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Paid and unpaid work in Denmark – Towards gender equity

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Abstract

Since the 1960s women in most countries have increased the time they spend in the labour market, while little change has been seen in their time spent on unpaid household work. Men, however, have decreased their labour market participation and increased their time used on unpaid household work. This trend also holds true for Denmark, albeit reduced by standardization for the demographic distribution. The most robust result is a continued convergence in women and men's time use. When making a linear projection of the trends in women and men's time use, we have to go to the year 2033 before Danish women and men spend an equal amount of time in paid employment. However, for household work, gender equality will arrive as early as 2023.

JEL-Codes: D12, J2

Keywords: Time use survey, inequality

1 Introduction

In recent decades the distribution of paid and unpaid work between women and men has been on the political agendas of most developed countries. In their seminal work, Young and Willmott (1973) showed that around the mid-1960s every time women in the London region took on an extra hour of paid work, they were relieved of only half an hour of unpaid work. The UN (Goldschmidt-Clermont and Pagnossin-Aligisakis, 1995) also conducted an important investigation of how much paid and unpaid work women and men undertook in various countries worldwide.

Gershuny (2000) argues that the development up to the 2000s can be characterised by three major convergences in time use: *between countries, between women and men, and between social classes.* These convergences are said to be the result of globalisation, understood as technological, cultural and economic globalisation ensuing from increased intercourse and reciprocal influence among countries. As a consequence of the ongoing liberalisation of international trade and the free movement of capital, governments and the private sector have been obliged to pursue more or less identical economic policies, including labour market policies with many features in common. Nevertheless, the convergence has not removed all differences inasmuch as men clearly continue to have more paid work than women do, and women clearly have more unpaid household work at home.

Nonetheless, women have experienced a development towards more paid work and less unpaid work, which has enabled them to earn higher incomes and to improve their social standing. Bonke (1995) contains an overview of 30 years' developments in work opportunities and time use in OECD countries and concludes, like Gershuny (2000) five years later, that women and men's time use is converging and ascribes much independent importance to education: “For women a high level of education has been an important factor in the trend towards greater and more lasting participation in the labour market” (ibid. p. 9). And there is a clear link between a high proportion of women with further education and high employment frequency.

In Sevilla and Giminez-Nadal (2012) and Kan et *al.* (2011) the convergence remains when the researchers analyse cross-national trends in paid and unpaid work and the distribution of these activities between women and men over the past 40 years. But the trend is now moving more slowly, and, as Kan et *al.* remark, "incompletely". According to a simple projection, we shall have to wait 70–80 years until women and men quantitatively have the same amount of working time inside and outside the home, albeit there are differences depending on the welfare systems in the countries concerned.

To analyse these circumstances in more detail, Gershuny and Kan (2012) and Kan, Sullivan and Gershuny (2011), for example, take their departure in Esping-Andersen's division of modern welfare states into three prototypes: the liberal, the continental and the Scandinavian (or social-democratic) models (Esping-Andersen, 1990). They investigate whether there is a

systematic association between women's time use on child care and routine housework in countries belonging to the three different models, here expanded with a fourth: the southern European or residual model (Esping-Andersen, 1999). The result is that it is possible to find a causal association of this kind since the Scandinavian model with its highly developed network of day-care institutions seems better able to facilitate equality between women and men in their use of the 24 hours of the day than do the other models.

In the following we look specifically at trends over 45 years in paid work and household work in Denmark, which represents a Scandinavian welfare society, which has hitherto only been included in international comparison with figures until the late 1980s (Gershuny and Kan, 2012). Thus we are looking to see when the modern "Hundred Years' War" will crystallize in identical time use by women and men, concluding our study with a projection based on trends in Denmark.

2 Data – 45 years with Danish time use studies

To describe the major trends in the Danish population's time use, we used data from nationwide and representative Danish surveys, which in many respects follow the time-use survey guidelines developed by Eurostat (2000) and are all based on probability samples, see Bonke (2012) for further information on the Danish surveys. The surveys all include diary information on several activities performed on randomly chosen weekdays. The developments in household work and leisure are connected with some uncertainty because these activities have not been registered with the same degree of detail over time. The definition of paid and unpaid work used here is:

- Paid employment: work in main occupations and sideline occupations along with banked overtime, but not transport to and from work.
- Unpaid/household work: shopping, housework, DIY and child care.

In relation to other registrations it is important to note that we refer only to the spring months in the years in question as up to and including 1987 the surveys cover only these months. This is the reason why the number of respondents is relatively low for 2001 and in particular for 2008–09. Furthermore, we include diary information for interview persons only, not for their family members.

The surveys referred to are from 1964, when the Danish National Centre for Social Research undertook its first survey where 3500 visit interviews were attained; from 1975, when the Centre carried out a new survey based on approximately 3700 visit interviews; and from 1987, when the third nationwide survey was conducted, see Andersen (1987; 1988). All surveys contain a 24-hour rhythm schedule in which respondents are asked to state the activities they were involved in during a selected 24-hour period from 4 a.m. the first day until 4 a.m. the next day. The next time use survey was conducted in 2001 and included visit interviews with 2739 persons, who together with their cohabiters, if any, completed 6518 diaries record-

ing their time use (Bonke, 2002). Lastly, in 2008–09 the time use survey in Denmark was carried out by the Rockwool Foundation Research Unit (Bonke and Jensen, 2012; Bonke and Fallesen, 2010). Besides the representatively selected respondents, their partners and any children between the ages of 7 and 17 years were asked to complete 24-hour rhythm schedules for the same weekdays, which brought the number of completed schedules up to 16,802: weekdays and weekend days taken together. However, because the surveys for the years 1964, 1975 and 1987 refer to interviews in February and March, the interviews for 2001 and 2009 cover interviews for the same months, i.e. 2001 covers interviews also for March, and 2009 covers interviews also for January. This reduces the number of interviews for the two last years to 715 and 77, respectively, while there are 3057, 3273 and 3438 interviews used for the previous years. The response rates for the surveys were 66.6, 72.7, 64.6, 65.8 and 77, respectively, and all data are weighted by age, gender and marital status to make the datasets representative for the Danish populations in the different years.

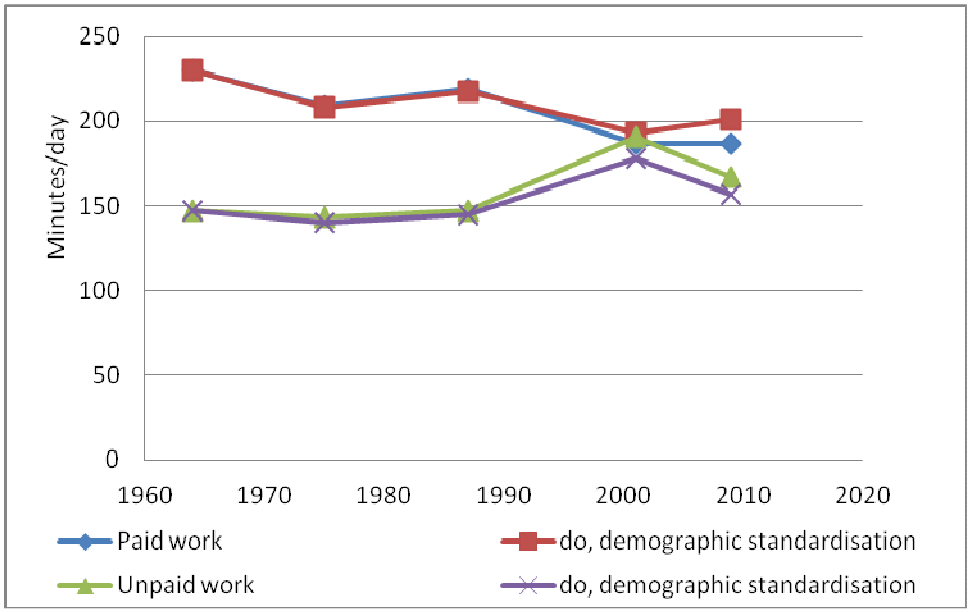
In contrast to Aguiar and Hurst (2007) and Sevilla and Gimenez-Nadal (2012), who restrict their samples to individuals between 21 and 65 years of age, we use the broader age span of 18–74 years. This is because many younger and older Danes were occupied on the labour market in the 1960s and 1970s, with elderly individuals seemingly remaining there longer, allowing us to focus on the development of societal labour supplies measured as individual averages for the adult population over the last 45 years. However, we also use a subsample of employed men and women to see whether the trend in all 18-74-years olds' paid and unpaid work can be ascribed to time-use changes within this group.

3 Developments in the Danish population's paid and unpaid work 1964–2009

It appears from Figure 1 and Table 1 that during 1964–2009, if we take the actual time worked and exclude time commuting, there has been a general fall in the hours worked by Danes in the labour market. If we look at the hours worked on an average weekday in the different periods, we can see that in 1964 this was 3 hours 50 min against 3 hours 29 min in 1975 and 3 hours 39 min in 1987. Later, in 2001 and 2009, the time worked was down to 3 hours 7 min. Thus, it was in the periods 1964–1975 and 1987–2001 that working hours fell, more precisely, by just under 2½ and ¾ hours a week, respectively, a total fall from 1964 to 2009 of almost 20%.

While the decrease in working hours during 1964–75 took place at the same time as negotiated reductions in working hours in the labour market from 44 hours a week in 1960 to 40 hours in 1974, the fall from 1987 to 2001 occurred in a period in which the negotiated working time was reduced from 39 to 37 hours a week. Longer holidays were also introduced in the course of these periods, but this is presumably reflected in the figures only to a limited extent as we look solely at activities in the spring months.

Figure 1
18–74-year-olds paid and unpaid work on an average weekday 1964- 2009. Standardised for demographic changes (gender and age)



Time use forward in time is standardised with departure in Denmark's demographic (age and gender) distribution in 1964. See notes in Table 1
Source: Danish Time Use Survey 1964 -2009, own illustration.

For household work, we find that it was more or less constant during 1964–1987, after which it rose up to 2001 and then fell until 2009, albeit without returning to the levels of the 1960s, 1970s and 1980s. In 2009, 2¾ hours were spent on household work on an average weekday as opposed to just under 2½ hours up to 1987. The substantial rise in household work of 45 min per day, or 5 hours per week, during 1987–2001 is surprising even though it occurred precisely at the time when there was a decrease in hours worked in the labour market and thus a change in where Danes were working—more at home and less outside the home—see also Bonke (2002).

The unchanged extent of household work during 1964–1987 and the later increase are noteworthy considering the increased availability of more highly pre-processed foods, fast food, effective cleaning agents and timesaving household appliances. There are, therefore, indications that production simply increased—clothes washed more frequently, larger homes, more dishes at meals and more time spent on child care—thereby more than "counter-balancing" the productivity gains, and that do-it-yourself had replaced paid work at home and also to some extent outside the home, cf. Gershuny (1978; 1979).

In Table 1 the trends for paid work and unpaid work have been calculated as the 10-year changes in time use over the entire period 1964–2009. It can be seen that the decrease in paid working time corresponds to 9½ min per day or a little more than an hour a week for each decade. This trend is partly counterbalanced by the increase in household work of 8 min per day, or just under 1 hour per week. This leaves room for a slight increase in leisure time corresponding to just under 4 min a day, or 30 min per week per decade. However, it is not cer-

tain that leisure time has increased at all as the figures are not statistically significant (not shown in table 1).

Table 1
Women and men's paid work[1] and unpaid work[2] on an average weekday 1964–2009. 18–74-year-olds

	1964	1975	1978	2001	2009	Trend 1964-2009
			Hours: min/av. weekday			Min./day/10 years
			Employed and non-employed Men			
Paid work	5:54	4:43 *	4:32 *	3:56 *,a	3:49 *	-25.67 α
Household work	0:29	1:11 *	1:40 *,a	2:30 *,a	2:17 *	25.97 α
			Employed and non-employed Woman			
Paid work	1:46	2:12 *	2:47 *,a	2:24 *,b	2:28 *	8.03
Household work	4:24	3:39 *	3:12 *,a	3:47 *,a	3:15 *,a	-10.70
			Employed and non-employed Men and Woman			
Paid work	3:50	3:29 *	3:39	3:07 *,a	3:07 *	-9.48 α
Household work	2:27	2:23	2:27	3:11 *,a	2:47 *,a	8.15 β
			Employment rate			
Men	81,3	74,4	67,1	60.2	65.4	-4.07
Woman	27,7	47,0	57,8	49.2	53.3	4.53
Men and Woman	51.5	60.0	62.6	54.4	59.1	0.74
			Hours: min/av. weekday			Min./day/10 years
			Employed Men			
Paid work	6:42	6:02 *	5:48 *	5:34 *	5:33 *	-14.34 β
Household work	25	1:01 *	1:31 *,a	2:20 *	1:54 *,a	22.68 β
			Employed Woman			
Paid work	4:49	4:19	4:24	4:17	4:06 *	-8.22
Household work	2:20	3:04 *	2:54 *	3:22 *,a	2:59 *	5.58
			Employed Men and Woman			
Paid work	6:11	5:23 *	5:10 *	4:57 *	4:48 *	-16.50 β
Household work	56	1:48 *	2:09 *,a	2:50 *,a	2:26 *,a	21.18 β
No. of observations	3057	3273	3438	715	777	…

*significant difference at 0.05 level in relation to 1964.
a,b significant difference at 0.05 or. 0.1 level respectively in relation to previous year.
α , β significant difference at 0.01 or 0.05 level in relation to 0: no change in the period.
[1] Paid employment includes work in main occupations and sideline occupations along with banked overtime, but not transport to and from work.
[2] Household work includes shopping, housework, DIY and child care.
Note: All data are weighted by age, gender and marital status.
Source: Danish Time Use Survey 1964 -2009, own calculations.

The trends for paid and unpaid work are affected by changes in labour market attachment rates as well as by the development in part-time and full-time work. Since 1964 the labour

market participation rates have decreased from 52 to 59 in 2009 for men and women taken together with a decrease for men from 81 to 65 and an increase from 28 to 53 for women (Table 1). For the employed, the 10-year change in paid work over the entire period 1964–2009, the trend, corresponds to 16.5 min less per day, while unpaid work increased by 21.2 min per day. This implies that the decrease in paid work found for all 18–74-year-olds is caused by a smaller number of men working still fewer hours, while the increase in unpaid work for all 18–74-year-olds is caused by employed as well as non-employed men nowadays spending significantly more time on this activity, i.e. the same trend for employed and for all people within the age-group.

4 Correction for demographic changes 1964 - 2009

As age and gender are demographic factors that affect how people allocate their time, the data in Figure 1 are adjusted to reveal changes in behaviour over the period, see Aguiar and Hurst (2007) and Sevilla and Gimenez-Nadal (2012), who apply the same weighing procedure. We also calculated the impact of changes in civil status—there are more singles nowadays—although this is not to be considered a demographic factor, and the results were nearly of the same size as when correcting only for changes in age and gender distribution over time. That corrections have not been made for changes in the share of the population of non-Danish origin, immigration, is because these citizens have participated relatively little in the surveys, which for statistical reasons alone means that a correction would be problematic. The figure shows how time use during 1975–2009 would have looked if the age composition of the population and distribution by gender in each of the survey years had been the same as in 1964.

Comparison of the curves in Figure 1 shows that it is not until 1987 that the demographic changes can be seen to bring about changes in the time spent on paid employment and household. For paid employment, the daily average time spent working would thus have been 6 min longer in 2001 and 14 min longer in 2009 if the population had been demographically similar to that in 1964. Conversely, the decrease in working hours would therefore have been smaller, corresponding to 45 min less time spent working per week per decade during 1964–2009 and not more than 1 hour as, according to our calculations for the actual composition of the population, it decreased.

For household work, it is also in the most recent decades that the changed demographic composition of the population has made itself felt. In 2001 household work would thus have been 13 min shorter, and in 2009, 10 min shorter if the demographic composition had been as in 1964. Instead of an increase in household work of just under 1 hour per week per decade, the increase would have been only 38 min. Accordingly, there is no doubt that demographic changes have contributed to the fact that today Danes spend less time on paid employment and more on household work than 45 years ago.

5 The gender perspective in time use trends

If we return to actual developments and distinguish between women and men's time use, we find that while men's working hours in the labour market have decreased since 1964, women's have risen (Table 1). Thus, the trend has been that men on average reduced their working hours each decade by 26 min during 1964–2009, and women increased their working hours by 8 min each decade, although not significantly. While we can see a more or less gradual fall in men's working hours between 1964 and 2009 when we look at the individual periods, for women a gradual increase can be registered until 1987, after which their working hours fall until 2001 and then become stable in the present century. This means that whereas men worked almost 4¼ hours more than women in 1964 on an average weekday, the difference was down to just under 1½ hours in 2009. Looking exclusively at employed men and women, we find as already mentioned a decrease for men from 6 ¾ to 5 ½ hours and from 4 ¾ to 4 hours for women (Table 1). Calculated as a trend over the entire period 1964–2009, we find that the reduced gap between all 18–74-year-old women and men's time spent on paid work can be explained by a smaller difference in their labour market participation rates and a significant reduction in participating men's working hours.

For household work, the picture is the opposite of that seen for paid employment. Here it is men who have increased their contribution, while women have reduced theirs, although not proportionally. Men's daily household work has increased by what corresponds to 26 min a day in each decade as opposed to a non-significant reduction for women of only 11 min. In 1964 the difference between women and men's household work was just under 4 hours against 1 hour a day in 2009. For employed men and women we find that unpaid work increased by 1 hour and 29 min per day for men and 39 minutes for women during 1964–2009. However, only for men was the change significant when calculated as a trend for the same period; furthermore, the change was nearly the same size for employed and non-employed men taken together.

For both genders – employed and non-employed – the increase in work in one area has been more or less counterbalanced by less work in the other area, so that for both women and men the number of waking leisure hours has remained almost unchanged throughout the entire observation period. This is in accordance with that found for other industrialized countries from the 1970s until today, see Aquidar and Hurst, 2007, who looked at 21–65-year-old employed and non-employed men and women.

The trend described here towards greater equality between women and men can partly be ascribed to women's better education and an increased orientation towards the labour market and partly to a widely held wish for greater equality between women and men, both inside and outside the home.

6 Towards gender convergence in Denmark

If we try, despite uncertainties, to make a simple linear projection of the trends in 18-74-years old women and men's time use, we have to go to the year 2033 before women and men spend an equal amount of time in paid employment. For household work, gender equality arrives as early as 2023. For Norway a projection of the trends based on official statistics (Vaage, 2012) implies that women and men will also spend the same amount of time in paid work in 2033, while this happens already in 2021 for unpaid work. If the projections for Denmark were based on other functional forms better fitting the curves than the linear ones, gender equality would be reached at nearly the same times as by using the present form. However, it is important to stress that these projections are not based on forecasting taking future demographic changes or changes in marital status, number of children, etc. into consideration, which is legitimized by the very short time horizon dealt with here.

To investigate the decreasing impact of gender on time spent on household work, we also performed a series of regression analyses for the different survey years under consideration. Hence, if we include age, civil status, number of preschool and school children and number of working hours in the labour market in an analysis of the variation in the extent of household work—an implicit demographic and socioeconomic weighting—we find that this helps to explain an ever-smaller part of the variation in household work over the past 45 years (Table 2). From an explanation of the variation of 0.56 (qui^2) in 1964 the explanation falls markedly up to 1975 (0.37) and again up to 1987 (0.27), after which it becomes stable at this level.

The most important explanation for the ever-smaller part of the variation is that gender means less than it has done for the differences in the amount of household work. In 1964 the difference in women and men's household work was 240 min (4 hours) a day falling to 134 min (2¼ hours) in 1975 and to 72 min (1¼ hours) in 1987. In 2001 the difference was only 63 min (1 hour) and in 2009, 46 min (¾ hour) a day.

There is thus no doubt that seen in isolation, gender is of ever-decreasing importance for how much time women and men spend on household work. There are, however, other factors that continue to play a considerable role. For example, having a pre-school child, which seen in isolation meant 1 hour's more household work in 1964 against 1¾ hours in 2009. Schoolchildren also occasioned more household work in 1964 than in 2009—½ hour against ¾ hour—while, conversely, entering into a pair relationship "costs" less today—¾ hour against ½ hour daily. However, the impact of age has been increasing, which indicates that differences between older and younger age groups in time spent on household work are now greater than in earlier periods.

As could be expected, there is substitution between paid employment and household work. The more one works in one place, the less one works in the other. However, this was not the case in 1964, when there was a positive relation between the two types of work, which may be due to some having been very busy in both areas in order to support their families: i.e. the positive relation was found only for men (+.173), while it was negative for women (+.173 -

.259 = -.086). Nevertheless, this does not alter the fact that for women in general, paid employment has had a greater impact on their household work than is the case for men. The so-called interaction variable gender*working hours was thus negative, but decreasing in value up to 1987, after which it was no longer significant. This means that the number of working hours is no longer of greater importance for the amount of household work, or vice-versa, for women than for men, cf. Table 2.

Table 2
Unpaid/household work – min/average weekday – and different socioeconomic factors. 18–74-year-olds 1964-2009

	Household work[1]				
(ref. group)	1964	1975	1987	2001	2009
	OLS-regression coefficients				
Gender (man)	240.4***	134.5***	72.49***	63.37***	46.39***
Working hours	0.173***	-0.061*	-0.150***	-0.219***	-0.181***
Gender* working hours	-0.259***	-0.099***	-0.0439*	-0.0576	-0.0433
Age	0.131	0.506**	0.458**	1.716***	1.451***
Youngest child <7 (no children)	62.24***	40.48***	73.28***	79.25***	109.0***
Youngest child 7-17 (no children)	28.88***	45.03***	39.26***	34.07**	48.60***
Couple (single)	48.06***	43.34***	23.57***	18.26	35.06***
Constant	-142.7***	-132.6***	4.346	94.71***	64.26***
Adj. R^2	0.56	0.37	0.27	0.31	0.27
No. of observations	3056	3271	3187	715	776

[1]excl. dropping off and fetching children, visits to public and/or private institutions and gardening.
*,**,*** significant at 0.05, 0.01 and 001 levels.
Source: Danish Time Use Survey 1964 -2009, own calculations.

7 Conclusion

In the literature there has been considerable interest over the years in how the distribution between work on the labour market and household work has developed and in how this distribution has been divided between women and men in the individual industrialised countries. In this connection several studies have shown that from the 1960s, 1970s and 1980s, populations have had less leisure time despite reductions in the negotiated annual working hours with a shorter working week and more holiday weeks. Two of the explanations have pointed to women's increasing participation in the labour market and an unchanged time use on unpaid household work.

This trend is also seen in Denmark, even though it is reduced by standardisation for the demographic distribution. The most robust result is a continued convergence in women and men's time use, which is to be found in all industrialised countries. As we have seen for paid work, this has been brought about by more equal employment rates among men and women and employed men’s reduced number of working hours. For unpaid work, the convergence is

mainly due to employed as well as non-employed men's increased contribution to that work. If, despite uncertainties, we make a linear projection of the trends in 18-74-years old women and men's time use, we have to go to the year 2033 before Danish women and men spend an equal amount of time in paid employment. For household work, gender equality will arrive as early as 2023.

We have also shown that the isolated effect of being a woman or being a man can explain an ever-decreasing part of the variation in household work over the last 45 years. From a relatively high explanation of the variation in 1964 the explanation falls markedly up to 1975 and again up to 1987, after which it becomes stable at this level. The most important reason why we can explain only an ever-smaller part of the variation is that gender means less than it has done for the differences in the amount of household work. In 1964 the difference in women and men's household work was 4 hours a day and in 2009 it was ¾ hour a day.

As could be expected, every time women took on paid work, they were relieved of some household work. However, this was only the case up to 1987, after there was no significant difference in how women and men's paid work affected the time spent on household work.

Our conclusion is that over the years a convergence has been taking place between women and men's time use, and that this development has been very marked in Denmark, as a country belonging to the Scandinavian welfare regime model.

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