies. The theories on the new and reflexive modernity emphasize trends towards larger individualization of life styles, where traditional pattern of class, family and gender may have less importance, and where traditional investment in educational attainment may give small gains in a risky labour market.

In some aspects there are definite signs of larger individualization and increased heterogeneity within the present young generations. The increased duration of the transition phase from adolescence to family establishment is by itself an indication of such individualization. The increase of the median age at first birth at within the present young generations compared to the generations from the early 1950's is considerably longer than the average increase in educational attainment over these cohorts (cf. figure 1).

The development of European labour market structures over the last decade also give reason to some doubts about prospective returns to individual investment in individual human capital, and has led to questions about whether the average return will diminish or be reduced for the generations who are presently under education. The high rates of youth unemployment and difficulties of young people to get foothold in the labour market are indications of societies where increased duration of the transitional phase for many may be more a result of necessity than of choice. Although the general level of youth employment on the average have been lower in Norway than in most other European countries, by Norwegian standards the level of youth unemployment has been high from the end of the 1980's to the mid 1990's. Empirically, there is no doubt that the strong influx of young people in the universities and colleges in the early 1990s, to some extent was related to a difficult labour market with reduced job opportunities for young people (Skrede and Ryen 1996 a and b).

In this respect, it may be reasonable to expect that future individual income return of educational attainment at a particular level may be lower for the cohorts presently under education, than older cohorts. On the other hand, with reduced job opportunities for young people with low educational attainment, it is reasonable to expect that individual formation of human capital will be even more important for the present young birth cohorts than older cohorts. Given previous changes in the Norwegian family formation over the later decades, it is reasonable to expect that educational attainment and educational activities also continue to be decisive determinants of the family formation process.

### III. Empirical analysis: Design, data and definitions

Results from the project "*Life chances in the melting pot*"<sup>4</sup> provide a good opportunity to survey the state of the process towards gender equality in the Norwegian society with respect to young women's integration in the labour market and their relative position compared with young men from their own cohorts, when controlled for education and family status. It also gives room for an preliminary analysis at macro level of family formation by educational attainment, which may shed some light on the extent that earlier observed trends towards differential family establishment and postponement of first birth are stabilized or reinforced within the present young generations of Norway.

The analysis is based on register data from the Income and Tax Register, supplemented with data from the Education Register linked at individual level. This register comprises the total population from the cohorts in focus (born from 1961 to 1975) with residence in Norway by 1 November in each of the three years of observation (1990, 1993 and 1995). One of the advantages of complete population data compared to sample survey data is that population data remove possible sources of error and uncertainty linked to sample bias and differential response rates. Data for complete populations also allow focus on groups that are too small to be adequately represented in ordinary survey data, like single cohorts and sub groups within cohorts. Especially with respect to monitoring changes in social structures and processes, cohort analysis of data for consecutive years is a powerful tool also for fairly simple descriptive analysis by allowing both intercohort and intracohort analysis. On the other hand, analyses of register data also have limitations with regard to data content and definitions. The analyses will be limited to data and definitions that may be extracted from the categories given in the register, which not always are categories that would have been chosen to represent particular variables in a similar analysis based on survey data.

The analysis reported here focus distributions at aggregate level for 1993 and 1995, which also allow for a closer focus on the intracohort development with age. By this type of approach it is possible to examine to what extent intracohort differences in income distribution by gender and marital status can be related to a) intracohort gender differences in (formal) educational attainment or timing of educational activities, b) intracohort differences in timing of family establishment by educational attainment and gender, and c) differential income returns to education by gender. It is not possible to report the detailed statistical distribution in this paper. The analysis for 1993 was reported in a preliminary version in Skrede and Ryen (1997). Readers of Norwegian may also consult Skrede (1999a, 1999c) for a closer documentation of the empirical results.

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<sup>4</sup> The project "*Life chances in the melting pot*" analysed status and development of economic living conditions and activities over the period 1990 to 1995 in present generations of young people in Norway. The purpose of the project was twofold:

- i) to describe status and development of economic living conditions and activities over the period 1990 -1995 for birth cohorts 1961 - 1975. The project aimed at revealing consequences of the observed shifts in activity patterns of present generations of young people in their twenties, compared with preceding generations in corresponding phases of the life course (increased participation in educational activities, more unemployment, less participation in paid work), with respect to income development and distribution, relative importance of economic support from various types of public transfers and benefits (educational grants and loans, unemployment benefits, social assistance etc), as well as family support.
- ii) to analyse longitudinal changes in socio-economic structures and processes that contribute to differences in opportunity structures for young individuals persons in the transitional period from adolescence to (established) adulthood. The main focus was on the relative importance of variables related to i) educational attainment ii) gender and iii) periodical characteristics for birth cohorts that grew up in different periods after WWII.

The project utilized data from different sources. The main data sources were register data from the Tax and Income Registers 1990,1993 and 1995, supplemented with survey data from the Level of Living Surveys 1991 and 1995.

## Data and definitions

**Income.** *Gross income* (Norwegian: «*toppskattgrunnlag*») is used as measure of income per (tax) year. In addition to income from work this income concept also include social security income (pensions and taxable income substitute). For the young cohorts focused in the present analysis the most important non-market income included will be unemployment benefit and the transitory benefit (social security income for lone parents)<sup>5</sup>. We decided to use gross income as the most adequate measure of income from work under an extended definition of paid work. Although the transitory benefit and other forms of income substitute from National Social Insurance are not income from work in the labour market in a strict sense, the existence of such social security benefits for care work or as market-income substitute have an impact on the opportunity structure and income potential of possible recipients. From this perspective, substitutes of labour market income should be included with income from work.

Income is measured per year. Unfortunately, the Tax and Income Register do not contain information about average hours of work per income year. This implies that in the present analysis integration in the labour market is measured only by size of gross income. A fairly large proportion of the Norwegian work force work part time. Among young people still under education, the proportions with part time work are high for both genders, whereas grown-up women have a considerable higher proportion in part time work than grown-up men (Statistics Norway 1998a) do

**Educational attainment** is measured by educational status or educational activities by 1 October of income year. This register contains information about the level and type of completed education, where persons are registered by highest completed education and by on-going education activities. In the present analysis persons that are registered as active in educational activities (as pupils or students) are classified separately by type of educational activity, whether it qualifies for an education at secondary level or at university level, while all others are classified by completed education. We use only information about educational *level/status* (collapsed to four categories) and not about *type* of education. See Figure 2; note 1 for detailed definition of educational categories. On-going educational activities may also include qualifying courses organized by employment exchange agencies (where persons participating will qualify for unemployment support).

### ***Family formation - indicators of the state of the process at cohort and individual level***

**Marital status** is defined by formal marital status by 1 November of income year, as in the formal tax report. By combining the rates for married and previously married (divorced and separated) at cohort level, we also get the *cohort state of transition to first marriage* (ever married) by November 1 of that particular year. We have no possibility to obtain the share of each cohort living in cohabiting unions by the corresponding time of observation. Neither are we able to distinguish former cohabiting persons. We know however, that both cohabiting persons and previously cohabiting persons may be included in the share unmarried or in the share previously married (dependent upon their formal marital status).

### ***Parental status***

Register information about recipients of transfers and tax subsidies related to support and care of children by November 1 of income year is used as criteria for parental status. For women we use information about whether not they have received child benefit as measure of parental status, whereas the corresponding criteria for men is whether they have received tax deduction for child support (of children that are living in the same household - i.e. own children or step-children). These measures

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<sup>5</sup> This benefit was first established for unmarried mothers (1965) and extended to divorced and separated single parents in the early 1970's. The benefit is limited to single parents that have at least one child who has not completed third grade of compulsory school. Until 1998 this benefit gave single parents an option to remain outside the labour force until the youngest child had reached approximately ten years of age. From 1.1. 1998 the normal duration of the transitory period is limited to three years, alternatively five years under education.

give valid information about family obligations by income year. They are in this respect relevant control variables for the analyses of gender variation in earned income according to parental status and educational attainment.

### ***Transition to parenthood- gender differences***

Intracohort differences in parental status according to age within educational groups will also to some extent reflect intracohort differences in transition to parenthood according to educational level. We must however, take into account that individual parental status by income year is a less valid criteria for individual parity status in terms of children ever born, than marital status married and previously married taken as criteria for ever-married, as tax status as non-parent in a particular year does not exclude the possibility of earlier births for women or registered fatherhood for men.

However, in this respect the share of *women receiving child benefit* is a relative reliable estimate of the (biological) mother share of the female cohorts<sup>6</sup>. The child benefit for a particular child is a direct transfer that normally is paid directly to the mother, as long as the child is under 16 and living with the mother (or with mother registered as main care person). The child benefit may be divided among parents not living together if they have joint custody for a child, but in that case both parents will be registered as recipients. This implies that mothers will be eligible for this transfer as long as they have at least one child under 16 in their care. A priori, we assumed that the recipient shares of the female cohorts in focus would differ relatively little from the mother shares, as the share of small children not living with their mothers is relatively low. A later study of timing of first birth of the full range of Norwegian female cohorts born from 1935 to 1978 based on data from the birth register has confirmed this assumption (Lappegård 1998). There are close correspondences between the mother shares and the shares of child benefit recipients for cohorts that could be compared at the same age.

The *tax deduction for child support* is a deduction in tax, with fixed rates according to number and age of children (under 18 years of age). It is divided among the parents if they are living together or have joint custody with shared support of the child. It is *not* a measure that may be used as an indicator of biological fatherhood, even if the latter is restricted to *registered* (declared) fathers. Children supported may also be stepchildren, whereas parents that do not live together with their children (or have joint custody with shared support) will not benefit from the tax deduction, even if he or she (as required by law) contributes to the support of the child through alimony or paternity order. The alimony or paternity order paid will however, be deducted from the contributor's income prior to taxation and be subject to taxation on the recipient's hand (who also will receive the fixed deduction for child support). However, even if tax deduction to men for child support cannot be taken as indicator of biological fatherhood, it is still an interesting variable in the context of family establishment and prevailing family patterns, as it instead may be taken as an indicator of selection to *social fatherhood* (Skrede 1999b, 1999c).

## **IV. Transition processes in early adulthood**

### ***IV.1 Building human capital by cohorts - young women at the lead***

The development of average duration of education by gender in Figure 1 above indicate that the educational attainment of young women exceed men's within all the cohorts in focus. The detailed distributions of educational attainment within male and female cohorts by October 1, 1993 confirm that gender equality of educational attainment by educational level was more than reached within all cohorts in the analysis (Skrede and Ryen 1997, Skrede 1999a, 1999b). The distributions indicate that the gender differences in income observed for 1993, cannot be ascribed to gender differences in the human capital formation process, at least when human capital is measured by educational *status/level* (corresponding to years of schooling).

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<sup>6</sup> Adopted children are treated as biological children; both in the Tax and Income register and the Birth register. This is appropriate as long as the focus is on the social effects of motherhood.

The shares with completed university or college education (educational status IV and III) were *higher* for females than for males in all birth cohorts 23 years and older by 1993. However, within all cohorts men have considerable higher shares with educational attainment at educational status/level II (completed secondary school or vocational education corresponding to secondary school level). Consequently, within all cohorts the two genders have about equal shares with no qualifying education above compulsory level.

These distributions also show that in spite of the strong growth of young people seeking education at college and university level during the 1980's and the early 1990's, the majority of the older cohorts stopped with an education at secondary school level or lower. For instance, by 1993 19.4 per cent of the men and 24.1 per cent of the women in the 32 year old 1961 cohort had reached an educational attainment at college or university level, whereas respectively 37.5 per cent (men) and 39.7 per cent (women) of this cohort had *no* qualifying education above compulsory level.

The distributions also confirm that for the present young generations, the building of human capital is a long and time-consuming process. It is not surprising that large shares of the younger cohorts still are under education in their early and middle twenties. For instance, by 1993 forty percent of the 1971 cohort was under education at age 22 and twenty percent of the 1969 cohort at age 26. However, considerable shares of the older cohorts are still under education in their late twenties and their early thirties. By 1993, 6.2 per cent of the men and 7 per cent of the women of the 1961 cohort were under education, and the corresponding percentages increase considerable for younger cohorts. By and large, women tend to be in lead also with respect to the share of the cohorts still under education, but the gender differences here tend to be relative small both for the younger and the older cohorts.

With considerable parts of the cohorts reported to be under education, observations from a short time interval of two years is not enough to draw definite conclusions with respect to gender differences in the formation of human capital over the life course. It is a realistic assumption that some of the young persons reported to be under education in 1993, probably will have to give up their goals, and others will stretch their educational activities over a long time span. Consequently, we must expect that the cohort distribution of educational attainment continue to change over the total life span for a cohort. For practical purposes however, the catch up rates at intracohort level from 1993 -1995 will give some information about whether this process tends to work more rapid for men than for women.

So far, data at intracohort level indicate that men and women tend to catch up with their educational activities at approximately equal speed, and that young women tend to maintain their lead with regard to educational attainment both in the younger and the older cohorts. From 1993 to 1995, men of the oldest cohort (born 1961) increased their share with education at college level or higher from 19.4 per cent to 21.1, while the corresponding shares for women rose from 24.1 per cent to 25.7 per cent. The catch up processes take place at a more rapid speed within younger cohorts, but with approximate equal speed for women and men belonging to the same cohort. For instance, women born in 1966 increased their share with education at college or university level from 20.9 per cent in 1993 to 25.3 in 1995, while the corresponding change for men in this cohort was from 15.1 to 19.5 per cent. Moreover, the share of the 1966 cohort reported still to be students (at college level or higher) by 1995 was slightly higher for women than for men (5.3 per cent compared to 5.0). These shares also indicate considerable change at intercohort level, when a younger cohort is compared to an older one at the same change. At age 29, men of the 1966 cohort have a share with education at college level or higher, comparable to the share of men in the 1961 cohort at age 32 (19.5 per cent and 19.4 respectively), while women from same cohort already have a considerable higher share with high educational attainment than the share for women in the 1961 cohort at age 32 (respective shares of 25.3 and 24.1).

These examples document that young Norwegian women to day have gained the lead with respect to educational attainment measured *by length* of education. However, in a broader perspective, this does not mean that full gender equality of education is achieved for these cohorts. Similar to the Norwegian labour market, the Norwegian educational system is also characterized by a very strong

gender segregation, both in terms of educational specialization of pupils, students and graduates (Statistics Norway 1998a). These structural characteristics are to a large extent shared also by the other Nordic countries (Nord 1994, TemaNord 1999). The strong increase of female students at universities and colleges over the last two decades has not led to substantial changes in the level of segregation.

#### ***IV.2. Educational attainment and family formation - deferred gratification or cultural change?***

##### ***Who marries early?***

With increasing shares of young people starting their family establishment by cohabiting without formal marriage and with close to fifty percent of present birth cohorts born by mothers that are not married, marital status by age is a less valid indicator of the timing of family establishment than it was a couple of decades ago (cf. note 1). However, entrance into marriage is still an important part of the family establishment process, and it is of particular interest to see whether earlier observed differentials in age at marriage by educational attainment still are present in younger generations of women and men. Figures 2a and 2b show the state of the transition process to marriage in each birth cohort by 1993, measured by the share of women and men respectively that had married by the end of the year (with marital status married or previously married by 1 November 1993) by age and educational status/level.

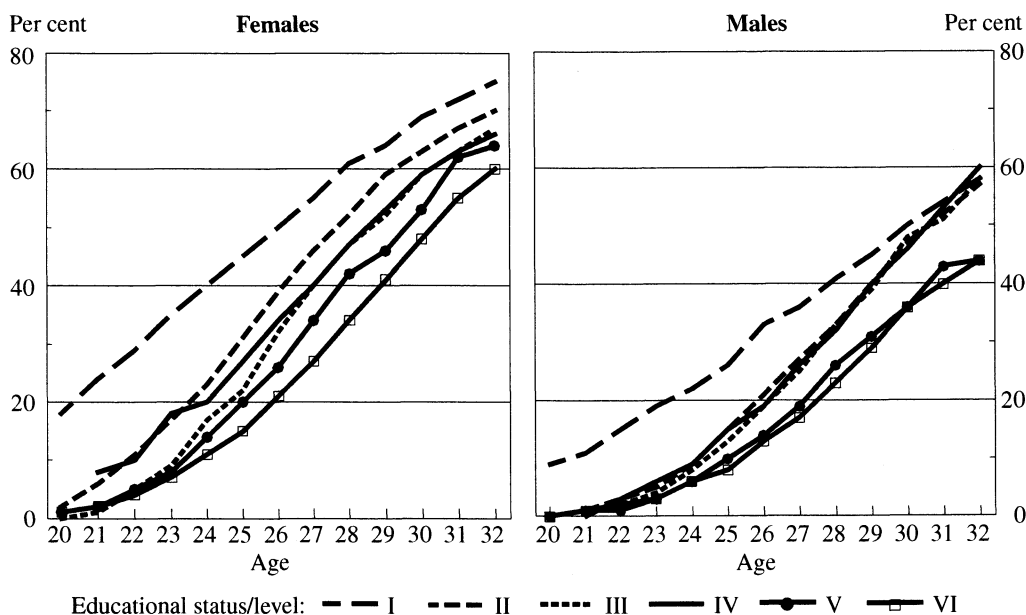
By and large, figures 2a and 2b show that young people on their way up in the educational system still postpone marriage to a greater extent than young people with low educational attainment. The proportions ever married by 1993 are generally lower for the proportion of each cohort still under education in 1993, than the corresponding proportions for the cohort shares *not* under education, for males as well as females. In the birth cohorts below 25 years of age in 1993, total cohort transition rates to marriage to a large extent are accounted for by relatively high marriage rates among young people at educational levels I and II, whereas college or university students and young people with completed education at these levels, to a large extent remain unmarried at this stage of life. In older cohorts, however, differences in marriage rate according to educational attainment decrease considerable with age for persons not under education in 1993.

##### ***Catch up and convergence***

The tendency towards more equal ever-married rates with increasing age is most pronounced for men with completed education. While young men who have finished their schooling at compulsory level definitely take the lead in marriage rates for cohorts in their early twenties, men with longer education catch up quickly in the cohorts close to thirty and older. Among the 32 year old males in the 1961 cohort, the proportions ever married in 1993 were approximately at same level in educational groups I to IV, with the highest ever married rate among men with completed education at university level (level IV).

There is also a tendency towards converging ever-married rates with increasing age for the female birth cohorts. Among women, however, this convergence is most pronounced for the proportions with completed education at university or college level and the proportion still under education at secondary or college level (educational group V). Women studying for a university degree, have considerably lower ever-married rates at all ages above 25 than women with completed education at levels III and IV. The differences between the ever married rates for women under education respectively at university level, second stage and at lower levels are also larger than the corresponding differences for men. In this respect - the data indicate a more pronounced tendency for well-educated women to defer gratification (in terms of marriage)- than men, if we control for the fact that men - irrespective of educational level-on the average marry 2-3 years later than women of the same age.

**Figure 2. Share of birth cohorts ever married<sup>1</sup> by age, gender and educational status/level<sup>2</sup> by 1 October, 1993. Birth cohorts 1961 - 1973**



<sup>1</sup> Marital status married or previously married by 1 November 1993. Previously married include widows/widowers, divorced and separated. By definition the share married and previously married also include persons living or previously living in registered homosexual partnerships.

<sup>2</sup> Educational levels:

- I: Not under education in 1993, highest completed education at compulsory level or short vocational training (equivalent to 9-10 years of schooling). Include also education not reported.
- II: Not under education in 1993, highest completed education at secondary school level or vocational school certificate (equivalent to 12 years of schooling).
- III: Not under education in 1993, highest completed education at college or university level, first stage (equivalent to 13-15 years of schooling).
- IV: Not under education in 1993, highest completed education at university level, second stage or higher (equivalent to at least 16 years of schooling).

V-VI: Under education in 1993

V: At secondary or vocational school level or at college level.

VI: At university level (at least second stage)

Source: Register of income 1993, Statistics Norway

One should note however, that the shares of Figures 2a and 2b are measured by educational status in 1993. As referred above, considerable shares of the birth cohorts are still under education in 1993 and the intracohort distribution of educational attainment will be subject to change when measured at later stages of the life course. In theory, shifts in educational attainment may also lead to changes in the intracohort differences in ever-married rates by educational attainment. However, corresponding distributions from 1995 show that 1995 reinforce trends emerging by 1993 in the older cohorts, for men as well as for women.

### ***Gender differences in nuptiality- well-educated men receive their gratification***

Within the male cohorts the catch up process strengthens the tendency towards reversed social differences by educational attainment from 1993 to 1995. In the older cohorts the catch up from 1993 to 1995 in the ever married rates is higher for men with completed education at university or college level, than the corresponding catch up for men with educational attainment at secondary or at compulsory level. For instance, at cohort level the ever married rate for men in the 1961-cohort increased by 3.9 percentage points from age 32 to age 34 (from 56.9 to 60.8), while the rates for men in educational groups III and IV increased by respectively 5.1 and 4.5 percentage points. Among the cohorts 30 years or older in 1995, men in educational group IV (completed education at university level) have the highest ever married rates in all cohorts (Skrede 1999c).

While the development from 1993 to 1995 for the older male cohorts points towards increasing social segmentation by educational attainment, the trends for the female cohorts strengthen the tendency towards converging ever-married rates by age. At age 34, the differences between the ever-married rates by educational attainment in the 1961 cohort are smaller than at age 32. The ever married rate increased by 3.4 percentage points to 69.4 for women with educational attainment at university level (group IV), while the corresponding increase for women with low educational attainment was 1.1 percentage points (to 76.1) and 1.9 percentage points for the total cohort rate (to 72.9).

The development of the ever married rates by age from 1993 to 1995 for men and women with educational attainment at university level, indicate a more rapid catch-up for men than for women. At this stage of analysis we only have access to aggregate data for individuals by gender. Consequently, there is no possibility for definite conclusions about differences in nuptiality by educational attainment and gender. However, under the assumptions i) that there are a strong tendency towards educational homogamy, and ii) that the average age difference at marriage between men and women within each educational group equals the present average age difference at marriage for unmarried women and men (2.6 years), the ever-married rates for women with high educational attainment (educational group IV) in the cohorts around age 30 in 1995 are *lower* than would be expected from the ever-married rates for men in educational group IV in the relevant cohorts. In this respect, the tendency that well-educated women defer marriage to a larger extent than well-educated men do appears strengthened by the intracohort development from 1993 to 1995<sup>7</sup>.

#### ***Further postponement and increasing intracohort dispersion***

Despite the strong tendency to catch up on postponed marriage rates with age at intracohort level in the older cohorts, the general tendency from 1993 to 1995 at *intercohort* level is a further delay of the formal marriage in the younger cohorts. For instance, by age 30 the ever-married rates of women and men in the 1965 birth cohort were respectively 58.2 and 41.9 percent, compared to 63.0 and 46.9 per cent for the 1963 cohort at the same age. There is also a marked intercohort reduction of ever-married rates by this age within *all* educational groups. In this respect, it is safe to state that the process towards postponed marriages continues in the younger cohorts. However, it is also safe to state that entry into matrimony still prevails as an important part of the family establishment process. When close to three fourth of the females and more than sixty per cent of the males in the 1961 cohort had married at least once by the age of 34, marriage can hardly be called a marginal family form. However, like other important transitional processes in early adulthood, entering matrimony is increasingly time-consuming at cohort level. The time dispersion between the early starters and those who catch up at a relatively mature age is increasing, and interact with the dispersion process created through the formation of human capital through educational activities.

To complete the picture of increasing dispersion and social differentiation by educational attainment, it is necessary to take account of the fact that the family formation process also is affected by *marriage dissolution*. Like other West-European countries Norway has experienced a strong increase in marriage dissolution rates over the last three decades. The increase in divorce rates have been particularly strong for marriages of relatively short duration (4 - 8 years) (Mamelund, Brunborg and Noack 1997). The early grooms and brides from the cohorts born after 1960 are no exception in this respect. By age of 32, 12.4 percent of the men and 14.0 of the women of the 1961 were separated or divorced. This corresponds to roughly one in five of those who have married within this age, irrespective of gender. The majority of those who have divorced or separated have relative low educational attainment. Measured by the shares of the different educational groups that had married by age 32, respectively 22 and 21 per cent of women and men with educational attainment at secondary

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<sup>7</sup> It might be argued that these differences may be related also to the fact that the share of with educational attainment at high level is higher for females than for males. On the other hand, female birth cohorts are on the average considerable smaller than male cohorts of the same age (Skrede 1999c).



level or lower (educational groups I and II) had divorced, while the corresponding shares were 10 and 7 per cent for women with education at college or university level (educational groups III or IV).

These differences in divorce rates by age 32 must be related to the differential marriage rates by age. As shown above, young women and men with short education tend to marry earlier in the life course than their contemporaries with longer educational attainment do. Divorces rates must be compared by duration of marriages, and it is a realistic assumption that the ever-divorced rates of the well educated will increase with increasing age and duration of marriage. Nevertheless, this cannot change the effect that the differential divorce pattern in these stages of the life course also contribute towards increased differentiation of the family formation process in early adulthood. In this respect, it is also important to note that neither the increased propensity to start the family establishment by cohabitation nor the higher risk of break up of cohabiting unions observed by Jensen and Clausen (1997), seem to have removed the high risk of divorce of early marriages that characterized the marriages formed in the 1970's and the early 1980's (Kravdal and Noack 1998). So far, we may at least conclude that these findings document the need for closer analysis of the effects of educational attainment on family formation process at micro level within these cohorts, with parallel approaches for cohabiting unions and marriages. At this stage of analysis it seems more relevant to describe the effects of the increasing dispersion of the family formation process by educational attainment, more as a increased variation of class/culture oriented life styles within these cohorts than as increasing deferment of gratification on behalf of the well-educated.

#### ***IV 3. Entrance into parenthood - differences by educational attainment, gender and age***

With the present high levels of children born to non-married but cohabiting parents, age at entrance into parenthood is a better indicator of timing of family establishment than age at marriage. Responsibility for children is also a better indicator of family obligations than marital status. The information on transfers of child benefit and tax subsidies for children from the Tax Register contains relevant but not perfect information about parental status by income year, since we are not able to distinguish between parents sharing their responsibilities with the other parent (or an acting parent) and parents living as single parents. To some extent however, intracohort differences in parental status according to age within educational groups for women and men respectively, can be used to shed light on intracohort differences in transition to parenthood by educational attainment and gender.

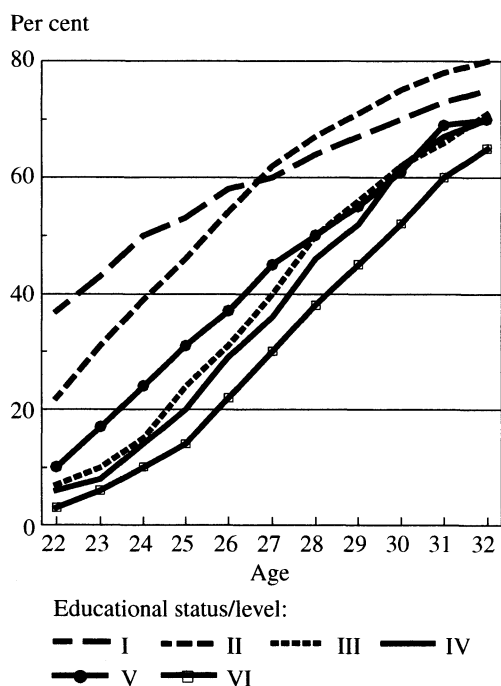
In this respect, data from the Tax and Income Register provide a more adequate indicator for women than for men. As explained earlier, there are good reasons to assume that the share of women receiving child benefit is a reasonably good estimate for the (biological) mother share of the female cohorts at different ages. Consequently, it is reasonable to assume that intercohort differences in the age distribution of young women that received child benefit by educational attainment, also provide reasonable good estimates for first birth transition by age for women in different educational groups.

For men, the Tax and Income Register do not give access to information that can serve as indicator for entrance into (biological) fatherhood. However, as explained in more detail above, the information about tax deduction for support of children give information about the selection to "social fatherhood". This is also an interesting indicator of the family status of men. We must however, bear in mind that the shares of men receiving this deduction is a more selected group of fathers than the share of mothers receiving child benefit, in terms of entrance into parenthood by age for men and women respectively.

#### ***Continuing postponement of first birth - well-educated women catch up after thirty***

Figure 3a show the share of women in each birth cohort that received child benefit in 1993 by age and educational status/level by end of 1993. By and large, figure 3a show a consistent pattern with earlier findings from the Family- and Occupation survey for older birth cohorts from the first "postponing generations". Young women on their way up in the educational system postpone their entrance into parenthood to a greater extent than young women with low educational attainment do.

**Figure 3a. Share of female birth cohorts receiving child benefit in 1993 by age and educational status/level<sup>1</sup> by 1 October 1993. Birth cohorts 1961 - 1971.**



<sup>1</sup> Educational status/level, see note 2, figure 2

Source: Register of income 1993, Statistics Norway

With age, however, there is a convergence of the shares for different educational groups. The differences in the shares of women receiving child benefit in the 1960 cohort at age 32 are relatively small. Women with educational status/level II (secondary or vocational school certificate) have the highest share of mothers with 80 per cent, whereas women still under education at university level (high) have the lowest share with 65 per cent, and the total cohort share is 75 per cent. When we compare the mother shares at different ages with corresponding shares for the cohorts of women represented in the Family and Occupation survey from 1988, the development confirms that the younger cohorts have continued to postpone the first birth.

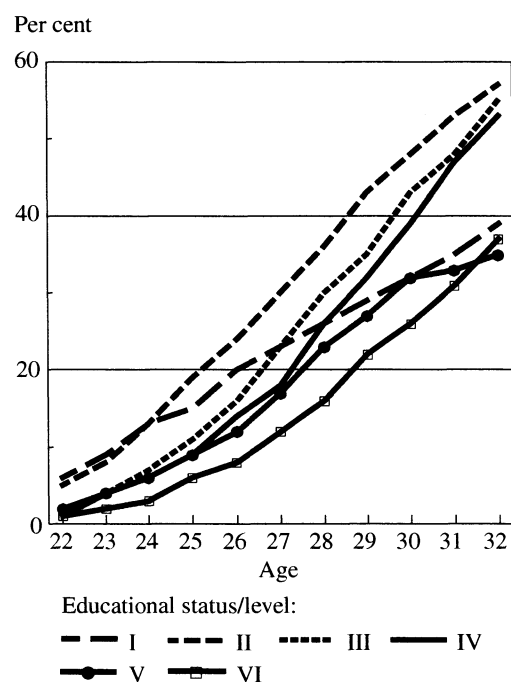
At the age of 32, 84 percent of the women in the 1955 cohort had given birth to their first child (Blom, Noack and Østby 1993). This is close to ten percentage points more than the corresponding age rate for the six year younger women in the 1961 cohort in 1993. Similarly, 59 per cent of the 28 year old women in the 1965 cohort had given birth to their first child, compared with 66 per cent of the 1960 cohort at the same age. At the age of 23, 32 per cent of the women from the 1965 cohort had given birth to a child according to the Family and Occupation survey, and this is also considerably higher than the corresponding share in 1993 for the 1970 cohort at age 23 (25.6).

Data from 1995 however, indicate a considerable catch up of remaining differences in mother shares by educational attainment in the older cohorts after 1993. By age 34, the mother share of the 1961 cohort had increased by 4.4 percentage points to 79.3 at cohort level, while the mother shares of women with university or college education (educational groups IV and III) increased by respectively 5.9 and 5.6 percentage points to 76.3 and 76.2 per cent. These rates are still lower than the rates for women with education at compulsory or secondary level (respectively 78.6 and 83.6 per cent), but the

intracohort differences are considerably smaller than at age 32. This holds also when women still under education are included in the comparison at age 34 (mother shares of 76.7 and 73.9 per cent respectively for educational groups V and VI).

Unlike the intercohort development of ever married rates, the intercohort development of mother shares between 1993 and 1995 for the older cohorts indicate that the younger cohorts also *may* catch up with their postponed births in their thirties, at least compared to the development of mothers shares at ages after thirty in the 1961 cohort. So far, there are only observations available for a few cohorts that may be taken as support of this tendency, but the cohort catch up at ages 32 and 33 for the 1962 and 1963 cohort, indicate that the 1995 mother share of the 1961 cohort at age 34 is well within reach for both younger cohorts. At age 32, the mother share of the 1963 cohort is slightly higher than the corresponding share of the 1961 cohort in 1993 (75.4 and 74.9 respectively), while the mother share of the 1962 cohort at age 33 is 77.3 per cent.

**Figure 3b. Share of male birth cohorts receiving tax deduction for child support in 1993 by age and educational status/level<sup>1</sup> by 1 October 1993. Birth cohorts 1961- 1971**



<sup>1</sup> Educational status/level, see note 2, figure 2  
 Source: Register of income 1993, Statistics Norway

Figure 3b shows a trend towards more pronounced polarization of shares of social fathers between educational groups with increasing age. In the young cohorts, men in educational groups I and II (compulsory or secondary school level) are in the lead, but with increasing age men with only compulsory education lag behind compared to men with completed education at secondary school level or higher. Within the cohorts in their late twenties or early thirties in 1993, shares for men with completed education at college or university level (educational groups III and IV) are rapidly catching up with the shares of men in educational group II, while the three other educational groups increase their shares of social fathers at much slower speed. By 1995, the tendencies towards convergence at *two* different levels are even more pronounced in the older cohorts. At age 34, the father shares of the

three groups with educational attainment *above* compulsory level are very close with respectively 61.2, 61.8 and 61.5 per cent, while the corresponding rates for men in educational groups I, V and VI were respectively 43.2, 42.2 and 44.3 per cent.

At this stage of analysis, it is important to bear in mind that the level and changes in the share of social fathers by age is neither a measure for a single, not-reversible transition (like the ever-married rate), nor a proxy for a single, not-reversible transition- as was the case with the share of women receiving child benefit (transition into motherhood). The cohort share of social fathers at a particular age is a temporary, age-related measure of the proportion of men within the cohort who received tax deduction for child support in that particular year. Change in the level from one year ( $t$ ) to another ( $t + 1$ ) is affected both by new transitions *into* the group over the period  $t - t+1$  and by new transitions *out of* the group over the same period. New transitions into and out of the group are both aggregates of several separate transition rates, and a man's status as social father or not, may in principle be subject to continuous change over the whole grown up life course.

In practice however, the most important *inflow* to the group of social fathers at the ages in focus of this analysis, will be (registered) biological fathers of new born children, who also are living with and supporting the child (provided that the man was not already a social father prior to the birth of the child). All (registered) biological fathers that live with the mother of the child in marriage or cohabiting union at the time of the child's birth, will automatically be qualified for tax deduction and included in the share of social fathers, whereas fathers of new born children that live alone with their mothers will not be included in the share of social fathers. Correspondingly, the most important outflow from the group of social fathers will be fathers that do not longer live with their children due to divorce, separation or break up of cohabiting union<sup>8</sup>. Consequently, the three most important selection processes behind the share of social fathers will be i) the selection *to* biological fatherhood, and the selections *from* biological fatherhood to social fatherhood by marginalization either ii) prior to birth of the child<sup>9</sup> or iii) by divorce/separation or break up of cohabiting union after the child is born.

The development of social father shares by educational attainment and age points towards a differential selection process by educational attainment. The data available from the Tax and Income Register do not allow a distinction between the three major types of selection processes. It is likely however, that all three types of selection processes are at work behind the observed shares. With regard to the selection to biological fatherhood, analyses from the earlier Family and Occupation study from 1988 indicated a shift in the transition process to (reported) fatherhood for men from the older 1945 cohort to the younger 1960 cohort. Men from the 1945 cohort followed a clear "deferred gratification-pattern" by educational attainment, where young men with low educational attainment had the earliest transitions into fatherhood. The 1960 cohort presented a different pattern. Men with high educational attainment maintained a deferred gratification pattern compared to men with educational attainment at medium level. However, within the 1960 cohort also men with low educational attainment were lagging behind in the transition to fatherhood (Skrede 1995). It is a reasonable hypothesis that this type of changes also will apply to younger cohorts following after the 1960 cohort, even if we at present do not have access to more recent data that can be used as test of this hypothesis.

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<sup>8</sup> Technically speaking the cohort share of social fathers will also be reduced by age, as the share of men supporting children less than 18 years will decrease with the ageing of the cohort. Of course, we cannot exclude the possibility that young men in their early thirties also may experience this type of "natural" transition out of the group of social fathers, as support of stepchildren also qualify for tax deduction. It is however, a realistic assumption that this type of "natural" outflow does not contribute substantially to the outflow from shares of social fathers for men at the stages of the life course in focus of this analysis.

<sup>9</sup> By principle this selection can be either on the mother's side (selection) or the father's side (refusing).

It also reasonable to assume that the lower shares of social fathers within educational group I are affected by selection both *into* and *out of* the group of social fathers. The selection at birth of a child is determined by the proportion of mothers not living with the father of the child at the time of the birth. At present, we do not have access to reliable information about the educational distribution of registered fathers not living with their children from birth (cf. note 2). However, recent studies of single parents in Norway indicate that women who become single mothers early in the life course and not are living with the father of the child at the time of the birth, on average have low educational attainment and modest labour market experience (Kjeldstad 1998). Given the general tendencies towards homogamous mating processes, it seems a reasonable assumption that with access to relevant data, we probably would have found that young men with low educational attainment are disproportionate represented within the excluded/refusing father group<sup>10</sup>. In addition, the fact that young men and with low educational attainment are the early starters both with respect to entrance into marriage and with respect to divorce or separation, it is also a realistic assumption that a substantial part of the selection did take place as exit from formal marriages of relative short duration. With regard to formation and dissolution of cohabiting unions, it also realistic to assume that the structural characteristics of break up from early cohabiting unions with children do not differ very much from the break up of early marital unions, a part from the break up rate. The analysis of Jensen and Clausen (1997) indicated that break up rates of cohabiting unions are higher than divorce rate of formal marriages, also when controlling for the presence of children.

Since young children to a very large extent continue to live with their mothers after the break up of marital or cohabiting unions, one consequence of these processes are that single parents of small children to a large extent are women. In addition, a considerable "father deficit" will accumulate at cohort level as the cohort ages. Of course, the shares of single mothers and the shares of social fathers will be subject to change also by the transitions into new marriages and cohabiting unions. However, if we assume that the average age differences between married and cohabiting couples with children do not differ substantially from the average age differences between married couples, the share of lone mothers (and the corresponding father deficit) can be estimated by comparing the cohort share of mothers at a particular age with the estimated share of social fathers 2.6 years older. Such calculations show that both estimated the share of lone mothers and the estimated social father deficit increase rapidly for the young cohorts under 27 years of age in 1993 and more slowly after that age (Skrede 1999b, 1999c). As an illustration, the estimated share of lone mothers at age 22 in 1993 was close to seven per cent, while corresponding share increased to respectively 16, 17 and 17.6 per cent for the cohorts at ages 27, 28 and 29 in the same year. Although we cannot claim these estimates to be more than qualified guesses, it is worth noting that they indicate a level of lone mothers that falls relatively well in line with the statistical share of lone mothers in the total population of families with children (Statistics Norway 1998b)<sup>11</sup>. By and large, these figures also indicate that the disproportionate distribution of lone mothers and not selected fathers by educational attainment are factors that should be remembered when we evaluate the results of the analysis of income differences by educational and parental status in the next section.

## **V. Qualifications, responsibilities and rewards: Income returns by educational level, gender and parental status**

The closer analysis of income distribution in 1993 by educational attainment, age and gender, shows that educational attainment still matters with respect to income returns, for women as well as men (Skrede and Ryen 1997, Skrede 1999a, 1999c). At intracohort level, average income differences between different educational groups increased by age both for women and for men, but considerable

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<sup>10</sup> For future analyses, information from the Medical Birth Register may be utilized for a closer analysis of these processes.

<sup>11</sup> The share of single mothers measures as percentage of all families with children under 18, was respectively 18.4 and 19.0 per cent in 1993 and 1995 (Statistics Norway 1998b)

more for men than for women. However, the tentative analysis of income differences by educational attainment and parental status showed a considerable less conform pattern by gender and age. Generally, the distributions indicated that parental status was an important determinant for income returns by educational attainment for both genders. By and large, however, the distributions indicated different interaction patterns by educational attainment and family status for women and men by age.

Consequently, we chose to present the detailed information on income variation by educational attainment by a set of age-standardized indices representing the relative income differences between different groups, which also are suitable for comparing observations for consecutive years.

The indices are formally defined as::

- (i) :  $g_{diat} = 100 * R_{\text{non-mothers, iat}} / R_{\text{men, not social fathers, iat}}$
- (ii):  $m_{iat} = 100 * R_{\text{mothers, iat}} / R_{\text{non-mothers, iat}}$
- (iii)  $d_{biat} = 100 * R_{\text{social fathers, iat}} / R_{\text{men, not social fathers, iat}}$  , where

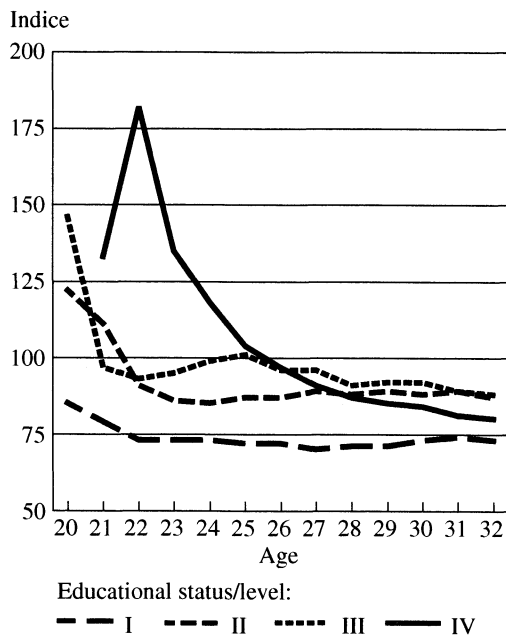
i (educational groups) = I, II,.....VI  
a (age)= 18,19....., 32 (or 34, dependent on year of observation)  
t (year of observation)= 1993, 1995  
R= average gross income from work and income substitute, ("toppskattgrunlaget")

The indice,  $g_{diat}$  ("**gender difference**"-indice) measures the relative income differences by gender and age within each educational group for women and men that do not have care or support responsibilities for children in year t. The second indice,  $m_{iat}$  ("**mummy's loss**") measures the relative income differences between mothers and non mothers within each educational group by age. The third indice  $d_{biat}$  ("**daddy's premium**") measures the relative income differences between men who are social fathers and men who are not social fathers within each educational group by age.

Figures 4a, 4b and 4c give graphical presentations of the variation by age and educational status level for each of the indices  $m_{i,t}$ ,  $d_{p,i}$ , and  $d_{g,i}$  by educational status and birth cohort. Since we here primarily are concerned with income returns to completed education, educational groups V and VI, who still are under education, are not included in the figures. Indices for educational groups III and IV are not given for the youngest cohorts, as the cohort shares with completed education at college or university level are very low for the young cohorts, especially when the indice also requires the presence of mothers or social fathers.

Figure 4a indicates that a considerable share of income differences between women and men cannot be related to gender differences in family obligations. By and large, the «pure» gender differences in income is highest for educational level I and IV, indicating that the relative income differences for men and women with intermediate education are relatively small. One way or the other, this indicates that the income effects of the gender segregated labour market at present are most severe for women at the top and women at the bottom of the educational attainment hierarchy. Given the very low average income level of childless young women with only compulsory education, it is no surprise that gender differences turn out to be high within this educational group. First and foremost, this indicates that young women with only compulsory education have very poor choices in the labour market compared to young men at the same educational level. Women with high educational attainment have, of course, far better choices in the labour market. However, compared with young men of their own birth cohorts with approximately the same level of educational attainment, these women at average level get considerable lower returns to their investment in own education than men.

**Figure 4a. Average income from work<sup>1</sup> 1993 for females without children relative to males without deduction for child support (indice  $g_{di}$ : "gender difference"<sup>2</sup>) by age and educational status/level<sup>3</sup>. Birth cohorts 1961-1973**



<sup>1</sup> Gross income from work, see page 10 for detailed definition

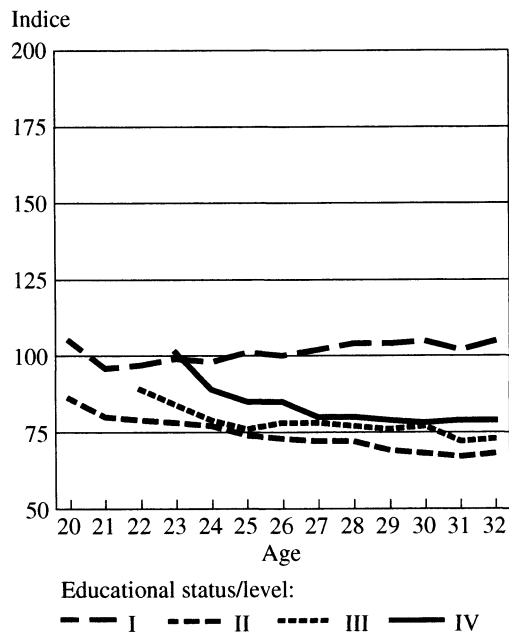
<sup>2</sup> Indice  $g_{di}$ : "gender difference", see page 21 for detailed definition

<sup>3</sup> Educational status/level, see note 2, figure 2 for detailed definition

Source: Register of income 1993, Statistics Norway

Figure 4b indicates a considerable «mummy's loss» for mothers in most educational groups. Women with only compulsory education are an exception in this respect, as well as women still under education (not pictured in the figure). The reason that mothers come out relatively well compared to non-mothers in these two groups is probably explained by the fact that considerable parts of mothers in these groups are recipients of transitory benefit as lone mothers (Skrede 1999a, 1999c). In addition, it must be remembered that the average income of non-mothers with low educational attainment is very low in all the birth cohorts, as shown by Figure 4a above. It is however, a puzzle for reflection that the «lone mother opportunity» for young women with low educational attainment seems to be a better alternative than to be a non-mother in the labour market. Childless women under education have a different opportunity structure. The comparison with average labour market income for non-mothers under education is less relevant, as labour market incomes tend to be low for young people under education.

**Figure 4b. Average income from work <sup>1</sup> for mothers relative to non-mothers (indice:  $m_{ij}$ : "mummy's loss") <sup>2</sup> by age and educational status/level <sup>3</sup>. Birth cohorts 1961 - 1973.**



<sup>1</sup> Gross income from work, see page 10 for detailed definition

<sup>2</sup> Indice  $m_{ij}$ : "mummy's loss", see page 21 for detailed definition

<sup>3</sup> Educational status/level, see note 2, figure 2 for detailed definition

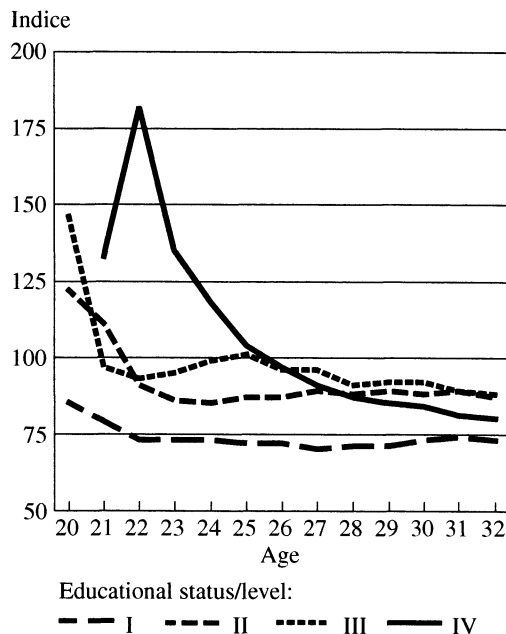
Source: Register of income 1993, Statistics Norway

Mothers with long education (educational status IV) have on average lowest losses relative to non-mothers. An average mummy's loss of about 20 per cent to non-mothers in the oldest cohorts is however, by no means negligible. It indicates that the earlier findings by Kravdal (1994) on the price of childbirth on basis of longitudinal income data and birth history from the Family and Occupation survey still prevail in younger cohorts of Norwegian women.

With respect to social fathers, figure 4c indicates a considerable «daddy's premium» for fathers in all educational groups. This is not surprising, given the fact that it is a well-established finding from numerous empirical analyses that married men tend to have higher incomes than unmarried, when other differential factors are controlled. This differential pattern is also confirmed in recent labour market studies (see e.g. the review by Jäntti and Sundquist (1996)). It can be explained both by a sociological *selection* theory (that the more able men are selected as marriage partners), or by a economic theory of increased productivity induced by *breadwinning obligations*.



**Figure 4c. Average income from work<sup>1</sup> for "fathers" relative to "non-fathers" ( $d_{pi}$  "daddy's premium")<sup>2,4</sup> in 1993 by age and educational status/level<sup>3</sup>. Birth cohorts 1961-1971**



<sup>1</sup> Gross income from work, see page 10 for detailed definition

<sup>2</sup> Indice  $g_{dt}$ : "gender difference", see page 21 for detailed definition

<sup>3</sup> Educational status/level, see note 2, figure 2 for detailed definition

Source: Register of income 1993, Statistics Norway

It is not surprising that we find a similar pattern for income difference between social fathers and men that are not social fathers, since both types of theoretical explanations may be similarly applied for these groups. The differences according to educational attainment are however, not so obvious. In the older cohorts «daddy's premiums» tend to decrease by increasing educational attainment and are by far highest among fathers with low educational attainment. This indicates that the selection (or productivity) effect probably is strongest for fathers with low education - which also is a puzzle to thought given the simultaneous tendency that a relative low share of young men with low education are selected to fatherhood.

With respect to the general level of «daddy's premium», one should also bear in mind that this «premium» is related to yearly income and not to wages. Previous Norwegian surveys of working time have shown that fathers of small children tend to work overtime more than other men do. In this respect, part of «daddy's premium» might well be explained by a higher input of work. However, given the indication that selection processes to social fatherhood seem to work with stronger effects for men with low educational attainment, it is reasonable to conclude that also selection effects are at work behind the income differences. This is also supported by other findings from the project "Life chances in the melting pot". Previously married men with low education have on average considerable lower incomes than married and unmarried men, and also higher shares of unemployed and recipients of social assistance at all age levels represented in the register analyses (Skrede 1999a, 1999c). These results point towards a complex interaction pattern between educational attainment, labour market problems and family problems, where longitudinal studies at micro level will be needed to provide further answers.

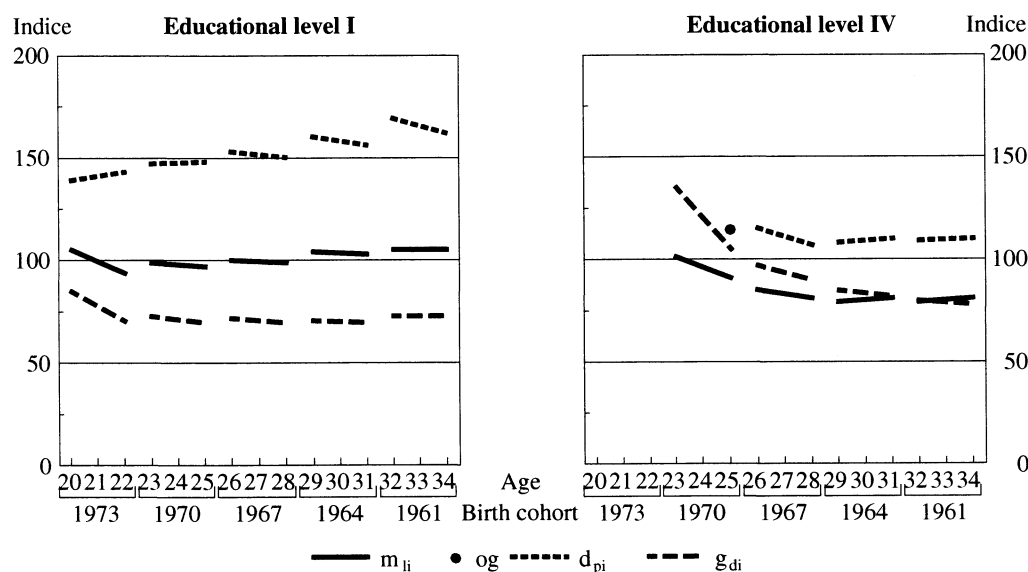
**Intercohort and intracohort development 1993 -1995**

Prior to concluding, both robustness (intercohort stability) and age stability (intracohort development) from 1993 to 1995 should be checked. To which extent are the results from 1993 reproduced in 1995 at intercohort level, and to which extent are differences by educational attainment and by gender maintained with age within each of the cohorts from 1993 to 1995?

Figures 5a, 5b and 5c (in Appendix) show the values of each of the three indices by age and educational status level (I - IV) by 1993 and 1995 respectively. By and large, the development indicates that the pattern from 1993 is repeated for 1995. This indicates that the 1993 findings are reasonable robust also confronted with data from a later year.

Figure 6 shows the development with age for the three indices for five selected cohorts (1961, 1964, 1967, 1970 and 1973), for women and men with educational attainment at level I and IV respectively in 1993 and 1995. The changes from 1993 to 1995 indicate that the intercohort differences by age in 1993 also to a great extent are found in the intracohort development with age from 1993 to 1995.

**Figure 6. Intracohort development of indices  $g_{di}$ ,  $m_{li}$  and  $d_{pi}$  with age 1993 - 1995 for selected birth cohorts and selected levels of educational status: I (low) and IV (high). Birth cohorts: 1961, 1964, 1967, 1970 and 1973.**



Sources: Register of income 1993 and 1995, Statistics Norway

The gender difference indice,  $g_{di}$ , remains stable with increasing age for men and women in educational group I within all cohorts, whereas there is a marked tendency to increasing gender differences with age for well-educated men and women. The mummy's loss indice,  $m_{li}$ , seems to stabilize with age for women in educational group IV, and continue to be negligible for mothers with low educational attainment. Here we should bear in mind however that figure 5b indicates a somewhat different picture for educational groups II and III. The tendency for these two groups points towards slightly increasing differences with age at intracohort level. This is not surprising, as the income effects of part time work are more pronounced within these group where larger shares of mothers work part time.

Finally, the development for  $d_{pi}$ , "daddy's premium" indicates that the differences between social fathers and men that are not social fathers, stabilize with age at a fairly low level for men with high educational attainment, and continue to be much higher for men with low educational attainment. There is also a tendency towards increasing differences with age, when a younger cohort is compared with an older one at same age. However, the intracohort development with age within each cohort, point towards a slight decrease with age within most cohorts. This indicates that intracohort differences may stabilize with age at slightly lower levels than by 1993.

## **VI. Conclusion**

These findings confirm that educational attainment and family formation/status are decisive determinants of earned income for both genders. Generally, earned income increases with higher levels of educational attainment for both genders, but considerable more for young males than for young females, also when childless women and men at comparable levels of educational attainment/age are compared.

The results do not render reason to great optimism with regard to the state of the process towards gender equality in the labour market. On one hand, the substantial income differences between men and women with low educational attainment indicate that educational attainment above the minimum level probably is more important for young women than for young men with regard to getting foothold in the labour market. On the other hand - that women with high educational attainment at average appear to have the greatest relative income reduction compared to men at the same educational level, is another indication that there still are some distances to walk before gender equality is reached within the Norwegian labour market. Gender equality of educational attainment is probably a necessary condition for gender equality in the labour market, but certainly not sufficient by itself. It should be noted that these results probably to a substantial extent can be explained by the gender segregation of the Norwegian labour market. Women with college and university education are to a great extent employed in the (relatively low-paid) public sector, whereas well educated men to a much larger extent work in the private sector. That gender differences of income at present are most disadvantageous for well-educated women with at least four years of university education, give signals both about achievements for women with secondary and college education, and about challenges that still prevail.

Family formation and family obligations still act differently on the labour market behaviour and income potential of young men and young women. At all levels of educational attainment, men with responsibility for support of children have considerable higher average incomes than men without such responsibilities, whereas mothers earn considerable less than non-mothers. The structure of these differences indicates that the educational attainment/family formation/labour market behaviour interaction processes act differently for the two genders. The differences in average earned income for fathers relative to the income of non-fathers are on average larger for men with low educational attainment than for men with high educational attainment, whereas the differences in average earned income between mothers and non-mothers decrease with increased educational attainment. The strong selection effects for social fathers indicate that whereas the gains of the gender equality process so far tend to be relatively meagre with respect to income returns in the labour market, there are definitely more positive results with respect to the empowerment of women at the family level. This also renders challenges to the gender equality process with regard to the potential for a stronger involvement by men. So far, these findings must taken be as indications that men on average may expect gains from a stronger involvement at family level.

## References:

- Asplund, R., E. Barth, N. Smith and E. Wadensjø (1995): "The male-female wage gap in the Nordic countries" in N. Westergaard-Nielsen (ed). *Wage Differentials in the Nordic Countries*, Amsterdam: North Holland
- Beck, U. (1992): *Risk Society. Towards a New Modernity*, Sage, London
- Becker, G. S. (1964): *Human Capital. A theoretical analysis with special reference to education*, Columbia University Press (for the N.B.E.R.), New York
- Becker, G. S. (1981): *A Treatise on the Family*, Harvard University Press, Cambridge
- Blau, F. D. and L. M. Kahn (1992): "Race and Gender Pay Differentials" in D. Lewin, O. Mitchell and P. Sherer (eds.): *Research Frontiers in Industrial Relations and Human Resources*, Madison, Wi.: Industrial Relations Research Association: pp 381-416
- Blau, P. M. and O. D. Duncan (1967): *The American Occupational Structure*, Wiley, New York
- Blom, S., T. Noack and L. Østby: *Giftermål og barn - bedre sent enn aldri?* Social and Economic studies (SES) 81, Statistics Norway
- Brunborg, H. and S.-E. Mamelund (1994): *Kohort-og periodefruktbarhet i Norge 1820-1993*, Reports 94/27, Statistics Norway
- Bumpass, L.: "What's happening to the family? Interactions between demographic and institutional changes", *Demography*, 27: 483-498
- Coleman, J. S. (1971): *Resources for Social Change*, John Wiley & Sons, New York
- Easterlin, R. (1976): "The conflict between aspirations and resources", *Population and Development Review*, 2: 417-426
- Easterlin, R. et al. (1990): "How have American baby boomers fared? Earnings and economic well-being of young adults", *Journal of Population Economics*, 3: 277-290
- Easterlin, R. et al. (1991): "Private materialism, personal self-fulfillment, family life and public interest: the nature, effects and causes of recent changes in the values of American youth", *Public Opinion Quarterly*, 55: 499-533
- Ellingsæter, A.L. and J. Rubery (1997): "Gender Relations and the Norwegian Labour Market Model", in J.E. Dølvik and A. H. Steen (eds): *Making Solidarity Work*. Scandinavian University Press, Oslo, pp 111-154
- Eurostat (1998): *Statistics in Focus: Population and social conditions, 1998/9*
- Giddens, A. (1991): *Modernity and Self-Identity. Self and Society in the late Modern Age*, Polity Press, London
- Hoem, B. and J. Hoem (1988): "The Swedish family - Aspects of contemporary developments" in A. Cherlin and F. Furstenberg (eds): *The European Family*, special issue of *Journal of Family Issues*, 9: 397-424
- Jäntti, M. and C. Sundquist (1996): *Why do married men and unmarried women earn more? Empirical evidence from Finland*, Paper to X. Annual meeting of the European Society for Population Economics, Uppsala, June 1996
- Jensen, A. M. and S. E. Clausen (1997): *Barns familier. Samboerskap og foreldrebrudd etter 1970*, Prosjektrapport nr. 21, Norsk institutt for by- og regionforskning (NIBR), Oslo
- van de Kaa, D.J. (1987): "Europe's second demographic transition", *Population Bulletin*, 42 (1): 1-59
- Kjeldstad, R. (1998): *Enslige forsørgere: Forsørgelse og levekår før og etter overgang til en ny livsfase*, Social and Economic Studies (SES), 100, Statistics Norway
- Klijzing, E. and M. Macura (1997): "Cohabitation and Extra-marital Childbearing: Early FFS Evidence", in IUSSP (1997): *Papers for International Population Conference*, Beijing, October 11-17, 1997, Vol 2, pp 885-901
- Koren, C. (1997): *Trygd og omsorgsarbeid*, NOVA Report 17/97, NOVA, Oslo

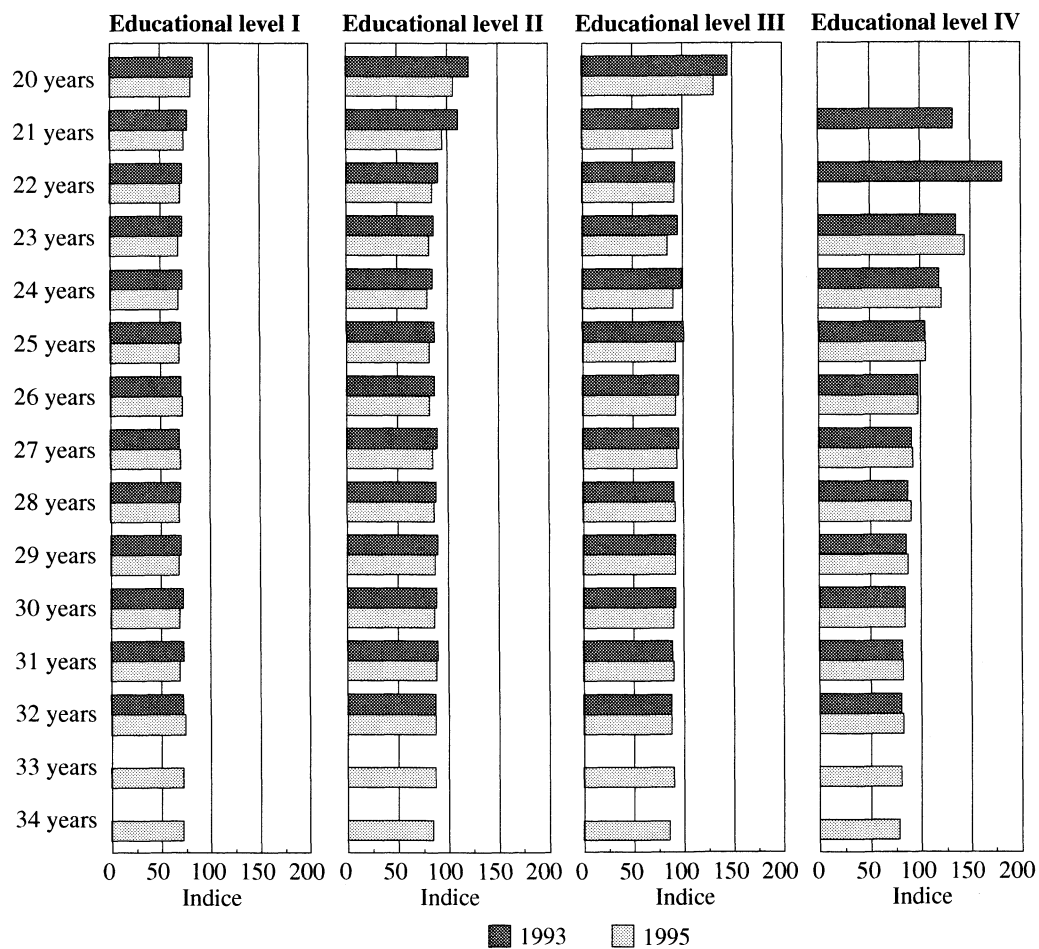
- Kravdal, Ø. (1994): "The Importance of Economic Activity, Economic Potential and Economic Resources for the Timing of First Birth in Norway", *Population Studies*, 48: 249-267
- Kravdal, Ø. and T. Noack (1988): *Skilsmisser i Norge 1965 -1968. En demografisk analyse*, Reports 88/66, Statistics Norway
- Lappegård, T. (1998): 'Større ulikheter i barnetall' i *Samfunnsspeilet*, 12(5), Statistics Norway: 42-48
- Lesthaeghe, R. (1995): "The second demographic transition - An interpretation" in K. Oppenheimer and A.-M. Janssen (eds.): *Gender and family change in industrialized countries*, Oxford: Clarendon Press, pp 17-62
- Lesthaeghe, R. (1997): Imre Lakatos' views on theory development: applications to the field of fertility theories. Paper presented at the Annual Meeting of the Population Association of America, Washington DC, March 1997
- Lesthaeghe, R. and D. Meekers (1986): "Value changes and the dimensions of familism in the European Community", *European Journal of Population*, 2: 225-268
- Lesthaeghe, R. and J. Surkyn (1988): "Cultural dynamics and economic theories of fertility change", *Population and Development Review*, 14: 1-45
- Mamelund, S.E., H. Brunborg and T. Noack (1997): *Skilsmisser i Norge 1886-1995 for kalenderår og ekteskapskohorter*, Reports 97/19, Statistics Norway
- Mincer, J. (1958): "Investment in Human Capital and Personal Income Distribution", *Journal of Political Economics*, 66
- Noack, Turid (1996): "Familieutvikling i demografisk perspektiv", in B. Brandt and K. Moxnes (eds): *Familie for tiden. Stabilitet og endring*, Tano-Aschehoug, Oslo pp 11-29.
- Noack, T. and L. Østby (1981): *Fruktbarhet blant norske kvinner. Resultater fra Fruktbarhetsundersøkelsen 1977*, Social and Economic Studies (SES), 49, Statistics Norway
- Noack, T. and L. Østby (1996): *Fertility and family surveys in countries of the ECE Region: Standard Country Report Norway*, Economic Studies No. 10 a, Economic Commission for Europe, United Nations, Geneva
- Nord (1994:3): *Women and men in the Nordic Countries. Facts and figures*, Nordic Council of Ministers, Copenhagen.
- OECD (1984): *Women and their Integration in the Economy*, Working Party on the Role of Women in the Economy, OECD MAS/WP (84)5.
- Petersen, T, Becken, L. E. and V. Snartland (1993): *Lønnsforskjeller mellom kvinner og menn i privat sektor*, Institute of sociology, University of Oslo, Oslo
- Preston, S. (1986): "Changing values and falling birth rates", *Population and Development Review*, 12, supplement
- Ramsøy, N.R. (1978): Do the Well-educated Still Defer Gratification? Memorandum No 17 from the Occupational History Study, Institute of Applied Social Research (INAS), Oslo
- Rønsen, M. (1998): Fertility and Public Policies - Evidence from Norway and Finland', Documents 98/12, Statistics Norway
- Skrede, K. (1986): "Gifte kvinner i arbeidslivet", in L. Alldén, N.R. Ramsøy and M. Vaa (eds.): *Det norske samfunn III*, Gyldendal, Oslo, pp 145-168
- Skrede, K. (1987): "Inntektsfordelingsvirkninger av arbeidstidsforkortninger", vedlegg 10 in *NOU 1987:9B: Arbeidstidsreformer* \_ Vedlegg til NOU 1987:9A, Kommunal- og arbeidsdepartementet, Akademika, Oslo.
- Skrede, K. (1994): "Kvinnens utdanning og yrkesliv" in I. Frønes. and A. Hompland (eds): *Den nye barne- og familieboka*, Scandinavian University Press, Oslo, pp 67 -79
- Skrede, K. (1995): "The Nordic Model for Family Welfare- Major Trends and Present Challenges" i B. Arve-Parès (red): *Building Family Welfare - Contributions from a Seminar on Family, Gender and Welfare Policies in the Nordic Countries*, Sosialdepartementet/ Norstedts, Stockholm, pp: 127-145
- Skrede, K. (1998): "Shaping gender equality - the role of the state: Norwegian experiences, present policies and future challenges", Paper presented at the conference "Comparing Social Welfare Systems in Nordic Countries and France", organized by MIRE in Gilleleje, Denmark September 4 -6 1998. Forthcoming in revised version in Palier, B. and D. Bouget (eds.) (1999): *Comparing Social Welfare Systems in Nordic Countries and France*, MIRE Vol 4

- Skrede, K. (1999a): "Generasjonsforskjeller i levekår" i E. Birkeland (red): Forskjeller i levekår. Hefte 2: Levekår og helse, Notater 23/99, Statistics Norway, pp 83-106
- Skrede, K. (1999b): "Drømmen, dyden og belønningen" in G.E. Birkelund, A-K. Broch-Due and A. Nilsen (eds.): *Ansvar og protest. Kjønn, klasse og utdanning i senmoderniteten*, Institute of sociology, University of Bergen, Bergen, pp 281- 308
- Skrede, K. (1999c): *Levekår i støpeskjeen. Utvikling i utdanning, familiedannelse og materielle levekår i perioden 1990 - 1995 for fødselskullene 1961- 1975* Work in progress, to be published in the series Statistical Analyses, Statistics Norway
- Skrede, K. and M. Ryen (1996a): *Levekår i støpeskjeen. Status og utvikling i ungdomsgenerasjonenenes materielle levekår 1990-1995*, Reports 96/11, Statistics Norway
- Skrede, K. and M. Ryen (1996b): "Forverringen av ungdomsgenerasjonenenes levekår: Myte eller fakta?" i *Samfunnsspeilet*, 10,3, Statistics Norway:2-12
- Skrede, Kari and Mette Ryen (1997): Educational attainment, family formation and income differences in early adulthood - still a gendered melting pot for younger generations? Paper presented at the European Society for Population Economics (ESPE), 11<sup>th</sup> Annual Meeting, June 1997, Colchester
- Skrede, K. and A. Sørensen (1983): "På spor av en ny kvinnerolle?" in K. Skrede and K. Tornes (eds.): *Studier i kvinners livsløp*, Scandinavian University Press, Oslo, pp198- 240
- Statistics Norway (1998a): *Women and Men in Norway*
- Statistics Norway (1998b): *Social Survey 1998*, Statistical Analyses 22
- Sundt, E. (1967): *Om giftermål i Norge*, Scandinavian University Press, Oslo (1. edition 1855)
- Sundt, E. (1976): *Om Sædeligheds-tilstanden i Norge*, Gyldendal, Oslo (1. edition 1957)
- TemaNord (1999:514): *Women and Men in the Nordic Countries. Facts and figures 1999*, Nordic Council of Ministers, Copenhagen
- Thornton et al. (1987): "The influence of the family on premarital sexual attitudes and behavior", *Demography* 24: 323-340
- United Nations(1980): *The Economic Role of Women in the ECE Region*, United Nations Publications, Sales No. E.80. II.E.6., New York
- United Nations(1986): *The Economic Role of Women in the ECE Region. Developments 1975/85*

# APPENDIX

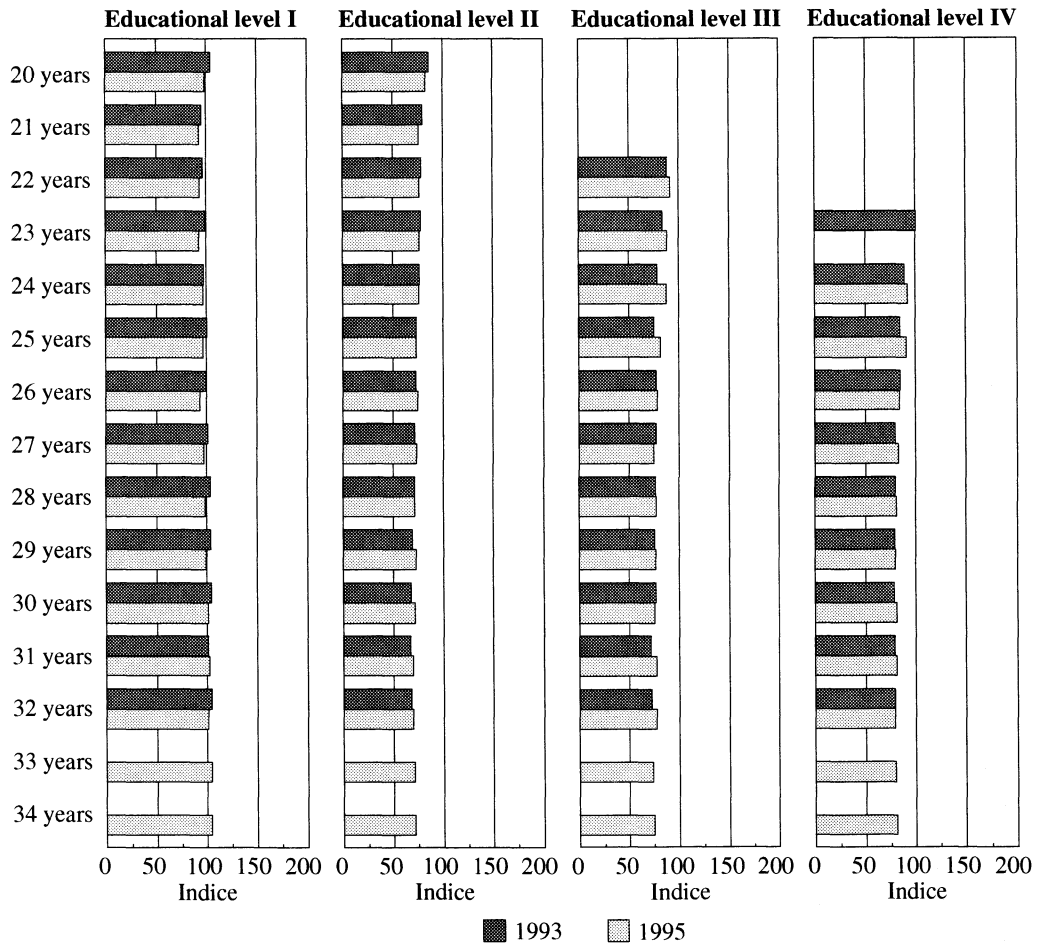
(Figures 5 a - 5c)

**Figure 5 a. Indice  $g_{di}$  ("gender difference") by age and educational level /status 1993 and 1995. Birth cohorts 1975 -1961.**



Sources: Register of income 1993 and 1995, Statistics Norway

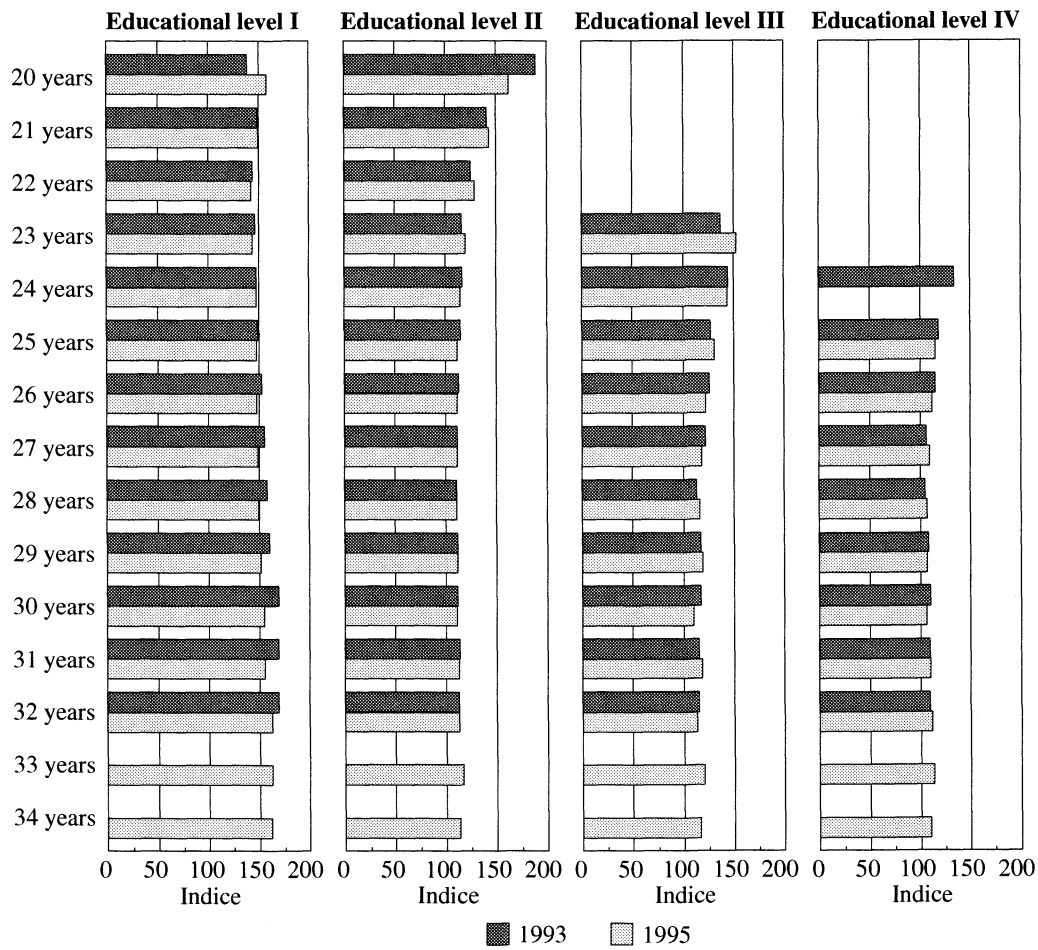
**Figure 5b. Indice  $m_{li}$  ("mummy's loss") by age and educational level/status 1993 and 1995. Birth cohorts 1961- 1975.**



Sources: Register of income 1993 and 1995, Statistics Norway



**Figure 5c. Index  $d_{pi}$  ("daddy's premium") by age and educational level/status 1993 and 1995. Birth cohorts 1961-1975.**

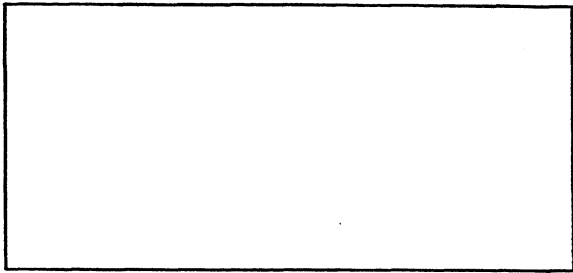


Sources: Register of income 1993 og 1995, Statistics Norway

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N-0033 Oslo

Tel: +47-22 86 45 00  
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