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An International Comparison of Married Women's Labour Force Participation: A Cross-Country Analysis for Employees in Seven Countries

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AN INTERNATIONAL COMPARISON OF MARRIED WOMEN'S LABOUR FORCE PARTICIPATION: A CROSS-COUNTRY ANALYSIS FOR EMPLOYEES IN SEVEN COUNTRIES

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ABSTRACT

In this article married women's paid market work participation in seven western industrialised countries is analysed. Computations were based on the microdata of the international Luxembourg Income Study (LIS) project based at the Center of Population Studies (CEPS), Walferdange/Luxembourg. We present descriptive results for the structure of earners in married couples' households. Married women's paid market work participation then is indeep analysed with respect to full - and part-time work. Further descriptives contain crosstabs of participation in accordance with age, children and husbands' income. The results presented in this article might serve as a first step for further microeconometric research concerning couples' attitudes towards labour market and the divisions of labour.

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1 INTRODUCTION

Whereas male paid work participation remained relatively constant over the last three decades in nearly all western developed countries (OECD 1989), the rise of married women's paid market work participation is of different size and impact on the composition of the labour force in the OECD member states.[1)] Cross-country differences in married women's labour force participation also reveal the degree of female responsibility and specialisation on household production as a good solely traded inside the household (Apps 1981).

An international comparison of married women's labour supply then reveals the different impacts of joint or single taxation on the family. But still gender specific differences in the division of labour between paid market and unpaid household production become visible.[2)] Division between market and non-market labour supply is not restricted to married couples. It might also become possible for other adults than (married) couples living together. We restrict our analysis to married couples. Social, financial and family policy lay a special focus on this group (Albers 1988).

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1) A survey of recent international microeconometric work on female labour supply is given by Heckman and Killingsworth 1986. Recent microanalyses of female labour supply in Germany were carried out by Merz (1987, 1990).

2) See Pahl (1984) for the UK or Merz (1989) for a detailed microanalysis of market and non-market work in the FRG. Differences in the division of labour also become visible in the cross-country analysis of Gershuny and Jones (1986).

Most often male paid work decison inside the family is not affected by taxation. For married women as a second earner taxation then is a strong incentive or disincentive towards paid, taxed labour supply or unpaid, untaxed household production. Though differences of taxation might be of great influence on married women's allocation of time other factors like institutional arrangements for childcare, the relative size of the service sector or formal education also seem to be important factors of married women's decision towards market work.

Work on international comparisons of the allocation of time in paid labour supply and unpaid work is still in the beginning. To our knowledge most research already done on this topic results from time budget research. Gershuny and Jones (1986) compare seven countries with several cross-section timebudget datasets for each country. So they get a glimpse on the development of male and female allocation in market and non-market work and the developments from 1961 to 1984. The data they used are available at the international time budget research center, which is under construction at the University of Bath. Our data used in the following analysis are part of another multicountry research project, the Luxembourg Income Study (LIS) based at the Center for Population Studies in Luxembourg. This project started in the mid-eighties. Most work already done with the LIS-dataset is on international comparisons on welfare and inequality (Atkinson 1987, Buhmann et al. 1988 or Smeeding and Torrey 1988). Only little work has been done on the labour market (see Phipps 1988 for gender specific wage differences or Wagner and Lorenz 1988 for estimates of human capital earnings functions).

Our article starts with a theoretical analysis of reasons of change in married women's behaviour towards paid market labour supply. This reasoning is followed by the description of the 7 countries cross-section datasets of the LIS database we used. Our main aim then is to show internatio-

nal differences in married women's paid labour supply mainly affected by social and fiscal policies. We deepen our analysis on full- and part-time participation. These separate analysis of two different kinds of employment focusses on the international debate on flexibility in the labour market (c.p. for an overview OECD 1986). Beneath age we also consider the influences of children on married women. This might be a proxy for different household size and types and therefore reflects different volumes of household production. Female participation furthermore is investigated in its dependency on husbands' labour incomes. With regards to this aspect we are able to analyse whether female paid market work participation is a phenomenon of economic need to gain additional income. In addition results from this analysis serve as a proxy of the gender specific divisions of labour between paid market work and unpaid household production.

As a result of this international comparison on married women's paid market work participation we point out the strategies for further indeep analyses of our topic.

2 REASONS FOR CHANGES IN MARRIED WOMEN'S PAID WORK PARTICIPATION

In the past a gender specific division of labour (Pahl 1984) prevailed with husbands being in paid employment and wives carrying out all the unpaid household production. This means that the men did the paid work outside the house while the women conducted the unpaid housework and cared for psychological and physical well-being of husband and children. These patterns seem to underly several changes. Since there can hardly be seen any distinct changes for men in the OECD-countries since 1973 (OECD 1989), our discussion will mainly focus on reasons for changes in married women's labour supply.

Starting in the early twentieth century, the debate on women's liberation gained in significance in the mid-sixties and the seventies, rendering women more self-conscious. Coinciding with this process social psychologists (Klages 1988) remarked several changes of values in Western societies leading to a pluralism of life styles. As a result individual life styles gained in importance contrary to former family life style patterns. Rising female consciousness together with changing life styles seemed to be a catalyst for overcoming the sex specific dualism mentioned initially. We will not go into details with these very broad arguments for changes in specific employment patterns. We rather want to deepen our theoretical reasoning with regard to the underlying socio-economic, human capital, and institutional factors for changes in the labour market. A second emphasis of our analysis then will be put on the influence of national differences in taxation of couples' income from labour supply.

Macroeconomic factors: Changes in sectoral development

Starting at the macro level we recognise similiar structural trends in all developed market economies. There are structural shifts in the composition of the labour force. Coinciding with diminishing importance of agricultural and industrial sectors economic growth mainly depends on growth in the service sector. This growing service industry provides two main advantages for women (Pischner 1987). In the service sector no hard, physical work is done. A second advantage is that employment patterns in the service sector are more flexible. In this field, it is easier to carry out part-time work. This seems of importance for women with younger children. We should have a short glimpse at the general discussion on flexibility in the labour market (cp. for an overview the articles in OECD 1986). As far as flexibility in the labour market is concerned, there is not only an emphasis on part time work as a fixed percentage of the traditional full time job. Moreover chances of new

employment patterns of husbands and wives become visible. The latter also is held to combine new patterns of paid work with new divisions of the unpaid household production (Merz 1989, Zapf 1989). We now should leave this labour demand oriented discussion of sectoral developments and should have a look at microeconomic factors.

Microeconomic factors: human capital and taxes

There seem to be several factors influencing individual labour supply. Two main groups of factors embedded in the framework of microeconomic factors of labour supply should be mentioned. The first one focusses on individual effects of the accumulation of human capital. The second one concerns the tax and transfer policies by state (or private).

Human capital

When having a closer look at younger couples we recognise that these members of the "baby-boomer"-generation in general have recently attained higher levels of formal education compared to their parents and grandparents. Higher formal educational levels in life cycle coincide with a later entry in the labour market compared to cohorts of lower education. It also should lead to a more stable individual employment. The rapid technological progress and change in Western societies only favours short interruptions in individual labour market careers or no interruptions at all. Otherwise higher levels of human capital assets are very quickly depreciated. These two effects seem to influence married women's labour supply.

Taxation of the family

The second aspect concerns couples' income taxation as direct disincentive or incentive on couples', especially married women's, labour supply.

According to Hills (1988) three objectives should be met by the tax system in taxing married couples: (1) progressivity, so that couples gaining more money pay a larger amount than couples with less income, (2) neutrality towards marriage, i.e. no changes of the tax bill of husband and wife after marriage. In a further context this means no disincentive effects for the second earner, (3) independence of the distribution of income between husband and wife; i.e. taxation of the joint income. All these three objectives together could not be solved simultaneously as will be obvious to everyone. So we illustrate the existing taxation schemes for married couples. We then regroup the different countries into these taxation schemes.

There are two basic systems of family taxation, one is joint taxation of husband and wife, the second one is totally independent taxation of the two partners (Apps 1981). We will discuss these two schemes with regard to their effects on labour supply of married women. In a further step we will have a short glimpse at the tax systems of the countries to be investigated, the Federal Republic of Germany, the Netherlands, Norway, the United Kingdom, Australia, Canada, and the United States of America.

We begin with the joint taxation scheme. This system causes several problems. First of all the marginal tax rate of a second earner in the household - especially women - depends on the first earner's income. This means that all allowances are deducted from the first income. So the second partner has got no tax free income. Married women willing to carry out paid market work, as a consequence are faced with

a higher marginal tax rate compared to an unmarried person with the same characteristics. This might be of great influence on married women's decision on labour force participation. Thus joint taxation is most favourable for husbands with dependent wives who are not employed. The joint taxation system therefore favours marriage and the traditional gender specific divisions between market and non market labour. It tends to discriminate against married women's labour supply.

The other system, the independent taxation schedule of seperate taxation of husband and wife, shows neutrality of the tax system concerning marriage because both partners are faced with the same marginal taxation schemes if they want to carry out paid work (Apps 1981). Independent taxation of all sources of couples' income would give access to tax avoidance, because couples would easily rearrange their assets in such a manner that all unearned income is transferred to that partner earning less from paid market work and thus are faced with a lower marginal tax rate. In a system of independent taxation a further problem arises. What treatment is appropriate for single earner households with dependent wife or children? According to Hills (1988) there is good reason for giving these households tax free allowances: A couple with only one income is worse off than a single with the same income. But dependency of women most often is caused by children. Therefore no general allowances should be given, but allowances should favour children or child benefits should be raised (Hochmuth and Rinne 1989).

Our discussion on tax systems must be broadened and include social security payroll taxes as well. All historically grown systems of social security (pensions, child benefits, health insurance, social assistance etc.) rely on the concept of a single earner married couple. Individual contributions to the different parts of the social security system are normally work related whereas the benfits aim at

household or family as special center of need. Within an individual taxation scheme several conflicts between social security and work could arise caused by this inconsistency of the system. An individualised system needs further alterations in the social security system.

Concerning our empirical analysis we should ask whether the theoretical effects of taxation as incentives or disincentives on married women's labour supply become visible. We therefore regroup the countries to be investigated into these two tax schemes. In a second step we have a closer look on the national taxation schemes. We analyse whether the specific system of each country is a pure system or whether components of the other taxation scheme are incorporated.

Let us start with the joint taxation scheme: Only the Federal Republic of Germany, the United Kingdom, and the United States of America belong to this group. Australia, Canada, Norway, and the Netherlands instead tend towards the independent system. Following this more general division of the countries into the two major systems we will briefly descripe national particularities.

Let us begin with West Germany: This country has an aggregate system of joint taxation. After reducing income for children and workers allowances, the taxable income of husband and wife is divided by two. For this halve of the total tax base the taxes to be paid are computed. Then double of this sum is paid. Each partner is responsible for half of the tax liability ('income splitting'). In the UK joint taxation scheme single earner couples receive more allowances than one single earner. The joint allowance of both partners working also exceeds twofold the single earner's allowance. The USA also have got a joint taxation system with lower tax rates for married couples (Hills 1988).

The independent taxation schemes to some extent differ between the countries. Independent taxation in Norway and the Netherlands only concerns labour income. Capital income is taxed jointly. Extra allowances for single earner couples are given in the Netherlands (Spencer 1986). The other two countries in this group Canada and Australia also give concessions to single earners, but taxation is totally independent.

As already stated this short glimpse at the different national taxation schemes shows us that there is nothing such as a pure system. All systems take account for a second partner not working in the market. A broader discussion of different national tax systems is carried out in Spencer (1986; EC countries) or Hills (1988; OECD member states).

Institutions and child care

In the family context there is a strong influence of the state on both partners behaviour by the tax system. But this is not the only way government can encourage or discourage (married) couples' behaviour with special regard to female labour supply. A second way is the institutional environment a state provides. We therefore should put into question whether government takes measures to provide by itself or encourages the market to provide adequate child care e.g. kindergardens and comprehensive schools with opening hours compatible with working life. These institutions together with the prices to be paid then probably will influence the allocation of female work between unpaid domestic work and paid market work. This institutional aspect seems of great importance for international differences in female labour supply (see e.g. the results of institutional impacts shown by Gustafsson 1985).

3 THE LIS MICRODATABASE

Our database is the international Luxembourg Income Study (LIS) project. It started in 1983. Purpose of LIS is to gather at one central site, the Center for Population, Poverty and Policy Studies (CEPS), in Luxembourg, microdata sets for several industrial welfare states. The national household surveys taken from 1979 to 1986 on measures of income and economic well-being are incorporated into one single database. This LIS database[3)] then consists of income and labour market information prepared to a common plan. Income is separated by common definitions of several sources. Taxes, household composition and socio-economic characteristics are also internationally comparable. The database is flexible for researchers' needs of defining the micro units to be analysed. This international comparable cross-section database is well suited and a big resource for research work on labour markets, human resources and related political topics.

Our analysis is based on seven countries of the LIS dataset.[4)] We analyse Australia, Canada, the Federal Republic of Germany, the Netherlands, Norway, the United Kingdom, and the United States of America. Table 1 gives an overview of these country datasets, we use in our analysis. It contains information on country, dataset name and size, year of study, population covered and sampling methods.

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3) The LIS database can be accessed by the EARN/BITNET system. Remote users of the LIS database are restricted to the use of the software package SPSSX.

4) We used data from the first round of LIS, version July 1989. Additional country data sets and second round data sets from the mid and late eighties in the moment are installed at LIS.

Table 1: An Overview of the LIS Datasets Used in the Analysis of Married Women's Labour Force Participation

Country	Dataset Name, Income Year and Size[1]	Population Coverage[3]	Basis of Household Sampling Frame[7]
Australia	Income and Housing Survey, 1981-82 (17,000)	97.5[4]	Dicennial Census
Canada	Survey of Consumer Finances, 1981 (37,900)	97.5[4]	Dicennial Census
Germany	Transfer Survey, 1981[2] (2,800)	91.5[5]	Electoral Register and Census
Netherlands	Survey of Income & Program Users, 1983 (4,833)	99.2[4]	Address Register of the Postal and Telephone Companies
Norway	Norwegian Tax Files, 1979 (10,400)	98.5[4]	Tax Records
U.K.	Family Expenditure Survey,[2] 1979 (6,800)	96.5[6]	Electoral Register
U.S.A.	Current Population Survey, 1979 (65,000)	97.5[4]	Dicennial Census

1) Dataset size is the number of actual household units surveyed.
2) The U.K. and German surveys collect subannual income data which is normalized to annual income levels.
3) As a percent of total national population.
4) Excludes institutionalized and homeless populations. Also some far nothern rural residents (Inuits, Eskimos, Laps, etc.) may be undersampled.
5) Excludes foreign-born heads of households, the institutionalized, and the homeless.
6) Excludes those not on the Electoral Register, the homeless, and the institutilized.
7) Sampling Frame indicates the overall base from which the relevant household population was drawn. Actual sample may be drawn on a stratified probability basis, e.g. by area or age.

Source: Buhmann et al. 1988, p. 117.

Special labour market information in the database includes information on heads' and wives' annual labour income, their hourly gross wages (earnings divided by hours wor-

ked)[5] and on working full or part time. Status of workers and their educational levels are covered, too.

The LIS database has already been successfully used for analyses of income distribution and earnings of different groups. Comparative studies on the working of the welfare state and income poverty were also done (for further description of the studies done with the LIS database see Buhmann et al. 1988).

In restricting our analysis to these seven countries mentioned above, we took regard of several national differences and also of restrictions of the database and its comparability. First of all the decision of analysing exactly these countries is to be seen in national differences in the tax systems, already shown in the last chapter. Another restriction was the availability of data on wages, hours of work of all family members as well as on children. We also wanted to incorporate countries with specific differences in the institutional regulations concerning childcare.

Most often married women are additional or second earners in married couples' households. We therefore lay special emphasis on their participation patterns. In order to achieve at results being not affected by early marriage or pensioners' couples we restrict our analysis on couples where both partners are at least 18 years of age (the official minimum marriage age in nearly all western countries) and 65 years (the old-age pension age). A further restriction is given by the dataset. For self-employed only their annual income but no wage information is available. Income of the self-employed might become negative if deductions exceed incomes. Keeping in mind further microeconometric analyses of couples' labour supply we then excluded the self-employed and restrict our article on employed couples.

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[5] In the LIS database hours information is not directly available. It can roughly be computed by dividing annual gross income by hourly gross wages.

Before analysing female behaviour towards paid work indeep, as an introduction we look at the participation of both partners towards paid market work. The results of this analysis might serve as first information whether the theoretically shown incentive or disincentive effects of the different national tax systems are in accordance with the empirical results of female participation.

Having compared these figures for the FRG, the Netherlands, the UK, Norway, Australia, Canada, and the US, we deepen our analysis for married women. The latter is done by having a look on full- and part-time participation patterns. We should have a closer look at the underlying socio-economic variables for market work decisions then. Apart from the age of the women, which shows different life cycle or cohort effects, emphasis is laid on children. Both the number of children and their age might be an indicator for the women's allocation of time between paid market work and unpaid domestic work or household production. Finally we will refer in our descriptive analysis to husbands' income and look whether there is an additional worker effect (i.e. participation of women diminishing with the rise of male income) or whether other motives than income prevail. The latter also should help us to analyse whether there are significant shifts from full-time to part-time work in accordance with higher male incomes.

4 LABOUR FORCE PARTICIPATION OF MARRIED WOMEN IN THE FEDERAL REPUBLIC OF GERMANY, THE NETHERLANDS, THE UNITED KINGDOM, NORWAY, AUSTRALIA, CANADA, AND THE UNITED STATES OF AMERICA

Analysing married women's labour force participation we begin with an overview of households' earners structures. An analysis whether male single earner households prevail or whether double earner housholds cover a high percentage of all married couples indicates the existence of gender

specific divisions of labour between paid market work and unpaid housheold production.

4.1 STRUCTURE OF EARNERS IN THE HOUSEHOLD

Table 2 gives an overview of paid market labour participation of the household members in West Germany, the Netherlands, the United Kingdom, Norway, Australia, Canada, and the United States of America. Country specific divisions of labour between husband and wife become visible. We will analyse these results indeep for male single breadwinners and double earner households.

Table 2 shows that with nearly 3/4 of all households Germany has the highest rates of male single earner households followed by the Netherlands where every second man is a single earner. This ranking is continued by the Anglo-Saxon countries where in nearly one household out of three (UK, Canada, US) or more (Australia) men are the sole breadwinners. In contrast to this the single male earner quota is lowest in Norway with a single male earner in one household out of four. Compared to these results breadwinning of the wife alone is in all seven countries of minor importance ranging from 1.4% (Australia) to 3.9% (Netherlands).

Double earner households with husband and wife working show us the reverse ranking than that for male single breadwinners. In this international comparison Scandinavia is leading with seven out of ten married couples where both partners are working in paid jobs. This number one is followed by the Anglo-Saxon countries. Within this group Canada is highest with 60% of all the couples being double earner couples. The US and the UK show nearly the same percentage whereas in Australia in one out of two couples double labour force participation prevails.

Table 2: Labour Force Participation of Husband and Wife and Others in Married Couples' Households in the Federal Republic of Germany (FRG), the Netherlands (NL), Norway (N), the United Kingdom (UK), Australia (AUS), Canada (CAN), and the United States of America (USA)

Person(s) in the Household Working	Country FRG	NL	N	UK	AUS	CAN	USA
Only Husband	71.7	53.0	26.0	35.4	38.0	33.9	33.4
Only Wife	2.5	3.9	2.0	2.0	1.4	1.8	3.2
Husband and Wife	19.4	23.6	69.1	57.0	52.9	60.2	58.2
Only Others	1.5	2.5	1.5	2.3	7.4	0.9	0.7
No Workers at all	4.9	17.0	1.4	3.3	0.3	3.2	4.5
Σ All Households	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: LIS Data Files, Own Computations, Sample Aged 18 - 65 Years

Having a look at households with other breadwinners than husband and/or wife this kind of couples only show a slight influence on couples' income attaining strategies in Australia. The impact of couples not working at all is only significant in the Netherlands.

If we add male single earner and double earner quotas in Table 2 then all seven countries show one similarity. In all countries except for the Netherlands (only 76.6% male workers) about nine out of ten couples have got at least a male breadwinner. This participation pattern varies from Australia with 90.9% and Norway with 95.1%.

These first figures of married couples' paid work participation show us several results. If we bear in mind the different taxation schemes only the Canadian, Australian, Norwegian, and West German results accord to the theoretically expected participation patterns for married women being high for the first three countries caused by independent taxation schemes and being low for West Germany's joint taxation. The three other countries tend to results opposite to what we should have expected for the Netherlands, the UK, and the US with independent (Netherlands) and joint (UK, US) taxation schemes.

These figures as a very rough first result tell us not to overstate the impacts of the different prevailing tax systems on the labour supply behaviour of married couples.

Underlined by the relatively stable results for male full time work participation[6)] in this cross-section of seven countries we now deepen our analysis of female paid market work participation. The following chapter will give a closer look on both full-time and part-time participation pat-

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6) For men in all seven countries part time work is of very little importance (OECD 1989). Computations with the LIS database not incorporated in this paper also show this impact.

terns of married women in a cross-country analysis with regard to different socioeconomic factors.

4.2 FULL-TIME AND PART-TIME WORK OF MARRIED WOMEN

The participation of married women in full- and part-time work[7)] not only identifies households' needs for additional income sources. Moreover especially part-time work participation illustrates ways of how different societies deal with rationing in the labour market. This labour demand aspect empirically means that participation patterns in part-time work compared to full-time work are indicators of flexibility in the labour markets for the different countries. With regard to women the appropriate provision of part-time work possibilities seems of special interest. The overall participation results for married women already stated in the last section are therefore split off into part-time and full-time participation in paid work and are presented in Table 3.

As a matter of interest full-time participation is highest in Norway with one married woman out of two working full-time. Compared to all other countries the US full-time figures of 43.5% are also very high[8)]. The other Anglo-Saxon countries reach full-time participation rates of about 25 to 30%. Full-time participation is lowest in the two continental European countries with Germany at about 20% and the Netherlands only slightly over 10%.

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7) The division of working hours in paid market work into full-time and part-time hours for all countries except the Netherlands was already done by the LIS project. For the Netherlands we computed part-time paid market work as weekly hours less than 30 hours. All computations were done with version July 1989 of the LIS database

8) When interpreting the US data, it is necessary to be careful. The US is the only country subdividing the full-time information whether full year or part of the year. If we only take the full year full-time participation instead of all full-time participation we have a participation quota of about 30%.

Table 3: Labour Force Participation of Married Women in the Federal Republic of Germany (FRG), the Netherlands (NL), Norway (N), the United Kingdom (UK), Australia (AUS), Canada (CAN), and the United States of America (USA)

Country	Labour Force Participation			
	Full Time(FT)	Part Time(PT)	Total	PT/FT(%)[1]
FRG	18.5	3.5	22.0	0.19
NL	12.2	15.4	27.6	1.26
N	50.8	20.0	70.8	0.39
UK	29.7	29.5	59.2	0.99
AUS	23.7	21.7	45.4	0.92
CAN	30.9	31.4	62.3	1.02
USA	43.5	18.4	61.9	0.42
Average [2]	34.8	17.3	52.1	0.50

1) Defined as Part Time Participation as a Percentage of Full Time Participation
2) Average = $\Sigma(Part_i * N_i) / \Sigma Ni$

Source: LIS Data Files, Own Computations, Sample Aged 18 - 65 Years

Concerning part-time work Canada and the UK achieve distinctly higher participation rates than the cross country average which lies around 20%. In an international context the US, Australia, and Norway lie around this average whereas the Netherlands show slightly higher figures. With 3.5% of part-time participation the FRG is far above this level.

The 'part-time/full-time ratio' measures the relative importance of part-time work as a percentage of full-time work participation. This measure should help us to indicate rationing in the labour market. When being very low it shows that part-time work is not very widespread and paid market work is only possible in a full-time context. The highest ratio is reached in the Netherlands with 1.26, i.e. on four full-time jobs there are five women working part-time. Apart from the relatively low participation this means that chances to do part-time work are relatively best in the Netherlands compared to other countries. The UK, Canada, and Australia show a ratio around one. In these countries full- and part-time work for married women seem to be of same importance. A lower availability of part-time work becomes visible for Norway and the United States. In these two countries the ratio of part-time vs. full-time work is 0.4. The lowest ratio of part-time/full-time work in all seven countries analysed is seen in West Germany with a ratio of 0.2.

In the following we will analyse indeep the question how factors like age and children influence full- and part-time work decisions. In addition we try to reveal whether there is a dependency of female paid market work participation and hours worked upon male income.

4.3 THE INFLUENCE OF AGE ON FULL-TIME AND PART-TIME WORK

Our results of the last section showed differences in female paid market work participation as well as differences in their allocation of time in full- and part-time work. This section broadens the analysis by age as a factor indicating on the one hand shifts from full- to part-time work and the reverse. On the other hand age serves as a proxy for the life cycle of the houshold. Further aspects of age reflect human capital assets acquired throughout female labour force career. So lower full-time and higher part-time participation might indicate losses of formal human capital specific for paid market work labour supply. Table 4 then gives an overview of female full- and part-time participation in accordance to age. The relative percentages of the several age categories in the population are also given.

Though one would have expected that full-time participation rates were to diminish monotonously with age and child-bearing and part-time participation at the same time were to rise and go down again in the fourties of married women, these more or less 'pure' effects only prevail in the Netherlands, Australia, and the US. The mentioned full-time effect is seen in the FRG whereas the part-time effect becomes significant for Canada. All other participation rates in the other countries are not subject to these systematic effects.

In detail, all analyses of full- and part-time participation rates begin with the youngest group as a reference. In this group of married women between 18 and 24 years different levels of full-time participation are achieved. The highest levels are reached in the Netherlands and the US with participation rates slightly over 50%. The FRG, the UK, and Australia are following with around 40%. Only

Table 4: Full Time and Part Time Labour Force Participation of Married Women in the Federal Republic of Germany (FRG), the Netherlands (NL), Norway (N), the United Kingdom (UK), Australia (AUS), Canada (CAN), and the United States of America (USA) by Age of Woman

	FRG			NL			N			UK			AUS			CAN			USA		
	Full[1] Time	Part Time	N/%	Full Time	Part Time	N/%	Full Time	Part Time	N/%	Full Time	Part Time	N/%	Full Time	Part Time	N/%	Full Time	Part Time	N/%	Full Time	Part Time	N/%
Overall	18.5	3.5	9845[2]	12.2	15.4	3036	50.8	20.0	581	29.7	29.5	2834	23.7	21.7	2696	30.9	31.4	3984	43.5	18.4	32132
Age of Woman																					
18 ≤...< 25	39.5	5.7	6.9[3]	51.9	5.8	9.7	34.6	32.7	9.0	42.7	11.1	9.2	39.1	13.3	10.3	36.9	38.9	11.2	54.8	18.3	11.7
25 ≤...< 35	22.7	1.4	23.6	16.3	15.8	28.7	48.6	25.1	31.6	26.4	28.5	30.2	22.7	23.7	31.2	32.4	33.8	32.6	47.4	18.7	30.3
35 ≤...< 45	16.4	2.7	29.9	5.3	21.8	27.9	59.1	21.2	22.8	31.6	36.2	23.8	24.3	28.6	26.5	34.9	33.8	24.1	44.7	21.6	23.7
45 ≤...< 55	15.6	4.9	26.8	4.6	15.6	20.9	58.8	14.0	19.7	33.3	35.7	20.6	24.9	21.2	18.9	30.5	27.0	18.5	40.6	18.5	19.6
55 ≤...≤ 65	9.8	4.7	12.8	0.5	8.0	12.8	42.9	9.2	16.9	20.8	24.1	16.2	10.8	10.3	13.6	15.7	20.9	13.6	28.4	12.4	14.7

1) Full Time/Part Time in all Countries except the Netherlands was Asked Directly. For the Netherlands Part Time is all Paid Work less than 30 Hours/Week.
2) Number of Married Women by 1000
3) Share of the Whole Married Population in this Age Group

Source: LIS Data Files. Own Computations. Sample Aged 18 - 65 Years

Canada and Norway show lower figures of 37% and 35% respectively. From the LIS cross section data it is not obvious whether the lower participation rates of these young married women in the latter countries are positively related to longer duration of formal education or whether other reason are prevailing.

Compared to the full-time figures in the youngest group part-time work is very widespread in very young Canadian and Norwegian households. Furthermore more than one out of ten young American, Australian, and British married women work part-time. In the Netherlands and West Germany part-time work with a rate of around 5% is practically of no impact in this age group.

We take these results as a baseline and begin with full-time work analysis. The strongest decline in the participation rates depending on age belongs to the FRG, Australia, and the Netherlands. Contrary to these three countries we detect very small reductions in full-time participation of married women in Canada and the United States. Norway and the United Kingdom do not follow this general tendency. For the UK we first have a sharp decline in full-time participation. But women of being 35 years and older again enter full-time employment. In Norway participation rate starts at a relatively low level and then rises by age and is highest for women between 35 and 54 years.

Concerning part-time work only the US, Australia, the UK, and the Netherlands reach highest participation rates for women in the group of 35 to 44 years. Of these four countries only the Netherlands and Australia have a 'peak' of the participation rates in this age group. In the US differences between the different ages are generally very small. Part-time participation nearly remains constant up to 54 years. The high UK level for married women aged 35 to 44 years is also maintained by women between 45 and 54. As

already stated, Canada and Norway show highest part-time participation in the youngest group and a slight respectively strong decline for elder women. Compared to other countries West Germany shows no particular trend in part-time participation over the female life cycle. We only remark a decline of part-time participation when the women are aging. A rise then is seen for women of 45 years and older.

Whereas married men most often have only the two options either to work full-time or not to work (compare e.g. the figures in OECD (1989)), we see as a result of our analysis that women have the additional option of part-time work. These overall figures remain constant over several age groups in Norway, the UK, Australia, Canada, and the US, but changes between full- and part-time work participation are to be seen if we compare different age groups.

The need of shifts from full- to part-time as well as shifts from paid work to unpaid household production and vice-verse might often be influenced not only by pure age specific effects but by child-bearing and -rearing. So the next section is dedicated to deepen the impact of children on married women's labour force participation.

4.4 THE INFLUENCE OF CHILDREN ON FULL-TIME AND PART-TIME WORK

In married couple households most work for childcare is still done by women. Thus children exert a special influence on women's allocation of time between unpaid non market (domestic) work and paid market work. Children influence the female allocation of time by two ways. First of all women spend the more time for care the younger the children are. The second aspect of how children influence the allocation between paid and unpaid work is simply their number. In comparing participation in full- and part-time

jobs by number of children and by the age of the youngest child, we analyse whether paid work decisions of married women depend on children and the eventually resulting differences in labour force participation thereoff in the seven countries.

Married women without any children (Table 5) participate more often in full-time work than those having children. Part-time work of married women without children as a consequence is not quite as widespread as of married women with children except for the Netherlands and the FRG. This predictable result is to be deepened in the following by means of analyses of participation quotas depending on number (Table 5) and age (Table 6) of children.

In Table 5 we analyse participation rates for married women with regard to the number of children. We will compare these participation rates under the aspect of whether there are certain reductions in participation by growing size of household. In the second part of this section we will deepen the comparison of households without children and households with children of young age .

Married females with one or two children most often face a higher participation rate in part-time work. Women with children in nearly all countries show lower participation in full-time paid market work than women in households with no children. These two effects become visible in Table 5 for Norway, the UK, Australia, Canada, and the US. The Netherlands and West Germany show the same trend in full-time work, but part-time work participation is somewhat different. Women with children in these two countries have relatively lower participation than women without children. They reduce their participation with growing number of children.

Table 5: Full Time and Part Time Labour Force Participation of Married Women in the Federal Republic of Germany (FRG), the Netherlands (NL), Norway (N), the United Kingdom (UK), Australia (AUS), Canada (CAN), and the United States of America (USA) by Number of Children Aged Below 18 in the Household

	FRG			NL			N			UK			AUS			CAN			USA		
	Full[1] Time	Part Time	N/%	Full Time	Part Time	N/%	Full Time	Part Time	N/%	Full Time	Part Time	N/%	Full Time	Part Time	N/%	Full Time	Part Time	N/%	Full Time	Part Time	N/%
Overall	18.5	3.5	9845[2]	12.2	15.4	3036	50.8	20.0	581	29.7	29.5	2834	23.7	21.7	2696	30.9	31.4	3984	43.5	18.4	32132
Children																					
None	28.2	4.2	39.9[3]	25.1	15.6	42.0	52.8	12.7	24.5	46.2	21.8	41.8	34.4	14.8	36.9	38.0	26.3	38.3	48.8	14.6	39.3
1	15.8	3.5	29.1	4.2	17.8	21.0	55.1	19.9	23.5	21.5	33.7	21.1	22.1	22.8	19.7	32.7	35.4	23.5	46.9	20.1	24.0
2	9.0	3.3	22.7	2.4	15.5	28.3	47.5	22.9	30.8	17.1	37.6	24.3	16.7	29.0	26.6	24.2	36.4	25.2	36.9	23.1	22.9
3 and more	6.7	0.4	8.3	2.3	7.2	8.7	48.0	24.8	21.2	12.8	32.2	12.8	12.8	24.3	16.8	20.2	29.2	13.0	33.6	18.5	13.8

1) Full Time/Part Time in all Countries except the Netherlands was Asked Directly. For the Netherlands Part Time is all Paid Work less than 30 Hours/Week.
2) Number of Married Women by 1000
3) Share of the Whole Married Population in this Group

Source: LIS Data Files. Own Computations. Sample Aged 18 - 65 Years

An analysis of paid market work participation of married women by number of children deepens the aspects of childcare and the allocation between market work and household production resulting thereof. An international comparison of these figures then may well be suited for a brief comparison of institutional arrangements on childcare.

We will begin with Norway which has the highest full-time participation for married women with children. There the participation is only slightly reduced from 55.1% (one child) to 48.0% for three and more children. Paid full-time work in Norway then also seems to be regular for women with children. In the US the reduction is slightly higher than in Norway. A reduction of the participation of around one third from one to three and more children becomes visible in the US, Canada, Australia, and Great Britain. In the Netherlands and Germany the reduction is about one half. Diminishing full-time participation of women with one or two children coincides in all countries except for the latter two with part-time participation being above the general part-time level of each country. In addition part-time participation rates of women with two children are highest in the UK, Australia, Canada, and the United States. In Norway part-time participation is rising by number of children.

As a general result of this analysis we have shown, that in an international context female labour force participation in full-time work is diminishing with number of children. We also see that except for the FRG and the Netherlands many women who have given birth to one or two children will try to work part-time instead of full-time. Except for Norway where three and more children might be of nearly no influence on paid work behaviour of women, in all other countries a general tendency of diminishing paid work participation in full- and part-time work becomes visible for women with three and more children.

A further influence of children is illustrated in Table 6. Most times, women's interruption of paid work occurs after the birth of a child and in the first years following (Table 6: child younger than 3). After the analysis of the impact of the pure number of children which has an aggregate effect on reducing female time, we will illustrate the effect of children growing older and then consuming less female time.[9)]

An overall result from Table 6 tells us: The older the child, the higher the participation of married women. Our aim in this analysis is to show for which age of the youngest child again the overall participation patterns in the several countries are met. The increase in labour force participation corresponding with the growing age of children shows that, when the youngest child is 6 to 9 years old, the full-time participation rates in the USA and Australia are nearly the same as the overall figures for these countries and that the part-time labour force participation figures are relatively high. In Canada the overall full-time level of 30% is reached again when children are older than 9 years. The full-time participation of women with children aged 15 to 17 shows no significant differences to that of women with no children. In the UK, too, overall full-time participation is reached for women when their youngest child is older than 9. But here part-time participation has recently been higher than in Canada. The part-time participation rate of about 40% is twice as high as that of the no children group. The Netherlands and Germany again show a totally different behaviour of married women. In the Netherlands full-time participation never reaches more than a quarter of the overall figure irrelevant of the age of the youngest child. On the contrary the

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9) Because of the limited scope of information for certain countries some cells of youngest child in the household must remain empty and only incomplete argumentation is possible. In the Norwegian data no information on young children is available. But this causes no problems since in this country children are of nearly no influence on female labour supply.

Table 6 Full Time and Part Time Labour Force Participation of Married Women in the Federal Republic of Germany (FRG), the Netherlands (NL), Norway (N), the United Kingdom (UK), Australia (AUS), Canada (CAN), and the United States of America (USA) by Age of Youngest Child in the Household

	FRG			NL			N			UK			AUS			CAN			USA		
	Full[1] Time	Part Time	N/%	Full Time	Part Time	N/%	Full Time	Part Time	N/%	Full Time	Part Time	N/%	Full Time	Part Time	N/%	Full Time	Part Time	N/%	Full Time	Part Time	N/%
Overall	18.5	3.5	9845[2]	12.2	15.4	3036	50.8	20.0	581	29.7	29.5	2834	23.7	21.7	2696	30.9	31.4	3984	43.5	18.4	32132
No Children	28.2	4.2	39.9[3]	25.1	15.6	42.0	52.8	12.7	24.5	46.2	21.8	41.8	34.4	14.8	36.9	38.0	26.3	38.3	48.8	14.6	39.3
Age of Youngest Child																					
< 3	9.2	2.0	9.8	2.9	8.9	13.6	50.1[4]	22.6	75.5	5.4	16.5	16.9	16.4	22.9	25.5	n.a.[5]	n.a.	-	39.1	20.8	22.3
3 - 5	10.8	1.3	7.1	1.4	11.5	9.4	n.a.	n.a.	-	8.4	39.1	9.2	15.0	25.2	17.5	21.5	35.6	32.4	40.8	19.8	19.3
6 - 9	11.1	0.5	12.8	2.6	14.4	10.3	n.a.	n.a.	-	21.3	46.3	12.4	20.8	30.0	20.1	29.7	33.9	13.7	40.4	22.0	19.1
10 - 14	13.4	3.8	18.1	3.5	18.6	16.0	n.a.	n.a.	-	30.8	44.3	13.3	n.a.	n.a.	-	32.6	35.1	10.2	n.a.	n.a.	-
15 - 17	10.9	4.7	8.9	3.4	24.2	8.7	n.a.	n.a.	-	30.3	37.1	6.3	n.a.	n.a.	-	36.9	29.5	5.4	n.a.	n.a.	-
≥ 18	21.1	10.0	3.4	n.a.[6]	n.a.	-	n.a.	n.a.	-	n.a.	n.a.	-	n.a.	n.a.	-	n.a.	n.a.	-	n.a.	n.a.	-

1) Full Time/Part Time in all Countries except the Netherlands was Asked Directly. For the Netherlands Part Time is all Paid Work less than 30 Hours/Week.
2) Number of Married Women by 1000
3) Share of the Whole Married Population in this Group
4) For Norway Only Information of Children in the Household is available
5) In Canada Youngest Child is < 5 Years of age
6) Figures Not Available. Population is included in Group 'No Children'

Source: LIS Data Files, Own Computations, Sample Aged 18 - 65 Years

dutch women tend to work part-time. The overall participation rate as well as the one for married women with no children again is reached by women whose youngest child is 10 years or older. In the FRG full-time participation of women with dependent children below the age of 18 is about 9 to 13%. It is only women with elder children who show higher participation figures compared to the corresponding overall figures. The same group also has the highest part-time participation figures. With 10% these figures are threefold as high as the overall part-time participation of married women in West Germany.

Our analysis of the influence of children's age showed that many women, especially in the Anglo-Saxon countries and in Norway, tend to higher participation in market work when having children than their Dutch and German counterparts. Some changes from full-time to part-time work also become visible for women with very young children aged less than three years.

The impact of children with its two aspects, i.e. number and age, follows to a certain degree the two influences on female allocation of time. Often women with a larger number of children have lower participation rates in paid market work. The same is true for women with very young children. But the effects are not of the same extent in all countries. In Norway the influence is smallest. Childcare by institutional arrangements of state or incentives for the private sector might be best organised there. The Anglo-Saxon countries offer, as our results indicate, much better solutions for married women who have dependent children to combine childcare and paid market work compared to the continental European countries. The already stated arguments on the provision of adequate part-time work here also seem to be deepened. Part-time work is most widespread in the Anglo-Saxon countries followed by Norway and the Netherlands. In Germany there does not seem to be many part-time work.

4.5 THE INFLUENCE OF HUSBANDS' INCOME ON FULL-TIME AND PART-TIME WORK

In microeconomic theory it is often assumed that women take their husbands' incomes as given as a kind of property income. This means that female allocation of time might depend on men's allocation decisions. The question is what patterns of female participation in the different income groups of their husbands prevail. On the one hand, if husbands gain only small incomes from the labour market, there might be an additional need for income for the family which results in women's paid work. On the other hand, if male incomes become higher there might be more females working part-time or not working at all instead of a full-time work. We therefore analyse wives' participation in full- and part-time work in different groups of male annual gross labour income. Table 7 contains full-time and part-time information on married women in accordance with eleven income classes of their husbands.

In our analysis of female labour supply some evidence is given, that in this cross country comparison some international similarities in female behaviour prevail irrelevant of the absolute levels of participation rates. In all countries full-time participation is highest for households where the husbands' labour incomes do not exceed 15000 US-$ per year. Female full-time participation in Norway, Canada, and Australia stays constant for higher income levels of the men, too.

There is no general tendency towards the interrelation of part-time participation and husbands' incomes. In the FRG and Canada part-time is a means of additional earnings in lower income groups.[10] The same prevails for lower and medium income households in the UK. In Australia, and the

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[10] For e.g. Germany Merz (1988) showed that female participation is positively related with their husbands' labour income.

Table 7: Full Time and Part Time Labour Force Participation of Married Women in the Federal Republic of Germany (FRG), the Netherlands (NL), Norway (N), the United Kingdom (UK), Australia (AUS), Canada (CAN), and the United States of America (USA) by Husbands' Annual Income

Annual Income Husbands (1979 US $)	FRG			NL			N			UK			AUS			CAN			USA		
	Full[1] Time	Part Time	N/%	Full Time	Part Time	N/%	Full Time	Part Time	N/%	Full Time	Part Time	N/%	Full Time	Part Time	N/%	Full Time	Part Time	N/%	Full Time	Part Time	N/%
Overall	18.6	2.7	8970[2]	13.4	16.7	2276	52.1	20.4	553	31.0	30.5	2610	25.2	21.2	21.1	32.7	32.3	3745	44.3	19.1	29911
0 (...≤ 2500	21.9	-	0.7[3]	-	28.6	0.3	43.8	31.3	2.9	26.1	30.4	0.9	22.7	20.5	2.1	22.9	31.3	2.2	38.9	12.9	1.9
2500 (...≤ 5000	28.8	-	0.6	16.7	16.7	0.8	60.0	20.0	1.8	31.6	22.8	3.0	24.0	20.0	2.4	27.3	43.4	2.6	52.1	16.5	3.0
5000 (...≤ 7500	25.0	9.0	1.7	42.9	21.4	0.6	46.7	20.0	2.7	33.1	28.5	15.1	22.2	20.0	2.1	29.5	39.6	3.7	53.5	13.0	4.8
7500 (...≤ 10000	19.7	4.0	13.1	31.3	16.4	2.9	49.2	19.0	11.4	32.5	33.1	27.9	27.9	16.2	5.3	27.8	36.1	4.5	54.5	15.4	9.3
10000 (...≤ 12500	24.0	1.9	27.0	21.2	14.0	14.1	53.4	19.7	32.3	30.9	33.1	24.2	29.6	21.6	13.5	38.9	32.3	6.0	52.7	16.1	9.8
12500 (...≤ 15000	20.6	3.0	22.2	16.3	14.3	24.3	54.5	18.9	23.9	32.0	26.7	13.1	25.9	22.3	18.9	39.5	28.9	7.8	51.0	17.6	12.4
15000 (...≤ 20000	13.2	3.5	22.3	11.0	16.9	29.9	53.6	20.6	17.5	25.4	31.9	10.0	25.7	20.1	31.9	35.4	32.0	22.8	44.0	21.4	23.6
20000 (...≤ 25000	10.2	1.9	7.1	6.9	20.5	13.3	46.2	26.9	4.7	25.9	23.5	3.1	23.5	23.2	13.5	30.5	33.9	20.2	41.3	22.1	16.8
25000 (...≤ 30000	8.7	-	3.6	6.2	15.4	7.1	40.0	30.0	1.8	25.0	27.5	1.5	21.8	24.1	6.3	30.9	28.4	13.8	33.5	19.8	8.4
30000 (...≤ 40000	9.8	-	1.0	7.6	22.9	4.6	25.0	25.0	0.7	33.3	22.2	0.7	16.1	21.0	2.9	27.0	32.2	11.9	34.4	21.4	5.8
) 40000	12.5	-	0.7	2.2	17.4	2.1	-	-	0.3	18.2	9.1	0.5	13.0	21.7	1.1	22.4	29.4	4.5	18.9	19.8	4.2

1) Full Time/Part Time in all Countries except the Netherlands was Asked Directly. For the Netherlands Part Time is all Paid Work less than 30 Hours/Week.
2) Number of Married Women Excluding those Working without Wages
3) Share of the Whole Married Population in this Group

Source: LIS Data Files. Own Computations. Sample Aged 18 - 65 Years

US as well as in Norway part-time work is more important for higher income groups. In the Netherlands part-time participation does not differ very strongly in the various groups of household income.

This pure descriptive analysis of the relatedness of male income and female participation and the relatively poor resutls show that further reseach on married women's paid market labour supply only can be carried our with microeconometric methodes (c.f. Germany the analyses carried out by Merz 1987, 1988).

5 CONCLUSIONS AND FURTHER RESEARCH

This descriptive analysis of labour force participation of married women in West Germany, the Netherlands, Norway, Great Britain, Australia, Canada, and the United States has revealed several differences both in participation and in the choice between full- and part-time participation.

Strong international differences in married women's paid work participation become visible. They are surely influenced by different national taxation schemes, a fact we would not analyse within this descriptive paper. A certain result of our work is that children and institutional arrangements on childcare may well be of special influence for female paid work.

Norway has got the highest female participation. 2/3 of all active women there are engaged in full-time work. In Norway also nearly no differences in participation between households with and without children in the household become apparent. Husbands' labour income only has got minor influence on Norwegian women's labour force participation. In this context the Anglo-Saxon countries might be second. Married women with younger children in these countries tend to lower participation figures as well as to part-time

work. Later the shifts are vice-verse. In the Netherlands and Germany less female paid work is carried out than in all other western industrialised countries. In the FRG part-time work is practically of minor importance whereas women with children in the Netherlands prefer part-time.

All these descriptive results from the LIS database only enlighten small parts of the whole story. The database only contains cross-section information therefore no individual life-cycle changes in married women's behaviour become apparent. We only have information on the behaviour of different cohorts in the same year. For an extended analysis of changes of female behaviour e.g. after birth of the first or second child and switches between full-time, part-time work or out of work resulting thereof longitudinal panel data would be the appropriate information.

Since the availability of panel data for international comparisons is very limited until now, we will try to deepen our international comparisons of female paid labour supply, we began in this paper by the descriptive analysis of seven countries. We hope that there will be the possibility in 1990 by a software which allows the user to apply advanced microeconometric techniques on the LIS data. Our aim is to extend our comparison by using multivariate analysis. Research then might follow two basic directions. First, different hypotheses of families' utility maximisation should be tested (cf. a survey of different hypotheses Killingsworth 1983). Second, by means of econometric techniques for the unbiased estimation of labour supply the correct hours and wage equations in the family context should be shown.

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