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The association between husbands' and wives' labor market positions in the Netherlands

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Abstract

This study describes (1) the association between husbands' and wives' employment statuses and occupations in the Netherlands, (2) establishes possible trends in the association, and (3) explores to what extent the association can be attributed to educational homogamy. We use 12 waves of the Dutch Labor Force Survey (1994–2006), and use log-linear models to analyze the associations between the labor market positions of spouses. Overall, we find positive associations, implying that favorable positions are accumulated within households. For couples with children, the association between spouses' employment status is negative, which means that they divide paid labor. Over birth cohorts, the association between spouses' employment statuses becomes stronger, and between spouses' occupational success remains stable. Education is an important contributor to the occupational association, but still half of the association between spouses' success cannot be attributed to spouses' education.

Keywords: Occupational homogamy; Inequality; Households; Partner effects

1. Introduction

This article investigates the association between husbands' and wives' labor market positions in the Netherlands, specifically the associations between their employment statuses and numbers of working hours, and between their occupations. It is important to investigate these associations since husbands' and wives' employment statuses and occupations are the two major labor market characteristics that affect a couple's income position. The size of the association between spouses' labor market positions has important consequences for the socio-economic inequality between households. Positive associations imply an accumulation of favorable or unfavorable positions within households (Hout, 1982; Ultee, Dessens, & Jansen, 1988). We set out (1) to describe the association between husbands' and wives' employment statuses and occupations in the Netherlands, (2) to establish trends in the association, and (3) to explore to what extent the association between spouses' employment statuses can be attributed to educational homogamy. We use 12 waves of the Dutch Labor Force Survey (1994–2006), with information on 234,688 couples, and employ log-linear models to analyze the associations between the labor market positions of spouses.

The first goal of the paper is to present a detailed description of the association between the labor market positions of husbands and wives. This association has two aspects. The first aspect is the association between the employment statuses of husbands and wives, i.e. between their numbers of working hours. Economic the-

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ory argues that couples divide paid and unpaid work, because of economic maximization (Becker, 1981) and because of time constraints (Van der Lippe & Van Dijk, 2001). Couples divide their time over paid and unpaid work, and do this in such a way that they optimize family income and the quality of family life. The division of labor suggests a negative association between the employment statuses of husbands and wives. Empirical research, however, has sometimes led to opposite conclusions. Spouses of employed persons are more likely to be employed as well, and spouses of the non- or unemployed tend to be non- or unemployed (Cooke, 1987; Davies, Elias, & Penn, 1994; de Graaf & Ultee, 2000; Halvorsen, 1999; Henkens, Kraaykamp, & Siegers, 1993; Irwin & Morris, 1993; Ultee et al., 1988). The odds ratios that describe this association are substantial, and a European comparative study showed that odds ratios vary between 2.2 in the Netherlands and 5.7 in Belgium (de Graaf & Ultee, 2000). The interest in couples' employment statuses often comes from a social policy point of view: does social security create disincentives to employment for the spouse of an unemployed person (Dex, Gustafsson, Smith, & Callan, 1995; Irwin & Morris, 1993)?

Our contribution to this line of the literature is a further analysis of the association between the employment statuses of spouses by dividing the employed into full-timers and part-timers. Empirically, we address the case of the Netherlands. In this respect, it is important to note that female labor market participation is different than in many other countries. In no other country so many women work in part-time jobs (Blossfeld & Hakim, 1997; Portegijs & Keuzenkamp, 2008). The popularity of part-time work has both cultural and formal reasons. Despite the fact that the Netherlands is considered and found to be rather liberal with respect to working women and mothers, Dutch men and women do not act accordingly (Kalmijn & Luijkx, 2006; Treas & Widmer, 2000). When it comes to decisions in their personal lives, mothers prefer to be with their children at least one working day a week (but often more), choosing to combine part-time work and family life. Moreover, part-time work is relatively attractive in the Netherlands and not part of the marginal labor market since it is enforced by law that part-time workers enjoy the same level of labor market protection, hourly wages, and pension rights than full-time workers (van Oorschot, 2004). Since a few years, workers even have the formal right to demand fewer working hours, and employers can only deny this request in case of major business interests (Staatsblad, 2000). At the same time, government policy has produced negative incentives for full-time work for women by pursuing a reserved policy concerning child care facilities (Plantenga, Schippers, & Siegers, 1999). Although the Dutch tax system has been individualized long ago, implying that the income tax to be paid (or to put it differently, the revenues of paid work) is independent of the earnings of the spouse, several income-dependent regulations are remnants of the breadwinner model that the government supported actively for a long time, which discourage the second earner to seek (more) paid work (Plantenga et al., 1999). As a result of the wide array of working arrangements, the most important decision to make nowadays, particularly for women, is not between participation and non-participation, but between non-participation and part-time work or between part-time and full-time work. This all means that conclusions based on the overall odds ratio of employment vs. non-employment of spouses are incomplete, and that we need to distinguish between full-time and part-time work. Economic theory may be proven to be incorrect with respect to (non)employment of spouses, but within dual worker couples the relationship between spouses' working hours might be negative, as is the case when the spouses of full-time working persons are typically working in part-time jobs.

The second aspect of the description of the association between the labor market positions of husbands and wives refers to the occupations of spouses, specifically to their job levels. There is an extensive literature on marital homogamy, which to a large extent deals with educational homogamy (Kalmijn, 1998; Mare, 1991; Smits, Ultee, & Lammers, 1998; Ultee & Luijkx, 1990). The general and consistent conclusion from this literature is that there is a strong positive association between spouses' educational attainments. Since education has strong effects on labor market opportunities, educational homogamy is highly relevant for the association between the occupations of husbands and wives. Hout (1982) and Smits, Ultee, and Lammers (1999) indeed found that the association between husbands' and wives' occupational statuses is strong as well (in the United States and in eight European Union countries, including the Netherlands, respectively).

The association between the occupations of spouses is, probably, more than just the result of educational homogamy and the effects of schooling on career opportunities. First, not only educational attainment but also occupational status affects the marital selection process (Kalmijn, 1994). Preferences and restrictions are at work here, leading to similarities in occupational status, and resulting in occupational homogamy on top of educational homogamy. Second, there are several plausible mechanisms that affect the association between the

labor market positions of spouses during marriage net of the consequences of educational and occupational homogamy. Economic theory predicts that households follow the strategy of income maintenance implying that when one spouse is not doing well on the labor market, this will be counterbalanced by more career activity of the other spouse (Lundberg, 1985; Maloney, 1987). This would make that the association between spouses' occupational statuses is less strong than predicted by educational and occupational homogamy. In contrast, social capital theory argues that spouses can take advantage of each other's labor market resources (Bernasco, de Graaf, & Ultee, 1998), which would result in a stronger association than predicted by homogamy.

In this paper we extend the literature by modeling a detailed husband by wife cross-classification of occupations. We will employ a scheme with 47 occupational categories. The log-linear modeling of the 47 by 47 table will contribute to a better understanding of the complex relationship between the occupations of husbands and wives. We will investigate both the tendency of spouses to be employed in the same occupational category and, if they are not working in the same occupational category, we will investigate the association between the socio-economic statuses of their occupations.

The second goal of the paper is to explore historical developments. We are not only interested in the association between the labor market positions of husbands and wives per se, but also in trends in this association. Increasing association between the employment statuses and job levels of spouses implies increasing inequalities on the household level. During the second half of the 20th century, important economic and cultural developments have taken place in Western countries, among which the emergence of non-traditional gender roles (Treas & Widmer, 2000), the rapid increase in female labor market supply (de Graaf & Vermeulen, 1997), and declining gender differences in educational achievement (Shavit & Blossfeld, 1993). To assess historical change, we will apply a cohort design, describing the association for couples born between 1940 and 1979.

The third goal of the paper is to find out to what extent the occupational association between spouses can be ascribed to educational homogamy. As mentioned above, studies on educational homogamy are numerous, but show only indirectly to what extent spouses' labor market positions are related. Occupational association could be entirely the by-product of educational homogamy. On the other hand, it can be argued that the occupational association between spouses also results from other sources: partner selection might be directly dependent on occupational similarity, either because of preferences or because of constraints, and spouses may mutually affect each other's career, for example when one spouse's career resources are resources for or restrictions to the other spouse's career opportunities. Assuming that households' social positions are more directly measured by couples' occupations than by their education, the conclusion that occupational association cannot be fully attributed to educational homogamy would justify and favor a focus on couples' occupations in social inequality research.

In summary, we will answer the following three research questions:

1. To what extent are (a) the employment statuses and (b) the occupations of husbands and wives in the Netherlands related?
2. Do the relationships between (a) the employment statuses and (b) the occupations of husbands and wives differ between birth cohorts?
3. To what extent can the relationships between (a) the employment statuses and (b) the occupations of husbands and wives be attributed to educational homogamy, and to what extent can they not be explained by educational homogamy?

2. Data

We will use 12 waves of the Labor Force Surveys (1994–2006, except the 1999 survey because it has no information on children) collected by Statistics Netherlands. These data are representative of the Dutch non-institutionalized population of 15 years and older. Response rates are about 60%. The Labor Force Surveys offer detailed occupational and educational information of large numbers of respondents and their spouses, which make them very suitable to answer our questions. We selected couples in which both spouses are between 25 and 55 years old in the year of the surveys. Further we removed all cases with missing information from the analysis. This resulted in 234,688 couples and 131,244 couples in which both spouses have a job of minimally 12 hours a week at the moment of interview.

2.1. Independent and control variables

We use four variables that may affect the labor market positions of husbands and wives, and the association between their labor market positions: birth cohort, family cycle, age group, and educational attainment. We computed the average birth year of both spouses, which ranges from 1940 through 1979, and constructed four birth cohorts: 1940–1949, 1950–1959, 1960–1969, and

1970–1979. We will analyze historical developments in the association between husbands' and wives' labor market positions by comparisons between these birth cohorts. Family cycle is categorized in two groups: couples with children and couples without children. Note that the childless couples can be couples who do not have a child yet, and couples whose children have left the household (empty nests). We have no information to distinguish these two groups. Other data show that most couples in which both spouse are between 25 and 55 years old, and who are living without children, never had children (77%), and thus that 23% of these couples are in the empty nest situation (Family Survey Dutch Population 2003, own calculations). The average age of the couples is categorized in two age groups: couples younger than 40 years and couples 40 years or older. Family cycle and age groups will be used to cover life course developments, which must be controlled because they are correlated with birth cohort. In the analysis of employment status we will use family cycle to control for life course development, and in the analysis of occupation we will use age group for this purpose. Educational attainment has been measured in 15 categories, using both vertical and horizontal categorization. Vertically, education ranges from primary education only to a university degree, and horizontally, we distinguish general, technical, economic, and care-taking sectors. We have chosen for this large number of educational categories because we want to have optimal control of educational homogamy in our multivariate analysis of the association between the labor market situations of spouses. This allows us to produce reliable estimates of the remaining association between spouses' labor market positions after the effects of educational homogamy have been controlled for. Table 1 shows descriptive values of the independent and control variables.

Table 1
Descriptive values of independent and control variables for all couples and for dual worker couples

	All couples				Dual worker couples			
	N	%	*N*	%	*N*	%	*N*	%
Cohort								
1940–1949	25,731	11.0			9,852	7.5		
1950–1959	84,632	36.1			44,026	33.5		
1960–1969	94,113	40.1			55,322	42.2		
1970–1979	30,212	12.9			22,044	16.8		
Family cycle								
No child in household	59,402	25.3			42,916	32.7		
Child in household	175,286	74.7			88,328	67.3		
Age								
Younger than 40 years	119,926	51.1			71,945	54.8		
40 years or older	114,762	48.9			59,299	45.2		
Education	Husbands		Wives		Husbands		Wives	
Primary education	18,908	8.1	20,655	8.8	6,534	5.0	5,743	4.4
Intermediate secondary education (mavo)	10,431	4.4	20,443	8.7	5,523	4.2	9,680	7.4
Low vocational education—technical (lbo)	31,828	13.6	3,131	1.3	14,490	11.0	1,213	0.9
Low vocational education—economic (lbo)	2,441	1.0	7,246	3.1	1,323	1.0	3,209	2.4
Low vocational education—care-taking (lbo)	2,171	0.9	25,517	10.9	1,073	0.8	8,971	6.8
High secondary education (havo/vwo)	10,382	4.4	15,755	6.7	6,208	4.7	9,064	6.9
Intermediate vocational education—technical (mbo)	54,987	23.4	7,980	3.4	30,531	23.3	4,522	3.4
Intermediate vocational education—economic (mbo)	23,769	10.1	28,338	12.1	14,128	10.8	18,771	14.3
Intermediate vocational education—care-taking (mbo)	13,652	5.8	53,359	22.7	8,469	6.5	30,790	23.5
High vocational education—technical (hbo)	12,803	5.5	1,834	0.8	7,572	5.8	1,298	1.0
High vocational education—economic (hbo)	13,762	5.9	8,018	3.4	9,006	6.9	6,176	4.7
High vocational education—care-taking (hbo)	16,175	6.9	29,425	12.5	10,961	8.4	21,441	16.3
University education—technical (wo)	6,432	2.7	1,380	0.6	4,049	3.1	1,041	0.8
University education—economic (wo)	7,925	3.4	3,068	1.3	5,203	4.0	2,583	2.0
University education—care-taking (wo)	9,022	3.8	8,539	3.6	6,174	4.7	6,742	5.1
Total	234,688	100	234,688	100	131,244	100	131,244	100

Source: Labor Force Surveys, 1994–2006.

2.2. Employment status

We use the categorization of Statistics Netherlands to distinguish between employment statuses: non-employed, 1–11 weekly working hours, 12–19 working hours, 20–34 working hours, and 35 hours or more a week. When we present odds ratios, we simplified this categorization in three categories: non-employment, part-time employment (1–34 h a week) and full-time employment. Table 2 shows the distribution of couples' employment statuses, and in Table 3 this distribution is broken down by birth cohort and family cycle.

As pointed out above, the Netherlands is particularly well-known for its high number of part-time working; indeed, the 'Dutch model' consisting of a full-time working husband and a part-time working wife is the most popular arrangement (9.7 + 12.1 + 25.9 = 47.7%). However, in our combined dataset, the traditional breadwinner model appears to be popular as well (25.7%). Two full-timers are only found in 12.8% of the Dutch households. In over three quarters of the couples, the husband works more hours than his wife, and only in less than 5% of the couples the wife works more hours than the husband.

The margins of Tables 2 and 3 show that there is little variation in husbands' employment status in the Netherlands: the large majority are working full-time, and this is the same for couples with and without children. In international comparisons, Dutch men appear to work part-time more than others (Delsen, 1998), but our data show that the proportion is still less than 8%. For women, there is enormous variation in labor market participation. For women without children a full-time job is the most frequent employment status (38.1%), and for women with children non-employment is the modal employment status (34.3%). Within female part-time jobs, large part-time jobs are favored the most, and there has been a further shift to large part-time jobs over cohorts. Also female full-time employment has increased, but only for women without children.

Table 3 further shows that the popularity of a traditional division of labor is in decline for childless couples (from 33.3% breadwinner households in the earliest cohort to 5.5% in the most recent cohort), and that equal division of paid labor between husband and wife in childless couples is more widespread in younger cohorts than in older cohorts: 19.8% of the childless couples born in the forties against 54.7% born in the 1970s. These are big changes, although we have to keep in mind that the cohort change is overestimated since the average age of the couples in the youngest cohort is lower than the average age of the couples in the oldest cohort. Strikingly, these developments are not observed for couples with family responsibilities: the breadwinner model is still rather popular (23.9% in the youngest cohort), and only one out of eight husbands and wives with children have the same employment status. The majority of the rest have an arrangement in which the husband works more than the wife. These descriptive tables demonstrate that modern employment patterns have been predominantly adopted by childless couples, whereas the division of labor between husband and wife hardly changed among couples with children.

2.3. Occupation

We use an occupational classification that distinguishes 47 occupational categories (two-digit Standard Occupational Classification 1992 of Statistics Netherlands). This categorization includes information on the level of occupation in addition to the field of occupation. In our log-linear models we will scale each of the 47 occupational categories with the standardized mean status score of all occupations in that particular category. For this purpose we use the International Socio-economic Index, as constructed by Ganzeboom,

Table 2
Distribution of husbands' and wives' employment statuses (percentages)

Husband	Wife							
	Non-employed	1–11 h	12–19 h	20–34 h	35+ h	Total		
Non-employed	3.1	0.3	0.4	1.2	1.1	6.1	*Diagonal*	18.9
1–11 h	0.2	0.1	0.0	0.2	0.1	0.6	$h > w$	76.4
12–19 h	0.1	0.0	0.1	0.2	0.1	0.5	$w > h$	4.7
20–34 h	1.4	0.4	0.8	2.9	1.0	6.5		
35+ h	25.7	9.7	12.1	25.9	12.8	86.3		
Total	30.5	10.6	13.3	30.4	15.2	100	$N = 234{,}688$	

Source: Labor Force Surveys, 1994–2006; $N = 234{,}688$.

Table 3
Distribution of husbands' and wives' employment statuses by birth cohort and family cycle (percentages)

Husband	Couples without children								Couples with children							
	Wife								Wife							
	Non-employed	1–11 h	12–19 h	20–34 h	35+ h	Total			Non-employed	1–11 h	12–19 h	20–34 h	35+ h	Total		
All couples																
Non-employed	3.1	0.3	0.4	1.5	1.9	7.2	*Diagonal*	39.6	3.1	0.4	0.4	1.1	0.8	5.7	*Diagonal*	11.9
1–11 h	0.2	0.1	0.0	0.2	0.2	0.8	$h>w$	53.4	0.2	0.0	0.0	0.1	0.1	0.5	$h>w$	84.2
12–19 h	0.2	0.0	0.1	0.2	0.2	0.7	$w>h$	7.0	0.1	0.0	0.1	0.2	0.1	0.5	$w>h$	3.9
20–34 h	1.1	0.3	0.4	2.7	2.0	6.5			1.5	0.5	0.9	3.0	0.7	6.5		
35+ h	14.6	3.5	4.7	28.2	33.8	84.9			29.5	11.8	14.6	25.2	5.7	86.8		
Total	19.2	4.3	5.6	32.8	38.1	100	$N=59{,}402$		34.3	12.7	16.0	29.6	7.4	100	$N=175{,}286$	
Cohort 1940–1949																
Non-employed	7.9	0.9	0.8	1.8	1.4	12.8	*Diagonal*	19.8	5.3	0.7	0.6	1.3	0.8	8.7	*Diagonal*	13.2
1–11 h	0.5	0.2	0.1	0.3	0.2	1.4	$h>w$	73.5	0.4	0.1	0.1	0.2	0.1	0.9	$h>w$	82.3
12–19 h	0.4	0.1	0.1	0.2	0.1	1.0	$w>h$	6.8	0.2	0.1	0.1	0.1	0.1	0.6	$w>h$	4.5
20–34 h	2.5	0.6	0.6	1.7	0.9	6.3			2.2	0.5	0.6	1.4	0.5	5.1		
35+ h	33.3	8.3	7.6	19.6	9.9	78.6			38.9	11.7	9.0	18.7	6.4	84.7		
Total	44.6	10.1	9.2	23.6	12.5	100	$N=9880$		47.0	13.1	10.3	21.8	7.9	100	$N=15{,}851$	
Cohort 1950–1959																
Non-employed	4.1	0.4	0.6	2.3	2.2	9.6	*Diagonal*	27.2	2.9	0.4	0.4	1.3	1.0	6.0	*Diagonal*	12.1
1–11 h	0.2	0.0	0.0	0.3	0.3	0.9	$h>w$	64.3	0.2	0.1	0.0	0.2	0.1	0.6	$h>w$	83.3
12–19 h	0.3	0.1	0.1	0.3	0.2	0.9	$w>h$	8.5	0.1	0.0	0.1	0.2	0.1	0.6	$w>h$	4.5
20–34 h	1.6	0.5	0.8	3.9	1.8	8.5			1.5	0.5	0.9	2.9	0.8	6.6		
35+ h	19.2	4.9	7.5	29.4	19.2	80.1			29.3	12.3	13.2	25.2	6.2	86.3		
Total	25.3	5.9	9.0	36.2	23.7	100	$N=15{,}385$		34.0	13.4	14.7	29.7	8.2	100	$N=69{,}247$	
Cohort 1960–1969																
Non-employed	1.6	0.2	0.1	1.1	2.1	5.1	*Diagonal*	48.3	2.8	0.2	0.3	0.9	0.7	4.9	*Diagonal*	11.2
1–11 h	0.1	0.0	0.0	0.1	0.2	0.5	$h>w$	45.1	0.1	0.0	0.0	0.1	0.1	0.4	$h>w$	85.5
12–19 h	0.0	0.0	0.0	0.1	0.2	0.4	$w>h$	6.5	0.1	0.0	0.0	0.1	0.1	0.4	$w>h$	3.3
20–34 h	0.7	0.1	0.2	2.7	2.4	6.2			1.3	0.5	0.9	3.4	0.7	6.8		
35+ h	8.4	1.8	3.0	30.8	44.0	88.0			28.8	11.9	16.4	25.4	5.0	87.5		
Total	10.8	2.1	3.4	34.8	48.9	100	$N=20{,}101$		33.1	12.7	17.7	30.0	6.6	100	$N=74{,}012$	
Cohort 1970–1979																
Non-employed	0.7	0.1	0.1	1.0	1.7	3.6	*Diagonal*	54.7	3.1	0.2	0.3	1.0	0.6	5.2	*Diagonal*	12.7
1–11 h	0.1	0.1	0.0	0.1	0.3	0.6	$h>w$	39.2	0.2	0.0	0.1	0.1	0.1	0.4	$h>w$	84.2
12–19 h	0.1	0.0	0.0	0.1	0.4	0.6	$w>h$	6.1	0.1		0.1	0.1	0.1	0.4	$w>h$	3.1
20–34 h	0.4	0.1	0.2	2.0	2.2	5.0			1.2	0.4	0.9	3.6	0.5	6.7		
35+ h	5.5	1.2	2.2	29.4	51.9	90.2			23.9	9.3	17.7	30.5	5.9	87.3		
Total	6.7	1.5	2.5	32.7	56.6	100	$N=14{,}036$		28.5	9.9	19.1	35.3	7.3	100	$N=16{,}176$	

Source: Labor Force Surveys, 1994–2006; $N=234{,}688$.

Table 4
Distribution of husbands' and wives' occupational level (percentages, dual worker couples only)

Husband	Wife						
	Low	Medium	High	Academic	Total		
Low	10.6	9.0	2.3	0.4	22.2	*Diagonal*	43.0
Medium	12.7	20.7	7.1	1.3	41.9	$h > w$	34.9
High	4.0	10.0	8.8	2.1	24.9	$w > h$	22.1
Academic	1.0	3.3	3.9	2.8	11.0		
Total	28.3	43.1	22.0	6.6	100	$N = 131{,}244$	

Source: Labor Force Surveys, 1994–2006; $N = 131{,}244$.

de Graaf, and Treiman (1992). Detailed information on the 47 occupational categories and its corresponding mean ISEI score is presented in Appendix A. For descriptive purposes, we will also use a categorization in four occupational levels: low-skill jobs, medium-skill jobs, high-skill jobs, and academic-skill jobs, following a classification of Statistics Netherlands that is based on the educational requirements of jobs.

The association between the occupations of spouses can be analyzed for dual earner couples only. In our data 55.9% of all couples consist of two earners. Not included in the analysis are couples in which both spouses are non-employed (3.1%), couples in which only the wife is non-employed (27.4%), and couples in which only the husband is non-employed (3.0%). Since the Dutch definition of the labor force excludes people who work less than 12 hours a week, persons with small part-time jobs are not asked detailed occupational information. Therefore we also miss the couples in which both spouses work less than 12 hours (0.1%), couples in which only the wife works less than 12 hours (10.5%), and couples in which only the husband works less than 12 hours (0.5%).

It is important to note that dual earner couples are a selective sample with respect to their occupational achievement. Persons who have a job but whose spouse does not have a job (or has a job with less than 12 working hours), have a lower average socio-economic status than persons with a working spouse. Husbands with a non-employed wife have an average status of 47.0, which is significantly lower ($p < .01$) than husbands with a working wife (average status is 50.0). Wives with non-employed husbands have an average occupational status of 46.7, which is lower than the average of 49.2 for wives of employed husbands ($p < .01$). These differences are substantial, but we think that they will not have implications for our analysis of the association between spouses' occupations.

Table 4 displays the cross-classification of husband's and wife's level of occupation, and Table 5 shows this cross-classifications by birth cohort and age group. Note that, in the analysis of occupational association, we use age groups to control for life-cycle effects, because occupational status is more dependent on age than on family cycle. Table 4 shows that in most couples the husband has a higher level of occupation than the wife, although 22.1% of all wives in dual earner couples have a higher job level than their husbands. In Table 5 we observe that the gap between husbands and wives is larger for older couples than for younger couples; this is probably the result of changes in gendered career patterns. Furthermore, there are important historical developments, in the sense that wives catch up. Of the couples with an average age between 25 and 40, which are observed in the youngest three cohorts (but not in the oldest cohort), there is an increasing proportion of couples in which the wife has a higher job level than her husband (from 20.3 to 29.0%). This is also the case for couples between the ages of 40 and 55, which are only observed in the oldest three cohorts (from 13.2 to 22.1%). Increasing human capital of women is the main force behind this development.

3. The association between husbands' and wives' employment statuses

We will present odds ratios to show the association between husbands' and wives' employment statuses. In order to answer our three research questions, we present odds ratios between husband's and wife's employment status from saturated models (a) for all couples, (b) by cohort and family cycle, and (c) controlled for husband's and wife's education. We use log-linear models which are estimated with the software program LEM (Vermunt, 1997). In the first step, we simply estimate the parameters of a saturated model with two variables: husband's employment status (Eh) and wife's employment status (Ew), which gives us the overall odds ratio for all couples. The pattern of association will be presented by four odds ratios, contrasting (a) non-

Table 5
Distribution of husbands' and wives' occupational level by birth cohort and age group (percentages, dual worker couples only)

Husband	Couples aged 25–40							Couples aged 40–55						
	Wife							Wife						
	Low	Medium	High	Academic	Total			Low	Medium	High	Academic	Total		
All couples														
Low	10.2	10.5	2.6	0.4	23.7	*Diagonal*	43.7	11.2	7.1	1.8	0.3	20.4	*Diagonal*	42.0
Medium	11.5	22.5	7.9	1.6	43.5	$h>w$	31.0	14.2	18.6	6.1	1.1	39.9	$h>w$	39.8
High	3.0	9.7	8.4	2.2	23.3	$w>h$	25.3	5.2	10.4	9.2	1.9	26.7	$w>h$	18.2
Academic	0.7	2.9	3.2	2.7	9.4			1.4	3.9	4.7	3.0	13.0		
Total	25.3	45.7	22.1	6.9	100	$N=71{,}945$		32.0	39.9	21.8	6.3	100	$N=59{,}299$	
Cohort 1940–1949														
Low								11.4	5.1	1.1	0.2	17.8	*Diagonal*	40.4
Medium								17.4	17.7	4.8	0.8	40.7	$h>w$	46.3
High								7.1	10.2	8.2	1.2	26.8	$w>h$	13.2
Academic								1.9	4.2	5.5	3.1	14.7		
Total								37.7	37.3	19.7	5.3	100	$N=9852$	
Cohort 1950–1959														
Low	10.4	8.4	2.0	0.3	21.2	*Diagonal*	43.7	11.2	7.0	1.9	0.3	20.4	*Diagonal*	42.2
Medium	13.0	20.7	6.8	1.1	41.5	$h>w$	36.0	14.0	18.3	6.2	1.1	39.5	$h>w$	39.5
High	3.9	10.2	9.8	1.7	25.5	$w>h$	20.3	5.1	10.3	9.6	1.9	27.0	$w>h$	18.3
Academic	0.8	3.8	4.4	2.9	11.8			1.4	4.0	4.8	3.1	13.2		
Total	28.1	43.1	22.9	5.9	100	$N=6239$		31.7	39.5	22.5	6.4	100	$N=37{,}787$	
Cohort 1960–1969														
Low	10.5	10.5	2.3	0.3	23.7	*Diagonal*	44.1	10.9	9.0	2.2	0.5	22.5	*Diagonal*	42.8
Medium	11.9	23.0	7.3	1.4	43.7	$h>w$	31.8	12.1	20.2	6.8	1.3	40.5	$h>w$	35.1
High	3.0	10.0	8.0	2.2	23.1	$w>h$	24.1	3.8	11.1	8.8	2.3	26.0	$w>h$	22.1
Academic	0.7	3.1	3.1	2.6	9.5			1.1	3.2	3.9	2.8	11.0		
Total	26.1	46.6	20.8	6.5	100	$N=43{,}662$		27.9	43.5	21.6	6.9	100	$N=11{,}660$	
Cohort 1970–1979														
Low	9.4	11.2	3.4	0.6	24.5	*Diagonal*	43.1							
Medium	10.3	22.1	9.4	1.9	43.8	$h>w$	27.9							
High	2.6	9.0	8.7	2.6	23.0	$w>h$	29.0							
Academic	0.5	2.2	3.1	2.8	8.7									
Total	22.9	44.6	24.6	7.9	100	$N=22{,}044$								

Source: Labor Force Surveys, 1994–2006; $N=131{,}244$.

employment and employment, (b) non-employment and part-time employment, (c) non-employment and full-time employment, and (d) part-time employment and full-time employment.

Next, we add birth cohort (C) and family cycle (F) and estimate the parameters of a saturated model with these four variables. This model reproduces the net association between the spouses' employment statuses controlled for cohort and family cycle. The odds ratios for all couples and the odds ratios broken down by cohort and family cycle are shown in the upper panel of Table 6. The left column (labeled *all couples*) presents the four selected odds ratios between the employment statuses of spouses broken down by family cycle but not by cohort. These results come from a model in which the table is collapsed over cohorts. The upper row for each contrast (labeled *total*) presents the odds ratios broken down by cohort, but not by family cycle, based on a model in which the table is collapsed over the two categories of family cycle.

Third, we add controls for husband's and wife's schooling to this model (Sh and Sw). We again estimate all interactions of the four-way tables [EhEwCF] and [ShSwCF], which ensures that educational homogamy is included in the model together with variations in homogamy over the life-cycle and over cohorts; we include [ShEhCF] and [SwEwCF] which control for the individual level associations between education and employment status (with variations of these associations over cohort and family cycle); and we include [ShEwCF] and [SwEhCF] which control for cross-over effects of the educational attainment of one spouse to the employment status of the other spouse (and again variations). Fig. 1 gives a schematic representation of the assumed causal relationships between husbands' and wives' schooling and employment status (for reasons of simplicity cohort and age are not included in the diagram). In short, this model presents the association between spouses' employment statuses with controls for

Table 6
Observed odds ratios of husbands' and wives' employment status by birth cohort and family cycle, not controlled and controlled for education

Not controlled for education[a]		All couples	1940–1949	1950–1959	1960–1969	1970–1979
Non-employed vs. employed	Total	2.46	1.96	1.89	2.80	3.85
	No child	3.55	2.22	2.39	4.19	3.76
	Child	2.34	1.81	1.85	2.80	3.89
Non-employed vs. part-time	Total	4.23	2.40	3.49	6.35	5.73
	No child	3.77	2.58	3.49	5.21	3.22
	Child	4.65	2.26	3.51	6.68	7.14
Non-employed vs. full-time	Total	1.44	1.27	0.81	1.39	3.11
	No child	3.68	1.70	1.82	3.89	4.00
	Child	0.74	1.04	0.64	0.71	1.18
Part-time vs. full-time	Total	0.99	0.78	0.73	1.01	1.41
	No child	1.53	0.89	1.21	1.54	1.48
	Child	0.61	0.73	0.61	0.55	0.81
Controlled for education[b]						
Non-employed vs. employed	Total	1.86	1.64	1.55	2.02	2.51
	No child	2.62	1.93	1.98	3.17	2.89
	Child	1.77	1.47	1.50	1.99	2.48
Non-employed vs. part-time	Total	2.65	1.82	2.20	3.41	3.27
	No child	2.81	2.11	2.63	3.95	2.85
	Child	2.58	1.60	2.10	3.36	3.44
Non-employed vs. full-time	Total	1.01	1.03	0.69	0.99	1.92
	No child	2.53	1.47	1.41	2.72	3.23
	Child	0.62	0.80	0.56	0.61	0.84
Part-time vs. full-time	Total	1.10	0.83	0.81	1.14	1.70
	No child	1.57	0.92	1.34	1.66	1.54
	Child	0.70	0.79	0.67	0.63	1.04

Source: Labor Force Surveys, 1994–2006; $N = 234{,}688$.

[a] [EhEwCF], with Eh, employment status husband; Ew, employment status wife; C, birth cohort; F, family stage.

[b] [EhEwCF, ShSwCF, ShEhCF, SwEhCF, ShEwCF, SwEhCF], with Eh, employment status husband; Ew, employment status wife; C, birth cohort; F, family stage; Sh, schooling husband; Sw, schooling wife.

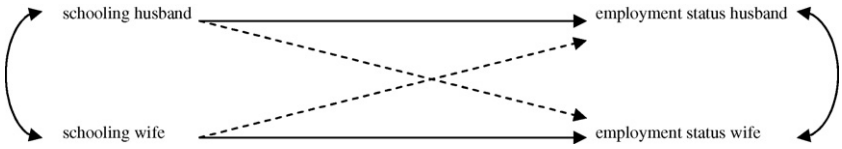

Fig. 1. Causal diagram with husbands' and wives' schooling and employment status (by-product expressed by continuous arrows, partner effects by interrupted arrows).

the by-product of educational homogamy (continuous arrows) and educational cross-over effects (interrupted arrows).

First, we discuss the odds ratios that are not controlled for spouses' schooling, which are displayed in the upper panel of Table 6. The odds ratios validate earlier research that there is a positive association between the (non)employment of husbands and wives. On average, wives of non-employed men have a 2.46 higher odds to be non-employed than employed when compared to wives of employed men. The association between non-employment and employment is particularly strong when we look at part-time employment (odds ratio is 4.23 on average), and smaller when we look at full-time employment (odds ratio is 1.44 on average). It is interesting to note that there is no association between part-time employment and full-time employment for all couples together, as a result of two opposite associations: the association is positive for couples without children and negative for couples with children. This resembles typical work arrangements: both spouses in couples without children tend to work in full-time jobs (odds ratio is 1.53 on average), whereas the working arrangements of couples with children is often one part-time job and one full-time job (odds ratio is 0.61 on average).

In general, the association between husbands' and wives' employment status increases over birth cohorts, indicating that spouses born in the seventies are becoming more similar to each other with regard to employment status than spouses born in the forties. Especially, the increased labor market participation of women has contributed to this development. It is clear that this has important consequences for social stratification, specifically that inequality between households is increasing. The main exception is the association between part-time and full-time work for couples with children. This association is negative, and did not change over cohorts. This result shows that, despite increased educational attainment of women, preferences for part-time work among mothers hardly changed in the Netherlands, and illustrates that these preferences are easy to put into practice because of the attractive features of part-time work. As Table 3 showed earlier, working hours of mothers have increased within the category of part-time work, and this is an important development of course, but the incidence of full-time work has hardly changed.

In the lower panel of Table 6, we present an answer to the question to what extent the association between spouses' employment statuses is explained by educational homogamy and its consequences for the association. The evidence for the explanatory power of educational homogamy is mixed. The overall odds ratio between non-employment and employment, for example, drops from 2.46 to 1.86, which means that 24% of the association is explained. The positive odds ratio between non-employment and full-time employment becomes almost 1 after controlling for education. For couples with children, however, this odds ratio becomes more negative; apparently, educational homogamy suppressed the association. The reason for this is that highly educated couples have a relatively high tendency to be dual full-time couples (Van Gils & Kraaykamp, 2008), also when they have children, though to a much lesser extent. The association between part-time and full-time employment of husband and wife seems to be so not much a by-product of educational homogamy; the odds ratios do not differ much between the two panels.

4. The association between husbands' and wives' occupations

Before we present the log-linear models we employ to analyze the occupational association, we first present observed odds ratios for spouses' job levels (low, medium, high, academic) in Table 7. The first observation is that all odds ratios are larger than 1, which implies that favorable labor market positions are accumulated within households. The strength of the association is considerable: for example, compared to a woman with a medium level job, a woman with a high job level is 2.56 times as likely to be married to a husband with a high job level than to a husband with a medium job level. A woman with an academic-level job is more than 13 times as likely to have an academic husband than a husband with a medium-level job, when compared to a woman with a medium-level job. The odds ratios are higher when the distance in occupational level becomes larger. Furthermore, the results in Table 7

Table 7
Observed odds ratios of husbands' and wives' occupational level (dual worker couples only)

	All couples	1940–1949	1950–1959	1960–1969	1970–1979
Low vs. medium	1.93	2.27	2.08	1.94	1.81
Medium vs. high	2.56	3.00	2.80	2.48	2.28
High vs. academic	3.07	3.75	3.30	2.99	3.12
Low vs. high	10.35	11.41	11.35	11.86	9.19
Low vs. academic	82.81	115.68	81.12	97.57	90.90
Medium vs. academic	13.23	15.75	13.35	13.60	14.49

Source: Labor Force Surveys, 1994–2006; $N = 131{,}244$.

suggest that the association in spouses' job levels is stronger at higher levels than at lower levels (3.07 for high vs. academic and 1.93 for low vs. medium), which implies that there is more openness in the lower strata.

The second observation based on the odds ratios presented in Table 7 is that there seems to be a downward trend in the association between spouses' occupational levels over birth cohorts. The odds ratios that refer to adjacent categories (medium vs. low, high vs. medium, and academic vs. high) have become weaker over time. We must be cautious with these odds ratios because they do not control for the different age compositions of the cohorts in our data set. Log-linear modeling will make it possible to control for age effects and to test whether the observed differences in odds ratios between cohorts are statistically significant.

We use log-linear models to break down the occupational association in several elements, as is the practice in much research on intergenerational occupational mobility (Hout, 1983). We model the six-way table of husband's and wife's educational attainment, birth cohort, age, and husband's and wife's occupation ($15 \times 15 \times 4 \times 2 \times 47 \times 47$) with log-linear scaled row-column association models (Hout, 1984). These models provide a single parameter for the association between husbands' and wives' occupational statuses, denoted as φ (phi). As mentioned above, we scaled each occupational category with the standardized average ISEI score of all detailed occupations in the category. This approach assumes a symmetric relationship between the occupations of husbands (Oh) and wives (Ow), which means that the relative propensity for a couple with occupations 1 and 2 is equal to the relative propensity for a couple with occupations 2 and 1, given the different marginal distributions for husbands and wives. The advantage of using the ISEI-scaling is that the association parameter can be interpreted in terms of spouses' occupational levels. In addition, the association parameters can be compared straightforwardly between models and cohorts.

We consider three aspects of the association between husbands' and wives' occupations, which will be modeled in three subsequent steps: (a) a general association, (b) a tendency that both partners have occupations on a low, medium, high or academic level (four level-diagonal), and (c) a tendency that both partners have occupations in the exact same occupational category (47 cells-diagonal). Our first model estimates one parameter for the association between husband's and wife's occupations. The four-way association between both spouses' educational attainments, birth cohort, and age [ShSwCA], and the three-way associations between birth cohort, age, and occupation (of husband and wife) [CAOh] and [CAOw] are saturated, and there is no relationship between educational attainment and occupation. In formula:

$$\ln F_{ijklmn} = \lambda + [\ldots] + \lambda^{\mathrm{ShSwCA}}_{ijkl} + \lambda^{\mathrm{CAOh}}_{klm} + \lambda^{\mathrm{CAOw}}_{kln} + \varphi \mathrm{Oh}_m \mathrm{Ow}_n \quad (1)$$

for all $i = 1, \ldots, 15$; $j = 1, \ldots, 15$; $k = 1, \ldots, 4$; $l = 1,2$; $m = 1, \ldots, 47$; $n = 1, \ldots, 47$ [...] all lower order terms are included, but only highest order terms are shown in Eq. (1).

In a second step, this model is extended with diagonal effects. Model 2 includes four diagonal parameters for the occupational levels (1 = low, 2 = middle, 3 = high, 4 = academic), which are areas in the square table that represent the same job level (see Appendix B for a presentation). Finally, in Model 3, we also include parameters for all 47 diagonal cells; the contrast with Model 2 will inform us whether the association between spouses' occupations is not covered by the four level-diagonal model. In formula, Models 2 and 3 are as follows:

$$\ln F_{ijklmn} = \lambda + [\ldots] + \lambda^{\mathrm{ShSwCA}}_{ijkl} + \lambda^{\mathrm{CAOh}}_{klm} + \lambda^{\mathrm{CAOw}}_{kln} + \varphi \mathrm{Oh}_m \mathrm{Ow}_n + \delta_{qs} \quad (2)$$

Table 8
Fit statistics for association models for husband's and wife's occupational level, not controlled and controlled for husband's and wife's education

		Not controlled for education			Controlled for education		
		G2	d.f.	BIC	G2	d.f.	BIC
1	Association with ISEI scaling	517,528	3,973,663	−46,311,350	191,244	3,971,087	−46,607,275
2	1 + diagonal for 4 occupational levels	514,985	3,973,659	−46,313,845	190,958	3,971,083	−46,607,514
3	2 + diagonal for 47 occupational cells	500,150	3,973,612	−46,328,126	179,274	3,971,036	−46,618,645

Source: Labor Force Surveys, 1994–2006; $N = 131{,}244$.

$$\ln F_{ijklmn} = \lambda + [\ldots] + \lambda_{ijkl}^{\mathrm{ShSwCA}} + \lambda_{klm}^{\mathrm{CAOh}} + \lambda_{kln}^{\mathrm{CAOw}} + \varphi \mathrm{Oh}_m \mathrm{Ow}_n + \delta_{qs} + \delta_{mn} \quad (3)$$

For all $i = 1, \ldots, 15$; $j = 1, \ldots, 15$; $k = 1, \ldots, 4$; $l = 1,2$; $m = 1, \ldots, 47$; $n = 1, \ldots, 47$; $q = 1, \ldots, 4$; $s = 1, \ldots, 4$

$$\delta_{qs} \begin{cases} \delta_{qs} & \text{if } q = s \\ 0 & \text{if otherwise} \end{cases}$$

$$\delta_{mn} \begin{cases} \delta_{mn} & \text{if } m = n \\ 0 & \text{if otherwise} \end{cases}$$

[. . .] all lower order terms are included, but only highest order terms are shown in Eqs. (2) and (3).

Our second research question emphasizes our interest in trends in the association of husbands' and wives' occupations over cohorts. Therefore, we will estimate the above-mentioned three models again, but this time, we let the association parameter, the four level-diagonal parameters, and the 47 cells-diagonal parameters vary over cohorts. We will explore all possible combinations of cohort-constant and cohort-varying parameters in these three elements of the occupational association. Comparisons of the model fit will make clear whether significant differences between cohorts in one or more of these elements exist. Because differences in the association between cohorts to some extent reflect differences in association between age groups, we estimate the three models for couples of 40 years or older and couples younger than 40 years separately. In the oldest age group, birth cohorts 1940–1949, 1950–1959, and 1960–1969 are represented ($N = 59{,}299$); the youngest age group covers the birth cohorts 1950–1959, 1960–1969, and 1970–1979 ($N = 71{,}945$).

Finally, we test to what extent the association between spouses' occupational association is the result of educational homogamy in order to provide an answer to our third research question. For that purpose, we add parameters for the saturated relationships between husband's and wife's occupation and schooling [ShOh, SwOw, ShOw, SwOh] to Models 1–3 and test how much of the original association as estimated in all prior models is explained. Model 1 including educational homogamy is presented in formula 4; Models 2 and 3 are extended in the same way:

$$\ln F_{ijklmn} = \lambda + [\ldots] + \lambda_{ijkl}^{\mathrm{ShSwCA}} + \lambda_{klm}^{\mathrm{CAOh}} + \lambda_{kln}^{\mathrm{CAOw}} + \lambda_{im}^{ShOh} + \lambda_{jn}^{SwOw} + \lambda_{in}^{ShOw} + \lambda_{jm}^{SwOh} + \varphi Oh_m Ow_n \quad (4)$$

for all $i = 1, \ldots, 15$; $j = 1, \ldots, 15$; $k = 1, \ldots, 4$; $l = 1,2$; $m = 1, \ldots, 47$; $n = 1, \ldots, 47$ [. . .] all lower order terms are included, but only highest order terms are shown in Eq. (4).

The model fits of the log-linear models that refer to all couples are presented in Table 8. Since we analyze very large numbers of cases, we use BIC statistics to draw conclusions on model fits comparisons. First, we discuss models without controls for educational homogamy. Addition of the four-level diagonal (Model 2) and the 47 cells-diagonal (Model 3) improves the fit of Model 1 that only specified a general association parameter. The BIC statistic of Model 3 is more negative than the BIC statistic of Model 2, and must therefore be preferred. We can summarize that the association between husbands' and wives' occupational association is best described as follows: husbands and wives have a tendency to work in the exact same occupational category, but if they are not, they are likely to work on the same occupational level, and – if they are not on the diagonals – they tend to have status scores that are close to each other.

In Fig. 2, we see the association parameters (φ) as estimated in Models 1–3. The association parameter represents the odds ratio of two occupations that are 1 scaling apart. The average low-level job and the average medium-level job are about one scaling apart, so husbands with an average low-level job are about 27 times more likely to be married to a wife with an average low-level job than to a wife with an average medium-level job, compared to husbands with an average medium-level job. If we consider that the imputed standardized

Table 9
Fit statistics for association models for husband's and wife's occupational level by cohort for couples aged 25–40 and couples aged 40–55

		Couples aged 25–40			Couples aged 40–55		
		G2	d.f.	BIC	G2	d.f.	BIC
1a	Association with ISEI scaling	279,586	1,490,123	−16,385,439	237,934	1,490,123	−16,139,036
1b	Association with ISEI scaling over cohorts	279,582	1,490,121	−16,385,421	237,929	1,490,121	−16,139,019
2a	1a + diagonal for 4 occupational levels	278,272	1,490,119	−16,386,708	236,702	1,490,119	−16,140,224
2b	1a + diagonal for 4 occupational levels over cohorts	278,260	1,490,111	−16,386,630	236,685	1,490,111	−16,140,153
2c	1b + diagonal for 4 occupational levels	278,268	1,490,117	−16,386,690	236,693	1,490,117	−16,140,211
2d	1b + diagonal for 4 occupational levels over cohorts	278,257	1,490,109	−16,386,611	236,678	1,490,109	−16,140,138
3a	2a + diagonal for 47 occupational cells	271,697	1,490,072	−16,392,758	228,215	1,490,072	−16,148,194
3b	2a + diagonal for 47 occupational cells over cohorts	271,494	1,489,978	−16,391,909	228,054	1,489,978	−16,147,322
3c	2b + diagonal for 47 occupational cells	271,689	1,490,064	−16,392,676	228,201	1,490,064	−16,148,120
3d	2b + diagonal for 47 occupational cells over cohorts	271,482	1,489,970	−16,391,832	228,028	1,489,970	−16,147,260
3e	2c + diagonal for 47 occupational cells	271,694	1,490,070	−16,392,738	228,209	1,490,070	−16,148,179
3f	2c + diagonal for 47 occupational cells over cohorts	271,493	1,489,976	−16,391,888	228,051	1,489,976	−16,147,303
3g	2d + diagonal for 47 occupational cells	271,686	1,490,062	−16,392,656	228,195	1,490,062	−16,148,105
3h	2d + diagonal for 47 occupational cells over cohorts	271,480	1,489,968	−16,391,812	228,023	1,489,968	−16,147,244

Source: Labor Force Surveys, 1994–2006; $N = 131{,}244$ ($N = 71{,}945$ younger than 40 years; $N = 59{,}299$, 40 years or older).

mean ISEI scores range from −1.79 to 1.47, the association between spouses' occupations is considerable: the maximum odds ratio between husbands and wives with the lowest and highest occupational level in terms of ISEI is 87 (3.26×26.8).

If separate effects for four homogeneous levels are included, the association parameter logically drops: the association between spouses' occupations is for 20% due to spouses who both have a low, medium, high or academic job (φ declines from 26.8 in Model 1 to 21.5 in Model 2). Another 6% can be explained by spouses who work in the exact same occupational category ($\varphi = 19.9$ in Model 3). The diagonal parameters (shown in Appendix C) reveal that, especially, people in academic professions have a strong tendency to marry with someone with a similar occupational level (0.74),

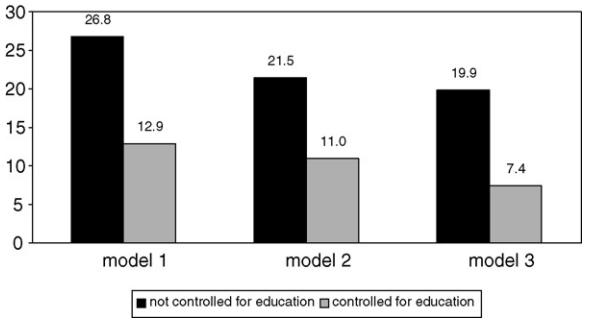

Fig. 2. Estimated association parameters for husband's and wife's occupational level, not controlled and controlled for husband's and wife's education (Models 1–3 correspond with the models defined in Table 8).

but this tendency is completely the result of educational homogamy (−0.04 when controlled for education). People with a medium-level occupation are less likely to have spouses with the same job level than with another job level (−0.19). Despite the clear importance of the diagonal in our homogamy tables, the fact that three-quarters of the association between spouses remains after taking the diagonal effects into account, suggests that most of the association between spouses' occupational achievement comes from the tendency to have job levels close to each other, but not exactly similar.

The results of our test whether or not spouses' occupational association has changed over birth cohorts are shown in Table 9. In contrast with our preliminary results from the descriptive odds ratios in Table 7, we have to conclude that there are no significant cohort differences in either the association parameter, the four-level diagonal or the 47 cells-diagonal.[1] According to the fit statistics, Model 1a has to be preferred over Model 1b for both age groups, indicating that the difference in the association parameter between cohorts is non-

[1] A unidif model over cohorts indicates that there is a downward trend in the association between husband's and wife's occupation. For couples of 40 years or older, the association parameter in the 1950–1959 cohort is 90% and in the 1960–1969 cohort 86% of the association in the 1939–1949 cohort; for the younger age group, the association in the 1960–1969 cohort is 97% and in the 1970–1979 cohort 90% of the association in the 1950–1959 cohort. This reduction appears to be significant when tested against a social fluidity model. Apparently, this trend is not sufficiently represented by the three elements of spouses' occupational association that we study.

significant; the same is true for the diagonal effects. The best fitting model remains the model in which we define a general association model on top of a four-level diagonal and the 47 cells-diagonal (Model 3a). We therefore have to conclude that these elements of the occupational association of spouses have not changed significantly when couples born between 1940 and 1979 are considered, and that the suggested decline in the odds ratios (based on only four occupational levels) as shown in Table 7 do not represent a truely significant trend.

Our final question concerned the degree in which the association between spouses' occupations can be attributed to educational homogamy. In Fig. 2, we can see the association between spouses' occupational achievement if spouses' education is held constant. Not surprisingly, spouses' education is an important contributor to the association in occupational achievement: it explains about half of the association (from 26.8 to 12.9 in Model 1), and even 63% of the association that exists apart from the rough four level-diagonal and exact 47 cells-diagonal (from 19.9 to 7.4 in Model 3). However, what is more interesting in our view is the fact that still 40–50% of the association between spouses' occupational success is not due to educational homogamy or educational partner effects. This result implies that occupational association between spouses covers much more than educational homogamy. And, thus, we argue that research on couples' occupations, occupation being a more direct indicator for social position, provides a more accurate picture of social inequality between households than research on couples' education alone.

5. Conclusion

This study aims to describe the association between spouses' employment status and occupational success, to detect possible trends in these associations, and to establish the extent to which occupational association exists on top of educational homogamy. Its merits lie in the contribution to our knowledge about the association between labor market characteristics of spouses that have a decisive impact on the socio-economic inequality between households.

Our first conclusion is that spouses' employment statuses and occupational achievements are positively associated. The implication of this finding is that resources are accumulated within households, and, as a result, that inequality between households is larger than between individuals. Negative associations between spouses' employment statuses are found among couples with children, indicating that couples divide paid labor when children are present. This means that the classical economic theory is largely proven to be incorrect here, but finds support as far as dual worker couples with children are concerned.

Second, the association between spouses' employment statuses seems to have become more positive over time, whereas the association between spouses' occupational success has remained stable. In other words, the difference in the number of working hours between households becomes larger, but the degree of accumulation of labor market success remains the same. Together, these two processes form evidence of some increase in social inequality.

Third, educational homogamy is responsible for a considerable part of the association between spouses' employment statuses, for example because highly educated couples consist more often of two full-timers, and choose less often for a traditional breadwinner household when children are present. In addition, educational homogamy explains about half of the association of spouses' occupational status. Simultaneously, this means that half of the association between spouses' occupational success cannot be attributed to their education. We interpret this result as an encouragement to study couples' occupational characteristics in research on social inequality.

There are several alternative explanations for the other half of the association between spouses' occupational success. We expect assortative mating on occupation to be a very important candidate. Other forms of homogamy, like age homogamy, may also explain part of the association. Furthermore, we believe that the ways in which partners affect each others' careers might be important. In our models, educational partner effects are included, but there may be others as well, especially occupational partner effects. Spouses do not only benefit from each others' educations, but from all possible resources, like each others' social capital in a broader sense.

Future research should investigate the importance of these alternative explanations in order to better understand the origin of the occupational association, and, thus, of social inequalities between couples. A historical approach would be preferable; although the overall association between spouses' labor market success has not changed over time, the impact of the underlying mechanisms might have. Extension of our knowledge about the association between spouses' employment status and occupational success in other countries is another way to make progress in this field of study. Such comparisons can make clear whether the findings in this study are typically Dutch or whether the findings are generally true. On the one hand, the Netherlands is a unique

country with respect to the huge number of part-time jobs. On the other hand, however, general economic and cultural developments that may influence spouses' labor market characteristics are rather universal. Therefore, the picture that emerges from this study is perhaps not that country-specific.

Appendix A. Occupational categories with corresponding (standardized) ISEI score and distribution for husbands and wives (dual worker couples only)

sbc92[a]			ISEI	Standardized ISEI	Husbands			Wives		
					Average ISEI	*N*	%	Average ISEI	*N*	%
		Low occupations			33	29,182	22.2	38	37,153	28.3
11	(1)	Elementary occupations	28	−1.79		4,925	3.8		8,477	6.5
20	(2)	Without further information	39	−1.01		47	0.0		63	0.0
21	(3)	Not specialist	47	−0.44		74	0.1		136	0.1
22	(4)	Teachers	54	0.05		64	0.0		144	0.1
24	(5)	Agrarian	30	−1.65		1,607	1.2		1,292	1.0
25	(6)	Mathematic, physics	43	−0.73		27	0.0		71	0.1
26	(7)	Technical	32	−1.51		11,156	8.5		2,099	1.6
28	(8)	Transport	32	−1.51		5,904	4.5		775	0.6
29	(9)	(para)Medical	37	−1.15		98	0.1		691	0.5
31	(10)	Clerical, commercial	47	−0.44		3,496	2.7		17,954	13.7
33	(11)	Security	40	−0.94		1,057	0.8		179	0.1
37	(12)	Care-giving	30	−1.65		727	0.6		5,272	4.0
		Medium occupations			46	54,951	41.9	46	56,533	43.1
40	(13)	Without further information	47	−0.44		215	0.2		190	0.1
42	(14)	Teachers	55	0.12		459	0.3		219	0.2
44	(15)	Agrarian	52	−0.09		3,666	2.8		1,587	1.2
45	(16)	Mathematic, physics	48	−0.37		280	0.2		274	0.2
46	(17)	Technical	41	−0.87		22,320	17.0		1,592	1.2
48	(18)	Transport	46	−0.51		1,283	1.0		659	0.5
49	(19)	(para)Medical	42	−0.80		1,335	1.0		12,661	9.6
51	(20)	Clerical, commercial	50	−0.23		18,484	14.1		26,375	20.1
53	(21)	Juridical, governmental, security	55	0.12		2,987	2.3		975	0.7
55	(22)	Linguistic, cultural	43	−0.73		523	0.4		644	0.5
56	(23)	Behavior and society	48	−0.37		855	0.7		2,231	1.7
57	(24)	Care-giving	41	−0.87		2,544	1.9		9,126	7.0
		High occupations			62	32,628	24.9	62	28,861	22.0
60	(25)	Without further information	60	0.55		610	0.5		351	0.3
62	(26)	Pedagogical	68	1.05		4,411	3.4		8,936	6.8
64	(27)	Agricultural	61	0.55		488	0.4		127	0.1
65	(28)	Mathematic, physics	52	−0.09		245	0.2		159	0.1
66	(29)	Technical	60	0.48		4,108	3.1		456	0.3
68	(30)	Transport	59	0.41		477	0.4		49	0.0
69	(31)	(para)Medical	53	−0.02		1,431	1.1		5,602	4.3
71	(32)	Clerical, commercial	62	0.62		15,045	11.5		7,298	5.6

Appendix A (*Continued*)

sbc92[a]			ISEI	Standardized ISEI	Husbands			Wives		
					Average ISEI	*N*	%	Average ISEI	*N*	%
73	(33)	Juridical, governmental, security	72	1.33		791	0.6		277	0.2
75	(34)	Linguistic, cultural	61	0.55		1,040	0.8		1,239	0.9
76	(35)	Behavior and society	62	0.62		2,309	1.8		3,693	2.8
77	(36)	Care-giving	47	−0.44		129	0.1		375	0.3
78	(37)	Managers	66	0.90		1,544	1.2		299	0.2
		Academic occupations			71	14,483	11.0	72	8,697	6.6
80	(38)	Without further information	72	1.33		619	0.5		401	0.3
82	(39)	Pedagogical	71	1.26		1,933	1.5		1,769	1.3
84	(40)	Agricultural	74	1.47		94	0.1		42	0.0
85	(41)	Mathematic, physics	74	1.47		472	0.4		136	0.1
86	(42)	Technical	68	1.05		1,457	1.1		282	0.2
89	(43)	(para)Medical	80	1.90		1,708	1.3		1,478	1.1
91	(44)	Clerical, commercial, economic	71	1.26		2,997	2.3		1,122	0.9
93	(45)	Juridical, governmental, security	74	1.47		1,422	1.1		1,255	1.0
96	(46)	Behavior and society	65	0.83		1,002	0.8		1,148	0.9
98	(47)	Managers	68	1.05		2,779	2.1		1,064	0.8
		Total			50	131,244	100	49	131,244	100

Source: Labor Force Surveys, 1994–2006; $N = 131{,}244$.

[a] sbc92: Standard Occupational Classification 1992, Statistics Netherlands.

Appendix B. Design matrix for 4-level diagonal of husband's and wife's occupational level

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
2	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
3	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
4	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
6	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
7	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
8	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
9	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
10	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
11	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
12	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	0
14	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	0
15	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	0
16	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	0
17	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	0

Appendix B (*Continued*)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
18	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	0
19	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	0
20	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	0
21	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	0
22	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	0
23	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	0
24	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	3	3	3	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0

Appendix B (*Continued*)

	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
26	3	3	3	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0
27	3	3	3	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0
28	3	3	3	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0
29	3	3	3	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0
30	3	3	3	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0
31	3	3	3	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0
32	3	3	3	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0
33	3	3	3	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0
34	3	3	3	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0
35	3	3	3	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0
36	3	3	3	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0
37	3	3	3	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0	0	0	0	4	4	4	4	4	4	4	4	4	4
39	0	0	0	0	0	0	0	0	0	0	0	0	4	4	4	4	4	4	4	4	4	4
40	0	0	0	0	0	0	0	0	0	0	0	0	4	4	4	4	4	4	4	4	4	4
41	0	0	0	0	0	0	0	0	0	0	0	0	4	4	4	4	4	4	4	4	4	4
42	0	0	0	0	0	0	0	0	0	0	0	0	4	4	4	4	4	4	4	4	4	4
43	0	0	0	0	0	0	0	0	0	0	0	0	4	4	4	4	4	4	4	4	4	4
44	0	0	0	0	0	0	0	0	0	0	0	0	4	4	4	4	4	4	4	4	4	4
45	0	0	0	0	0	0	0	0	0	0	0	0	4	4	4	4	4	4	4	4	4	4
46	0	0	0	0	0	0	0	0	0	0	0	0	4	4	4	4	4	4	4	4	4	4
47	0	0	0	0	0	0	0	0	0	0	0	0	4	4	4	4	4	4	4	4	4	4

Appendix C. Diagonal parameter estimates for husbands' and wives' occupational level (off-diagonal is reference category; parameter estimates of cells with fewer than 10 cases are not shown)

	Not controlled for education[a]	Controlled for education[b]	*N* diagonal
Low	0.47	0.19	13,944
Medium	−0.19	−0.13	27,214
High	0.09	0.04	11,502
Academic	0.74	−0.04	3,723
Low			
Elementary occupations	0.46	0.53	1,083
Without further information			2
Not specialist			3
Teachers			1
Agrarian	1.21	1.19	102
Mathematic, physics			0
Technical	0.44	0.48	503
Transport	1.19	1.22	189
(para)Medical			5
Clerical, commercial	0.14	0.20	749
Security	2.20	2.06	19
Care-giving	1.48	1.72	211
Medium			
Without further information			4
Teachers	4.61	4.46	58
Agrarian	4.95	4.75	1,205
Mathematic, physics	3.23	2.82	15
Technical	0.92	0.99	641
Transport	2.45	2.47	72
(para)Medical	1.09	1.00	380
Clerical, commercial	0.37	0.27	5,233
Juridical, governmental, security	2.52	2.28	228
Linguistic, cultural	2.58	2.69	36

Appendix C (*Continued*)

	Not controlled for education[a]	Controlled for education[b]	*N* diagonal
Behavior and society	1.47	1.36	66
Care-giving	1.53	1.74	749
High			
Without further information	1.77	1.82	13
Pedagogical	1.05	1.00	1,358
Agricultural			9
Mathematic, physics	3.51	2.16	11
Technical	1.31	1.22	67
Transport	4.12	3.73	12
(para)Medical	1.72	1.24	323
Clerical, commercial	0.49	0.50	1,817
Juridical, governmental, security		9	
Linguistic, cultural	2.79	2.35	173
Behavior and society	1.20	0.88	274
Care-giving			6
Managers	1.40	1.70	25
Academic			
Without further information	1.75	1.14	37
Pedagogical	0.92	0.56	214
Agricultural			2
Mathematic, physics	2.23	1.27	16
Technical	1.80	1.28	51
(para)Medical	1.79	2.18	432
Clerical, commercial, economic	0.54	0.49	156
Juridical, governmental, security	1.47	1.32	196
Behavior and society	1.74	0.84	109
Managers	−0.09	0.39	72

Source: Labor Force Surveys, 1994–2006; $N = 131,244$.

[a] Based on Model 3, not controlled for education.

[b] Based on Model 3, controlled for education.

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