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"Birds of a Feather Flock Together"
The Impact of Choice of Spouse on Family Labor Income Inequality

Abstract:
This paper discusses the effects of the substantial rise in labor force participation of married women on the level, structure and trend in family labor income inequality. An interesting question is to what extent the rise in women's labor force participation has led to a tendency of "flocking together", i.e. whether women with high labor income are married to men with high labor income, or vice versa. Based on the decomposition of the Gini coefficient and a related index for the extent of "flocking together" applied to income data for Norway for the period 1973-1997 we find a tendency of "flocking together" for couples with at least one labor income and couples with two labor incomes. For couples with only one labor income (i.e. couples where only one labor income is above the threshold given by the statistical definition of labor income) the decomposition of the Gini coefficient indicates that there is no tendency of "flocking together". For this group women's labor income gives an equalizing contribution to family labor income inequality. This illustrates the importance of distinguishing between one- and two-income families in analysis of family labor income inequality.

Keywords: Family income distribution, decomposition of the Gini coefficient, summary measure for the extent of "flocking together".

JEL classification: D31

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1. Introduction

As is well-known from the economic literature the majority of the factors that altogether determine the distribution of income in a society is heavily affected by the level and structure of various policy efforts. However, the matching process in the marriage market appears to be an important exception since people's choice of mate is likely to be independent of policy instruments that concern taxes and conventional social security payments. Thus, an interesting question is whether and to what extent choice of partners in the marriage market affects the inequality in the distribution of family labor income. The distribution of consumption possibilities or post-tax income is highly influenced by taxation, but also by the extent of "flocking together" in the pre-tax distribution of family labor income. Hence, it is relevant to consider the issue of "flocking together" in analyses of family tax policies, e.g. the choice between individual or joint taxation. In this paper we will analyze whether the combination of the male and female income component in the labor income of the married couple contributes to higher inequality, a situation that we denote by "birds of a feather flock together".

We will analyze the extent of "flocking together" in male and female labor incomes in light of the rapid increase in married women's labor force participation that has taken place over the last decades. In Norway the employment rates for married women increased from 19.6 percent in 1970 to 30 percent in 1980 and 61.2 percent in 1990, see Ellingsæter and Rønsen (1996). As a first step to discuss the relation between "flocking together" and inequality in family labor income it seems natural to ask to what extent the rise in women's labor force participation has decreased or increased family labor income inequality. A common approach to investigate this question is to compare the distribution of family income with and without women's labor income, see e.g. Danziger (1980), Horvath (1980), Betson and van der Gaag (1984), Björklund (1992) and Cancian and Reed (1998). However, this method has several problems and may lead to confusing results.[1] For example, by adding women's income to men's income, inequality in the distribution of family income will normally decrease, and likewise, by adding men's income to women's income, inequality in the distribution of family income will also decrease. Thus, this approach yields results that depend on the ordering of income components, and moreover, presupposes that wife's (husband's) labor supply decisions are made conditional on husband's (wife's) earnings.

Empirical analyses of labor supply show, however, that husband's and wife's decisions concerning hours of paid work are made simultaneously, which suggests that these two income components should be treated symmetrically.[2] The decomposition of the Gini coefficient provides an analysis of the contributions to inequality in family income from wife's and husband's incomes which

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[1] See Lerman and Yitzaki (1985) for a critical discussion.
[2] See Dickens and Lundberg (1993) and Aaberge, Dagsvik and Strøm (1995).

acknowledges the simultaneous aspects of economic behavior. Based on the decomposition of the Gini coefficient we discuss the effects of the increase in married women's labor income on the inequality in the distribution of family labor income in Norway from 1973 to 1997. The sign of the concentration coefficient in the decomposition of the Gini coefficient provides information on the contribution from women's labor income to inequality in the distribution of family labor income. For families with two labor incomes and families with at least one labor income the positive concentration coefficients for women's labor income indicate that women's labor income in fact contributes to family income inequality, but the concentration coefficients do not capture the extent of "flocking together". Supplementary information on the association between the male and female income components is needed in order to measure the extent of "flocking together". Thus, we introduce an index for the extent of "flocking together" defined by the difference in income inequality between the observed family income distribution and the family income distribution formed by a random matching of male and female labor incomes.

Our main conclusion is that for two-income families there is a pattern characterized by "flocking together", i.e. that high-income women are generally married to high-income men, and low-income women are generally married to low-income men. For one-income families, i.e. families where only one spouse has labor income above the threshold given by the statistical definition of labor income, corresponding to the minimum social security benefit, the negative concentration coefficient in the decomposition of the Gini coefficient gives a clear indication that there is no tendency of "flocking together". In fact, for this category women's labor income gives an equalizing contribution to family labor income inequality. Hence, our empirical analysis shows that conclusions about women's contribution to family labor income inequality are highly sensitive to whether there are one or two labor incomes in the family.

Whereas this paper focuses on the effect of spouse selection on family income distribution, the literature on assortative mating typically focuses on the factors determining the marital choice, i.e. the process of spouse selection, see e.g. Boulier and Rosenzweig (1984), Lam (1988), Rosenzweig (1999) and Pencavel (1999). We introduce the term "flocking together" in order to emphasize the effect on family income and family income inequality of the process of assortative mating. The effect of assortative mating on labor supply is analyzed by Lundberg (1988), and the effect on family income inequality is analyzed by Smith (1979). While Smith's analysis focuses on the compensatory function of wives' earnings on family income inequality, our methodological approach highlights the tendency of "flocking together" in spouses' labor income.

The paper is organized as follows. In Section 2 we briefly describe the data source and give a description of the trend in the level of family labor income, while Section 3 provides estimates of the

trend in family labor income inequality. In Section 4 we outline the decomposition of the Gini coefficients on which our analysis of men's and women's contribution to family labor income inequality relies. Finally, in Section 5 we introduce a summary measure of the extent of "flocking together" that is derived from the Gini coefficient and analyze to what extent a tendency of "flocking together" can be found in our data.

2. The trend in families' labor force participation and labor income

This analysis is based on income tax returns data from the Income Distribution Survey of Statistics Norway, for the years 1973, 1979, 1982, 1985, 1988, 1991, 1994 and 1997, i.e. a period with a substantial increase in married women's labor force participation. Our population consists of married couples (including cohabitants) where at least one spouse has labor income or more precisely, labor income that exceeds the statistical definition of labor income, i.e. that labor income exceeds the minimum social security benefit. Hence, our study includes couples where e.g. one spouse is employed and the other is social security recipient, but excludes couples where both spouses are social security recipients. We divide the population of married couples where at least one spouse has labor income into two groups, married couples where only one spouse has labor income, and married couples where both spouses have labor income. Hence, it must be kept in mind, that in our category "only one spouse has labor income", the other spouse may still have some labor income provided that it is less than the income level corresponding to the statistical definition of a one income-family.

Labor income is defined as the sum of income from employment and self-employment. It must be kept in mind, however, that the assignment of income from family business self-employment to each of the spouses is somewhat arbitrary. This is a source of uncertainty in the estimation of wives' and husbands' contributions to inequality. Income from self-employment represents, however, on average only 10 percent of total labor income. Note that family labor income in this study means labor income of the married couple. We have not considered labor income of other family members. Moreover, throughout this study the income concept is labor income, so that family income in this context means family labor income.

This study focuses on inequality in the distributions of reported incomes, i.e. we do not address the more complex issue of how women's increased labor market participation has influenced the division between market work and household work and hence, the distribution of extended income, defined as the sum of money income and imputed value of unpaid household work. Neither have we addressed the consequences of augmenting the income concept by consumption of housing or consumption of

publicly provided services. Inequality in the distribution of extended income including unpaid household production is discussed in e.g. Bryant and Zick (1985) and Aslaksen and Koren (1996).

Table 2.1.a. Distribution of married couples, for couples where at least one spouse has labor income, by labor market status, over the period 1973 to 1997. Percent

	Only one spouse has labor income	Both spouses have labor income	Number of observations
1973	70	30	2 708
1979	56	44	4 003
1982	49	51	4 626
1985	47	53	1 154
1988	35	65	1 848
1991	35	65	4 899
1994	33	67	5 969
1997	31	69	7 379

As demonstrated by Table 2.1.a. the prevalence of the two-income family has increased considerably. The proportion of one-income couples was sharply reduced from 1973 to 1982, and continued to fall over the 1980s and 1990s. In 1997 the proportion of one-income families was less than half the proportion in 1973. The table shows that the prevalence of two-income families in 1997 in fact exceeded the prevalence of one-income families in 1973. This change is largely a reflection of the rapid increase in married women's labor force participation, in particular during the late 1970s and early 1980s, and is a consequence of the changes in possibilities and preferences for education for women through the 1960s and 1970s.

Table 2.1.b. Distribution of married couples with children, for couples where at least one spouse has labor income, by labor market status, over the period 1973 to 1997. Percent

	Only one spouse has labor income	Both spouses have labor income	Number of observations
1973	73	27	1 590
1979	56	44	2 303
1982	50	50	2 700
1985	46	54	685
1988	36	64	1 026
1991	32	68	2 545
1994	28	72	3 060
1997	25	75	3593

Table 2.1.b. shows the distribution of one-income and two-income couples with children, defined as children 16 years and younger living in the household. We see that couples with children have followed the same pattern in the shift from the one-income family to the two-income family. This is

closely related to the introduction of generous family policies in Norway, such as paid parental leave and subsidized child care, and also to changes in education and work patterns for women.

As mentioned above, the Income Distribution Survey of Statistics Norway classifies a person as having labor income if the labor income exceeds the minimum social security benefit. A consequence of this is that many women with part time jobs are not classified in the category of having labor income. For instance, in 1997 mean labor income for women who were not classified in the category of having labor income was about 67 000 NOK. When we use the term "has labor income" to denote the labor market status of a person, it must be read as "has labor income above the threshold of the minimum social security benefit".

Figure 2.1. Annual mean labor income for married men, married women and married couples where at least one spouse has labor income. 1997-NOK
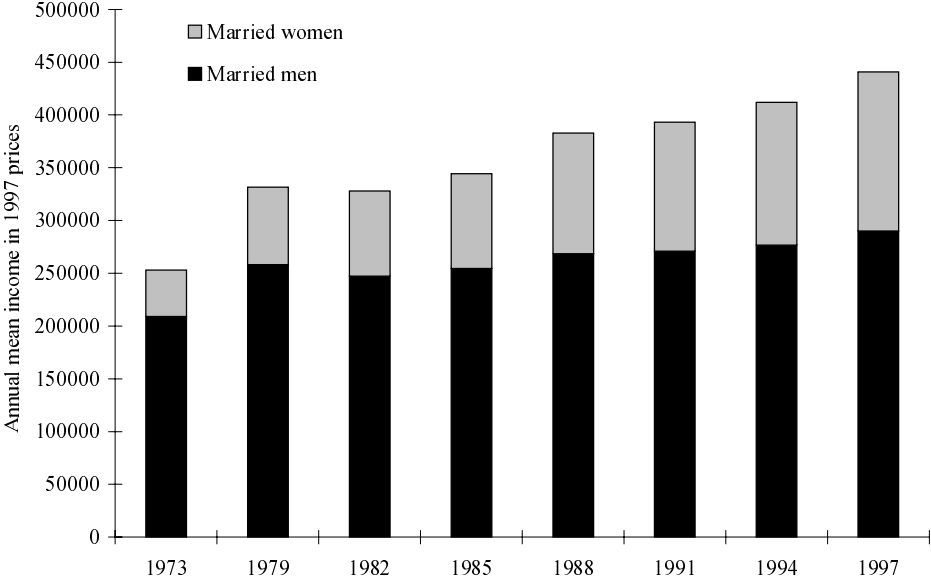
The trend in married couples' mean income over the period 1973-97 is illustrated in Figures 2.1, 2.2 and 2.3. The background data for Figures 2.1, 2.2 and 2.3 including standard deviations are given in Table A.1 in Appendix A. Figure 2.1. shows annual mean labor income for married men, married women and married couples for couples where at least one spouse has labor income, for selected years over the period 1973-97. The total height of each bar shows labor income for the couple. Labor income is deflated with the consumer price index to constant 1997-NOK. Figures 2.2 and 2.3 show the corresponding data for couples where only one spouse has labor income, and both spouses have labor income, respectively.

Figure 2.1 shows that women have contributed substantially to the growth in family labor income over the recent decades. As the following figures will indicate, the relative contributions from men and women to growth in family labor income vary between the one- and two-income families.

Figure 2.2. Annual mean labor income for married men, married women and married couples where only one spouse has labor income. 1997-NOK
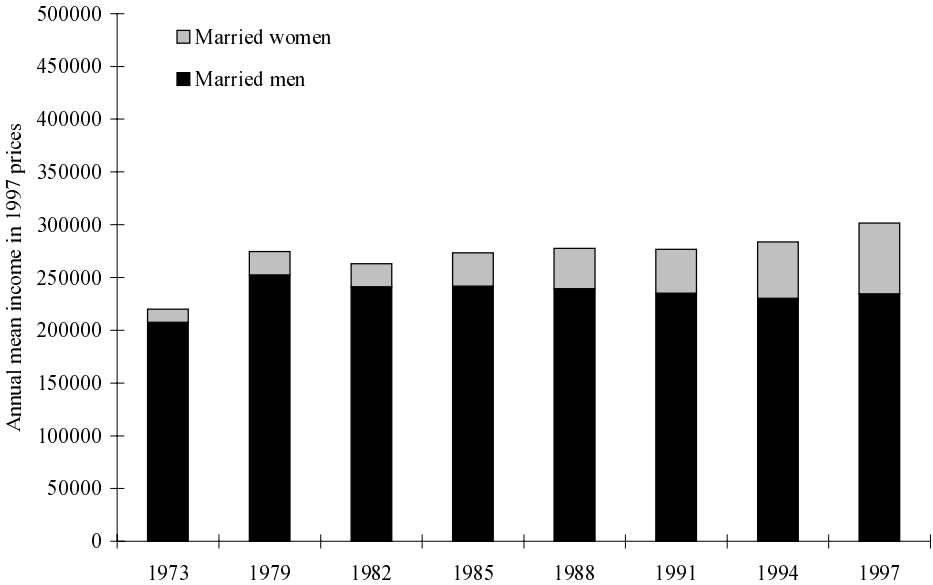
Figure 2.2 shows that for couples where only one spouse has labor income, the ratio between women's and men's labor income has increased steadily over the period. For this group growth in real family labor income has been lower than for the other groups, but women have contributed more than men to growth in family labor income over the period. Women's labor income was only about 5 percent of men's labor income in 1973, and increased to about 28 percent in 1997. This is a result of increased part time employment for women at income levels below the statistical definition of labor income.

Figure 2.3. Annual mean labor income for married men, married women and married couples where both spouses have labor income. 1997-NOK
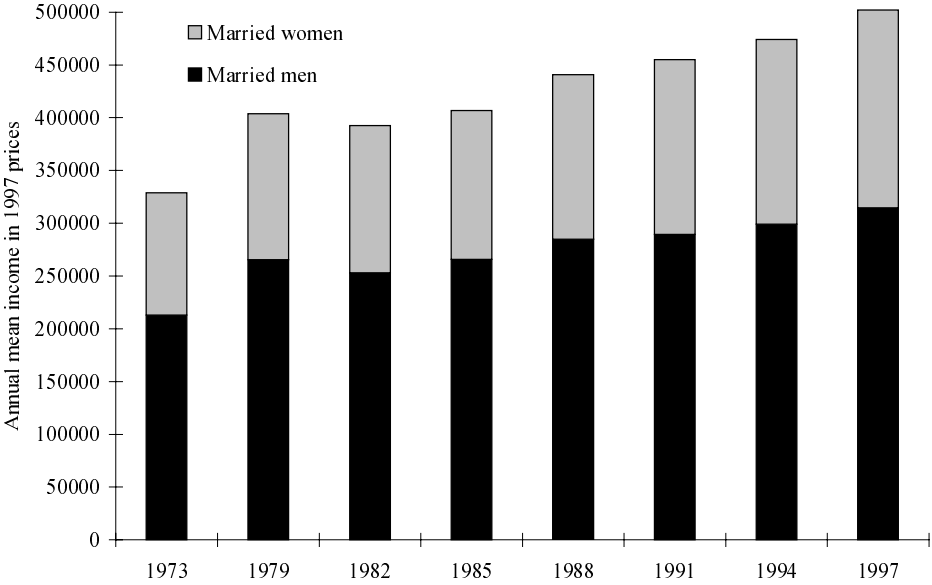

For couples with two labor incomes Figure 2.3 shows that the ratio between men's and women's labor incomes has been fairly stable, at about 55 percent over the period and close to 60 percent in 1997. For this group both men and women have contributed to growth in family labor income over the period. The large gap between the levels of men's and women's labor income, however, is a consequence both of overrepresentation of women in lower paid vocations and jobs, of the large number of women holding part time jobs, and of women having career interruptions that slow down promotion and income growth.

Table A.2 in Appendix A gives labor income for married couples with children. Note that married couples with children in general have somewhat higher labor income than the average couple although the statistical uncertainty indicates that the differences should be interpreted cautiously. The high income of families with children reflects the high labor force participation of mothers in Norway, as well as the fact that the years with children growing up often coincide with the most productive years, with a large capacity for both job career and family, and particularly high housing expenditures.

The income data summarized in Figures 2.1-2.3 are used for the following analysis of income inequality. We have not addressed the issue of equivalence scales, as the focus of this article is on the inequality in the sources of family labor income, rather than on income and consumption expenditure as determinants of welfare. The results nonetheless indicate inequalities in consumption possibilities and thus in economic welfare.

3. The trend in family labor income inequality

3.1. Lorenz-curves and decile tables

We now focus on descriptions of inequality in the distribution of family labor income and its components, here measured by the Lorenz-curves and corresponding decile tables, and in Section 3.2 summarized by the Gini coefficient.

Figures 3.1 and 3.2 display the Lorenz-curves for all couples (where at least one spouse has labor income), one-income couples and two-income couples, in 1973 and 1997. Figures 3.1.a and 3.1.b show that for couples with at least one labor income and couples with only one labor income, the Lorenz-curves for married men's labor income and for family labor income almost coincided in 1973. This reflects that for the average household in 1973, labor income almost completely was comprised of the husband's labor income. Among the poor households the wife contributed somewhat more to family labor income. This fact emerges more clearly from the plot of the scaled conditional mean curves (the M-curves) displayed in Figures D.1 and D.2 in Appendix D[3]. For a fixed u, M(u) is equal to the ratio between the mean income of the households in the lowest u percent of the income distribution and mean household income. By contrast, the Lorenz-curve $L(u)$ is equal to the share of total income that accrues to the lowest u percent of the income distribution. Hence, $M(u) = L(u)/u$. As indicated by Aaberge (1999) the area between the scaled conditional mean curve and its egalitarian line forms a helpful complement to the Gini-coefficient as a summary measure of inequality. This measure appears to be identical to a measure of inequality that was introduced by Bonferroni (1930). The essential difference between the Gini-coefficient and the Bonferroni-coefficient B displayed in Tables B3 and B4 in Appendix B is that the Bonferroni-coefficient exhibits more inequality aversion than the Gini-coefficient.

There was considerably higher inequality in the distribution of married women's labor income in 1973, but these incomes were fairly small for most women with labor income. For couples with two labor incomes the Lorenz-curve for married women was much closer to the Lorenz-curves for married men and for family labor income. By 1997 the gap between inequality in the distributions of men's and women's labor income had narrowed considerably. This again reflects the development from the one-income family to the two-income family as the most prevalent family type.

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[3] See Aaberge (1999).

Figure 3.1.a. Lorenz-curves for distribution of labor income for married men, married women and married couples, for couples where at least one spouse has labor income. 1973

Figure 3.2.a. Lorenz-curves for distribution of labor income for married men, married women and married couples, for couples where at least one spouse has labor income. 1997

Figure 3.1.b. Lorenz-curves for distribution of labor income for married men, married women and married couples, for couples where only one spouse has labor income. 1973

Figure 3.2.b. Lorenz-curves for distribution of labor income for married men, married women and married couples, for couples where only one spouse has labor income. 1997

Figure 3.1.c. Lorenz-curves for distribution of labor income for married men, married women and married couples, for couples where both spouses have labor income. 1973
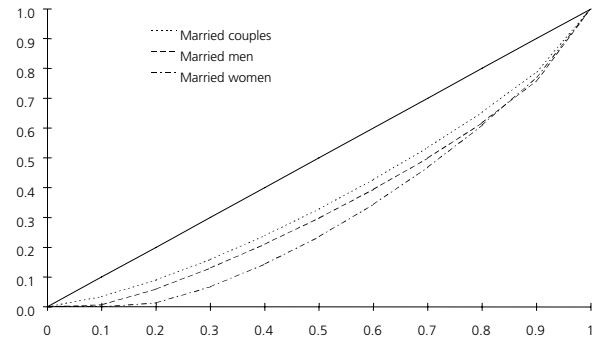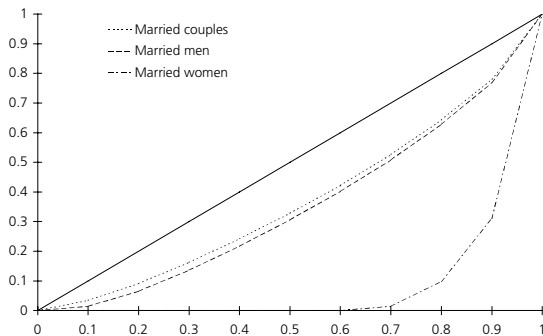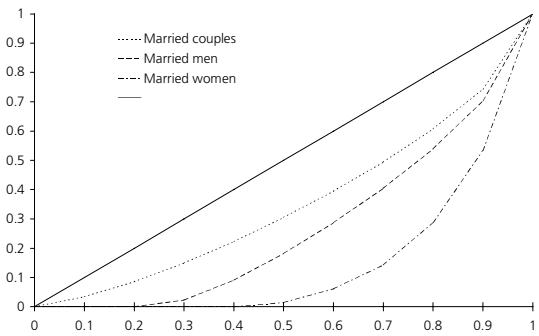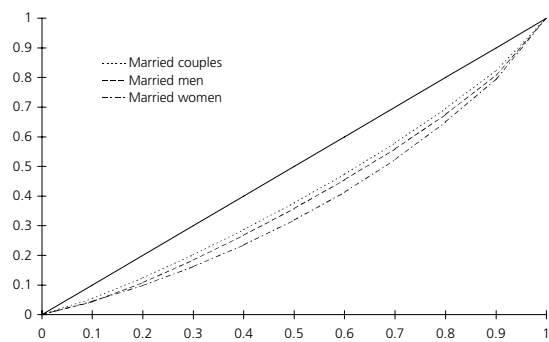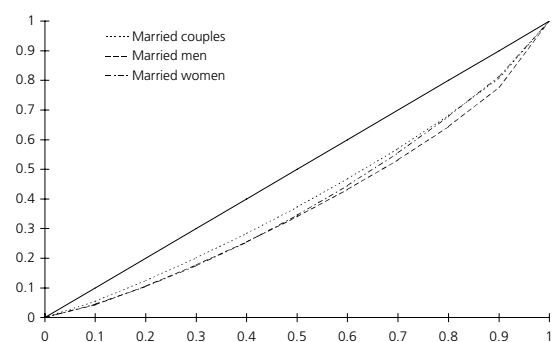

Figure 3.2.c. Lorenz-curves for distribution of labor income for married men, married women and married couples, for couples where both spouses have labor income. 1997

Lorenz-curves and M-curves give complete information on inequality in the corresponding income distributions. In order to give an indication of the magnitude of inequality in the income distribution, we will consider the distribution of labor income for the various family types by decile groups. Tables 3.1, 3.2 and 3.3 show mean labor income in 1997 by decile group for married couples and corresponding incomes for married men and married women, for each of the three family categories.

Table 3.1. Mean labor income by decile groups for married couples with corresponding incomes for married men and married women, for couples where at least one spouse has labor income. 1997. NOK.

Decile group	Married couples	Married men	Married women	Married women's labor income in percent of men's labor income
1	151 891	68 596	83 295	121
2	245 477	168 622	76 855	46
3	302 928	216 750	86 178	40
4	354 992	240 993	113 999	47
5	393 853	251 493	142 360	57
6	433 060	274 247	158 813	58
7	474 307	299 876	174 431	58
8	522 271	328 006	194 265	59
9	598 445	387 088	211 357	55
10	931 511	665 588	265 923	40
All	440 874	290 126	150 748	52

Table 3.2. Mean labor income by decile groups for married couples with corresponding incomes for married men and married women, for couples where only one spouse has labor income. 1997. NOK

Decile group	Married couples	Married men	Married women	Married women's labor income in percent of men's labor income
1	102 401	31 087	71 314	229
2	155 035	66 309	88 726	134
3	191 840	108 726	83 114	76
4	221 863	139 530	82 334	59
5	247 864	182 583	65 281	36
6	271 592	221 268	50 323	23
7	298 548	239 974	58 574	24
8	341 620	304 680	36 940	12
9	409 995	367 536	42 460	12
10	774 672	685 390	89 281	13
All	301 543	234 708	66 835	28

For couples with at least one labor income, Table 3.1 shows that women's mean labor income was 52 percent of men's mean labor income. This share varied considerably between decile groups, from 40 percent to 121 percent. For couples with only one labor income, there was, as expected, even more variability between deciles of the ratio between women's and men's labor income, see Table 3.2. In the lowest decile women's labor income is on average more than twice as high as men's labor income. Since average labor income is lower for women than for men, relatively more women will be found in the low deciles of Table 3.2. Moreover, many of the couples with only one labor income consist of couples with one wage earner and one social security recipient. On average the age of the husband is somewhat higher than the age of the wife, and hence, couples in this category may have a low labor income from the wife, while the husband is retired.

Table 3.3. Mean labor income by decile groups for married couples with corresponding incomes for married men and married women, for couples where both spouses have labor income. 1997. NOK

Decile group	Married couples	Married men	Married women	Married women's labor income in percent of men's labor income
1	274 798	156 358	118 440	76
2	349 678	215 351	134 327	62
3	384 553	235 144	149 409	64
4	415 160	246 317	168 843	69
5	446 227	268 498	177 729	66
6	477 959	289 691	188 268	65
7	512 772	307 858	204 914	67
8	559 951	343 261	216 690	63
9	638 377	406 123	232 254	57
10	961 786	676 288	285 498	42
All	502 126	314 489	187 637	60

For couples with two labor incomes there is much more stability between deciles of the ratio between women's and men's labor income, see Table 3.3. In this group there are many couples where both spouses have high education and full-time employment. For this category women's mean labor income was 60 percent of men's mean labor income. This share varied between 62 and 76 percent for the seven lowest deciles and then declined to 42 percent. The fact that women's share of family labor income declines with increasing labor income does not per se imply that women's labor income contributes to equalizing family income. In fact, Table 3.3 shows that women's labor income increases with increasing family income for two-income families, a trend that clearly illustrates the tendency of "flocking together".

3.2. Gini-coefficients

In this section we focus on inequality in the distribution of family labor income and its components, measured by the Gini coefficient. Figure 3.3 shows the Gini coefficient in distributions of labor income for married men, married women and married couples, for couples where at least one spouse has labor income, for selected years over the period 1973-97. Figures 3.4 and 3.5 show the corresponding Gini coefficients for couples where only one spouse has labor income and couples where both spouses have labor income, respectively. The background data for Figures 3.3, 3.4 and 3.5 with standard deviations of the estimated Gini coefficients are reported in Table B.1 in Appendix B.

Figure 3.3. The Gini-coefficient in distributions of labor income for married men, married women and couples, for couples where at least one spouse has labor income

Figure 3.3 shows that for married couples where at least one spouse has labor income, inequality in the distribution of women's labor income has decreased considerably over the period. This reflects the transition from the one-income family to the two-income family as the most prevalent family type, as described in relation to Table 2.1. Recall that in 1973 70 percent of the families had only one labor income, whereas in 1997 more than 70 percent of the families had two labor incomes. The reduction in inequality in women's labor income corresponds to the result found by Björklund (1992), which in his analysis is the reason why women's income contributed to a reduction in family income inequality. Inequality in the distribution of men's labor income has increased somewhat over the period. Inequality in the distribution of family labor income has been fairly stable over the period, with a small reduction in the Gini coefficient from 0.260 in 1973 to 0.255 in 1997. However, this change is not statistically significant at 95 percent level.

Figure 3.4. The Gini-coefficient in distributions of labor income for married men, married women and couples, for couples where only one spouse has labor income
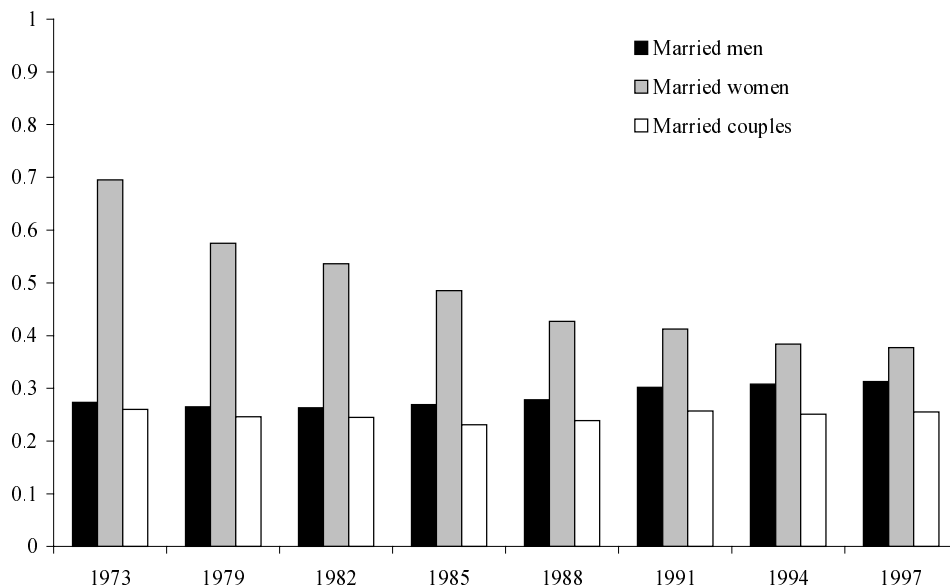

Figure 3.4 shows that for married couples where only one spouse has labor income, inequality in the distribution of women's labor income has decreased somewhat over the period, but it is still very high as compared to the inequality in the distribution of men's labor income that in fact has increased over the period. Families with only one labor income are a highly heterogeneous group with a large variation in women's actual labor force participation, ranging from those who are full-time homemakers with no income, to those with part-time jobs yielding incomes just below the threshold for being classified as having labor income, to those with high incomes, classified in this category because their spouse has no labor income. Since the age of the husband on average is higher than the age of the wife, this group will comprise couples where the wife has labor income and the husband is retired. Hence, this group contains both couples who actively have chosen a low level of labor supply and couples who have low labor supply due to age, health or other exogenous factors. Inequality in the distribution of family income has increased slightly, from 0.261 in 1973 to 0.302 in 1997. However, the difference must be interpreted cautiously in light of the standard deviations.

Figure 3.5. The Gini-coefficient in distributions of labor income for married men, married women and couples, for couples where both spouses have labor income.
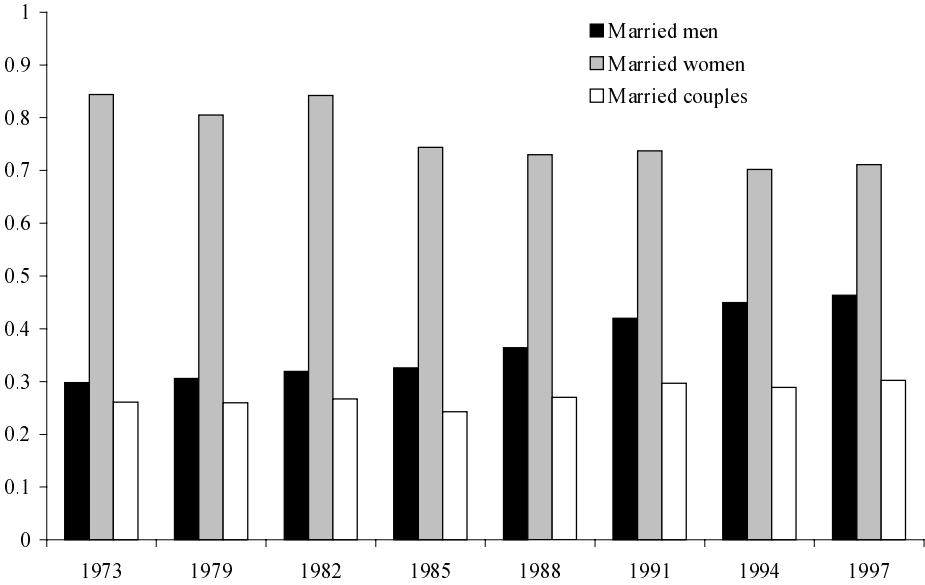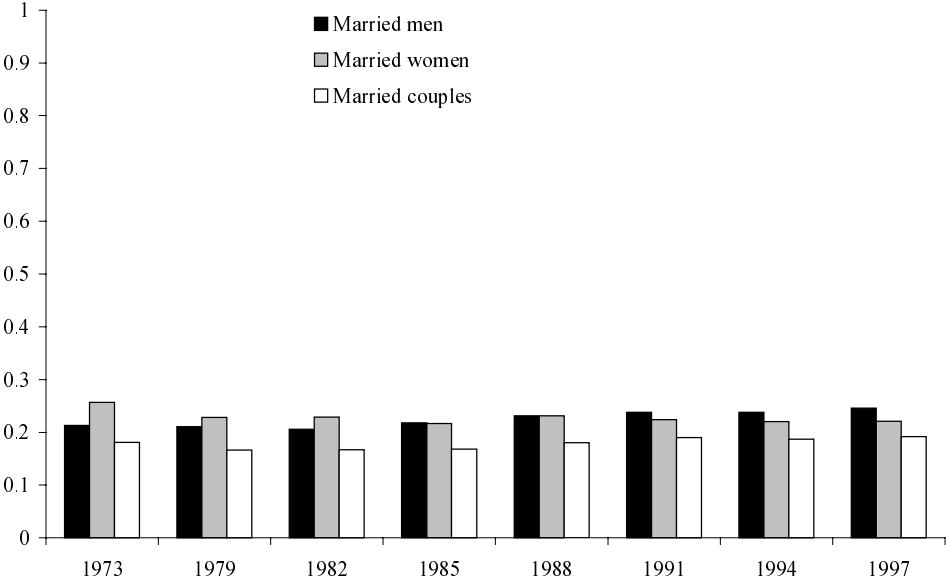

For married couples with two labor incomes, see Figure 3.5, the data clearly indicate that inequality in the distributions of men's labor income, women's labor income and family labor income has been fairly stable over the period. Inequality, as measured by the Gini coefficient, in the distribution of family labor income was 0.181 in 1973 and 0.192 in 1997. Application of a simultaneous test procedure shows that the differences between the Gini coefficients are too small to be claimed statistically significant at 95 percent level. For the early years in this period, inequality in the distribution of women's labor income was somewhat larger than inequality in the distribution of men's labor income. After 1985 inequality in the distribution of women's labor income has been less than the inequality in the distribution of men's labor income. This group is much more homogenous with respect to labor market choices than the one-income families.

Table B.2 presents the Gini coefficients in distributions of labor income for married couples with children. Note that inequality in the distribution of family income in general is somewhat smaller for couples with children. This reflects that the category married couples with children is a more homogenous group with respect to income, age, wealth, debt, time constraints for work and child care obligations, and other relevant characteristics, as compared to the average for all married couples.

Figures 3.3, 3.4 and 3.5 show that for each family category, inequality in the distribution of family labor income is less than the inequality in the distribution of labor income for each spouse. This does not necessarily imply that women with low labor income are married to men with high labor income and women with high labor income are married to men with low labor income. A widespread tendency

of "flocking together" will counteract the "equalizing" effect of family formation. Hence, we need to consider a more precise measure of the extent of "flocking together". Before we develop the index of "flocking together", the decomposition of the Gini coefficient will be introduced.

4. Decomposition of family labor income inequality

This section is devoted to the decomposition of the Gini coefficient and an empirical application of the decomposition method to the Norwegian income data for spouses' labor income. Inequality in the distribution of family labor income is decomposed into inequality contributions from two sources: labor income of married men and labor income of married women. The purpose of the decomposition of the Gini-coefficient is to identify the contribution from each income source to inequality in total labor income. Assume that income X is the sum of s different income components,

$$(4.1) \qquad\qquad X = \sum_{i=1}^{s} X_i.$$

In this paper X can be seen as labor income of the married couple, where X_1 is the labor income of the husband and X_2 is the labor income of the wife. As was demonstrated by Rao (1969) we have that G admits the following decomposition

$$(4.2) \qquad\qquad G = \sum_{i=1}^{s} \frac{\mu_i}{\mu} \gamma_i = \sum_{i=1}^{s} u_i(G)$$

where μ_i/μ is the ratio between the means of X_1 and X respectively, and the concentration coefficient γ_i can be interpreted as the conditional Gini-coefficient of income component i given the rank order in X, where $X_{(1)} \leq X_{(2)} \leq ... \leq X_{(n)}$ are the ordered observations of income for each unit $j = 1,...,n$. The ratio μ_i/μ is denoted the income share of component i in total income. The product of the income share and the concentration coefficient is denoted the inequality contribution $u_i(G)$. The relative inequality contribution $u_i(G)/G$ is denoted the inequality share.

Note that γ_i is a measure of "correlation" between income component X_i and total income X. Assume for example that $\mu_i > 0$. Then a negative value of γ_i expresses negative correlation, which means that income component i gives an equalizing contribution to total inequality, i.e. income component i contributes to less inequality in the distribution of X. A positive value of γ_i expresses positive correlation, which means that income component i gives a disequalizing contribution to total inequality, i.e. income component i contributes to higher inequality in the distribution of X. The case of $\gamma_i = 0$ corresponds to a situation where every household receives an equal amount of income component i. Thus, income component i does neither give an equalizing nor a disequalizing

contribution to total inequality. We say that income component *i* gives a neutral contribution to total inequality. For $\mu_i < 0$, positive values of γ_i express an equalizing contribution to total inequality, and negative values of γ_i express a disequalizing contribution to total inequality.

Let us now further examine the factors that determine the concentration coefficients. Rewriting (4.2) we have that

$$(4.3) \qquad G = \sum_{i=1}^{s} \frac{\mu_i}{\mu} \gamma_i = \sum_{i=1}^{s} \frac{\mu_i}{\mu} \frac{\gamma_i}{G_i} G_i$$

where G_i is the marginal inequality of income component *i*, and the ratio γ_i/G_i denotes the location component of income component *i*. By definition, the concentration coefficient is the product of the marginal inequality and the location component. If the income units have the same location in the ranking of X_i as in the ranking of X, then $\gamma_i/G_i = 1$. Otherwise $\gamma_i/G_i < 1$.

A low location component indicates that the location of women's labor income in the ranking of family labor income represents an equalizing contribution to inequality in family income. Intuitively interpreted, a low location component indicates that "flocking together" is less pronounced, and that women with low labor income may frequently be found in couples with high family income.

In the following it is useful to consider the effect on the Gini coefficient of a change in the mean of an income component. By differentiation of (4.3) we find that

$$(4.4) \qquad \frac{\partial \log G}{\partial \log \mu_i} = \frac{\mu_i}{\mu} \left(\frac{\gamma_i}{G} - 1 \right), \quad i = 1, 2, ..., s.$$

From (4.4) we see that the Gini coefficient will increase if the concentration coefficient is larger than the overall inequality, and decrease if the concentration coefficient is smaller that the overall inequality, provided that the concentration coefficients remain constant.

The results of the decompositions of the labor income inequality, as measured by the Gini coefficient for each of the three groups of married couples, are given in Tables 4.1, 4.2 and 4.3 for the first and last year of the period. Standard deviations are found in Table B1 in Appendix B. The figures for 1997 represent aggregate statistics of the more detailed information given in Tables 3.1, 3.2 and 3.3. Decompositions for other years are given in Tables C1a, C1b and C1c in Appendix C.

Table 4.1. Decomposition of the Gini coefficient in distributions of labor income for married couples with respect to (1) labor income for married men, and (2) labor income for married women, for couples where at least one spouse has labor income. 1973 and 1997

Year	Inequality	Income component	Inequality share	Income share	Concentration coefficient	Marginal inequality	Location component
1973	0.260	Men	0.755	0.827	0.237	0.273	0.868
		Women	0.245	0.173	0.367	0.695	0.528
1997	0.255	Men	0.700	0.658	0.271	0.313	0.866
		Women	0.300	0.342	0.224	0.377	0.594

Table 4.1 shows the decomposition of the Gini coefficient in the distributions of labor income in 1973 and 1997 for married couples, for couples where at least one spouse has labor income. Note that the positive concentration coefficients imply that women's labor income gives a disequalizing contribution to total inequality. However, the concentration coefficient for women's labor income has declined over time so that women's disequalizing effect on family income inequality was less in 1997 than in 1973. The concentration coefficient for women's labor income was larger than overall inequality in 1973 and smaller than overall inequality in 1997. From equation (4.4) we thus have that women's labor income contributed more strongly to family income inequality in 1973 than in 1997.

Equivalently, this can be expressed by comparing the income shares and inequality shares. Women's income share in family labor income was 17 percent in 1973 and 34 percent in 1997. Women's inequality share was 25 percent in 1973 and 30 percent in 1997. This implies that the inequality share, relative to the income share, was larger for married women than for married men in 1973, whereas in 1997 the inequality share, relative to the income share, was larger for married men than for married women. By definition, this simply means that the concentration coefficient for women's labor income was the larger in 1973, and the concentration coefficient for men's labor income was the larger in 1997, so that in 1973 women's labor incomes were more strongly correlated with family income than men's incomes, whereas in 1997 men's labor incomes were more strongly correlated with family income.

The extent to which men and women contribute to family income inequality has changed over time, but the pattern of both spouses contributing to inequality has remained the same. Despite the change in the relative inequality contributions for men and women over time, the positive concentration coefficients for men's and women's incomes both in 1973 and 1997 indicate a pattern of "flocking together", whereby women's labor incomes clearly contribute to inequality in family income. However, as will be discussed in Section 5, a positive concentration coefficient for women's labor income does not give precise information on the extent of "flocking together". Before we return to this

question, we will now consider the decomposition of Gini coefficients for one- and two-income families.

Table 4.2. Decomposition of the Gini coefficient in distributions of labor income for married couples with respect to (1) labor income for married men, and (2) labor income for married women, for couples where only one spouse has labor income. 1973 and 1997

Year	Inequality	Income component	Inequality share	Income share	Concen-tration coefficient	Marginal inequality	Location component
1973	0.261	Men	1.032	0.943	0.285	0.298	0.956
		Women	-0.032	0.057	-0.147	0.844	-0.174
1997	0.302	Men	1.049	0.778	0.407	0.464	0.877
		Women	-0.049	0.222	-0.067	0.711	-0.094

Table 4.2 shows the decomposition of the Gini coefficient for couples where only one spouse has labor income. The striking result in Table 4.2 is that concentration coefficients for women's labor income are negative, both in 1973 and 1997. This means that for the subgroup of families with only one labor income, women's labor income in fact represents an equalizing contribution to inequality in family income. Roughly speaking, families in lower deciles have a larger share of women's labor income than families in higher deciles. As mentioned before, the couples with one labor income are less homogenous than two-income families, this group comprises e.g. couples where one spouse is still in the labor force and the other is retired. The negative concentration coefficient for women's labor income suggests that there is no tendency of "flocking together" in this group. For one-income families, women's income share in family labor income was 6 percent in 1973 and 22 percent in 1997, the large increase reflecting the growth in part-time employment at income levels below the statistical definition of labor income.

Table 4.3. Decomposition of the Gini coefficient in distributions of labor income for married couples with respect to (1) labor income for married men, and (2) labor income for married women, for couples where both spouses have labor income. 1973 and 1997

Year	Inequality	Income component	Inequality share	Income share	Concen-tration coefficient	Marginal inequality	Location component
1973	0.181	Men	0.665	0.648	0.185	0.213	0.869
		Women	0.335	0.352	0.172	0.257	0.669
1997	0.192	Men	0.721	0.626	0.221	0.246	0.898
		Women	0.279	0.374	0.143	0.221	0.647

Finally, Table 4.3 shows the decomposition of the Gini coefficient for couples where both spouses have labor income. The positive concentration coefficients imply that women's labor income gives a disequalizing contribution to total inequality. As for married couples with at least one labor income, the concentration coefficient for women's labor income was higher in 1973 than in 1997. For two-income families, women's income share in family labor income was 35 percent in 1973 and 37 percent in 1997. Women's inequality share was 34 percent in 1973 and 28 percent in 1997. This implies that the inequality share, relative to the income share, was larger for men, both in 1973 and 1997. The inequality share for men increased from 1973 to 1997.

Hence, dividing all married couples with labor income into one- and two-income families we found a substantial difference: in two-income families, as in the whole population, women's labor income represents a disequalizing contribution to family labor income inequality, whereas in one-income families women's labor income represents an equalizing contribution to family labor income inequality.

The concentration coefficients express the composite effect of the marginal inequality and the location component, e.g. the concentration coefficient for women's labor income comprise both the effect of the marginal inequality in women's labor income and the effect of the location of women's labor income relative to men's labor income in the distribution of family labor income. Tables 4.1, 4.2 and 4.3 show that the location component is less for married women than for married men, i.e. the labor incomes of married women have a more equalizing location effect on family labor income inequality, as compared to the labor incomes of married men. The equalizing location effect of women's labor income is found for all three family categories. For married men the location component is so high that, roughly speaking, they have the same location in the ranking of their own labor income as in the ranking of family labor income.

Within each group, the marginal inequality has decreased over time for women's labor income and increased over time for men's labor income. However, for the population as a whole and the two-income families the marginal inequality in the distribution of women's labor income counteracts the equalizing location effect, and the net result is seen as a positive concentration coefficient, i.e. women's labor income represents a disequalizing contribution to family income inequality. For one-income families, on the other hand, the equalizing location effect is sufficiently high to outweigh the high marginal inequality in the distribution of women's labor income, both in 1973 and 1997. The net result is seen as a negative concentration coefficient, i.e. women's labor income represents an equalizing contribution to family labor income inequality.

5. The extent of "flocking together"

We will now discuss to which extent there is a pattern of "flocking together" in the matching of labor incomes for spouses, such that women with high labor incomes tend to be married to men with high labor incomes, and vice versa. In the analysis of "flocking together" we focus on couples where both spouses have labor income, and we subsequently compare this group with couples where at least one spouse has labor income. We disregard couples where only one spouse has labor income since this group is strongly heterogeneous with respect to labor market activity. For some families in this group the spouse of the income earner may be active in the labor market although the labor income is below the threshold of the statistical definition of labor income. For this subgroup it would be relevant to analyze the extent of "flocking together" with respect to labor income. However, the category couples with only one labor income also contains couples where the spouse of the income earner is not active in the labor market, e.g. the spouse is retired. In this case it is less relevant to analyze the extent of "flocking together" with respect to labor income. Moreover, in our preceding analysis of couples with only one labor income the negative concentration coefficients have strongly indicated that women's labor income represents an equalizing contribution to family income inequality. In other words, we conclude that the negative concentration coefficients for women's labor income give a clear indication that there is no tendency of "flocking together" for this group.

However, for families with two labor incomes and families with at least one labor income the positive concentration coefficients for women's labor income do not give precise information on the extent of "flocking together". A positive concentration coefficient for women's labor income measures the association between women's labor income and family labor income, whereas a complete analysis of "flocking together" calls for a measure of the association between the labor incomes of the spouses.

This suggests that the distribution where the observed labor incomes of married men and married women are randomly matched may act as an appropriate reference distribution. Thus, the deviation between the observed Gini coefficient of family labor income and the Gini coefficient of the distribution of the randomly matched labor incomes emerges as a relevant basis for defining a summary measure of the extent of "flocking together". Standardized on the $[-1,1]$ interval the "flocking together" measure can be obtained by dividing the difference between the observed and the randomly formed Gini coefficient by the difference between the observed Gini coefficient and the Gini coefficients of the hypothetical extreme distributions where the actual labor incomes are matched in order to give the most disequalizing and most equalizing combination of male and female labor incomes. We will now first consider these two extreme distributions and then introduce the formal definition of the index of "flocking together". In the following we assume that the marginal distributions of male and female labor incomes are given.

Consider now the hypothetical distribution of spouses' labor incomes, where the actual labor incomes are hypothetically rearranged in order to match the woman with the highest labor income with the man with the highest labor income, and so on down the income ranking. This hypothetical distribution represents the most disequalizing matching of individual labor incomes, the extreme case of "flocking together". The Gini coefficient of this distribution is denoted G_{max} in order to indicate the most disequalizing matching pattern.

If the woman with the highest labor income had been married to the man with the highest labor income, and so on, the ranking of women's labor income in the distribution of family labor income would have coincided with the ranking in the marginal distribution of women's labor income. In this case, the location component would have been one for both men and women, and the concentration coefficients would have been equal to the marginal inequalities, $\gamma_1 = G_1$ and $\gamma_2 = G_2$. Hence, we can use the summary statistics in Table 4.3 to compute the parameters of the hypothetical distribution for the two-income families. The concentration coefficient in the hypothetical distribution of labor income would have been $\gamma_1 = G_1 = 0.246$ and $\gamma_2 = G_2 = 0.221$ in 1997. Hence, we can compute a hypothetical Gini coefficient G_{max} in the distribution of family labor income for hypothetically matched couples, from observed income shares and hypothetical concentration coefficients coinciding with the marginal inequalities,

$$(5.1) \qquad G_{max} = \frac{\mu_1}{\mu}G_1 + \frac{\mu_2}{\mu}G_2 = 0.626 \cdot 0.246 + 0.374 \cdot 0.221 = 0.237.$$

The Gini coefficient G_{max} in the hypothetical income distribution corresponding to the most disequalizing matching of women's and men's labor income would thus have been 0.237 in 1997. As seen from Table 4.3 the actual Gini coefficient in the distribution of labor income for married couples was 0.192 in 1997. Measured by the Gini coefficient, inequality would have been about 23 percent higher if the observed distribution of family labor income had been replaced by the most disequalizing matching pattern.

As demonstrated by Aaberge (1997) this fairly substantial increase in inequality corresponds to introducing a lump-sum tax of 23 percent of mean labor income in 1997 and redistributing the tax revenue as proportional transfers where each unit receives 23 percent of its pre-reform labor income. The lump-sum tax revenue is 23 percent of NOK 502 126 from Table A1, or about NOK 115 000. In this hypothetical policy experiment, we find from Table 3.3 that the 10 percent poorest couples would lose about NOK 52 000, while the 10 percent richest couples would gain about NOK 106 000.

Consider now the other extreme reference distribution, i.e. the most equalizing rearranging of individual labor incomes. In this distribution the highest male labor income is matched with the lowest female labor income, and so on. We assume that the highest male labor income and the lowest female labor income represent the highest family labor income. The Gini coefficient of this distribution is denoted $G_{\min}$ in order to indicate the most equalizing matching pattern. The largest equalizing effect of this rearrangement occurs if the ranking of men's labor income in the distribution of family labor income would have coincided with the ranking in the marginal distribution of men's labor income, so that $\gamma_1 = G_1$, and that the ranking of women's labor income in the distribution of family labor income would have been the reverse of the ranking in the marginal distribution of women's labor income, so that the hypothetical concentration coefficient is $\gamma_2 = -G_2$. We thus get for the two-income families in 1997

(5.2) $$G_{\min} = 0.626 \cdot 0.246 - 0.374 \cdot 0.221 = 0.071,$$

which is considerably lower than the observed Gini coefficient of 0.192. Hence, in this case the Gini coefficient would have been 63 percent less if the observed distribution of family labor income had been replaced by the most equalizing matching pattern. This corresponds to a policy experiment where a lump-sum transfer of 63 percent of mean labor income, or about NOK 316 000 in 1997, is financed by proportional tax payments. In this case the 10 percent poorest couples would gain about NOK 143 000, whereas the 10 percent richest couples would lose about NOK 290 000.

The most equalizing matching pattern would have given a substantially larger reduction in inequality as compared to the increase in inequality following from the most disequalizing matching pattern. This large reduction in inequality indicates a considerable deviation between the most equalizing pattern and the observed distribution of family labor income, which in itself indicates a large extent of "flocking together" in the observed distribution of labor income. However, as discussed above we suggest that the extent of "flocking together" should be measured in terms of the association between the labor income of the spouses. Specifically, we propose an index for the extent of "flocking together" based on the deviation between the Gini coefficient of the randomly matched labor incomes and the Gini coefficient of the observed family labor incomes.

The Gini coefficient of the hypothetical distribution of labor income where the labor incomes of married men and married women are matched randomly is denoted G_r. It appears natural to limit the range of variation of the index, and we thus normalize by the distance between G_r and the Gini coefficient $G_{\max}$ in the most disequalizing matching of male and female labor incomes if $G > G_r$, and by the distance between G_r and the Gini coefficient $G_{\min}$ in the most equalizing matching of male and female labor incomes if $G < G_r$. The formal definition is given by

$$(5.3) \qquad v(G) = \begin{cases} \dfrac{G - G_r}{G_{\max} - G_r} & \text{if} \quad G > G_r \\[2em] \dfrac{G \text{-} G_r}{G_r - G_{\min}} & \text{if} \quad G < G_r. \end{cases}$$

The index v has range $[-1, 1]$, where $v = 0$ describes the situation where the labor incomes of the spouses are stochastically independent. A special case of $v = 0$ occurs if the labor incomes of all married women are equal, so that $\gamma_2 = 0$. The case of $v > 0$ reflects that $G > G_r$, i.e. inequality in the observed distribution of labor incomes is larger than the randomly matched distribution of labor incomes, which is taken as an indicator of "flocking together". The case of $v < 0$ reflects that $G < G_r$, i.e. inequality in the observed distribution of labor incomes is less than inequality in the randomly matched distribution of labor incomes, which characterizes the opposite situation of "flocking together". Hence, v is symmetric with respect to the sign of the association between the labor incomes of the husband and the wife.

The definition of $v(G)$ suggests that $v(G)$ also can be interpreted as a measure of association or correlation between two stochastic variables. This interpretation emerges even more clearly when the measure of the extent of "flocking together" is derived from the squared coefficient of variation rather than from the Gini coefficient. Thus, let X_1 and X_2 denote the income variables of the female and the male, ρ the correlation coefficient, C the squared coefficient of variation and let C_r, $C_{\max}$, $C_{\min}$ and $v(G)$ have similar meaning as G_r, $G_{\max}$, $G_{\min}$ and $v(G)$. By noting that $\text{var}(X_1 + X_2)$ is attaining its maximum and minimum values when ρ is equal to 1 and -1, respectively, we get the following results

$$(5.4) \qquad \begin{aligned} v(C) &= \frac{C - C_r}{C_{\max} - C_r} = \frac{\text{var}(X_1 + X_2) - \text{var}_r(X_1 + X_2)}{\text{var}_{\max}(X_1 + X_2) - \text{var}_r(X_1 + X_2)} \\[1em] &= \frac{\text{var}\,X_1 + \text{var}\,X_2 + 2\,\text{cov}(X_1, X_2) - \text{var}\,X_1 - \text{var}\,X_2}{\text{var}\,X_1 + \text{var}\,X_2 + 2\sqrt{\text{var}\,X_1 \cdot \text{var}\,X_2} - \text{var}\,X_1 - \text{var}\,X_2} \\[1em] &= \frac{\text{cov}(X_1, X_2)}{\sqrt{\text{var}\,X_1 \cdot \text{var}\,X_2}} = \rho \ \text{ if } \ C > C_r \end{aligned}$$

and

$$(5.5) \qquad \begin{aligned} v(C) &= \frac{C - C_r}{C_r - C_{\min}} = \frac{2\,\text{cov}(X_1, X_2)}{\text{var}\,X_1 + \text{var}\,X_2 - \text{var}\,X_1 - \text{var}\,X_2 + 2\sqrt{\text{var}\,X_1 \cdot \text{var}\,X_2}} \\[1em] &= \frac{\text{cov}(X_1, X_2)}{\sqrt{\text{var}\,X_1 \cdot \text{var}\,X_2}} = \rho \ \text{ if } \ C < C_r. \end{aligned}$$

Equations (5.4) and (5.5) demonstrate that the correlation coefficient may be used as a summary measure of the extent of "flocking together" when income inequality is judged on the basis of the coefficient of variation. However, this result also suggests that the Gini-based measure of the extent of "flocking together" $(v(G))$ can be employed as an alternative to the correlation coefficient as a measure of the correlation between two stochastic variables.

Figure 5.1. The extent of "flocking together" measured by the index $v(G)$
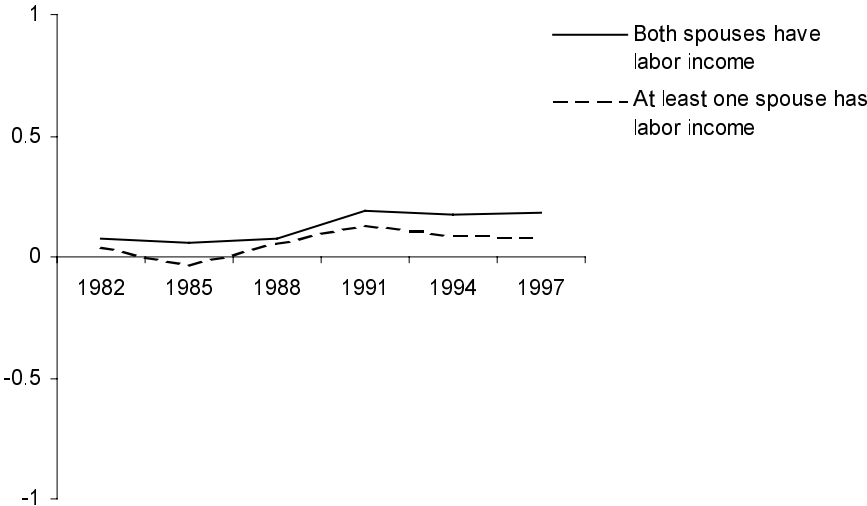
Returning to $v(G)$ based on the Gini coefficient, Figure 5.1 shows the development of $v(G)$ from 1982 to 1997. At this point we have data for the randomly matched labor incomes only after 1982. Figure 5.1 shows that for couples with two labor incomes, the index v has been above zero throughout the period. The low estimate for v in the 1980s suggests a rather weak tendency of "flocking together", while there has been a more clear tendency of "flocking together" during the 1990s. As women and men have obtained more equal opportunities with respect to education, labor supply and income, the potential for "flocking together" has increased, as reflected by the positive trend of v. Note, however, that the current extent of "flocking together" is far below the extreme case of "flocking together" where $G = G_{max}$ and $v = 1$.

For couples with at least one labor income v has been somewhat lower than for the two-income couples. This group contains the one-income couples that counteract the tendency of "flocking together" for the two-income families. In fact, in 1985 the negative value of v indicated no tendency of "flocking together". For couples with only one labor income we have concluded that the negative concentration coefficients suggest that there is no tendency of "flocking together". On the contrary, it appears that women's labor income to a certain extent is meant to compensate for low spouse incomes.

As in the preceding discussion, we might ask how much inequality in family labor income would have decreased of there had been no tendency of "flocking together". In 1997 the Gini coefficient in the distribution of randomly matched family labor income was 0.183, i.e. 5 percent lower that the actual Gini coefficient of 0.192. This reduction in the Gini coefficient corresponds to a policy experiment where a lump-sum transfer of 5 percent of mean labor income, or about NOK 25 000, is financed by proportional tax payments where each unit pays 5 percent of its pre-reform labor income. In this case the 10 percent poorest couples would gain about NOK 11 000, whereas the 10 percent richest couples would lose about NOK 23 000.

Conclusion

The analysis of this paper shows a considerable difference between couples with one and two labor incomes in how women's labor income influences the inequality in family labor income. First, we have decomposed the Gini coefficients in order to compare the contribution from women's labor income to inequality in family labor income for the different groups. Secondly, we have analyzed whether there is a tendency that "birds of a feather flock together", i.e. that women with high labor incomes generally are married to men with high labor incomes, and vice versa.

The decomposition of the Gini coefficient shows that for all married couples and for two-income families, women's labor income gives a disequalizing contribution to inequality in family labor income. For one-income families we find the opposite result, women's labor income gives an equalizing contribution to inequality in family labor income. Comparing the concentration coefficients for labor income over time we find that the disequalizing contribution from women's labor income has decreased from 1973 to 1997.

The large difference between families with one and two labor incomes reflects their labor market choices. While the two-income families are homogenous with respect to their actively chosen labor supply, the one-income families are much more heterogeneous. Some of these have only one labor income by choice, e.g. if they prefer to devote more time to child care and less time to paid labor, whereas others have only one labor income as a consequence of age, health or other factors beyond the choice of the individual.

In order to analyze whether "birds of a feather flock together" or not, we have considered the hypothetical reference distribution where the male and female labor incomes are randomly matched, as well as two extreme distributions, where observed labor incomes are hypothetically rearranged in the most disequalizing matching patterns and the most equalizing matching pattern. From the observed Gini coefficient G and the Gini coefficients G_r, G_{max} and G_{min} of these hypothetical distributions we

derive an index ν that measures the extent of "flocking together". For couples with two labor incomes there has been a pattern of "flocking together". Low estimates for ν in the 1980s suggest a rather weak tendency of "flocking together", while there has been a more clear tendency of "flocking together" in the 1990s. As women and men have obtained more equal opportunities with respect to education, labor supply and income, the potential for "flocking together" has increased, as reflected by the positive trend of ν. For one-income families the negative concentration coefficients suggest that there is no tendency of "flocking together". On the contrary, it appears that women's labor income to some extent counteracts the inequality in men's labor income. This striking difference illustrates the importance of distinguish between one-income and two-income families in analysis of family income inequality.

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Table A1. Annual mean labor income for married couples and spouses, by labor market status. 1973, 1979, 1982, 1985, 1988, 1991, 1994 and 1997. 1997-NOK. Standard deviations are given in next column

Year	Unit	At least one spouse has labor income		Only one spouse has labor income		Both spouses have labor income	
1973	Married men	209120	2311	207400	2982	213084	3356
	Married women	43822	1222	12551	720	115827	2111
	Married couples	252947	2538	219951	2827	328911	4227
1979	Married men	258230	2697	252468	4149	265500	3122
	Married women	73378	1303	21986	1251	138214	1386
	Married couples	331608	2914	274454	4059	403714	3454
1982	Married men	246640	2579	239736	4510	253392	2591
	Married women	81564	1229	21949	1065	139864	1333
	Married couples	328204	2828	261685	4401	393256	3021
1985	Married men	254497	5004	241708	7829	265740	6371
	Married women	89765	2293	31521	2381	140968	2224
	Married couples	344263	5348	273229	7155	406708	6905
1988	Married men	268693	3812	239212	7570	284906	4052
	Married women	114097	2107	38350	2885	155753	1968
	Married couples	382790	4322	277562	6957	440659	4696
1991	Married men	270730	4498	235250	8359	289580	5203
	Married women	122555	2052	41385	2568	165679	1984
	Married couples	393285	5015	276635	7601	455259	5849
1994	Married men	276797	2472	230196	5252	299347	2589
	Married women	135215	1272	53607	1896	174702	1206
	Married couples	412012	2828	283803	4594	474049	3088
1997	Married men	290126	3302	234708	5794	314489	3947
	Married women	150748	2306	66835	6625	187637	1304
	Married couples	440874	4042	301543	7976	502126	4309

Table A2. Annual mean labor income for married couples and married couples with children, by labor market status. 1973, 1979, 1982, 1985, 1988, 1991, 1994 and 1997. 1997-NOK. Standard deviations are given in next column

Year	Unit	At least one spouse has labor income		Only one spouse has labor income		Both spouses have labor income	
1973	Married couples	252 947	2 538	219 951	2 827	328 911	4 227
	Married couples with children	260 196	3 293	233 796	3 724	330 742	5 627
1979	Married couples	331 608	2 914	274 454	4 059	403 714	3 454
	Married couples with children	340 773	3 984	290 997	5 630	403 270	4 895
1982	Married couples	328 204	2 828	261 685	4 401	393 256	3 021
	Married couples with children	335 594	3 688	278 146	6 046	392 923	3 643
1985	Married couples	344 263	5 348	273 229	7 155	406 708	6 905
	Married couples with children	361 648	7 802	304 194	10 904	411 389	10 399
1988	Married couples	382 790	4 322	277 562	6 957	440 659	4 696
	Married couples with children	397 420	5 378	302 673	8 048	450 193	6 139
1991	Married couples	393 285	5 015	276 635	7 601	455 259	5 849
	Married couples with children	411 980	6 447	318 913	12 916	455 781	6 744
1994	Married couples	412 012	2 828	283 803	4 594	474 049	3 088
	Married couples with children	433 562	3 915	326 172	7 756	475 320	4 186
1997	Married couples	440 874	4 042	301 543	7 976	502 126	4 309
	Married couples with children	461 250	5 797	339 282	9 276	502 676	6 849

Table B1. The Gini coefficient in distributions of labor income for married men, married women and married couples, by labor market status, 1973, 1979, 1982, 1985, 1988, 1991, 1994 and 1997. Standard deviations are given in parentheses

Year	Unit	At least one spouse has labor income	Only one spouse has labor income	Both spouses have labor income
	Married men	0.273 (0.006)	0.298 (0.007)	0.213 (0.008)
1973	Married women	0.695 (0.007)	0.844 (0.006)	0.257 (0.008)
	Married couples	0.260 (0.005)	0.261 (0.006)	0.181 (0.007)
	Married men	0.265 (0.006)	0.306 (0.010)	0.211 (0.007)
1979	Married women	0.575 (0.006)	0.805 (0.014)	0.228 (0.004)
	Married couples	0.246 (0.005)	0.260 (0.009)	0.166 (0.005)
	Married men	0.259 (0.007)	0.310 (0.011)	0.209 (0.006)
1982	Married women	0.529 (0.008)	0.800 (0.047)	0.227 (0.004)
	Married couples	0.241 (0.005)	0.257 (0.011)	0.164 (0.004)
	Married men	0.269 (0.012)	0.326 (0.018)	0.218 (0.015)
1985	Married women	0.485 (0.010)	0.744 (0.014)	0.217 (0.005)
	Married couples	0.231 (0.009)	0.243 (0.015)	0.168 (0.011)
	Married men	0.278 (0.008)	0.364 (0.016)	0.231 (0.007)
1988	Married women	0.427 (0.008)	0.730 (0.016)	0.231 (0.005)
	Married couples	0.239 (0.005)	0.270 (0.013)	0.180 (0.005)
	Married men	0.302 (0.010)	0.420 (0.017)	0.238 (0.011)
1991	Married women	0.412 (0.008)	0.737 (0.015)	0.224 (0.005)
	Married couples	0.257 (0.007)	0.297 (0.014)	0.190 (0.008)
	Married men	0.308 (0.005)	0.450 (0.010)	0.238 (0.005)
1994	Married women	0.384 (0.005)	0.702 (0.08)	0.218 (0.005)
	Married couples	0.251 (0.003)	0.289 (0.008)	0.187 (0.004)
	Married men	0.313 (0.007)	0.464 (0.011)	0.246 (0.008)
1997	Married women	0.377 (0.009)	0.710 (0.028)	0.221 (0.003)
	Married couples	0.255 (0.006)	0.302 (0.016)	0.192 (0.006)

Table B2. The Gini coefficient in distribution of labor income for married couples and married couples with children, by labor market status 1973, 1979, 1982, 1985, 1988, 1991, 1994 and 1997. Standard deviations are given in parentheses

Year	Unit	At least one spouse has labor income	Only one spouse has labor income	Both spouses have labor income
1973	Married couples	0.260 (0.005)	0.261 (0.006)	0.181 (0.007)
	Married couples with children	0.244 (0.006)	0.243 (0.008)	0.179 (0.008)
1979	Married couples	0.246 (0.005)	0.260 (0.009)	0.166 (0.005)
	Married couples with children	0.228 (0.007)	0.233 (0.012)	0.171 (0.007)
1982	Married couples	0.241 (0.005)	0.257 (0.011)	0.164 (0.004)
	Married couples with children	0.225 (0.007)	0.233 (0.015	0.167 (0.005)
1985	Married couples	0.231 (0.009)	0.243 (0.015)	0.168 (0.011)
	Married couples with children	0.223 (0.013)	0.237 (0.022)	0.176 (0.017)
1988	Married couples	0.239 (0.005)	0.270 (0.013)	0.180 (0.005)
	Married couples with children	0.221 (0.006)	0.236 (0.013)	0.176 (0.006)
1991	Married couples	0.257 (0.007)	0.297 (0.014)	0.190 (0.008)
	Married couples with children	0.234 (0.008)	0.279 (0.023)	0.185 (0.008)
1994	Married couples	0.251 (0.003)	0.289 (0.008)	0.187 (0.004)
	Married couples with children	0.228 (0.005)	0.272 (0.013)	0.186 (0.005)
1997	Married couples	0.255 (0.006)	0.302 (0.016)	0.192 (0.006)
	Married couples with children	0.235 (0.008)	0.284 (0.015)	0.195 (0.010)

Table B3. The Bonferroni coefficient in distributions of labor income for married men, married women and married couples, by labor market status, 1973, 1979, 1982, 1985, 1988, 1991, 1994 and 1997. Standard deviations are given in parentheses

Year	Unit	At least one spouse has labor income	Only one spouse has labor income	Both spouses have labor income
	Married men	0.409 (0.007)	0.443 (0.009)	0.312 (0.010)
1973	Married women	0.823 (0.005)	0.918 (0.005)	0.347 (0.008)
	Married couples	0.371 (0.005)	0.369 (0.007)	0.260 (0.007)
	Married men	0.395 (0.007)	0.453 (0.010)	0.301 (0.008)
1979	Married women	0.744 (0.009)	0.934 (0.041)	0.317 (0.004)
	Married couples	0.352 (0.005)	0.361 (0.009)	0.238 (0.006)
	Married men	0.390 (0.007)	0.461 (0.012)	0.298 (0.007)
1982	Married women	0.724 (0.030)	1.061 (0.216)	0.315 (0.004)
	Married couples	0.354 (0.010)	0.372 (0.023)	0.239 (0.005)
	Married men	0.411 (0.015)	0.499 (0.025)	0.305 (0.015)
1985	Married women	0.665 (0.009)	0.861 (0.012)	0.305 (0.006)
	Married couples	0.337 (0.010)	0.347 (0.018)	0.241 (0.011)
	Married men	0.418 (0.009)	0.532 (0.016)	0.327 (0.009)
1988	Married women	0.617 (0.013)	0.855 (0.014)	0.336 (0.013)
	Married couples	0.350 (0.006)	0.376 (0.013)	0.253 (0.006)
	Married men	0.447 (0.010)	0.593 (0.018)	0.330 (0.011)
1991	Married women	0.598 (0.009)	0.876 (0.038)	0.318 (0.006)
	Married couples	0.371 (0.007)	0.405 (0.014)	0.264 (0.008)
	Married men	0.467 (0.008)	0.626 (0.009)	0.343 (0.009)
1994	Married women	0.568 (0.005)	0.836 (0.008)	0.315 (0.003)
	Married couples	0.369 (0.005)	0.395 (0.008)	0.268 (0.006)
	Married men	0.467 (0.007)	0.647 (0.012)	0.344 (0.008)
1997	Married women	0.559 (0.008)	0.836 (0.016)	0.321 (0.005)
	Married couples	0.369 (0.006)	0.410 (0.016)	0.270 (0.006)

Table B4. The Bonferroni coefficient in distribution of labor income for married couples and married couples with children, by labor market status 1973, 1979, 1982, 1985, 1988, 1991, 1994 and 1997. Standard deviations are given in parentheses

Year	Unit	At least one spouse has labor income	Only one spouse has labor income	Both spouses have labor income
1973	Married couples	0.371 (0.005)	0.369 (0.007)	0.260 (0.007)
	Married couples with children	0.347 (0.007)	0.343 (0.009)	0.258 (0.010)
1979	Married couples	0.352 (0.005)	0.361 ((0.009)	0.238 (0.006)
	Married couples with children	0.321 (0.007)	0.319 (0.012)	0.243 (0.008)
1982	Married couples	0.354 (0.010)	0.372 (0.023)	0.239 (0.005)
	Married couples with children	0.320 (0.007)	0.323 (0.014)	0.236 (0.005)
1985	Married couples	0.337 (0.010)	0.347 (0.018)	0.241 (0.011)
	Married couples with children	0.318 (0.015)	0.331 (0.026)	0.248 (0.017)
1988	Married couples	0.350 (0.006)	0.376 (0.013)	0.253 (0.006)
	Married couples with children	0.320 (0.007)	0.331 (0.014)	0.245 (0.008)
1991	Married couples	0.371 (0.007)	0.405 (0.014)	0.264 (0.008)
	Married couples with children	0.334 (0.009)	0.378 (0.023)	0.257 (0.009)
1994	Married couples	0.369 (0.005)	0.395 (0.008)	0.268 (0.006)
	Married couples with children	0.328 (0.005)	0.372 (0.013)	0.258 (0.006)
1997	Married couples	0.369 (0.006)	0.410 (0.016)	0.270 (0.006)
	Married couples with children	0.335 (0.008)	0.380 (0.014)	0.270 (0.009)

Table C1a. Decomposition of the Gini coefficient in distributions of labor income for married couples with respect to (1) labor income for married men, and (2) labor income for married women, for couples where at least one spouse has labor income. 1973, 1979, 1982, 1985, 1988, 1991, 1994 and 1997

| Year	Inequality	Income component	Inequality share	Income share	Concentration coefficient
1973	0.260	1	0.755	0.827	0.237
		2	0.245	0.173	0.367
1979	0.246	1	0.710	0.779	0.224
		2	0.290	0.221	0.323
1982	0.241	1	0.672	0.752	0.216
		2	0.328	0.249	0.318
1985	0.231	1	0.715	0.739	0.224
		2	0.285	0.261	0.253
1988	0.239	1	0.688	0.702	0.234
		2	0.312	0.298	0.250
1991	0.257	1	0.701	0.688	0.261
		2	0.299	0.312	0.246
1994	0.251	1	0.714	0.672	0.267
		2	0286	0.328	0.219
1997	0.255	1	0.700	0.658	0.271
		2	0.300	0.342	0.224

Table C1b. Decomposition of the Gini coefficient in distributions of labor income for married couples with respect to (1) labor income for married men, and (2) labor income for married women, for couples where only one spouse has labor income. 1973, 1979, 1982, 1985, 1988, 1991, 1994 and 1997

| Year	Inequality	Income component	Inequality share	Income share	Concentration coefficient
1973	0.261	1	1.032	0.943	0.285
		2	-0.032	0.057	-0.147
1979	0.260	1	1.028	0.920	0.290
		2	-0.028	0.080	-0.091
1982	0.257	1	1.041	0.916	0.292
		2	-0.041	0.084	-0.126
1985	0.243	1	1.078	0.885	0.296
		2	-0.078	0.115	-0.164
1988	0.270	1	1.050	0.862	0.329
		2	-0.050	0.138	-0.098
1991	0.297	1	1.089	0.850	0.381
		2	-0.089	0.150	-0.176
1994	0.289	1	1.123	0.811	0.400
		2	-0.123	0.189	-0.188
1997	0.302	1	1.049	0.778	0.407
		2	-0.049	0.222	-0.067

Table C1c. Decomposition of the Gini coefficient in distributions of labor income for married couples with respect to (1) labor income for married men, and (2) labor income for married women, for couples where both spouses have labor income. 1973, 1979, 1982, 1985, 1988, 1991, 1994 and 1997

| Year	Inequality	Income component	Inequality share	Income share	Concentration coefficient
1973	0.181	1	0.665	0.648	0.185
		2	0.335	0.352	0.172
1979	0.166	1	0.731	0.658	0.185
		2	0.269	0.342	0.131
1982	0.167	1	0.700	0.644	0.182
		2	0.300	0.356	0.141
1985	0.168	1	0.752	0.653	0.194
		2	0.248	0.347	0.121
1988	0.180	1	0.730	0.647	0.203
		2	0.270	0.353	0.137
1991	0.190	1	0.720	0.636	0.215
		2	0.280	0.364	0.146
1994	0.187	1	0.726	0.632	0.215
		2	0.274	0.369	0.140
1997	0.192	1	0.721	0.626	0.221
		2	0.279	0.374	0.143

Figure D.1.a. M-curves for distribution of labor income for married men, married women and married couples, for couples where at least one spouse has labor income. 1973
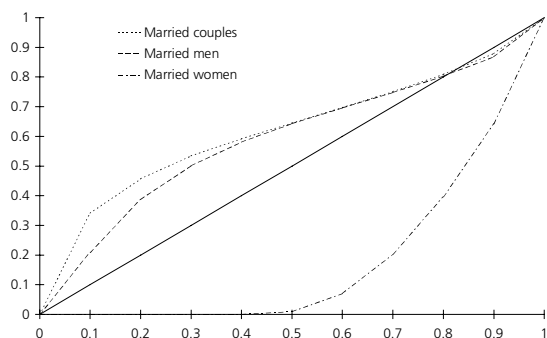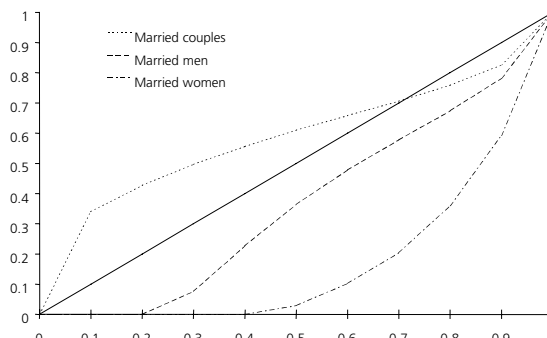

Figure D.2.a. M-curves for distribution of labor income for married men, married women and married couples, for couples where at least one spouse has labor income. 1997
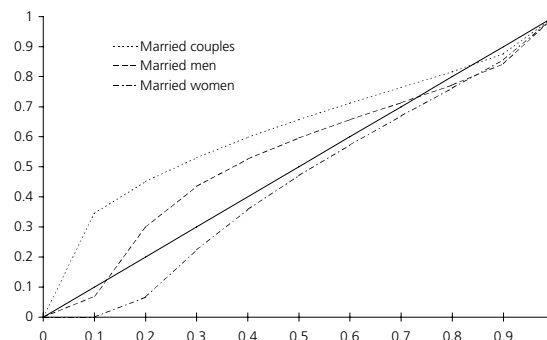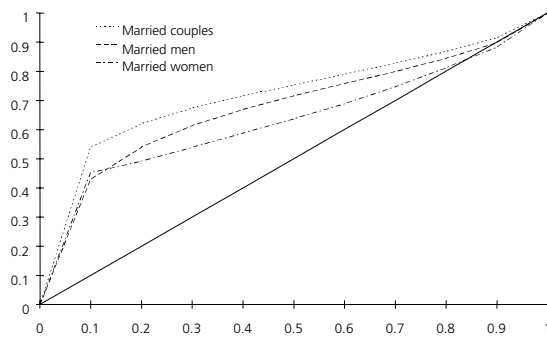

Figure D.1.b. M-curves for distribution of labor income for married men, married women and married couples, for couples where only one spouse has labor income. 1973
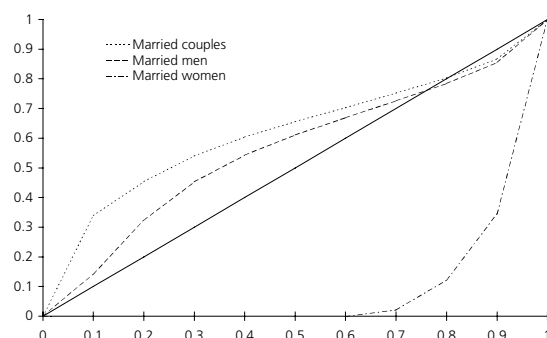
Figure D.2.b. M-curves for distribution of labor income for married men, married women and married couples, for couples where only one spouse has labor income. 1997

Figure D.1.c. M-curves for distribution of labor income for married men, married women and married couples, for couples where both spouses have labor income. 1973

Figure D.2.c. M-curves for distribution of labor income for married men, married women and married couples, for couples where both spouses have labor income. 1997