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Loosening Hours Constraints on the Supply of Labor

What if Germans Had a Dutch Labor Market?

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Abstract

Total employment in Germany is supposed to increase if people could realize their desired working hours. However, this back-of-the-envelope calculation overestimates the effect of loosening hours constraints, because even in a very flexible labor market there will exist hours restrictions for certain jobs and occupations. Therefore, I simulate Germans' working hours in a more flexible but real world, namely the Dutch labor market. The results indicate that the average weekly working hours of German employees would indeed decrease if they had a Dutch Labor market. Thus, there exists some potential for additional work-sharing in Germany. Furthermore, the match between actual and desired hours of Germans would improve if Germans faced the same hours flexibility as Dutch employees. This holds both for men and for women. Another piece of good news is that hours restrictions shrank over time, which means, Germany seems to be moving towards a more flexible labor market.

JEL classification: J22, J23, J24.

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Non-technical summary

The lack of working hours flexibility is regarded as an important hindrance for work-sharing in Germany. Surveys show that employees often work more hours than they actually desire to. Given these indications on hours restrictions, I address the following questions: First, how would Germans adjust their labor supply if the labor market were more flexible? Is it likely that more work-sharing would take place and secondly, how did the willingness to do so change from 1995 to 1998? And finally, did the mismatch between working hours preferences and actual working hours shrink during that period or does the employers' view of flexible working time arrangement not reconcile with individual time sovereignty. Therefore, I simulate Germans' working hours in a more flexible but real world, namely the Dutch labor market. A reduced-form labor supply model with hours restrictions is used to describe how the working hours preferences of the Dutch translate into their actual working hours. Applying this "Dutch model" to the German data allows one to calculate the hypothetical labor supply of Germans in the Dutch labor market. The fact that the German and Dutch welfare states and labor market institutions have a number of features in common allows me to derive implementable strategies to foster employment growth in Germany.

The results indicate that the match between actual and desired hours of Germans would improve if they faced the same hours flexibility as Dutch employees. Another piece of good news is that hours restrictions shrank over time, that is, Germany seems to be moving towards a more flexible labor market. I can show that the gains from moving to the new situation are distributed very unevenly. People wanting to work part-time would face a much higher probability of realizing their preferences if they had a Dutch labor market. Thus, there exists some potential for additional work-sharing in Germany. However, women who want to work full-time are more likely to be underemployed. On average, people would adjust their working hours towards a shorter work week. Thus, work could be shared among more individuals, both in 1995 and 1998. However, the employment effects are expected to be smaller compared to estimates ignoring the fact that certain working hours preferences are hardly feasible.

Even if the derivation of expected employment effects is very tempting, this venture is doomed to failure. Working hours and workers are not perfect substitutes and firms do not necessarily replace the individual reduction of weekly working hours by additional employees. Therefore, I will elaborate conditions under which the employment effects out of increasing hours flexibility could be maximized and derive some policy implications.

1 Introduction

An increasing flexibility of working hours has become an often discussed means of reducing unemployment in Germany. Surveys show that employees often work more hours than they actually prefer, thus there seem to be a willingness to share work among more heads. Advocates of this idea presume that more work-sharing would take place if hours restrictions were loosened and people could freely adjust their working hours, that is to work part-time or to arrange any other flexible time schedule. The Netherlands, often used as a good example of working hours flexibility, used to have a pretty high unemployment rate. In the 1970s and early 1980s, as a result of various shocks and failed policies, the Dutch economy performed significantly worse than other European countries. In 1982, a more supply-oriented approach of economic policy was put through. An important element of the new strategy was an agreement between employers and trade unions, the so-called "Wassenaar agreement", on wage moderation combined with a reduction in working time. Meanwhile, the share of part-time work has increased substantially and the unemployment problem is moderate. In contrast, Germans' unemployment rate increased in the mid 80s and especially after the German unification. Thus, it is argued that this "therapy" might also be successful in Germany (Stille, 1998; Werner, 1997; Seifert, 2000). In this paper, I investigate the effects of increasing hours flexibility - the heart of the "Dutch model" - on the German labor market.

There already exist some empirical studies on hours restrictions and employment in Germany. Holst and Schupp (1994, 1998) compare the contractual and desired working hours of German employees in 1993 and 1997. The results for 1993 indicate that the majority of the employees is overemployed whereas in 1997 the share of people who want to expand their labor supply increased. This trend can be broken down into different effects. Firstly, contractual working hours decreased over time. Secondly, the share of full-time employees who want to work more than 40 hours increased. But, at the same time we observe an increasing number of full-time employees who prefer to work 30 or less hours (Holst and Schupp, 1998). Thus, their results are strongly driven by full-time employees who wish to work more than their contractual hours. Taking into account that many employees work overtime, the question arises, whether in this context contractual hours are the appropriate measure. Looking at actual working hours instead, the share of people who want to expand their labor supply is much smaller. Furthermore, the increasing preference for part-time work, especially among West German men, suggests that there still exists some potential for additional work sharing. Schilling et al. (1996) go one step further. Based on the

deviation between contractual and desired hours they estimate that full-time employment could increase by 2.6 million people in 1995 if all employees work their desired hours and the surplus hours are shared among unemployed. For women, however, the employment effect of loosening hours restrictions is supposed to be tiny (Beckmann, 1997). However, these estimations are based on the fallacy that the amount of labor input required to produce a fixed volume of output can be shared between employed and currently unemployed persons. The latest studies mainly refer to the employment effects of cutting back overtime hours (Bauer and Zimmermann, 1999; Groß et al., 1999).

Different studies for various countries come to the conclusion that hours restrictions prevent people from working part-time (Ilmakunnas and Pudney, 1990; Dickens and Lundberg, 1993; van Soest, 1995; Aaberge et al., 1997; Euwals and van Soest, 1999). Several studies show that allowing for hours restrictions in a discrete family labor supply model for West Germany reduces the estimated wage elasticities substantially (van Soest, 1995; Wolf, 1998). That is to say, hours restrictions do matter.

Given these indications on hours restrictions, I address the following questions: First, how would Germans adjust their labor supply if the labor market were more flexible? Is it likely that more work-sharing would take place and secondly, how does the willingness to do so change from 1995 to 1998? Did the so-called "overemployment" of German employees in the mid 90s indeed fade away? And finally, did the mismatch between working hours preferences and actual working hours shrink during that period or does the employers' view of flexible working time arrangement not reconcile with individual time sovereignty.

A simple but naive way to answer these questions would be to approximate the outcome in the flexible world using the desired labor supply (Schilling et al., 1996). Presumably this result is not realistic, because even in a very flexible labor market there will exist hours restrictions for certain occupations and individuals. The probability of actually reducing the weekly working hours depends strongly upon occupation and other individual characteristics. A manager will find it difficult to reduce his effort to 20 hours per week whereas a factory worker would not find a job with contractual hours allowing more than 40 hours. Additionally, specific skills or a certain amount of firm-specific human capital might increase the probability that an employee can arrange an individual schedule. Simply using the desired working hours as a proxy for the labor supply in a world with no or fewer hours restrictions would completely ignore these occupation-specific restrictions. There might be a certain potential to reduce the weekly working hours in some occupations if desired. But, very little is known about the fea-

sible level of hours flexibility in Germany, and there is no empirical analysis of the expected adjustment of working hours if labor market flexibility increased. Therefore, based on the Germans' working hours preferences in 1995 and 1998, I simulate their labor supply in an actually existing world, namely the labor market in the Netherlands. The results of this exercise are very revealing, because the Netherlands is well known for its high degree of work sharing and labor market flexibility. Since the German and Dutch welfare states and labor market institutions have a number of features in common (Meerendonk, 1998), an important condition for a meaningful simulation is satisfied. Furthermore, given the comparable institutional settings, using the Netherlands as a benchmark case allows me to derive implementable strategies to foster employment growth.

The remainder of the paper is organized as follows: Firstly, I give a brief survey of the differences between the German and Dutch employment system. In section 3, I describe the German and the Dutch data and section 4 outlines some figures on the actual and desired working hours. The reduced-form labor supply model with hours restrictions is described in section 5. Section 6 gives simulations of loosening the hours constraints on the distribution of weekly working hours in Germany and the gap between actual and desired working hours. Conclusions and policy implications are derived in section 7.

2 German and Dutch employment systems and economic structure in comparative perspectives

The Dutch political economy is institutionally similar to the German one in several key aspects. But, these similarities hide an important set of differences (Soskice et al., 1998). Before looking at the data, I will therefore give a brief overview of the different aspects of the employment systems, affecting the distribution of working hours and working hours flexibility.

2.1 Unions and wages

Wage level, structure and flexibility are the major determinants for balancing the labor market. In both countries, pay negotiations take place on the industry level and agreements are universally binding. The main difference to the German collective bargaining system is the Dutch tradition of consensual decision making

between unions, employers and the government. According to the German Constitution, government was never able to directly interfere in the process of collective bargaining between employers and employees. Furthermore, trade unions in the Netherlands are more fragmented and decentralized than in Germany, where more centralized unions acquire greater bargaining power. In addition, unions density in the Netherlands fell dramatically since the early 80s. Also German unions experienced shrinking membership. German Unification caused a strong increase in the number of members at the beginning of the 1990s, but since 1992 unions have experienced an even stronger slump in membership (Fitzenberger et al., 1999). However, this trend was more pronounced in the Netherlands and started about a decade earlier. Even though it should be noted that in both countries pay agreements are to a considerable extent applied to non union members (Schettkat, 2000).

The Dutch wage setting institutions generated very moderate growth throughout the 1980s and 90s. The two most important reasons are firstly, the fading power of the unions and secondly, the "Wassenaar agreement", which launched the end of wage adjustment to the price level ("Scala Mobile") and the agreement - to a certain extent brought about by the government - on moderate wage policy.

Empirical research points to a comparable level of wage flexibility in Germany and the Netherlands (Blanchflower and Oswald, 1995). In contrast to the trend in the United States and the United Kingdom, earnings dispersion in Germany and the Netherlands has been rather stable since the beginning of the 80s (OECD, 1996). Only a closer inspection reveals small changes in the wage distribution (see Fitzenberger (1999) for Germany and Salverda (1998) for the Netherlands).

2.2 Recent trends in working-time policy

The decline in average working hours started about a century ago and seems to have slowed down in most of the OECD countries (OECD, 1998bb). In the Netherlands, working-time reductions were mainly implemented by giving additional unscheduled holiday, so-called ADV-days, to the workers. In the Wassenaar agreement the unions gave up their resistance to part-time jobs.¹ Since 1985, working time reductions have been gradually abandoned by the labor unions and the political parties. In contrast, unions' claims for further reductions of standard working hours flare up every now and then in Germany. The latest claim

¹Soskice et al. (1998) argue that the increasing flexibility of individual labor contracts is partly attributed to the relative weakness of Dutch unions.

for further hours reduction was the 32-hours week of the IG Metall in 1999. However, even in Germany, the support for further reductions of standard working hours is shrinking and in fact the latest collective agreement for employees in the metal industry agreed to remain with the 35-hours week in West Germany (WSI-Tarifarchiv). Neubourg (1991) provides three major reasons for turning away from collective working hours reductions in the Netherlands, which also apply to the German case. Firstly, the actual employment effects remained far behind the expectations.² Secondly, inflation during the 80s was very moderate in both countries. Since working time reductions were to be financed by real wage rigidity, further reductions would result either in nominal wage cuts or increasing labor cuts. Last but not least, worker's support for further reductions and related wage cuts declined, in particular because of the disappointing employment effects.

Meanwhile, employers increasingly emphasize the aspect of working hours flexibility. In Germany, employers in the steel industry are allowed to use more flexible working hours arrangements in exchange for the latest working hours reduction in 1995. Also in other industries, the use of non-standard working hours and flexible employment arrangements, such as fixed-term contracts and temporary workers, increased steadily (Keller, 1997).

2.3 Social Security Systems

Social security systems may affect the distribution of working hours in two different ways. Firstly, the method of financing determines the non-wage labor costs if contributions depend upon hours worked or earnings. This may affect the labor demand for jobs with certain working hours. Secondly, the conditions of entitlement and the amount of benefits involve incentives on the supply of labor. For example, eligibility or the amount of individual benefits may shrink, once earnings are below a lower earnings limit or the past employment periods are too short.

In Germany, generally speaking, without former contributions there is no right to receive benefits in case of illness, unemployment, maternity leave, injuries

²See Neubourg (1991), König and Pohlmeier (1988), Franz (1997) and Hunt (1999). Kapteyn et al. (2000) considered both the theoretical and the international empirical literature on work-sharing as a policy to promote employment. They conclude that if one wants to increase employment, other measures than work-sharing are probably much more effective. Even though, they argue that allowing for shorter hours at an individual level, that is flexible working hours arrangements, may be welfare enhancing.

from work, invalidity or retirement. People who are not entitled to these social security benefits are supported by social welfare, which is supposed to guarantee the subsistence level. All employees in the private or public sector whose earnings exceed the lower earning limit are subject to the social security contributions, which are a fixed percentage of gross earnings. That is, apart from the so-called "marginal jobs", contributions and benefits of the German social security system are fully related to income. The scheme provides little incentive for employees to deviate from the standard full-time hours, because the reduced benefits, i.e. old-age pension, are too low to live on.

In contrast, in the Netherlands there exists a general social security system for all individuals on top of that, a separate insurance for employees. Accordingly, the general system is financed by taxes, to be precise, contributions to the retirement insurance are incorporated into the first bracket of income tax, which applies to the first earned guilder.

One crucial factor with respect to the impact of social security benefits on labor supply is whether they depend upon the previous employment status. According to that, the Dutch scheme is the most favorable system for part-time employees (Ginn and Arber, 1998). Only the illness and unemployment insurance are financed by contributions from employees and employers for the most part. The German pension system is more orientated towards continuous full-time employment, resulting in significant smaller benefits for part-time employees. Employment breaks in order to raise children are taken into account to some extent. In general, the German model does not assure sufficient social security of long-term part-time employees. Summing up, the work-related social security scheme in Germany is likely to induce working more hours.

Concerning entitlement and the amount of benefits, the Netherlands experienced a major restructuring of the disability benefit system in 1987. The main objective was to cut the benefit from a maximum of 80 percent of the previous wage to 70 percent and to reduce the inflow into disability. Disabled persons younger than 50 years were re-examined on the basis of a more stringent medical definition of disability. Furthermore, employers who hire a disabled can get a wage subsidy of up to 25 percent of the gross wage during four years. These measures increased the incentive to supply labor, even for short hours, and clearly contributed to the Dutch employment miracle (Nickell and Ours, 2000).

2.4 Active labor market policy

During the 1990s, active labor market policy was seen as a leading role in combating unemployment (OECD, 1995). These measures aim to increase the match between labor demand and labor supply by means of training programs, information about vacancies or wage subsidies, in some cases as part of a job-creation program. In the Netherlands, expenditures for such programs as a percentage of GDP increased from 1.1 % in 1995 to 1.8 % in 1999 (OECD, 2000). During the first half of the 1990s, Germany constantly spent more of the GDP on employment promotion measures (OECD, 1996). However, this activity was mainly caused by the German unification and the corresponding training requirements. Since 1996, the Netherlands has spent a higher percentage of GDP on active labor market policies. Both countries reorganized the structure in favor of job-creation programs in the second half of the 1990s.

But higher expenditures do not necessarily mean higher employment. There exist good arguments to support the view that rising expenditures on active labor market policy may lead to higher unemployment. Whether these measures have actually contributed decisively to employment growth in the Netherlands is rather doubtful. In both countries, the empirical evidence concerning the employment effects of training and job-creation programs is sobering (see the survey in Hagen and Steiner (2000) for Germany and de Koning (1995) for the Netherlands).

The total unemployment rate in 1994 was 7.2 percent in the Netherlands and 8.4 percent in Germany - hiding strong differences between East and West Germany. Taking into account the hidden unemployment rate, that is people in active employment programs, further increases the gap between Germany and the Netherlands. In 1994, 2.5 percent of the Dutch labor force entered labor market programs, the corresponding figure for Germany was 4 percent, though it should be noted that this figure is strongly driven by specific programs for East Germany (OECD, 1996). Since 1995, the Dutch Minister of Social Affairs and Employment *Melkert* created various programs to create new subsidized jobs for long-term unemployed. The majority of these "Melkert Jobs" are in the public sector. Until 1997, the inflow in active labor market programs exceeded 14 percent of the Dutch labor force.

Since 1996, the *SPAK*-program³ has been subsidising employers' contribution to social security for low-wage workers (OECD, 1998a). As a result, labor costs of employees earning minimum wages fell by about 11 percent. Textbook economics predicts that a lower relative price for low skilled labor will stimulate demand.

³Specifieke Afdrachtskorting.

However, Salverda (1999) concludes that the effects of wage subsidies on employment growth seem to be small if there are any at all. Comparable programs have been in force before, but they performed also very poorly. Recently, also in Germany a discussion about social security subsidies for low income employees started. In view of the pessimistic assessment of the potential employment effects, the effectiveness of such a scheme is much disputed in both countries (see e.g. Buslei and Steiner, 1999; Bender et al., 1999 and Schupp et al., 1999).

Particular emphasis is set on the integration of young employees in the Netherlands. The Youth Work Guarantee Law of 1992 offered youngsters a combination of training and work experience. In 1994, the law was replenished by a program to train those young people who are not adequately skilled to move directly to a permanent job. Like other training programs, the success to this scheme was very limited. In Germany, youth unemployment rate is comparatively moderate, because the unique vocational training system facilitates a smooth transition into employment (Franz and Zimmermann, 1998).

2.5 Temporary worker

The use of temporary worker agencies in the Netherlands is the most extensive in the OECD area. The use of the temporary worker provides more flexibility for the firm, not only with respect to working hours and earnings. An valuable advantage for the enterprises is the flexibility to adjust employment levels and compensation standards during lean periods. Survey data show that the share of temporary workers in the Netherlands (2.7 % in 1995) is about five times higher than in Germany (0.5 %) (Europäische Kommission, 1997). Also other regulations bring about that the management of Dutch firms is more flexible than the Germans⁴ and Di Tella and MacCulloch (1999) find evidence that a higher labor market flexibility increases both the employment rate and the rate of participation in the labor force. However, given that the share of temporary worker is still very low in the Netherlands, I do not feel that this is the driving factor of overall hours flexibility.

2.6 Sectoral structure

An important difference between the Dutch and German economy is the sectoral structure. The Dutch manufacturing sector is very small compared to the German

⁴According to the OECD (1998b), employment protection in Germany is classified as "high strictness", the Dutch protection law is denoted as "medium strict".

one. According to the Labor Force Survey, less than a quarter of the Dutch employees worked in the manufacturing industry in the mid 90s. In contrast, still 40 percent of the German labor force was employed in this sector (Federal Statistical Office, 1998). Taking into account that the Netherlands used to be a very traditional industrial society illustrates that the structural change is carried out at great speed. Critics bring up the argument that employment growth in the Netherlands is mainly driven by the increase in fixed-term contracts and female part-time employees in the service sector, which are often regarded as precarious jobs. In 1995, almost three quarters of women in the service sector worked part-time. Breaking down the net employment growth by sector shed more light on this reproach. The fact that regular full-time employment increased only slightly is mainly related to the decline of the Dutch industry sector, which falls heaviest on full-time jobs and not to the missing creation of regular jobs in the service sector (Schettkat, 2000).

3 Descriptions of the Data

The empirical analysis is based on data from the German Socio Economic Panel (GSOEP) in 1995 and 1998 and from the Dutch OSA⁵-survey of 1994. The GSOEP is a representative household survey for the German population conducted every year since 1984 in West Germany and, since 1990, also in East Germany. The Organization for Strategic Labour Market Research (OSA) collects individual data about the labor market situation of the respondents every two years. In principle, the OSA-data have been collected as a panel since 1985. However, the attrition from one survey to the other is rather high.⁶

In both of these sets of data, I selected the labor force between 20 and 60 years. Presumably, the determination of working hours for non-Europeans and those working in the fishing and farming sector is subject to some peculiarities. For this reason, I exclude them from the analysis. Further, I exclude all individuals in apprenticeship or in any other full-time education or training, because in the OSA-data they were not asked about their desired working hours. Finally, I exclude all self-employed and unpaid family workers because, in principle, they should not be concerned with hours restrictions on the labor market. Since I am interested in the deviation between actual and desired working hours, I restrict the sample to people either working or intending to start working part-time or

⁵Organisatie voor Strategisch Arbeidsmarktonderzoek.

⁶See "Tendrapport Aanbod van arbeid 1995", OSA, Den Haag.

full-time. After these exclusions there remain 7400 observations in the GSOEP of 1995, 7100 observations in 1998 and about 2830 observations in the Dutch OSA-data.

For Germany, the information about the *actual* working hours refers to the question: "How many hours per week including the overtime hours do you usually work?" Provided that the employee can use up the excess hours of work by taking time off in near future, I use the reported contractual working hours. If however, overtime hours are either rewarded or not compensated at all, I use the information about usual working hours. The exact wording of the question about the *desired* working hours is: "If you could choose your working time, taking into account that your income changes accordingly, how many hours would you like to work per week?". The Dutch data provide exact information on contractual working hours⁷ and average paid and unpaid overtime hours. *Actual* working hours are defined as the sum of contractual and all overtime hours. Presumably, this measure overrates the average working hours, because part of the reported unpaid overtime hours may be compensated by time off. Unfortunately, the OSA-data do not contain any question about the use of flexible working hours. The information about *desired* working hours is based on the question: "Imagine that you could determine your weekly working hours, how many hours would you arrange with your employer? Assume that your hourly wage rate would be the same and other household members would not change their weekly working hours." The individual differences in the number of days of holiday and absenteeism are not taken into account. The distribution of actual and desired hours in the two subsamples are considered in the next section. Table 6 in the Appendix presents descriptive statistics of the other variables used in this study.

4 Comparing the match of desired and actual hours in the Netherlands and in Germany

In order to give an impression of the existing hours restrictions in the Dutch and German labor markets, I outline the mismatch between actual and desired hours in the Netherlands and Germany in 1995 and 1998. To do so, I apply two different methods, a cross table and a simple multinomial logit model.

First, I generate discrete variables of desired and actual weekly working hours. NW denotes people who do not work. Employees working up to 20 hours are

⁷I adjust the contractual weekly working hours in case people are eligible to take ADV-days, which are additional free days apart from vacation (see section 2.2).

grouped in the category "small part-timer" (SPT) and employees who work up to 34 hours are defined as "extended part-timer" (EPT). Standard full-time jobs (FT) cover the range from 35 to 40 hours per week and all jobs beyond this threshold are called "overtime jobs" (OT). Table 1 compares the grouped variables of desired and actual weekly working hours of men and women, respectively. I skipped the category of desired overtime hours for women due to too few observations. The figures present the percentages of individuals who fall into the respective category of actual hours. The first row, for example, shows the distribution of labor supply of German men and women in 1995 who do not want to work more than 20 hours per week (the sum of the first five columns adds up to 100 percent). The last row of each block exhibits the distribution of actual working hours of men and women and the last column contains the shares of the desired working hours for the corresponding sample.

Table 1: Desired versus actual working hours of men in Germany and the Netherlands (percentages of employees)

MEN							WOMEN					
	NW _a	SPT _a	EPT _a	FT _a	OT _a	\sum^1	NW _a	SPT _a	EPT _a	FT _a	OT _a	\sum^1
<i>Germany 1995</i>												
SPT _d	7.7	17.0	2.6	40.0	32.8	6.1	16.2	48.8	15.6	14.8	4.5	23.1
EPT _d	3.3	4.2	12.3	57.5	22.6	5.5	29.0	8.4	29.1	28.0	5.6	26.1
FT _d	14.3	0.7	1.0	55.7	28.3	71.2	26.4	2.6	5.2	51.2	14.6	50.8
OT _d	1.5	0.8	0.5	34.7	62.6	17.2	-	-	-	-	-	-
\sum^2	11.1	1.9	1.6	51.2	34.1	100	24.7	14.8	13.8	36.8	9.9	100
<i>Germany 1998</i>												
SPT _d	4.9	24.6	4.9	48.6	16.9	3.9	20.7	53.9	12.7	10.6	2.1	20.5
EPT _d	5.2	2.4	11.5	65.1	15.9	6.9	26.6	8.7	29.4	31.1	4.3	28.3
FT _d	15.3	0.9	1.1	61.2	21.5	76.3	26.9	2.7	6.5	53.7	10.1	51.2
OT _d	3.0	0.9	0.6	42.6	52.9	12.9	-	-	-	-	-	-
\sum^2	12.6	1.9	1.9	58.6	25.0	100	25.6	14.9	14.2	38.5	6.8	100
<i>Netherlands 1994</i>												
SPT _d	7.5	39.6	9.4	30.2	13.2	3.1	24.0	59.4	13.1	2.4	1.1	40.8
EPT _d	8.9	0.7	20.1	43.6	26.7	17.9	8.1	7.6	51.7	20.7	11.8	33.4
FT _d	6.8	0.6	1.5	52.8	38.3	71.2	14.2	4.1	8.1	58.3	15.3	25.8
OT _d	9.2	0.8	0.8	22.3	66.9	7.7	-	-	-	-	-	-
\sum^2	7.4	1.8	5.0	48.1	37.7	100	16.2	27.8	24.7	22.9	8.3	100

Note: Subscripts *d* indicate categories of *desired* working hours (rows) and subscripts *a* denote the corresponding category of *actual* working hours (columns); ¹ distribution of desired weekly working hours (in percent); ² distribution of actual weekly working hours

Source: Own calculations based on the GSOEP 1995 and 1998 for Germany and the OSA-data for the Netherlands.

The italicized numbers on the diagonal of each block show the percentages of peo-

ple whose desired working hours roughly match their actual labor supply, that is, they can more or less realize their preferences.⁸ Even in the Netherlands, a country with very flexible working hours, the fit between desired and actual working hours is not perfect. The individuals in the lower triangle are underemployed, and those in the upper triangle would prefer to work fewer hours than they actually do. Comparing these figures reveals the difference in the hours restrictions between Germany and the Netherlands.

Secondly, I run a simple regression of grouped working hours on desired hours using a multinomial logit model (Nerlove and Press, 1973). In principle, this estimation translates the information of Table 1 into conditional probabilities. This is very attractive, because the interpretation of the multinomial logit is straightforward if the coefficients are translated into relative risk ratios. The coefficients and the relative risk ratios (rrr) of the multinomial logit model are presented in Table 2. The explanatory power (pseudo R^2) of this model provides a rough measure of hours constraints in Germany and the Netherlands.⁹

A positive coefficient, for instance, the effect of SPT_d in the category of SPT_a indicates that individuals who wish to work up to 20 hours per week have a higher probability of realizing their preferences than ending up with a full-time job, which is the base category of the estimation. The exponentiated value of the coefficient is the relative risk ratio for one unit change in the corresponding variable, where risk is being measured as the risk of SPT_a relative to the base category. For German men searching for a small part-time job in 1995 (SPT_d), the probability of working 20 hours or less relative to the probability of working full-time is less than half ($e^{-.85} = 0.4$). For Dutch women however, the probability of getting the desired part-time job is 25 times ($e^{3.23} = 25.2$) the probability of working full-time. Thus, this coefficient can be interpreted as a measure of restrictions faced by people who want to work very few hours.

Analogously, the negative coefficients of EPT_d in the category of EPT_a in all three samples indicate that German and Dutch men have a lower probability of finding the desired extended part-time job relative to a full-time job, whereas the relative risk ratio of corresponding women in the Netherlands is just above

⁸If the difference between desired and actual working hours is not more than 1 hour per week but the categorized variables of desired and actual hours differ, actual working hours are replaced by desired hours. In the OSA-data, 45 observation were replaced in this way, in the GSOEP-data only 5 observations.

⁹Basically, the dependent variable is ordered, thus the multinomial logit model is not compulsory. Even though, this choice seems to be attractive, because hours constraints may depend decisively upon desired hours. Estimating different sets of coefficients for each category of actual hours provides much flexibility in order to capture these effects.

one. This confirms that on average, Dutch people have a higher probability of satisfying their part-time preferences than Germans. Very striking is that the share of involuntary non-working men and women is much higher in Germany, both in 1995 and in 1998.

Table 2: Multinomial logit model of actual working hours

men							women					
	G (1995)		G (1998)		NL (1994)		G (1995)		G (1998)		NL (1994)	
choice	coeff	rrr	coeff	rrr	coeff	rrr	coeff	rrr	coeff	rrr	coeff	rrr
<i>actual hours: 0 h (NW_a)</i>												
SPT _d	-1.65	0.2*	-2.29	0.1*	-1.39	0.3*	0.09	1.1	0.67	2.0*	2.32	10.2*
EPT _d	-2.86	0.1*	-2.53	0.1*	-1.59	0.2*	0.03	1.0	-0.16	0.9	-0.94	0.4*
FT _d	-1.36	0.3*	-1.39	0.2*	-2.05	0.1*	-0.66	0.5*	-0.69	0.5*	-1.41	0.2*
OT _d	-3.14	0.0*	-2.65	0.1*	-0.88	0.4*	-	-	-	-	-	-
<i>actual hours: 1-20 h (SPT_a)</i>												
SPT _d	-0.85	0.4*	-0.68	0.5*	0.27	1.3	1.19	3.3*	1.63	5.1*	3.23	25.2*
EPT _d	-2.61	0.1*	-3.31	0.0*	-4.19	0.0*	-1.21	0.3*	-1.28	0.3*	-1.00	0.4*
FT _d	-4.34	0.0*	-4.26	0.0*	-4.51	0.0*	-2.99	0.1*	-2.99	0.1*	-2.66	0.1*
OT _d	-3.83	0.0*	-3.91	0.0*	-3.37	0.0*	-	-	-	-	-	-
<i>actual hours: 21-34 h (EPT_a)</i>												
SPT _d	-2.75	0.1*	-2.29	0.1*	-1.16	0.3*	0.05	1.0	0.18	1.2	1.71	5.5*
EPT _d	-1.55	0.2*	-1.73	0.2*	-0.77	0.5*	0.04	1.0	-0.06	0.9	0.91	2.5*
FT _d	-4.00	0.0*	-4.04	0.0*	-3.56	0.0*	-2.29	0.1*	-2.12	0.1*	-1.97	0.1*
OT _d	-4.34	0.0*	-4.19	0.0*	-3.37	0.0*	-	-	-	-	-	-
<i>actual hours: 41-60 h (OT_a)</i>												
SPT _d	-0.20	0.8	-1.06	0.3*	-0.83	0.4	-1.18	0.3*	-1.61	0.2*	-0.79	0.5
EPT _d	-0.93	0.4*	-1.41	0.2*	-0.49	0.6*	-1.60	0.2*	-1.98	0.1*	-0.56	0.6*
FT _d	-0.68	0.5*	-1.04	0.4*	-0.32	0.7*	-1.25	0.3*	-1.67	0.2*	-1.34	0.3*
OT _d	0.59	1.8*	0.22	1.2*	1.10	3.0*	-	-	-	-	-	-
Log likelih.	-3951		-3657		-1761		-4631		-4394		-1352	
Pseudo R ²	0.365		0.375		0.352		0.185		0.212		0.264	
# observ.	3863		3633		1689		3531		3465		1142	

Note: the base category are standard full-time hours (FT_a); Subscripts *d* indicate categories of desired working hours (rows) and subscripts *a* denote the corresponding category of actual working hours (columns); the stars next to the coefficients indicate that the variable is significant at the 5%-level.

Are the Dutch indeed more likely to meet their working hours preferences? Based on these descriptive figures, this question can easily be answered. People who state that they would like to work part-time are clearly better off in the Netherlands. Even if the probability of German men to meet their preference for small part-time jobs increased from 17 % in 1995 to 24.6 % in 1998 (see Table 1), the relative risk ratio is still much lower than in the Netherlands and still below one (see Table 2). For men preferring an extended part-time job, the situation is rather stable in Germany. The corresponding shares of "unconstrained" people

are 12.3 percent in 1995 and 11.5 percent in 1998, that is half of the figure in the Netherlands.

Furthermore, the structure of over- and underemployment differs across countries (see Table 1). Even if extended part-time jobs are more common in the Netherlands (5.5% of all employed men), about 70 percent of all Dutch men interested in these working hours indeed work more hours. In Germany, the share of overemployment of men who want to work between 20 and 34 hours is even 80 percent. In principle, these results are very similar for women, albeit the match between part-time preferences and actual working hours is much better. Again, for German women the conditional probability of finding a small part-time job increased from 49 percent in 1995 to almost 54 percent in 1998. As for men, the relative risk of actually working part-time, given that part-time is desired, is substantially higher in the Netherlands. Notice that Dutch women searching for a small part-time job are 25 times more likely to meet their hours preferences than working full-time. The corresponding risk ratio for German women is 5.1 in 1998 and only 3.3 in 1995 (see Table 2). Taking the Dutch hours flexibility as a starting-point, there seems to be a considerable potential for additional work-sharing in Germany.

These results also hold if I restrict the sample to employees (see Table 7 in the Appendix). The last column of each block in Table 7 provides another measure of hours restrictions, that is the mean absolute deviation (MAD) between actual and desired working hours of German and Dutch employees. Based on these figures, people searching for a small part time job are more restricted, because their actual working hours are on average remoter from their preferences than those who want to work between 20 and 34 hours.

Individuals wanting to work full-time do not necessarily have the highest chance to meet their preferences. For men, this is only true in Germany in 1998 (see Table 1). In the year 1995 and in the Netherlands, overtime hours are very widespread, forcing many employees to work more than they actually want to. Even though, employees searching for a full-time job are better off in Germany and the use of overtime work seems to be declining. In contrast, Dutch men who want to work more than 40 hours a week have a higher chance of realizing their preferences than Germans. This peculiarity can be partly attributed to the business cycle. 1994 was the first boom year after a couple of years with poor growth rates. Additionally, employment growth lags behind GDP-growth rates by about one year (Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung, 1999). Presumably, the increasing labor demand is mainly satisfied by overtime hours. This seems to affect women's working hours as well. At least, 18 percent

of female employees in the Netherlands work more than 40 hours, although they prefer a standard full-time job. In short, overtime work is much more common in the Netherlands. A closer look into the data shows that this is mainly due to the unpaid overtime hours of highly skilled employees.¹⁰ This illustrates that, especially in the Netherlands, the mismatch between actual and desired hours is to some extent caused by overtime work.

The Dutch differ from the Germans not only with respect to the probability of matching desired and actual working hours but also with respect to the desired labor supply. 21 percent of Dutch men want to work less than 35 hours per week. In Germany, about 11 percent of the corresponding sample is searching for any type of part-time job. Especially extended part-time jobs are sought more by Dutch men. For women, the difference is even more pronounced. Three of four Dutch women prefer to work reduced hours. In Germany, only every second woman is willing to work part-time. Reasons for the distinctive preference for part-time jobs in the Netherlands, such as education level and job position, specific features of the social security and tax system as well as incentives set by family policy, are very diverse and complex and are elaborated in detail in Wolf and Wunderlich (2000). It can be noticed that both German women and men show an increasing preference for extended part-time jobs. The fact that the desired part-time share in Germany is only slightly higher than the actual part-time rate in the Netherlands suggests that loosening the constraints on the supply of labor in Germany could have substantial employment effects.

So far, the results can be summarized as follows:

- Men and women who state that they would like to work part-time are clearly better off in the Netherlands.
- German men wanting to work part-time have a very low probability of meeting their preferences. At least those searching for a small part-time job experienced slight improvement of their match after 1995.
- The conditional probability of finding a small part-time job increased also for German women.

¹⁰The magnitude of unpaid overtime in the Netherlands is slightly greater than that for paid overtime. In 1994, 30.5 percent of Dutch males and 23.2 percent of the females reported to work unpaid overtime. These men work on average 7.5 unpaid hours per week and women work 4.2 hours. Bell and Hart (1999) get very similar figures for the United Kingdom. In Germany, unpaid overtime work is restricted to less employees. 11.8 (8.5) percent of the men (women) work on average 10.5 (7.6) unpaid overtime hours per week. Note that the high share of overtime work in the Netherlands may be also due to missing information about flexible working hours in the Dutch OSA-data (see section 3).

- There exists a high excess-demand for extended part-time jobs among men and women, both in Germany and the Netherlands.
- Germans searching for a job with standard full-time hours are better off than the Dutch in 1994 and the use of overtime work is declining further in Germany. Note that the extensive use of overtime hours in the Netherlands can partly be attributed to the business cycle.

These results provide some evidence that in the Netherlands work-sharing is more sought after and also takes place more frequently. On the other hand, more employees are confronted with undesired overtime work. But, do these findings still hold, if we take into account individual heterogeneity? Therefore, I proceed with a multivariate analysis of working hours in the next section.

5 Labor supply model with hours restrictions

The results in the previous section suggest that individual references on working hours are not perfect predictors of actual labor supply. Although the mean absolute deviation between actual and desired hours decreased slightly from 1995 to 1998, the mismatch of working hours is much higher in Germany compared to the Netherlands (see Table 7 in the Appendix). Due to the higher unemployment rate in Germany, the difference is especially pronounced if people out of work are taken into account. It is clear that restricting the sample to employees decreases the distance between desired and actual working hours in both countries (see Table 6 in the Appendix). Even though, the gap between wish and reality is higher in Germany.

5.1 Specification of the model

In general, working hours are derived from a utility function which depends upon leisure (l) and income (y).

$$U = U(l, y)$$

In the standard labor supply model, the individual wage rate is assumed to be the same across jobs. Thus, jobs are defined only by their working hours. This implies that all jobs with a given amount of working hours provide the same income and therefore the same utility to an individual. Within this framework, any deviation between desired and actual working hours indicates that an employee cannot find

a job with the desired working hours, even if he or she would be willing to change their occupation or to move to another region. Obviously, this interpretation of the difference between desired and actual working hours is too strict.

Firstly, the individual wage rate is not the same across jobs. Previous studies show that switching to a job with very few hours causes a reduction in the hourly wage rate and might have negative implications on the future returns to experience (Wolf, 2000; Tummers and Woittiez, 1991). The assignment model attributes wage differentials to the varying skills required for different jobs. The better the match between the individual abilities and the demands on the job, the higher the productivity of the employee (see for example the survey of Sattinger, 1993). Secondly, people choose their jobs not only according to contractual working hours, but also to the type of activity performed as well as to other characteristics of the firm, such as location or size. If for example, a wife is not mobile because her husband does not want to quit his job, the location of the firm may be more important than the offered working hours or wages. And thirdly, hours constraints on the supply of labor may cause the gap between desired and actual working hours. For instance, a high-skilled manager would have difficulties finding an appropriate part-time job, because dividing this type of job among numerous part-time employees is considered as difficult and costly. Apart from the occupation and the skill level, the flexibility of working hours may differ among sectors and firm sizes. As a result, characteristics of the labor demand are important to understand the distribution of actual working hours.

In this setting, it is less likely that employees find a perfect match between actual and desired working hours. Given that there exist a limited number of jobs with a fixed set of characteristics, the probability that an individual can realize his or her preferences decreases with the number of relevant job characteristics. If the optimal job is not available, people must accept second or third-best choices. Depending on their preferences and the availability of other job characteristics, a person might either switch to another occupation or location, accept a wage cut. Finally, the individual may decide to work additional or reduced hours in order to meet its preferences about one of the other relevant job characteristics. This framework offers a variety of explanations for the deviation between actual and desired working hours.

To capture the supply and demand-side effects, I use a reduced form model of labor supply with hours restrictions. As explanatory variables I select individual characteristics which determine either the ordering of the preferences or the availability of jobs with certain sets of characteristics. I use desired working hours as a measure of the first-choice labor supply. If this variable successfully predicted

actual labor supply, one can conclude that either the hours restrictions do not matter or that individuals choose their job mainly based upon working hours. Given the results in Table 1 and 2, this is not very likely. Thus, I use additional variables which determine the preference order, such as the skill level, general and specific human capital and information about the household context.

On the one hand, previous investment in human capital as a proxy for the wage rate might determine whether the constrained people reduce or expand their labor supply compared to their reported first choice. If desired hours cannot be realized, highly educated people at the upper tail of the wage distribution are more likely to work more hours than desired and therefore buy domestic services to increase their leisure¹¹. The outsourcing of domestic services is utility maximizing, if the hourly wage rate exceeds the price the purchased services. On the other hand, innovative and flexible working hours arrangements for highly skilled workers with management functions are not very common in German firms yet. Thus, the distribution of available working hours is much tighter for highly skilled staff compared to low skilled workers. The probability of weekly working hours at the left tail of the distribution, that is part-time work, is expected to be much lower. If however, the firm has to cope with labor shortage for specific occupations of high-skilled employees, such as IT-experts, the employer might fear that the applicant will quit the job if they don't arrange a part-time job. The same should be true for employees who are broadly trained by the firm or have accumulated comprehensive firm-specific human capital. Depending on firm size, organizational structure and other factors, the management may decide to reorganize labor and implement flexible working hours.

The marital status and the presence of children primarily affect the adjustment of the labor supply of women. Especially mothers of small children presumably choose a job with fewer hours if they cannot match their preferences, because an expansion of their labor supply may cause substantial costs, such as private child care. Nevertheless, demand-side effects may enhance the chance of mothers to get a part-time job, because employers know that part-time employment often is the only possibility to reconcile paid work and family. Many managers still think that people's desire to work part-time signals less motivation and thus lower productivity. Apart from mothers' responsibility to care for their children, they hardly support other motives to reduce standard working hours.

Firms might support part-time work for old aged employees, because it is an easy

¹¹In most empirical studies, leisure is defined by the difference between a total amount of available hours per week minus the weekly working hours. However, this measure includes activities, which are not necessarily leisure, for instance, commuting time or cleaning.

way to displace expensive but on average less productive workers. In Germany, a labor market policy called "Altersteilzeitgesetz" provides additional incentives to implement part-time jobs for employees older than 55 years. However, such a law did not exist in the Netherlands in 1994. As a result, age effects turned out to be minor in the Netherlands and are therefore dropped in the empirical approach.

Since the flexibility of working hours differs tremendously among different occupations, I use several dummy variables and interactions between occupation dummies and desired working hours to capture the availability of jobs with certain working hours.¹² Presumably, the working hours distribution of salespersons or employees in the service sector are substantially more dispersed than the actual working hours of professionals or managerial employees. Irrespective of the occupation, one should expect a higher working hours flexibility for temporary workers, which is a fairly large group in the Netherlands. However, due to the limited number of observations, I do not find robust evidence for this hypothesis.

It would be straightforward to estimate this reduced form model of labor supply with hours restrictions by extending the multinomial logit model presented in section 4. However, this model bears some risk of misspecification, because a stringent assumption of the multinomial logit approach is that the choice model satisfies the property of independent alternatives (IIA). In a word, this condition requires that the exclusion of categories does not affect the relative risks associated with the regressors in the remaining categories, that is, alternatives should be similarly close to each other. This assumption may be violated in our case, because working overtime hours is a closer substitute to working full-time than it is to not working at all. I test the IIA-condition applying a Hausman specification test (Hausman, 1978) for all possible exclusions of categories, these are five tests for each, men's and women's model. For men, three of five tests fail, indicating that the model does not meet the asymptotic assumptions of the Hausman test. For women, only one out of five tests fails. But, during the research it turned out that adding more explanatory variables to the female model reinforces misspecification.¹³ Another shortcoming of the logit approach is that I drop available information by grouping the data. Therefore, I give up the discrete choice model and confine myself to a continuous OLS model.

As starting-point of the empirical model on actual weekly working hours (AH),

¹²To create comparable occupational groups I use the International Standard Classification of Occupations (ISCO-88).

¹³This is true despite the exclusion of people out of work. Thus, even a nested logit model would not be appropriate.

I choose the following specification¹⁴:

$$\begin{aligned}
AH = & \sum_{i=1}^I \beta_{0i} \cdot DH^i + \beta_1 \cdot schooling + \beta_2 \cdot exp + \beta_3 \cdot tenure + \beta_4 \cdot MS + \\
& \beta_5 \cdot kids + \sum_{j=1}^{J-1} \beta_{occup_j} \cdot occup_j + \sum_{j=1}^{J-1} \sum_{i=1}^I \beta_{j,i} \cdot occup_j \cdot DH^i,
\end{aligned}$$

where $\sum_{i=1}^I \beta_{0i} \cdot DH^i$ describes a polynomial of degree I of desired working hours and *schooling*, *experience* and *tenure* capture the human capital endowment of the individual. The household context is described by a dummy variable for married people (*MS*) and the number of children under age 16 living in the household (*kids*). *occup_j* denotes occupational dummy variables, where J is the number of categories. The current occupation involves some risk of endogeneity, because it might be selected based upon the occupation-specific distribution of working hours. Since I also include the information about the desired working hours, the effect of the occupational dummies can be interpreted as the availability of certain working hours for different jobs.

I also checked for firm size and regional effects. The corresponding coefficients were not significant and therefore not used in the later simulations. As the dependent variable, I use actual weekly working hours including all overtime hours, irrespective of whether they are paid or not. I estimate this model separately for men and women based on the Dutch OSA-data. Because information about previous jobs of non-active people is incomplete, I restrict the samples to actually employed people.

5.2 Some remarks about the endogeneity of working hours preferences

Using reported preferences on working hours as explanatory variable in the hours model is unorthodox for economists and involves some risk of endogeneity. Firstly, because desired hours may be contemporaneously correlated with the disturbance. In order to receive consistent results, an instrumental variable estimator may

¹⁴In order to avoid the potential endogeneity of desired working hours, one may suggest to use the gap between actual and desired hours ($AH - DH$) as exogenous variable. Supposing that restrictions depend decisively upon the desired labor supply, I give preferences to the specification described above.

be required. That is, an alternative (set of) independent variable(s) which is (are) correlated with the original explanatory variable and contemporaneously uncorrelated with the disturbance must be found. However, in this case it is extraordinarily difficult to find good instrumental variables. On the one hand, standard variables in labor supply models do not capture short-term or transitory changes in desired working hours, for example triggered by participation in further education or caring for a parent. Thus, the resulting model of working hours with hours restrictions would not be able to capture the actual adaptability of working hours in the Dutch economy. On the other hand, potential instrumental variables, such as education level or the number of children in the household are not appropriate, because they are not independent of the disturbance either. If however, the instrument is only weakly correlated with actual working hours, the IV-approach can produce biased estimates as well (Staiger and Stock, 1997). Therefore, I refrain from using instrumental variables.

Secondly, working hours preferences may be influenced by the actual degree of working hours flexibility. There exists some evidence indicating that the demand for a certain good is also determined by the aggregate consumption of this good. Desired working hours might be influenced by the national distribution of the working hours (Alessie and Kapteyn, 1991). Accordingly, Holst and Schupp (1998) argue that the striking increase in desired part-time work after 1994 may be attributed to the reduced working hours of 28.8 hours per week at the VW group. As a result, one should reckon in that the distribution of desired working hours becomes more dispersed if more flexibility takes place. Even more people would like to work fewer hours. In order to allow for interdependent preferences, additional information about habit formation would be necessary. However, there is no reliable information about the potential shift of hours preferences due to an increasing flexibility of working hours. Thus, in this paper I assume that the preferences are independent of the aggregate labor supply in the short run.

5.3 A brief discussion of the estimation results

Table 3 presents the estimation results of the reduced-form labor supply model for men and women in the Netherlands. Due to the correlation between reported hours preferences and individual characteristics, which also determine the labor supply decision, coefficients should not be interpreted separately. Apart from that, the effects of all explanatory variables cannot be clearly attributed to either the supply or the demand side. Therefore, the interpretation of the coefficients is not straightforward and I do not go into a detailed analysis of their effects.

Table 3: OLS regression of actual weekly working hours, Netherlands

	MEN		WOMEN	
	coef.	t-value	coef.	t-value
constant	-2,886	-0.37	5.980	1.96
DH	1.876	4.12	-0.073	-0.18
DH ² /100	-2.245	-3.30	5.587	3.17
DH ³ /1000	—	—	-0.924	-3.85
schooling	0.120	2.16	0.335	4.29
tenure	0.246	4.49	—	—
tenure ² /100	-0.549	-4.32	—	—
experience	—	—	0.021	2.60
experience ² /100	—	—	0.005	-1.88
kids in the household	—	—	-1.642	-3.36
married	—	—	-1.054	-1.97
civil servant	-1.146	-2.74	—	—
manager	53.184	4.47	-33.167	-2.21
manager · DH	-2.479	-3.83	5.747	2.65
manager · DH ² /100	3.168	3.53	-24.132	-2.54
manager · DH ³ /1000	—	—	2.980	2.32
professional	37.571	3.77	96.863	2.69
professional · DH	-2.049	-3.64	-11.241	-2.62
professional · DH ² /100	2.969	3.64	39.541	2.42
professional · DH ³ /1000	—	—	-4.307	-2.17
teacher/nurse	-1.070	-0.11	-2.469	-3.89
teacher/nurse · DH	-0.149	-0.26	—	—
teacher/nurse · DH ² /100	0.636	0.73	—	—
technician	19.005	1.93	1.193	1.59
technician · DH	-1.331	-2.42	—	—
technician · DH ² /100	2.287	2.90	—	—
service worker	13.857	1.37	-2.609	-4.50
service worker · DH	-1.131	-2.05	—	—
service worker · DH ² /100	2.069	2.68	—	—
production worker	22.447	2.59	-0.026	-0.02
production worker · DH	-1.486	-3.02	—	—
production worker · DH ² /100	2.414	3.39	—	—
R ²	0.277		0.683	
# of observations	1557		952	

Note: DH: desired weekly working hours.

Source: Own calculations based on the OSA-data for the Netherlands.

For men, a quadratic function of desired hours (DH) is used to capture the impact of desired on actual working hours whereas for women, a cubic specification was more appropriate. The effect of desired working hours on actual hours differs among the occupational groups. For example, working hours preferences of male managers seem not to be reflected in their actual working hours. Their predicted working hours vary between 40 and 45 hours per week, irrespective of their preferences. Also for male professionals, the relation between desired and actual working hours is fairly weak. In contrast, the predicted working hours of female managers and professionals¹⁵ do not deviate that much from their reported preferences. Among men, clerks and service workers exhibit the best fit between desired and actual working hours. This result is consistent with the observation that these activities are in general easy to share among different employees.

All sorts of human capital increase the number of working hours, whereas tenure within the same firm is not significant for women and labor market experience has no effect on the actual working hours of men. This result supports the above mentioned hypothesis that highly skilled people are more likely to work more hours, either because they can afford to buy domestic services or because of distinctive hours restrictions for part-time jobs.

Both married women and mothers of children up to 16 year work significantly less hours per week, even if desired hours are controlled for. This points to the strong tradition of reduced working hours of Dutch mothers. However, the loose labor market attachment of women with small children may be partly attributed to the shortage of child care facilities in the Netherlands.¹⁶ For men, the marital status and children turned out to be insignificant. The result that male civil servants work fewer hours than employees in the private sector, everything else being equal, may be driven by the "Melkert-jobs", which are generally financed for a 32-hour job in the public sector (see section 2.4).

6 Inference from the estimation results

Based on these estimation results, I simulate Germans' labor supply in 1995 and 1998 under the assumption that they face the same conditional hours distribution

¹⁵Given that desired hours are at least 15 hours per week.

¹⁶In regard to public child care facilities, the Netherlands falls far behind Germany. In Germany, 79 of 100 children between 3 and 6 years are in public child care. In the Netherlands, the comparable number is 55 children (Veil, 1997). During the period from 1990 to 1995, local governments created more child care facilities, which are partly hired or bought by employers.

as Dutch employees in 1994. The postponement of one year need not prevent us from using this situation as a reference point. Even though one should keep in mind that the economic upturn in the Netherlands started exactly in that year. Technically speaking, I apply the "Dutch model" to the German data. Consequently, the predicted labor supply is based on Germans' individual characteristics and hours preferences and Dutch working hours distribution, which again depends upon the Dutch labor demand and the flexibility of adjusting working hours.¹⁷

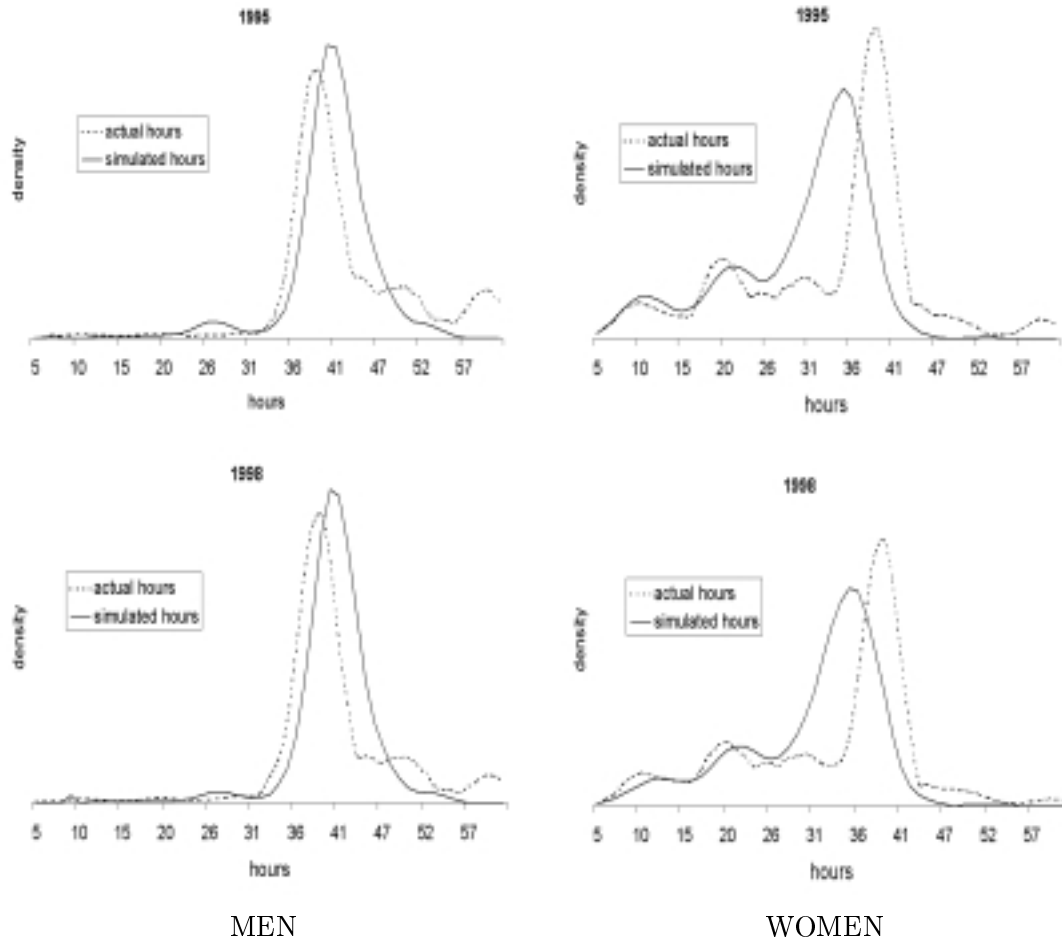
By simulating the labor supply of Germans in an environment with fewer hours restrictions, namely the Netherlands, I can address three questions. Firstly, how does the higher flexibility of working hours change work-sharing in Germany in 1995 and 1998? Taking into account that desired working hours have risen since 1995, the effects of loosening hours constraints in later years may be a little smaller. Secondly, to what extent does the match between desired and actual working hours improve? And thirdly, who are the chief beneficiaries of changing the conditional distribution of working hours?

6.1 Changing distribution of working hours

The labor supply model with hours restrictions for the Netherlands describes how the working hours preferences translate into the actual labor supply. Applying the "Dutch model" to the German data allows to calculate the hypothetical labor supply of Germans, if they had a Dutch labor market. To put it differently, based on Germans' individual characteristics and working hours preferences, I predict their expected working hours using the coefficients of the Dutch labor supply model with hours restriction. To check whether the Dutch labor market flexibility would allow more work-sharing in Germany, I compare the actual with the simulated hours distribution. Figure 1 presents kernel estimations of actual and simulated working hours of German men and women in 1995 and 1998. Note that ignoring the feedback mechanism of increasing hours flexibility on reported working hours preferences (see section 5.2) provides a rather conservative estimate of the predicted change in actual working hours in Germany.

¹⁷Note that this simulated outcome also includes the employment effect due to the difference in the tax and social security systems. However, this effect seems to be minor (Vlasblom, 1997). Based on the GSOEP and the OSA-data of previous years he shows that the difference in female working hours between the two countries would increase only slightly if the systems were equal. Furthermore, the contribution of the tax system to explain the differences in female labor supply is decreasing over time. In addition to that, incentives set by the welfare state should be reflected by individual preferences, which I control for.

Figure 1: Actual and simulated working hours of German men and women



Applying the conditional working hours distribution of Dutch men to German men seems to cause unwanted effects. The peak of the distribution is shifted to the right, indicating that more men would work overtime hours. Furthermore, the increase of part-time jobs is fairly small. However, the accumulation of employees at the right tail of the distribution disappears in the simulated situation. Consequently, it is not straightforward whether the "Dutch model" would enable additional work sharing for German men. The results are less ambiguous for women. While the distribution of part-time jobs up to 20 hours is affected only slightly, jobs between 21 and 36 hours become much more frequent. The peak of the simulated hours is at 35 hours per week, that is 3 hours less than the peak of the actual hours distribution of female employees in 1995 and 1998. This is presumably due to the fact that in Germany part-time work is especially sought-after by women. Taking into account that actual working hours tend to

be overrated in the Dutch data, these results suppose that there exists some potential for additional work-sharing among women.

Another way to illustrate the effect of loosening hours constraints on the supply of labor in Germany is to calculate the change in the expected value of weekly working hours. The average weekly working hours of German men would drop by 1.5 hours in 1995, which is mainly driven by men who want to work up to 20 hours per week. The "Dutch model" would allow them to reduce their weekly working hours by about 10 hours. The adjustment of men wanting to work more hours is much smaller, albeit the average change in working hours is still negative. In 1998, the average working hours of men would be unaffected by switching to the "Dutch model". However, men with a strong taste for leisure could again reduce their working hours in the desired way. It follows from this that at least in 1995, there existed some potential for additional work sharing among men. For women, average working hours would drop almost 4 hours per week in 1995 and at least 2.2 hours in 1998. Again, the reduction is mainly driven by women who are seeking a small part-time job.

6.2 Effects on the gap between desired and simulated working hours

The fact that the distribution of simulated working hours of German women has shifted to the left does not necessarily imply that women would be less constrained in the new situation. Also for men, it is not straightforwardly apparent how the "Dutch model" would affect their match between actual and desired hours. To verify whether the match improves or not, I compare the individual probabilities that an individual can realize his or her preferences in the two situations. Therefore, I calculate the change in the mean absolute deviation between desired and actual respectively simulated hours (ΔMAD).

Table 4 presents the mean absolute deviations of men and women in the different regimes and the ΔMAD . In order to get more insight into the various different effects, I divide the sample by desired working hours and occupations. A piece of good news is that the gap between desired and actual weekly working hours would shrink, both for men and women. However, the gain from switching to the "Dutch model" was much bigger in 1995 compared to 1998. This result may indicate that concerning working hours flexibility, Germany has indeed been behind the Netherlands for more than four years, however, we seem to be on the right way.

Table 4: Change in the mean absolute deviation between actual and desired hours

		1995			1998		
		MAD_a^1	MAD_s^2	ΔMAD	MAD_a	MAD_s	ΔMAD
MEN	all	5.0	3.9	-1.1	4.0	3.6	-0.3
	SPT _d	28.4	17.6	-10.8	21.1	15.5	-5.7
	EPT _d	9.4	7.7	-1.8	8.5	7.6	-0.9
	FT _d	3.2	2.5	-0.6	2.5	2.6	+0.1
	OT _d	2.6	3.3	+0.7	4.2	3.3	-0.9
	manager	8.0	8.0	0.0	7.4	7.6	+0.2
	professional	5.3	5.5	0.2	4.8	5.4	+0.6
	teacher/nurses	4.7	4.7	0.0	5.1	4.9	-0.2
	technician	4.3	3.2	-1.1	3.3	3.3	0.0
	clerks	4.1	3.2	-0.9	3.5	3.2	-0.3
	service worker	4.1	2.8	-1.3	2.7	2.7	0.0
	prod. worker	4.8	3.3	-1.5	3.7	2.9	-0.8
WOMEN	all	4.4	3.5	-0.9	3.4	3.1	-0.3
	SPT _d	9.9	2.7	-7.3	6.6	2.6	-4.0
	EPT _d	3.4	2.2	-1.2	3.1	2.5	-0.7
	FT _d	2.3	4.6	+2.3	2.2	3.7	+1.6
	manager	8.2	4.2	-4.0	5.8	3.0	-2.8
	professional	4.1	4.2	0.1	4.2	5.2	+1.0
	teacher/nurses	4.8	3.5	-1.3	3.0	2.6	-0.4
	technician	5.1	3.6	-1.5	3.9	3.5	-0.4
	clerks	3.9	3.1	-0.8	3.0	2.6	-0.3
	service worker	4.5	3.5	-1.0	3.2	3.4	+0.1
	prod. worker	3.8	4.1	0.3	3.5	2.8	-0.7

Note: ¹ mean absolute deviation between desired and *actual* working hours in the corresponding year; ² mean absolute deviation between desired and *simulated* working hours in the corresponding year.

Source: Own calculations based on the estimation results presented in Table 3.

On the assumption that Germany had the same working hours flexibility as the Netherlands, one can show that people wanting to work part-time have a much higher probability of realizing their preferences. Especially men and women wanting to work up to 20 hours per week exhibit by far the worst match between actual and desired working hours. In the simulated situation, they would have the opportunity to adjust their labor supply in the desired way. In addition, the availability of extended part-time jobs improves. This indicates that the Dutch working hours flexibility would permit more work-sharing in Germany.

On the other hand, women who want to work full-time hours are more likely to be worse off, because full-time work and of course overtime hours for women are rather exceptional in the Dutch economy. In 1995, the MAD of women wanting to work between 35 and 40 hours would rise 2.3 hours per week, in 1998 still 1.6 hours. This phenomenon can be partly attributed to the strong Christian tradition in the Netherlands: traditional family values are deeply rooted. It was not until the 80s that Dutch women stayed in the labor market after marriage. Nowadays, they typically remain in continuous part-time employment (Fagan et al., 1999). Apart from that, missing child care facilities prevent women from working full-time.

Breaking down the seven occupational groups reveals significant differences. In all sub-samples, managers are the most constrained with respect to their working hours. Very striking is the improved match between actual and desired hours for female managers. Thus, there exists some potential for reorganizing managerial activities. Does this result unsettle the myth of indivisible jobs? Unfortunately, men's figures do not really support this supposition. Also male managers show the biggest gap between actual and desired working hours, however the switch to the "Dutch model" would not improve their situation. One explanation could be that the different effects of men and women are driven by gender-specific peculiarities, that is female managerial jobs may slightly differ from managerial jobs taken by men.

Given these contrary effects of loosening hours restrictions in Germany, it is not clear how the fraction of people meeting their desired working hours changes. Therefore, I calculate the share of people who could reduce their gap between actual and desired hours by switching to the "Dutch model".

In 1995, almost 75 percent of all male employees in our German sample could improve their match. Among women, 57 percent would converge towards their desired working hours. Three years later, the corresponding figures decrease to 50 percent for men and 53 percent for women. Thus, applying the hours flexibility of the Netherlands to the Germans improves the probability of fulfilling their hours preferences. Note that for both, men and women, the average change in the absolute deviation between actual and desired hours is higher for the winners than for the losers (see Table 5).

Given the result that the gains from moving to the new situation is distributed very unevenly, it is interesting to know how much we could over-weigh the losses in such a way that society would just be indifferent to the current situation and the switch to the "Dutch model". Therefore I will impose the following loss

Table 5: Changes in the mismatch of winners and losers

	1995				1998			
	winners		losers		winners		losers	
	%	\emptyset change ^a	%	\emptyset change	%	\emptyset change	%	\emptyset change
Men	74.4	−1.8 h	25.6	1.1 h	50.1	−1.6 h	49.9	0.9 h
Women	56.9	−4.4 h	43.1	3.8 h	53.2	−2.6 h	46.8	2.6 h

Note: ^a average change in the absolute deviation between actual and desired working hours.

Source: Own calculations based on the estimation results presented in Table 3.

function, being aware of the fact that the underlying assumptions are strict and ad-hoc:

$$Loss = \sum_{winner} \Delta AD + \sum_{losers} \alpha \cdot \Delta AD \quad (1)$$

where ΔAD is the change in the absolute deviation between simulated and desired hours. For $\alpha = 1$, each individual's contribution to the loss function is equal to his or her change in the absolute deviation between actual and desired working hours. For $\alpha > 1$, the increasing mismatch of the losers are over-weighted by the factor α . It is clear from table 5 that employees as a whole are better off if $\alpha = 1$. As a result, the α that would make society just indifferent between switching and not switching is above 1. The switching α for all male employees is 4.8 in 1995 and 1.8 in 1998. For women, the loss function is zero for $\alpha = 1.5$ in 1995 and $\alpha = 1.1$ in 1998. This illustrates that among women in 1998, the positive welfare effects are almost completely set off by the losses of those women who would be worse off in the simulated situation. For men however, the overall effect is still clearly positive. These results back up the proposition of Kapteyn et al. (2000) that allowing for the possibility of individual working hours reductions may enhance welfare.

6.3 How about employment effects?

Given the overall drop in weekly working hours, it is tempting to calculate the employment effects caused by the switch to a more flexible labor market. This estimation would be based on the simple notion that the amount of labor input required to produce a fixed volume of output can be shared between employed and currently unemployed persons. But, the relation between working hours and employment is very complex (see e.g. Hamermesh, 1993). Working hours

and workers are not perfect substitutes and firms do not necessarily replace the individual reduction of weekly working hours by hiring new employees.

In consideration of the poor employer information available in the GSOEP, it is hopeless to decide if and to which extent the reduced working hours could be shifted to unemployed. The only thing I could do is to derive a rough guess of the potential employment effects ignoring all niceties, such as adjustment costs, overtime premiums, productivity and scale effects or shortage of workers. Assuming that all employees can freely choose their working hours and that the surplus hours can be transferred to unemployed, employment increased by 2.9 million people in 1995 and 1.5 million in 1998.¹⁸ The corresponding figures using the sample weights of the GSOEP are 3 million additional jobs in 1995 and 1.7 million in 1998. In contrast to these estimates (see also Schilling et al., 1996), I could allow for hours restrictions inherent in certain occupations. In this setting, estimated employment effects based on the Dutch labor market flexibility turn out to be substantially smaller. In 1995, 2.2 million (weighted: 2.0 million) additional part-time and full-time employees could enter the labor market. Three years later, the absorptency shrinks to 890 thousand employees (weighted: 870 thousand). Nevertheless, this guess is still not very convincing for the reasons mentioned above. Therefore, in the remainder of the paper I will elaborate conditions under which the employment effects out of increasing hours flexibility could be maximized.

- **ELASTICITY OF PRODUCT DEMAND:**

If the elasticity is high enough, the firm could enforces competitiveness if it used the productivity growth due to the reduction in working hours for lower prices. As a result, product demand would rise and increase labor demand.

- **COMPENSATION:**

Compensation for reductions in weekly working hours diminish the potential employment effects, because the gains from work-sharing are not shared among people out of the labor market. Thus, effective work-sharing must be cost-neutral.

- **FIXED COSTS:**

The smaller the share of fixed labor costs, the easier the substitution of hours and workers. In general, fixed employment costs, such as recruiting and training costs are lower for low-skilled employees (see for example

¹⁸In contrast to Schilling et al. (1996), I distribute the surplus hours among unemployed such that the distribution of working hours within each occupational group remains the same.

Hamermesh and Rees, 1988). Therefore, the substitution between hours and workers is easier for low- and unskilled labor.

- **LIFETIME WORKING HOURS PATTERNS:**

The use of flexible working hours arrangements enables a substitution of even small reductions of working hours into employment. Employers can schedule working hours depending on the volume of work and employees could use additional hours for sabbatical or early retirement. More extensive reduction of individual working hours could be implemented by job-sharing among two or more employees. Presumably, the implementation of flexible working hours arrangements is easier in bigger firms.

- **UNIONS:**

Union power may be detrimental to work-sharing. The consensual decision-making between unions, employers and the government is seen as an important condition for the exceptional employment growth in the Netherlands. It is unlikely that the powerful unions in Germany would tolerate a strong government strength in collective bargaining, such as in the Netherlands. In addition, weak unions would rather take the opportunity to regulate and control the new flexible work arrangements in order to recruit new members, like in the Netherlands (Schmid and Helmer, 1998), than block the part-time trend, fearing that it could undermine the standards of traditional jobs.

7 Conclusions and policy implications

The lack of working hours flexibility is regarded as an important hindrance for work-sharing in Germany. In this paper I simulate the effects of loosening hours restrictions on Germans' labor supply in 1995 and 1998. A reduced-form labor supply model with hours restrictions is used to describe how the working hours preferences of the Dutch translate into their actual labor supply. Applying the estimated coefficients of this "Dutch model" to the German data allows one to calculate the hypothetical labor supply of Germans in the Dutch labor market. The outcome represents the simulated working hours of Germans in a more flexible world, namely the labor market in the Netherlands. Of course, the estimated effects of loosening hours restrictions on the supply of labor strongly depend on the extent of prevailing constraints in Germany. Thus, less hours restrictions, as observed in 1998, would imply smaller effects.

Three primary observations should be made about the results. Firstly, comparing the mismatch between desired and actual weekly working hours of German employees in 1995 and 1998 illustrate that hours flexibility increased within this period. However, the comparison with the Netherlands indicates that the Dutch already had a higher probability to meet their working hours preferences in 1994. Therefore, I conclude that the Dutch labor market is indeed more flexible than the German one.

Secondly, the overall match between desired and actual working hours of German employees improves if they are faced with the Dutch working hours distribution. But, the gains from moving to the new situation are distributed very unevenly. On the one hand, people wanting to work part-time have a much higher probability of realizing their preferences. Especially jobs with 20 or fewer hours per week seem to be much more feasible in the more flexible labor market. This indicates that the Dutch working hours flexibility would permit more work-sharing in Germany. On the other hand, German women who want to work full-time hours are more likely to be "overemployed" if they had a Dutch labor market.

Thirdly, given the fall of weekly working hours, work could be shared among more individuals. Compared to estimates ignoring the fact that certain working hours preferences are hardly feasible, the potential employment effects based on my approach are much smaller. Even if the derivation of expected employment effects is very tempting, this venture is doomed to failure. Working hours and workers are not perfect substitutes and firms do not necessarily replace the individual reduction of weekly working hours by additional employees. Therefore, conditions under which the employment effects out of increasing hours flexibility could be maximized are described.

Based on these reflections, one can derive some policy implications for Germany. It is argued that working hours set off by low-skilled workers are more likely to be transformed to new jobs than hours set off by high skilled employees. Since the willingness to cut hours is rather low among low-paid workers, government could take up measures to foster voluntary reductions in individual working-time. This objective may be achieved by subsidizing social security contributions of low-income part-timers in order to remove cuts in social benefits caused by part-time employment. Another option is to pay incentives to the firm. In France, for example, a scheme to reduce employers' social security contribution by 30 percent for jobs with a duration between 16 and 32 percent of normal hours was introduced in 1992. The rate of take-up is pretty high and the proportion of subsidized workers formerly unemployed or out of the labor force is around half of the total. However, as with other employment subsidies, these programs

are generally subject to substantial dead-weight and displacement effects and therefore are questionable strategies (OECD, 1998b).

In my view, the detachment of social security from employment history seems to be the most efficient measures to foster individual working hours reductions. In Germany, employees have incentives to work full-time hours in order to get higher benefits, because all benefits depend on the individual work history (Ginn and Arber, 1998). Rische (1994) illustrates that the effect of part-time work on pension benefits depends furthermore upon the overall part-time share. The benefit cut due to part-time work is especially pronounced if only few people decide to reduce their working hours. In this case, the average earnings level, which is the reference point for the corresponding benefit cut, would remain the same. Thus, first movers are particularly punished by individual working hours reductions. In the Netherlands, the general old-age pension (AOW) and since 1995 the basic benefits of the unemployment insurance provide benefits that are independent of the number of hours worked in the past and therefore involve few disadvantages for part-time employees.

Another important condition for effective part-time initiatives is the consensus among unions, government and employees on this matter, exemplary in the Netherlands. Historically, German unions have mistrusted and disapproved part-time work because it does not meet the requirements of the traditional breadwinner model and undermines employment prospects of males (Hakim, 1997). As part of the "Bündnis für Arbeit, Ausbildung und Wettbewerbsfähigkeit" and the discussion about the old-age part-time scheme, they seem to revise their thinking about part-time work, albeit that the unions' attitude towards non-standard work arrangements is still reserved. In addition, the strong decline of membership may give unions the push to represent women's interest by supporting flexible working time arrangements. In the Netherlands, for example, more than half of the collective pay agreements include the right of employees to express individual working hours preferences and the employer's obligation to comply with these wishes, provided that no reasons to do with the state of the company are against it (Fajertag, 1996).

Last but not least, firms should be encouraged to reorganize their working process and introduce flexible working-time arrangements. "Flexitime" makes the substitutions of hours and workers easier and reduces the need for overtime payments. Besides, firms using flexible working hours report that productivity and motivation of employees increase, absenteeism and fluctuation are moderated and that they have better perspectives to recruit scarce highly skilled employees. Despite this, human resource managers often have substantial reservations.

Especially high-skilled employees and managers are in general excluded from the option to reduce their working hours. Therefore, public programs to promote flexible working hours for skilled workers and managers, such as the subsidized consulting program "MOBILZEIT", may be desirable because they may increase the acceptance of reduced working hours on the part of employers as well as employees.

References

- Aaberge, R., Columbino, U., and Strøm, S. (1997). *Joint Labour Supply Decisions of Married Females and Males: An Empirical Analysis Based on Italian Household Data* (Memorandum from Department of Economics No. 18). University of Oslo.
- Alessie, R., and Kapteyn, A. (1991). Habit Formation, Interdependent Preferences and Demographic Effects in the Almost Ideal Demand System. *Economic Journal*, 101, 404–419.
- Bauer, T., and Zimmermann, K. F. (1999). *Overtime Work and Overtime Compensation in Germany* (Discussion Paper No. 48). Institut der Zukunft der Arbeit,.
- Beckmann, P. (1997). Beschäftigungspotentiale der Ausweitung von Teilzeitarbeit, Ergebnisse einer empirischen Untersuchung. *WSI Mitteilungen*, 9.
- Bell, D., and Hart, R. A. (1999). Unpaid Work. *Economica*, 66, 271–290.
- Bender, S., Kaltenborn, B., Rudolph, H., and Walwei, U. (1999). Förderung eines Niedriglohnsektors. Die Diagnose stimmt, die Therapie noch nicht. *IAB-Kurzbericht*, 6.
- Blanchflower, D. G., and Oswald, A. J. (1995). *The Wage Curve*. Cambridge: Massachusetts Institute of Technology Press.
- Buslei, H., and Steiner, V. (1999). *Beschäftigungseffekte von Lohnsubventionen im Niedriglohnbereich*. Baden-Baden: ZEW Wirtschaftsanalysen, Band 42.
- de Koning, J. (1995). *Strategies and measures to fight long-term unemployment: the Dutch Case*. (Paper for LASA Genshagen seminar "Long-term Unemployment: A European Problem"). Netherlands Economic Institute.
- Di Tella, R., and MacCulloch, R. (1999). *The Consequences of Labor Market Flexibility: Panel Evidence Based on Surey Data* (Discussion Paper). Harvard Business School.
- Dickens, W., and Lundberg, S. J. (1993). Hours Restrictions and Labour Supply. *International Economic Review*, 34(1), 169–192.
- Europäische Kommission. (1997). Industrie. *Monatliches Panorama der europäischen Unternehmen*, 25(76).

- Euwals, R., and van Soest, A. (1999). Desired and Actual Labour Supply of Unmarried Men and Women in the Netherlands. *Labor Economics*, 6, 95–118.
- Fagan, C., O'Reilly, J., and Rubery, J. (1999). Teilzeitarbeit in den Niederlanden, Deutschland und dem Vereinigten Knigreich: Ein Herausforderung für den Geschlechtervertrag? *WSI Mitteilungen*, 1, 58–69.
- Fajertag, G. (1996). *Working time developements in Western Europe 1995-96* (ETUI paper presented at the Conference "New Strategies For Everyday Life: Work, Free Time And Consumption). University of Tilburg.
- Federal Statistical Office. (1998). *International Statistical Yearbook 1998*. Stuttgart: Metzler-Poeschel.
- Fitzenberger, B. (1999). *Wages and Employment across Skill Groups*. Heidelberg: ZEW Economic Studies, Physika.
- Fitzenberger, B., Hageney, I., and Ernst, M. (1999). Wer ist noch Mitglied in Gewerkschaften? Eine Panelanalyse für Westdeutschland. *Zeitschrift für Wirtschafts- und Sozialwissenschaften*, 119, 223–263.
- Franz, W. (1997). *Wettbewerbsfähige Beschäftigung schaffen statt Arbeitslosigkeit umverteilen*. Gütersloh: Bertelsmann Stiftung.
- Franz, W., and Zimmermann, V. (1998). Zur Dynamik der Jugendarbeitslosigkeit in Deutschland. In H. P. Galler (Ed.), *Empirische Forschung und wirtschaftspolitische Beratung* (pp. 167–183). Frankfurt.
- Ginn, J., and Arber, S. (1998). How does part-time work lead to a low pension income? In J. O'Reilly and C. Fagan (Eds.), *Part-Time Perspectives - An international comparison of part-time work in Europe, North America and the Pacific Rim* (pp. 156–172). London: Routledge.
- Groß, H., Munz, E., and Seifert, H. (1999). Weniger Arbeitslose durch Überstundenabbau. *WSI-Mitteilungen*, 8, 505–512.
- Hagen, T., and Steiner, V. (2000). *Von der Finanzierung der Arbeitslosigkeit zur Förderung der Arbeit. Analysen und Handlungsempfehlungen der Arbeitsmarktpolitik*. Baden-Baden: ZEW Wirtschaftsanalysen, Band 51.
- Hakim, C. (1997). A Sociological Perspective on Part-Time Work. In C. Hakim and H.-P. Blossfeld (Eds.), *Between Equalization and Marginalization* -

- Women Working Part-Time in Europe and the United States of America* (pp. 22–70). Oxford: Oxford University Press.
- Hamermesh, D. S. (1993). *Labor Demand*. Princeton: Princeton University Press.
- Hamermesh, D. S., and Rees, A. (1988). *The economics of work and pay*. New York: Harper Row.
- Hausman, J. (1978). Specification tests in econometrics. *Econometrica*, 46, 1251–1271.
- Holst, E., and Schupp, J. (1994). Ist Teilzeitarbeit der richtige Weg? Arbeitszeitpräferenzen in Ost- und Westdeutschland. *DIW-Wochenbericht*, 61, 618–620.
- Holst, E., and Schupp, J. (1998). Arbeitspräferenzen in West- und Ostdeutschland 1997. *DIW-Wochenbericht*, 37.
- Hunt, J. (1999). Has work-sharing worked in Germany? *Quarterly Journal of Economics*, 114(1), 117–148.
- Ilmakunnas, S., and Pudney, S. (1990). A Model of Female Labour Supply in the Presence of Hours Restrictions. *Journal of Public Economics*, 41, 183–210.
- Kapteyn, A., Kalwij, A., and Zaidi, A. (2000). *The Myth of Worksharing* (Working Paper). CentER, Tilburg University.
- Keller, B. (1997). Atypische Beschäftigungsverhältnisse. In D. Sadowski and K. Pull (Eds.), *Vorschläge jenseits der Lohnpolitik. Optionen für mehr Beschäftigung II* (pp. 227–246). Frankfurt/New York.
- König, H., and Pohlmeier, W. (1988). Employment, Labour Utilization and Procyclical Labour Productivity. *KYKLOS*, 41(4), 551–572.
- Meerendonk, A. van de. (1998). Benchmarking the German and Dutch Welfare States. In L. Delsen and E. de Jong (Eds.), *The German and Dutch Economies. Who Follows Whom?* (pp. 86–124). Heidelberg: Physica-Verlag.
- Nerlove, M., and Press, S. (1973). *Univariate and Multivariate Log-Linear and Logistic Models* (RAND-R1306-EDA/NIH). Santa Monica.

- Neubourg, C. de. (1991). Where have all the Hours Gone? In K. Hinrichs, W. Roche, and C. Sirianni (Eds.), *Working Time in Transition* (pp. 129–147). Philadelphia: Temple University Press.
- Nickell, S., and Ours, J. van. (2000). The Netherlands and the United Kingdom: A European Unemployment Miracle? *Economic Policy*, 30, 137–180.
- OECD. (1995). *The OECD jobs study: implementing the strategy*. Paris: Organisation for Economic Co-operation and Development.
- OECD. (1996). *OECD Employment Outlook*. Paris: Organisation for Economic Co-operation and Development.
- OECD. (1998a). *OECD Economic Surveys: Netherlands 1997-1998*. Paris.
- OECD. (1998b). Working Hours: Latest Trends And Policy Initiatives. In *OECD Employment Outlook* (pp. 153–188). Paris: Organisation for Economic Co-operation and Development.
- OECD. (2000). *OECD Employment Outlook*. Paris: Organisation for Economic Co-operation and Development.
- Rische, H. (1994). Halbe Arbeitszeit gleich halbe Rente ? *Soziale Sicherheit*, 8(9), 281–287.
- Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung. (1999). *Wirtschaftspolitik unter Reformdruck, Jahresgutachten 1999/2000*. Stuttgart: Metzler-Poeschel.
- Salverda, W. (1998). Incidence and Evolution of Low-Wage Employment in the Netherlands and the US. In S. Bazen, M. Gregory, and W. Salverda (Eds.), *Low-Wage Employment in Europe* (pp. 25–62). Cheltenham: Edward Elgar.
- Salverda, W. (1999). *System and Effects of Minimum Wages in the Netherlands: Issues for the British Debate* (International Minimum Wage Symposium, The Low Pay Commission, London, 8 September 1999). University of Groningen.
- Sattinger, M. (1993). Assignment Models of the Distribution of Earnings. *Journal of Economic Literature*, 31, 831–880.
- Schettkat, R. (2000). *Von anderen Ländern lernen? Institutionen und ökonomische Entwicklung in Deutschland, USA und den Niederlanden* (Report presented at "30. Wirtschaftswissenschaftliches Seminar Ottobeuren"). Utrecht University.

- Schilling, G., Bauer, F., and Groß, H. (1996). Arbeitszeiten, Arbeitswünsche und Zeitverwendung in Deutschland. *WSI Mitteilungen*, 7, 432–441.
- Schmid, G., and Helmer, M. (1998). The Dutch Employment Miracle? In L. Delsen and E. de Jong (Eds.), *The German and Dutch Economies. Who Follows Whom?* (pp. 52–85). Heidelberg: Physica-Verlag.
- Schupp, J., Volz, J., Wagner, G., and Zwiener, R. (1999). Zuschüsse zu den Sozialversicherungsbeiträgen im Niedrigeinkommensbereich: Wenig zielgerichtet und zu teuer. *DIW Wochenbericht*, 27, 499–509.
- Seifert, H. (2000). Arbeitszeit nach Wunsch verkürzen? *WSI Mitteilungen*, 4, 237–246.
- Soskice, D., Hancke, B., Trumbull, G., and Wren, A. (1998). Wage Bargaining, Labour Markets and Macroeconomic Performance in Germany and the Netherlands. In L. Delsen and E. de Jong (Eds.), *The German and Dutch Economies. Who Follows Whom?* (pp. 39–51). Heidelberg: Physica-Verlag.
- Staiger, D., and Stock, J. H. (1997). Instrumental Variables Regression with Weak Instruments. *Econometrica*, 65(3), 557–586.
- Stille, F. (1998). Der niederländische Weg: Durch Konsens zum Erfolg. *Mitteilungen aus der Arbeitsmarkt- und Berufsforschung*, 2.
- Tummers, M. P., and Woittiez, I. (1991). A Simultaneous Wage and Labor Supply Model with Hours Restrictions. *The Journal of Human Resources*, 26(3), 393–423.
- van Soest, A. (1995). Structural Models of Family Labour Supply, A Discrete Choice Approach. *The Journal of Human Resources*, 30(1), 63–88.
- Veil, M. (1997). Zwischen Wunsch und Wirklichkeit. *Aus Politik und Zeitgeschichte*, 52, 29–38.
- Vlasblom, J. (1997). *Differences in Labor Supply and Income of Women in the Netherlands and the Federal Republic of Germany, A comparative analysis of the effect of taxes and social security premiums* (Proefschrift). Universiteit Utrecht.
- Werner, H. (1997). Kann Deutschland von den Niederlanden lernen? *IAB Kurzbericht*, 12.

- Wolf, E. (1998). *Do Hours Restrictions Matter? A Discrete Family Labor Supply Model with Endogenous Wages and Hours Restrictions* (ZEW Discussion Paper 98-44). Zentrum für Europäische Wirtschaftsforschung, Mannheim.
- Wolf, E. (2000). *Lower Wages for Less Hours? A Simultaneous Wage-Hours Model for Germany* (ZEW Discussion Paper 00-03). Zentrum für Europäische Wirtschaftsforschung, Mannheim.
- Wolf, E., and Wunderlich, G. (2000). *Why do Working Hours Differ? An International Comparison of Germany, the Netherlands and the United Kingdom*. (forthcoming as ZEW Discussion Paper). Zentrum für Europäische Wirtschaftsforschung, Mannheim.

Appendix

Table 6: Descriptive sample statistics for employees

	Germany				Netherlands	
	1995		1998			
	mean	s.d.	mean	s.d.	mean	s.d.
$\emptyset AH - DH ^a$	11.3	13.2	10.8	12.9	7.4	10.0
$\emptyset AH - DH $ for employees	6.8	8.9	5.7	7.2	5.1	5.8
$\emptyset AH^b$	38.5	10.7	37.3	9.9	35.9	10.9
$\emptyset DH^c$	34.7	10.9	34.9	9.4	33.6	9.4
schooling (in years)	11.9	2.5	11.9	2.3	12.7	3.3
experience (in years)	21.7	10.9	21.8	10.4	17.3	10.8
tenure (in months)	65.8	92.5	112.9	109.5	117.8	105.7
	freq.	%	freq.	%	freq.	%
female	2610	43.49	2562	44.81	947	37.88
married	4128	68.78	3741	65.42	1696	67.84
kids in hh	2658	44.29	2037	35.62	1021	40.84
civil servant	405	6.75	451	7.89	528	21.12
legislator/manager	393	6.55	283	4.95	240	9.60
professional	477	7.95	485	8.48	167	6.68
teacher/nurse	468	7.80	544	9.51	382	15.28
technician/associate prof.	707	11.78	843	14.74	337	13.48
clerks	1079	17.98	923	16.14	343	13.72
service/sales worker	971	16.18	969	16.95	461	18.44
production worker	1907	31.77	1671	29.22	570	22.80
# of observations	6002		5718		1553	

Note: ^a: mean absolute deviation between actual and desired working hours; ^b: mean actual working hours of employees; ^c: mean desired working hours of employees.

Table 7: Desired versus actual working hours of German and Dutch employees

MEN							WOMEN					
	SPT _a	EPT _a	FT _a	OT _a	\sum^1	MAD ³	SPT _a	EPT _a	FT _a	OT _a	\sum^1	MAD ³
Germany 1995												
SPT _d	18.5	2.8	43.5	35.2	6.3	15.0 h	58.0	18.7	17.9	5.5	25.7	11.1 h
EPT _d	4.5	12.9	58.9	23.8	5.9	10.5 h	11.9	41.1	39.2	7.9	24.5	6.8 h
FT _d	0.9	1.2	64.9	33.1	68.8	4.6 h	3.5	7.1	69.6	19.8	49.8	4.7 h
OT _d	0.8	0.5	34.9	63.9	19.0	6.5 h	-	-	-	-	-	-
\sum^2	2.2	1.9	57.5	38.5	100	6.8 h	19.6	18.4	48.9	13.2	100	6.8 h
Germany 1998												
SPT _d	25.9	5.2	51.1	17.8	4.3	21.8 h	68.0	16.0	13.4	2.7	21.8	8.0 h
EPT _d	2.5	12.1	68.6	16.7	7.5	9.6 h	11.8	40.0	42.4	5.8	27.9	6.8 h
FT _d	1.0	1.3	72.3	25.4	74.0	4.0 h	3.7	8.9	73.6	13.9	50.3	4.4 h
OT _d	0.9	0.7	43.9	54.5	14.3	7.0 h	-	-	-	-	-	-
\sum^2	2.2	2.2	67.1	28.6	100	5.6 h	20.0	19.1	51.7	9.2	100	5.9 h
Netherlands												
SPT _d	41.7	10.4	33.3	14.6	3.1	11.6 h	78.6	16.8	3.1	1.4	36.9	3.6 h
EPT _d	0.7	22.1	47.8	29.4	17.7	8.1 h	8.3	56.2	22.6	12.9	36.7	5.2 h
FT _d	0.6	1.6	56.8	41.0	71.6	4.0 h	4.8	9.6	67.7	17.9	26.4	3.9 h
OT _d	0.9	0.9	24.6	73.7	7.6	6.0 h	-	-	-	-	-	-
\sum^2	1.9	5.5	52.1	40.6	100	5.1 h	33.3	29.3	27.3	10.0	100	4.2 h

Note: Subscripts *d* indicate categories of desired working hours (rows) and subscripts *a* denote the corresponding category of actual working hours (columns); ¹ distribution of desired weekly working hours (in per cent); ² distribution of actual weekly working hours; ³ mean absolute deviation between actual and desired working hours (in hours).

Source: Own calculations based on the GSOEP 1995 and 1998 for Germany and the OSA-data for the Netherlands.