Do Austrian Men and Women Become more Equal?
At Least in Terms of Labour Supply!

Georg Wernhart

(Austrian Institute for Family Studies, University of Vienna)

Rudolf Winter-Ebmer

(Universität Linz and Institute for Advanced Studies, Vienna)

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Abstract:

We study the development of wage elasticity of labour supply for Austrian men and women over time using comparable and representative survey data for the 1980s and 1990s. The elasticity of men is relatively low and constant over time, similar to the behaviour of single women. Most remarkable is the almost continuous reduction in the labour supply reactions of married women: while their elasticity was still several times larger at the beginning of the 1980s, they approached rapidly the much less elastic behaviour of men. These developments are important for the analysis of deadweight losses of taxation as well as the effects of tax reforms and wage subsidy programs.

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1. Introduction

Similar to most industrialized countries, female labour supply in Austria has been increasing for the last decades. During the last 35 years labour force participation rate of women (aged between 15-64) has been rising from 49% in 1971 to 67% in the year 2006 (Sources: Census 1971, Micro-Census 2006, Statistics Austria). While labour force participation for men has been constant or even somewhat declining, participation rates of women have been rapidly approaching those of men. Policy circles – such as the European Union's Lisbon Agenda – often advocate increases in female labour force participation as remedies for an ageing population, shrinking workforce and increasing retirement burden.

A rising female participation in the employment system can be seen as a general social trend; arising from changing roles of women in society over time, reduced family size or the general quest for emancipation and self-reliance of younger generations of women (Fortin, 2005, Brooks and Bolzendahl, 2004). Economists typically are interested in economic rationales for work participation, in particular the impact of wages on labour supply. Knowledge about labour supply elasticities is necessary to understand the reaction of economic actors to changes in market wages, taxation and parameters of the social security system. General wisdom among labour economists is that the wage elasticity of men is close to zero, whereas (own) wage elasticities of married women are much higher – around 0.8 (Blundell and MaCurdy, 1999); estimates for females have a large variation, though (Evers et al. 2008, Jaumotte, 2003). These differences are often explained by the traditional division of labour in the family: women divide their time between market work, leisure and household work, whereas typical men disregard the latter. Because women have closer substitutes for their time spent in market work as men have, changes in market wages can be assumed to have larger substitution effects on women's labour supply (Blau and Kahn, 2007).

Goldin (1990) argues that an inverse U-shaped development over time for women's wage elasticities should be observed. At the beginning of the last century when female market work was not so common and was against the social norm in society, women's wage elasticity related to their own wage should be very low, but their reaction to their husband's wages should be high: women would take up paid market work only if their husband was not able to support them. As time progressed, married women with increasingly higher education entered the labour market more frequently which made regular market work for women very common and led to an increase in the wage elasticity. Goldin (1990) provides some evidence for the US of an increase in the wage elasticity of female labour supply from 1900 up to the 1950s

with a decline thereof later on. Heckman (1993) in a survey was concerned with this development and noted that "whether labour supply behaviour by sex will converge to equality as female labour-force participation continues to increase is an open question" (p. 118).

In this paper we look at trends in wage elasticities concerning work participation and weekly hours for Austrian men and women between 1987 and 1999. Our main contribution to the literature is thus a consistent estimation of the development of labour supply elasticities for different socio-demographic groups for Austria[1]. We differentiate between married and never-married men and women; which is very important in explaining labour force participation. Labour supply elasticities give an impression about attachment to the labour force; very high elasticities of (married) women have often been interpreted as evidence for low labour force attachment and a traditional family role model: the male bread-winner model where female market participation was considered as supplementary and more volatile. Due to increasing educational attainment of women, changes in social relations – lower marriage and higher divorce rates – and most importantly changing social roles and norms, it can be expected that this traditional male-breadwinner model will have considerably lost its importance.

The development of labour supply elasticity is an important policy problem in its own right. Deadweight losses of taxation as well as effects of wage subsidies and features of the tax system like joint (family) taxation crucially depend on it. Recent tax reform proposals of gender based taxation (Alesina et al., 2007) suggest taxing women less heavily than men in order to fight against unequal labour market outcomes of men and women in terms of participation and wages; these proposals rely on gender differences in labour supply elasticities and claim to increase efficiency and gender equality at the same time.

Similar to results for the U.S. (Blau and Kahn, 2007; Heim, 2004), we find a declining responsiveness of married women's labour supply to changes in wages also for Austria; never married women's behaviour was always much closer to the behaviour of men.

2. Data and Methods

Since there are no long-term panel data on wages and employment in Austria we use instead repeated cross-sectional survey data gathered from the Austrian Micro-Census as a pseudo-panel. The Austrian Micro-Census consists of two programs: A base program covering

[1] See Kuismanen (2007) for a similar exercise for Finland as well as Aronsson and Walker (2007) for an overview of estimates for Sweden.

demographic, household and employment characteristics and special programs on a less frequent basis. Between 1981 and 1999, every other year the income data of the respondents were collected through this special program. Since the Austrian Micro-Census at that time utilized a rotating sample (1/8 of the respondents in the sample were replaced by new ones every quarter) and the income data were only collected every other year, we restrict our analysis to repeated cross-sectional data. To take out effects of an increasing educational attainment over time we focus on (never) married women and men between 25 and 55. Typically in national employment statistics, long and varying levels of parental leave are coded as employment spells. As we focus on labour force participation, we defined respondents in parental leave as being out of labour force. As parental leave spells were not coded appropriately before 1987, we cannot extend our analysis further back. Due to the unaltered data collecting and processing in the Micro-Census Program during these years and the adjustments concerning parental leave, the resulting data are highly representative and comparable over the time and thus can serve as a pseudo-panel for the purpose of studying changes in labour supply relations.

Figures B1-B2 in the Appendix show the development of labour supply over time in Austria: Participation rates for prime-age men are very high and fairly constant for men, regardless of their family status (Figure B1): the participation rate is higher than 95% for married men, some 5 percentage points lower for never-married men. While never-married females experience a first-rising then-falling trend over time, the participation rate of married women shows the strongest upward trend – from 49% in 1987 to 60% in 1999. Weekly hours for those who are employed (Figure B2) show a falling pattern for all groups. While weekly hours for both married and never-married men fall gently over this period, the number of weekly hours for employed married women falls dramatically by almost five hours, less so for never-married women.

We use a three-stage estimation procedure that consists of a Heckman two-step model for the estimation of market wages followed by a structural participation or hours of work equation. A typical problem in such models is the non-observability of market wages of non-employed persons: For predicting the potential market wages for non-participating persons in the labour force, we are using (following Heckman, 1979) wage functions with a sample selection correction term. Using this two-step approach, we estimate the propensity to participate in market work for all persons in the data using a probit model first.[2] This enables

[2] As variables in the participation equation we use education levels, (potential) experience, as identifying variables the number of children in different age groups and disposable household income. These variables are

us to calculate a sample selection term to correct for the (likely) possibility that the persons with observed wages do not consist of a random sample of the population. Instead, it might consist of persons who tend to work because of their higher unobserved productivity. For the second step, we regress log hourly wages on education levels, (potential) experience and region types plus the sample selection correction term, enabling us to predict potential wages for non participating persons.[3] Moreover, following a suggestion by Angrist (1991) and Blau and Kahn (2007), finally, we use an instrumental variables strategy to account for the endogeneity of wages: we use grouped wage data in deciles to instrument for the actual wage. A more in-depth description of the process can also be found in Wernhart (2005, 26f).[4]

To analyze participation in market work (the extensive margin) we use a probit model where a latent variable y_i^*, the latent propensity to participate, is related to individual and market based characteristics x'_i; β is a vector of parameters and ε_i is a normally distributed error term:

$$y_i^* = x_i'\beta + \varepsilon_i \text{ with,}$$
$$y_i = 1 \text{ if } y_i^* > 0,$$
$$y_i = 0 \text{ if } y_i^* \leq 0.$$

The hours of work equation (the intensive margin) is estimated using a tobit regression where the latent number of hours h_i^* is explained by a vector of characteristics x'_i; with χ as parameters and ν_i an error term:

$$h_i = h_i^* = x'_i\,\chi + \upsilon_i \quad \text{if } h_i^* > 0,$$
$$h_i = 0 \qquad\qquad\quad \text{if } h_i^* \leq 0.$$

As explanatory variables we use demographic variables, such as education, age, nationality, marital status and number of children of different age groups as well as the hourly wage and other household income as financial indicators. Regional dummies (Austrian Bundesländer) serve as identifying variables in the structural participation equations; while there are strong regional wage effects, in particular along the Swiss border, these dummies should not influence work participation as such. See Appendix A1 for summary statistics of the variables used.

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supposed to influence only participation but not wages. Evidence for the strong influence of these variables is shown also in the structural participation equation (Table 1).

[3] Typical results for the wage regressions are in Appendix A2.

[4] Such a group-based instrumentation strategy is suggested by Angrist (1991) in particular to combat measurement error problems in hourly wages, which typically will arise from surveys where hourly wages are constructed by information about monthly incomes and hours worked. Estimates of non-instrumented wage elasticities – which are fairly similar to the ones shown below – can be received upon request.

3. Results

Table 1 presents marginal effects for the determinants of labour force participation[5] of the four groups we have distinguished: married and never-married men and women. We present only numerical results for the exemplary years 1987 and 1999. Similar estimations were done for all other years in our sample period. Figure 1 shows the corresponding uncompensated wage elasticities over time which are calculated from these estimates.

Substantial differences between the four demographic groups can be seen. For women, higher education leads to higher participation, in particular in the case of married women. The presence of children has the expected gender-specific effects: married women reduce participation in the presence of children, irrespective of the children's age; single mothers reduce their participation only during the time their children are below school-entry age. Married men increase their participation in the presence of children, whereas the case for never-married men is inconclusive which might be due to the low presence of children. These results are compatible with a traditional role allocation in the family: the mother cares for her kids at home, whereas the father has to earn more money to feed the kid.

There are some changes to this traditional family role model over time: in the first 3 years in the life of a new-born child there are no changes, but in the case of older children, married mothers nowadays reduce their participation much less in the presence of children. The first effect might be due to increased provision and generosity of maternity leave provision in Austrian social law. Over the course of the childhood, the reaction of work participation to the number of dependent children was reduced approximately by one third or even more between 1987 and 1999, which speaks for a better compatibility of children and career. [6] On the other hand, we see some increases in labour supply of married men in the presence of children.

Uncompensated wage elasticities for participation are presented in Figure 1. The first impression confirms results from other countries: wage elasticities for men are very low: practically[7] zero in the case of married men, positive and slightly rising for never-married men with elasticities between 0.1 and 0.2 percent. For women, marital status plays an even bigger role. Whereas married women have high wage elasticities, never-married women's

[5] Labour force participation is defined as working at least 1 hour per week or being unemployed but actively seeking for a job.
[6] Del Bono et al. (2011) find that compatibility of career and family is still a problem for Austrian women, in particular for those in better-paying and more career-oriented jobs. The study investigates fertility rates only and does only look at one point in time.
[7] While statistically different from zero in all years, the point estimates are always below 0.03.

participation behaviour is closer to that of male workers with elasticities between 0.15 and 0.25; in the last years elasticities for never-married men or women are practically indistinguishable. The only remarkable trend over time concerns married women. [8] Their participation responsiveness to wages is constant in the late 80s, but after 1991, the wage elasticity is reduced steadily from 0.78 to 0.46. Within one decade the wage elasticity of married women's participation behaviour was reduced by more than one third. This trend is similar to trends in the U.S.: elasticities for married women dropped from about 0.8-0.9 in the 1980s to around 0.4 in the year 2000 (Blau and Kahn, 2007). Again similar to the U.S. trend, the reaction of married women's work participation to other household income[9] (typically the spouses' income or unearned income) is negative but falling over time.

Looking at the behaviour of married women over time, selection issues might cause a problem because of increasingly lower marriage rates; thus making our samples of married and single women non-comparable over time[10]. This should not be a concern for our analysis because it can be assumed that the decrease in the propensity to marry will primarily concern women more attached to the labour force, having less children, etc. In our analysis, these women, generically more attached to the labour market, will over time be taken out from the sample of married women. Taking this demographic shift into account would even increase the downward trend in labour supply elasticities over time.

Table 2 reports results for weekly hours of work equations with the corresponding compensated wage elasticities over time in Figure 2.

Many results are similar to the participation case. Married women work more hours if they are better educated, less if they have children; in particular the relation with respect to children is somewhat less pronounced in 1999. Children in pre-school age are a significant hindrance for full-time work; a phenomenon which is consistent over this period and which is much more pronounced for never-married women.

Elasticities for hourly wages are shown in Figure 2. Here, the patterns are much closer: while it is still true, that elasticities for men are (almost) always below the corresponding values for women, the differences are much smaller. While elasticities for never-married women are almost identical to those of men, those of married women are at the beginning of

[8] See Bishop et al. (2005) for US evidence on the development of single women's wage elasticity over time, which are also smaller and somewhat falling.
[9] We only observe wage income in the Micro-Census. Because of that the spouses' income takes by far the largest share of other household income. In fact for 75% of all households in 1987 the spouses' income is identical to the other household income. This ratio decreases to 71% in 1999.
[10] The share of married women in our sample decreased from around 75% to 68% over time.

the 1990s higher, but they converge completely at the end of the 1990s. Numerically, elasticities for married females range between 0.3 and 0.15 at the end of the 1990s.

As wages and education are strongly correlated due to the wage formation process based on human capital, effects of wages and education on labour force participation could empirically be difficult to disentangle. This is particularly important considering changes over time. Given the rise in educational attainment of women over this period together with falling rates of returns (Fersterer and Winter-Ebmer, 2003), it is not clear, if the falling wage elasticities of married women are due to behavioural changes or a different composition of the workforce. A simple test for the hypothesis that the falling wage elasticity is due to an increasing share of highly-educated women is to look at sub-samples of women who have the same education. Due to smaller sample sizes, we combine persons from two surveys each – 1987 with 1989 and 1997 with 1999 – and combine also persons having attended academic secondary school with those holding a vocational secondary school degree. The results are shown in Table 3 for participation and hours of work. Looking at married women we see that – with one exception, secondary schooling – wage elasticities in all educational groups are falling in this period. This is true for participation in market work as well as for weekly hourly wages. These results reinforce the claim that, in fact, labour force attachment of married women changed in the last decade leading to lower reactions of labour force participation with respect to the wage.

Finally, we look at the pattern of part-time versus full-time work. As full-time workers we define workers who work more than 35 hours per week. Falling weekly hours over time are due to some extent to an increased prevalence of part-time work, in particular among married women. While the consideration of the working hours' equation does capture the main aspect of falling wage elasticities over time, a separate analysis of full-time versus part-time work can shed additional light on these issues. We formulate a multinominal logit model for work participation, using no work as the basis with two possible outcomes: part-time and full-time work.[11] Due to the very low prevalence of part-time work for some groups, the analyses are only performed for married women; we are using the same control variables as in the work participation equation above.

The results in Figure 3 show wage elasticities for the decision to work full-time or not at all (part-time versus not at all, respectively). These results confirm the pattern of a declining elasticity over time but with an interesting twist. In general, the decision to work part-time or not at all is by far more elastic than the full-time work decision. While this may

[11] We instrument for wages as above and calculate bootstrapped standard errors.

seem to be counter-intuitive at first glance, the result is perfectly compatible with the behaviour of secondary workers who decide to be employed part-time only. The group of married females which is participating full-time in the labour market, on the other hand, is much less influenced by the wage rate: their behaviour resembles that of never-married women or even men. Over time, we only see a slight decline in the wage elasticity for full-time work, but a big fall in the wage elasticity of part-time work: the elasticity falls from 1.6 in 1987 to 0.6 in 1999. This clearly shows the continuous erosion of the secondary bread-winner model of female labour supply.

How do these labour force participation elasticities compare to other Austrian studies? Zweimüller (1987) uses the Micro-Census for 1984 and finds a participation elasticity of 1.11 and an hours elasticity of 0.17; his estimates refer to all women and are slightly before our observation period. Wernhart and Neuwirth (2007) are using the 2004 edition of EU SILC to estimate wage elasticities for participation, using a sample of mothers with the youngest child below the age of 15. They find a participation wage elasticity of 0.509 for all mothers and a higher wage elasticity of 0.746 for the subgroup of mothers with the youngest child below the age of 6. They argue that due to higher opportunity costs (especially for institutional childcare) the decision to participate (or not) in the labour force during this phase of life depends more on the potential wage. Another argumentation – more in line, what we argue – might stress, that for this population group the alternative role model of non-participation is more attractive, thus the higher elasticity. Dearing et al. (2007) are using a structural labour supply model distinguishing the states of full-time and part-time participation as well as non-participation. They concentrate only on mothers with children below the age of ten years and use also data from the EU SILC 2004. A one percent increase in gross hourly wage increases participation of all mothers by 0.155 percentage points, which translates into an elasticity of 0.31 percent. This boost in participation arises from an increase in part-time participation of 0.058 and an increase in full-time participation of 0.098 percentage points. [12] These effects are somewhat lower than the ones we find for the end of the 1990s, but extrapolating the falling elasticities over time from our results towards 2004 might well do the trick.

[12] It would be beyond the topic of this paper to deal in detail with changes in parental leave policies: See Lalive and Zweimüller (2008) as well Lalive et al. (2010) for excellent treatment of this issue for Austria, as well as Merz (2004) or Ludsteck and Schönberg (2008) for Germany.

4. Conclusions

This paper is one of the first to study changes in the reaction of female labour supply to wages for a European country in-depth. Similar to studies for the US or Sweden, we find falling wage elasticities for married women over time. This applies both to the participation as well as to the hours-decision. This fall only occurred starting at the end of the 1980s, which is considerably later as the development in the US. One interpretation might be that changes in gender roles occurred much earlier in the US which led to a general increase in female labour supply.

As hours elasticities have been traditionally lower for married women compared to their elasticities of participation, their hours reactions to wage changes are nowadays already very close to that of men: men and women have become very equal, indeed. Starting from a much higher gender difference, participation elasticities for married women also fell substantially, but they are still noticeably higher than those for men.

These changes have important policy consequences. Lower wage elasticities imply lower disincentive effects and lower deadweight losses from taxation. Moreover, they imply also lower positive effects from public programs such as wage subsidies and tax decreases. On the other hand, negative effects of joint income taxation will be smaller as well. Finally, the closer men and women get in their labour supply behaviour, the less opportunities there are for gender based taxation (Alesina et al., 2007), whereby taxes for more elastic women are to be reduced in order to increase gender equality.

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Table 1: Structural estimates of labour force participation

Variable (Dep. Var.: Participation)	Women				Men			
	Married		Never Married		Married		Never Married	
	1987	1999	1987	1999	1987	1999	1987	1999
ln predicted Wage	0.368***	0.284***	0.181***	0.149***	0.012**	0.037***	0.085***	0.140***
	(0.032)	(0.022)	(0.051)	(0.033)	(0.005)	(0.006)	(0.024)	(0.025)
ln other Household Income	- 0.018***	- 0.006**	- 0.003	- 0.007***	- 0.000	- 0.001**	- 0.002	- 0.002
	(0.002)	(0.003)	(0.003)	(0.002)	(0.000)	(0.000)	(0.002)	(0.002)
Age	0.017**	0.048***	0.023**	0.065***	0.014***	0.013***	0.027***	0.038***
	(0.008)	(0.008)	(0.010)	(0.009)	(0.002)	(0.002)	(0.006)	(0.006)
Age^2	- 0.000***	- 0.001***	- 0.000**	- 0.001***	- 0.000***	- 0.000***	- 0.000***	- 0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Education (Base: Compulsory)								
Apprenticeship	0.042***	0.046***	0.112***	0.119***	0.007**	0.008**	0.119***	0.133***
	(0.014)	(0.013)	(0.019)	(0.017)	(0.003)	(0.004)	(0.014)	(0.014)
Lower vocational school	0.041**	0.043**	0.108***	0.122***	0.006*	0.013***	0.053***	0.069***
	(0.019)	(0.018)	(0.022)	(0.017)	(0.004)	(0.003)	(0.012)	(0.011)
Secondary academic school	- 0.072**	0.055**	- 0.298***	- 0.056	- 0.011	0.001	- 0.264***	- 0.150***
	(0.029)	(0.027)	(0.059)	(0.035)	(0.009)	(0.007)	(0.044)	(0.032)
Secondary vocational school	0.007	0.113***	-0.001	0.060***	0.011***	0.010**	-0.040	0.005
	(0.034)	(0.021)	(0.046)	(0.023)	(0.003)	(0.004)	(0.030)	(0.018)
University	0.261***	0.144***	0.160*	0.106***	- 0.000	0.013***	0.000	0.056***
	(0.031)	(0.023)	(0.035)	(0.020)	(0.007)	(0.004)	(0.023)	(0.013)
Number of Children								
between 0 and 3 years	- 0.257***	- 0.274***	- 0.215***	- 0.289***	- 0.007*	0.006	-	0.123**
	(0.016)	(0.016)	(0.035)	(0.026)	(0.004)	(0.004)		(0.049)
between 4 and 6 years	- 0.162***	- 0.096***	- 0.131***	- 0.088***	0.003	0.012**	0.100	-
	(0.014)	(0.014)	(0.039)	(0.027)	(0.004)	(0.005)	(0.084)	
between 7 and 9 years	- 0.123***	- 0.101***	- 0.002	- 0.028	0.006	0.001	- 0.087*	-
	(0.013)	(0.013)	(0.057)	(0.032)	(0.004)	(0.004)	(0.046)	
between 10 and 15 years	- 0.093***	- 0.058***	0.035	- 0.033	0.002	0.008***	0.037	0.119
	(0.008)	(0.009)	(0.034)	(0.029)	(0.002)	(0.003)	(0.036)	(0.085)
between 16 and 18 years	- 0.055***	- 0.022*	0.115	- 0.048	0.002	0.005	- 0.167***	-
	(0.011)	(0.013)	(0.079)	(0.052)	(0.002)	(0.003)	(0.053)	
Nationality (Base: Austria)								
(Ex -) Yugoslavia	0.379***	0.136***	0.102**	0.032	0.010**	0.004	0.056**	0.022
	(0.027)	(0.027)	(0.045)	(0.056)	(0.004)	(0.007)	(0.023)	(0.028)
Turkey	0.208***	- 0.043	-	-	-	- 0.012	0.006	0.069***
	(0.053)	(0.044)				(0.011)	(0.085)	(0.023)
other Nationality	- 0.228***	- 0.204***	- 0.107	- 0.059	- 0.082**	- 0.098***	- 0.014	- 0.105***
	(0.049)	(0.036)	(0.089)	(0.052)	(0.035)	(0.023)	(0.040)	(0.038)
Participation	0.497	0.620	0.858	0.848	0.985	0.980	0.930	0.907
N	9796	9237	1657	2544	8972	8641	2446	3404
Pseudo R^2	0.16	0.15	0.18	0.25	0.19	0.17	0.23	0.25

***** = significant at 1% ** = significant at 5% * = significant at 10%**

Notes: Entries are marginal effects with robust standard errors in brackets. Marginal effects for dummy variables are calculated as the change in predicted probability when that variable is increased from 0 to 1 with all other variables at their mean values.

Table2: Structural estimates of weekly hours

Variable (Dep. Var.: Weekly Hours)	Women				Men			
	Married		Never Married		Married		Never Married	
	1987	1999	1987	1999	1987	1999	1987	1999
ln predicted Wage	6.239***	4.012***	4.873**	4.349***	6.172***	3.513***	2.517*	2.502**
	(0.859)	(0.644)	(2.069)	(1.185)	(0.653)	(0.552)	(1.549)	(1.134)
ln other Household Income	- 0.573***	- 0.098	- 0.028	- 0.128*	- 0.033	- 0.116***	- 0.050	- 0.029
	(0.061)	(0.067)	(0.107)	(0.069)	(0.045)	(0.044)	(0.103)	(0.073)
Age	0.678***	1.669***	1.403***	2.473***	1.939***	1.738***	2.354***	2.883***
	(0.221)	(0.224)	(0.494)	(0.366)	(0.202)	(0.213)	(0.423)	(0.339)
Age^2	- 0.013***	- 0.024***	- 0.019***	- 0.033***	- 0.024***	- 0.022***	- 0.031***	- 0.038***
	(0.003)	(0.003)	(0.006)	(0.005)	(0.002)	(0.003)	(0.006)	(0.005)
Education (Base: Compulsory)								
Apprenticeship	1.337***	1.000**	5.634***	5.937***	- 0.015	1.889***	5.599***	10.464***
	(0.426)	(0.392)	(1.396)	(0.979)	(0.384)	(0.418)	(0.932)	(0.821)
Lower vocational school	1.787***	2.032***	6.489***	6.846***	1.346**	3.928***	5.748***	12.382***
	(0.583)	(0.525)	(1.650)	(1.201)	(0.627)	(0.612)	(1.554)	(1.432)
Secondary academic school	- 1.034	2.639***	- 8.775***	- 1.741	- 0.678	2.604***	- 13.041***	- 3.761***
	(0.827)	(0.826)	(1.889)	(1.226)	(0.812)	(0.773)	(1.129)	(1.178)
Secondary vocational school	0.850	4.261***	2.531	4.814***	1.452*	3.247***	0.649	7.576***
	(0.996)	(0.712)	(2.064)	(1.285)	(0.762)	(0.625)	(1.703)	(1.237)
University	9.503***	6.292***	4.318**	7.709***	2.460***	5.622***	5.332***	13.388***
	(1.317)	(0.831)	(1.991)	(1.371)	(0.777)	(0.643)	(1.762)	(1.363)
Number of Children								
between 0 and 3 years	- 6.955***	- 8.462***	- 15.651***	- 18.194***	1.433***	1.313***	3.265	2.429**
	(0.462)	(0.453)	(2.732)	(1.224)	(0.359)	(0.344)	(2.051)	(1.177)
between 4 and 6 years	- 4.269***	- 3.346***	- 6.237***	- 5.490***	0.519	0.871***	3.490	4.062**
	(0.413)	(0.394)	(2.161)	(1.188)	(0.333)	(0.338)	(2.534)	(1.663)
between 7 and 9 years	- 3.117***	- 3.222***	0.296	- 5.609***	0.959***	0.497	- 1.298	- 0.173
	(0.377)	(0.354)	(2.582)	(1.364)	(0.317)	(0.313)	(3.033)	(2.053)
between 10 and 15 years	- 2.324***	- 1.844***	- 0.681	- 1.969*	0.688***	0.857***	1.120	2.047
	(0.245)	(0.241)	(1.397)	(1.178)	(0.213)	(0.220)	(2.363)	(1.929)
between 16 and 18 years	- 1.263***	- 0.691**	5.061*	- 3.288	1.083***	0.854***	- 10.717**	2.446
	(0.326)	(0.337)	(2.803)	(2.073)	(0.293)	(0.316)	(4.421)	(2.739)
Nationality (Base: Austria)								
(Ex -) Yugoslavia	11.588***	5.954***	6.183	2.947	- 3.491***	- 4.806***	- 2.494	0.596
	(1.647)	(1.043)	(4.436)	(2.781)	(1.049)	(0.681)	(3.579)	(2.107)
Turkey	7.463***	- 1.139	-	0.209	- 3.647***	- 4.741***	0.409	- 2.356
	(2.320)	(1.213)		(6.067)	(1.359)	(0.924)	(7.592)	(3.610)
other Nationality	- 5.632***	- 4.466***	- 6.671**	- 6.573***	- 4.751***	- 8.870***	- 3.009	- 7.795***
	(1.334)	(0.812)	(2.797)	(1.610)	(1.433)	(0.842)	(2.701)	(1.376)
Expected Weekly Hours	29.868	27.231	32.294	29.871	41.269	39.451	36.113	34.281
N	9796	9237	1657	2550	9074	8641	2490	3543
Pseudo R^2	0.05	0.03	0.03	0.04	0.02	0.03	0.02	0.03

*** = significant at 1% ** = significant at 5% * = significant at 10%

Notes: Entries are marginal effects under the condition that weekly hours > 0 with robust standard errors in brackets. Marginal effects for dummy variables are calculated as the change in predicted probability when that variable is increased from 0 to 1, with all other variables at their mean values.

Table 3: Participation and hours elasticities within educational groups: married and never-married women

1987/89

	Participation					Hours				
	Compulsory education	**Apprenticeship**	**Lower Vocational school**	**Secondary school**	**University**	**Compulsory education**	**Apprenticeship**	**Lower Vocational school**	**Secondary school**	**University**
Married 87/89	0,436*** (0,015) [9181]	0,328*** (0,011) [5044]	0,316*** (0,016) [2568]	0,310*** (0,017) [1527]	0,196*** (0,016) [698]	0,236*** (0,006) [9181]	0,236*** (0,006) [5044]	0,231*** (0,009) [2568]	0,262*** (0,011) [1527]	0,253*** (0,014) [698]
Never m. 87/89	0,050 (0,056) [1014]	0,016 (0,043) [812]	0,010 (0,045) [560]	0,810*** (0,212 [525]	0,132* (0,077) [307]	-0,011 (0,045) [1014]	-0,107 (0,071) [812]	-0,143 (0,171) [560]	0,292** (0,127) [525]	-0,012 (0,102) [307]

*** = significant at 1% ** = significant at 5% * = significant at 10%
Standard errors in brackets; Number of observations in boxed brackets

1997/99

	Participation					Hours				
	Compulsory education	**Apprenticeship**	**Lower Vocational school**	**Secondary school**	**University**	**Compulsory education**	**Apprenticeship**	**Lower Vocational school**	**Secondary school**	**University**
Married 97/99	0,311*** (0,039) [5798]	0.290*** (0,043) [6236]	0,187*** (0,051) [2798]	0,461*** (0,078) [2281]	0,039 (0,049) [1189]	0,085*** (0,016) [5798]	0,098*** (0,021) [6236]	0,039 (0,028) [2798]	0,182*** (0,039) [2281]	0,071 (0,053) [1189]
Never m. 97/99	0,241*** (0,087) [922]	0,220*** (0,043) [1471]	0,267*** (0,046) [761]	0,248*** (0,068) [1135]	0,105* (0,062) [625]	0,135** (0,071) [922]	0,185*** (0,054) [1471]	0,419*** (0,069) [761]	0,134** (0,057) [1135]	0,066 (0,076) [625]

*** = significant at 1% ** = significant at 5% * = significant at 10%
Standard errors in brackets; Number of observations in boxed brackets

Figure 1: Uncompensated wage elasticities for work participation

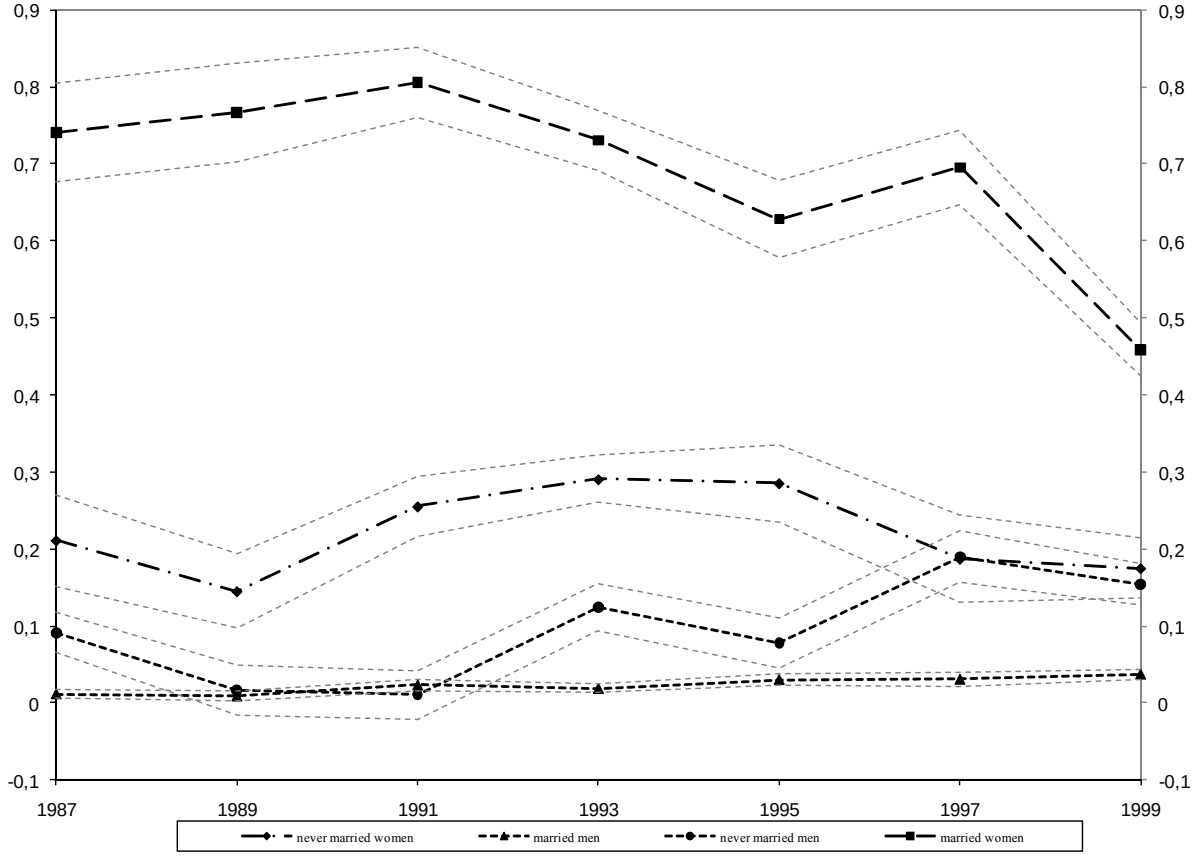


Figure 2: Uncompensated wage elasticities for weekly hours

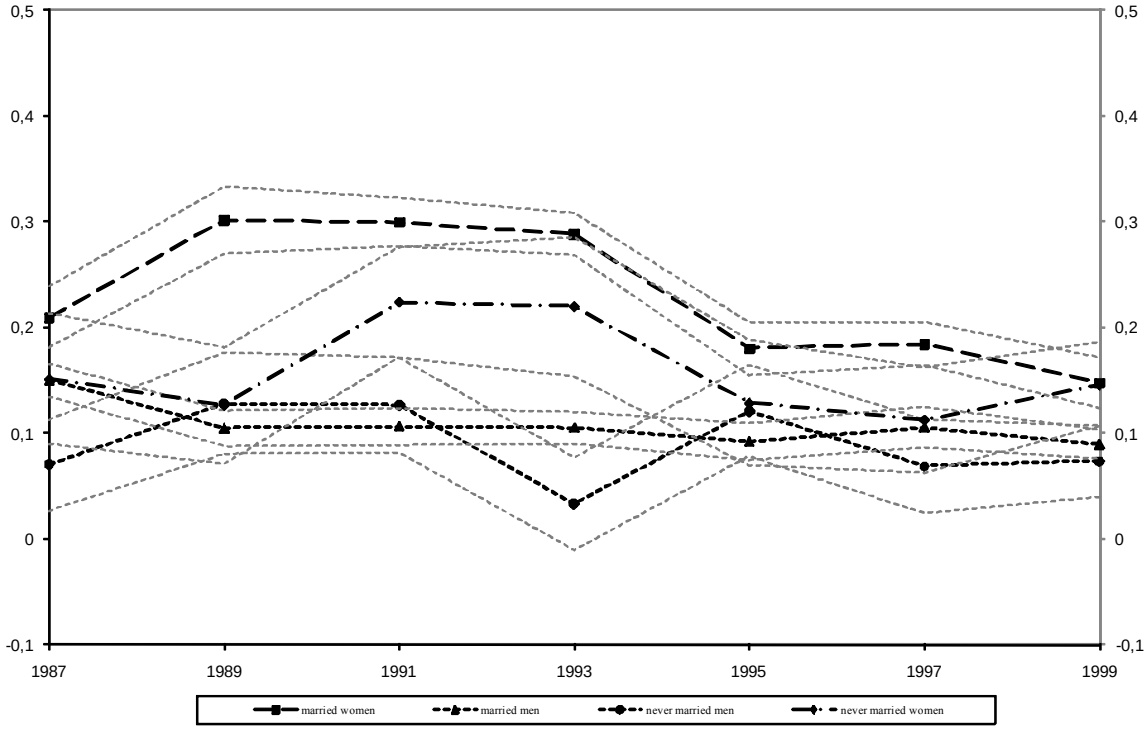
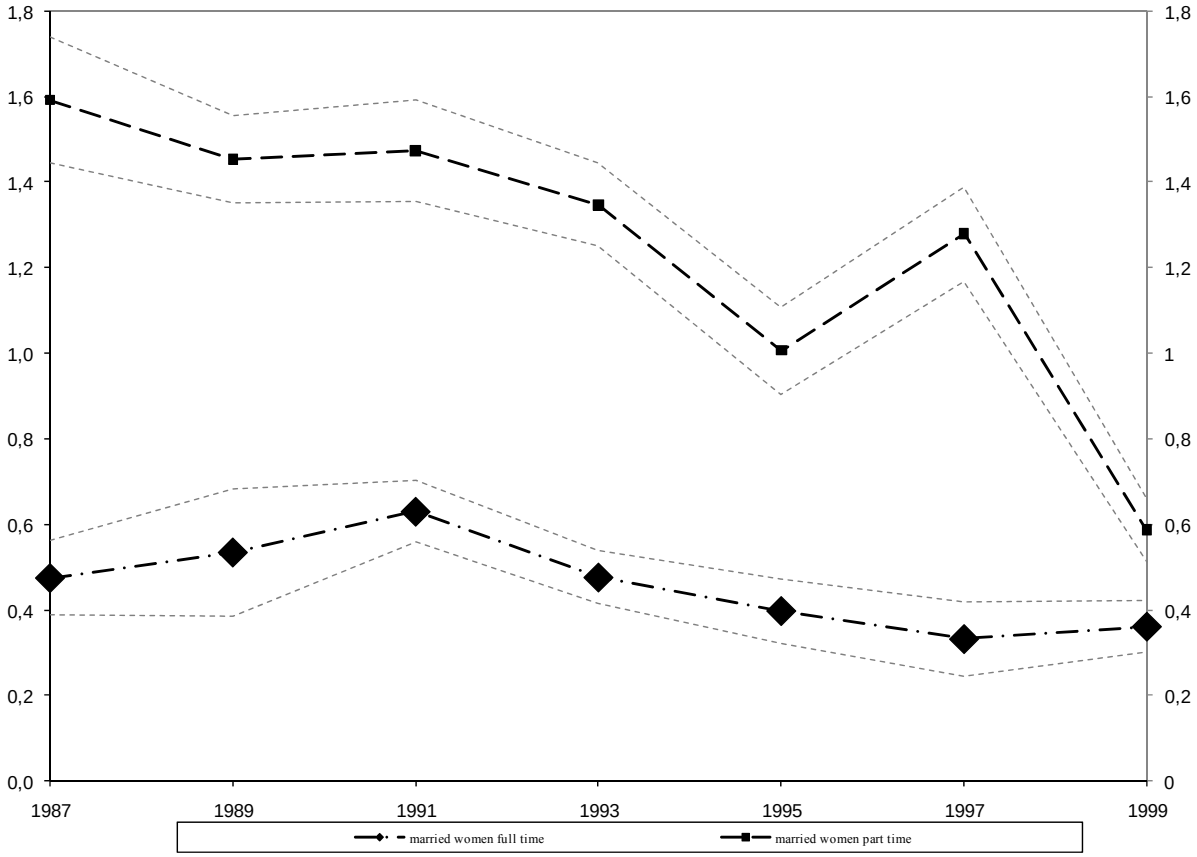


Figure 3: Work participation in a multinomial setting



Appendix A: Tables

Table A1: Summary Statistics

Summary Statistics	Women				Men			
	Married		Never Married		Married		Never Married	
	1987	1999	1987	1999	1987	1999	1987	1999
Participation	0.493	0.604	0.814	0.797	0.968	0.962	0.884	0.857
Weekly Hours	19.27	20.28	31.38	29.24	41.42	39.64	35.82	33.80
	(22.43)	(19.55)	(17.86)	(17.66)	(13.83)	(13.12)	(17.98)	(17.86)
ln Wage	4.265	4.126	4.331	4.550	4.302	4.704	4.120	4.582
	(0.241)	(0.723)	(0.288)	(0.304)	(0.470)	(0.315)	(0.484)	(0.300)
ln other Household Income	4.387	6.937	3.401	4.649	3.445	5.859	3.937	5.416
	(4.858)	(4.562)	(4.604)	(4.899)	(4.496)	(4.606)	(4.732)	(4.855)
Age	40.26	40.99	34.16	34.15	41.42	42.14	32.61	33.61
	(8.493)	(7.846)	(8.758)	(7.850)	(8.162)	(7.633)	(7.971)	(7.448)
Age^2	1692.6	1741.4	1243.7	1227.9	1782.3	1833.6	1126.8	1184.8
	(686.5)	(645.3)	(664.7)	(593.6)	(669.8)	(638.0)	(596.0)	(557.5)
Education								
Apprentice	0.262	0.341	0.235	0.291	0.514	0.533	0.437	0.472
Lower vocational school	0.134	0.151	0.172	0.155	0.079	0.084	0.079	0.072
Secondary academic school	0.044	0.048	0.098	0.107	0.041	0.043	0.085	0.079
Secondary vocational school	0.033	0.080	0.066	0.129	0.053	0.088	0.059	0.108
University	0.032	0.069	0.097	0.133	0.060	0.086	0.068	0.095
Number of Children								
between 0 and 3 years	0.162	0.155	0.049	0.079	0.197	0.174	0.021	0.042
	(0.416)	(0.422)	(0.239)	(0.308)	(0.455)	(0.445)	(0.169)	(0.231)
between 4 and 6 years	0.189	0.171	0.038	0.062	0.210	0.186	0.017	0.023
	(0.441)	(0.418)	(0.206)	(0.262)	(0.458)	(0.434)	(0.136)	(0.164)
between 7 and 9 years	0.202	0.200	0.024	0.051	0.213	0.211	0.011	0.016
	(0.455)	(0.450)	(0.156)	(0.233)	(0.466)	(0.461)	(0.118)	(0.137)
between 10 and 15 years	0.446	0.411	0.053	0.058	0.460	0.423	0.014	0.018
	(0.707)	(0.666)	(0.287)	(0.258)	(0.715)	(0.671)	(0.161)	(0.144)
between 16 and 18 years	0.249	0.212	0.018	0.021	0.244	0.212	0.006	0.008
	(0.513)	(0.453)	(0.142)	(0.145)	(0.511)	(0.454)	(0.082)	(0.099)
Nationality								
(Ex -) Yugoslavia	0.018	0.032	0.010	0.013	0.021	0.046	0.008	0.018
Turkey	0.008	0.016	0.001	0.002	0.011	0.025	0.002	0.005
other Nationality	0.009	0.024	0.016	0.027	0.010	0.026	0.015	0.032
N	9796	9237	1657	2544	8972	8641	2446	3404

Table A2: Wage Equations

Dep. Var.: log hourly wages	Women				Men			
	Married		Never Married		Married		Never Married	
	1987	1999	1987	1999	1987	1999	1987	1999
(potential) experience	0.022***	0.056***	0.032***	0.034***	0.022***	0.016***	0.024***	0.008*
	(0.005)	(0.008)	(0.006)	(0.005)	(0.003)	(0.003)	(0.006)	(0.004)
(potential) experience^2	-0.001***	-0.001***	-0.001***	-0.001***	-0.000***	-0.000***	-0.001***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Education (Base: Compulsory)								
Apprentice	0.061***	0.102***	0.193***	0.085***	0.156***	0.086***	0.160***	0.104***
	(0.019)	(0.016)	(0.032)	(0.026)	(0.011)	(0.011)	(0.024)	(0.021)
Lower vocational school	0.217***	0.243***	0.355***	0.214***	0.285***	0.198***	0.276***	0.192***
	(0.023)	(0.019)	(0.035)	(0.029)	(0.018)	(0.016)	(0.041)	(0.031)
Secondary academic school	0.389***	0.230***	0.471***	0.394***	0.434***	0.238***	0.277***	0.261***
	(0.038)	(0.029)	(0.054)	(0.034)	(0.023)	(0.020)	(0.047)	(0.035)
Secondary vocational school	0.409***	0.293***	0.561***	0.325***	0.493***	0.335***	0.400***	0.246***
	(0.038)	(0.022)	(0.049)	(0.032)	(0.021)	(0.016)	(0.046)	(0.030)
University	0.462***	0.475***	0.674***	0.498***	0.626***	0.418***	0.584***	0.354***
	(0.035)	(0.024)	(0.049)	(0.034)	(0.022)	(0.017)	(0.046)	(0.033)
Community size (Base: population <2.000)								
Population 2.000-10.000	0.049**	0.061***	0.042*	0.035***	0.001	0.030***	-0.020	0.017
	(0.020)	(0.015)	(0.023)	(0.012)	(0.010)	(0.009)	(0.023)	(0.017)
Population 10.000-100.000	0.081***	0.077***	0.085**	0.062**	0.004	0.021*	0.066**	0.033
	(0.023)	(0.018)	(0.037)	(0.025)	(0.013)	(0.011)	(0.029)	(0.020)
Population >100.000	0.078***	0.066***	0.146***	0.104***	0.030**	0.023*	0.018	0.024
	(0.021)	(0.018)	(0.034)	(0.024)	(0.013)	(0.012)	(0.027)	(0.021)
λ	0.102***	0.445***	0.027	0.041	-0.022	0.010	0.056	-0.012
	(0.028)	(0.125)	(0.045)	(0.033)	(0.021)	(0.012)	(0.057)	(0.037)
Constant	4.077***	3.622***	3.696***	4.223***	4.120***	4.366***	4.030***	4.417***
	(0.061)	(0.086)	(0.070)	(0.059)	(0.036)	(0.041)	(0.064)	(0.057)
N	2595	4967	837	1879	5276	6851	1232	2449
R^2	0.15	0.18	0.34	0.22	0.23	0.24	0.27	0.18

*** = significant at 1% ** = significant at 5% * = significant at 10%

The estimates also include dummies for regions (Bundesländer).

Appendix B: Figures

Figure B1: Participation rates

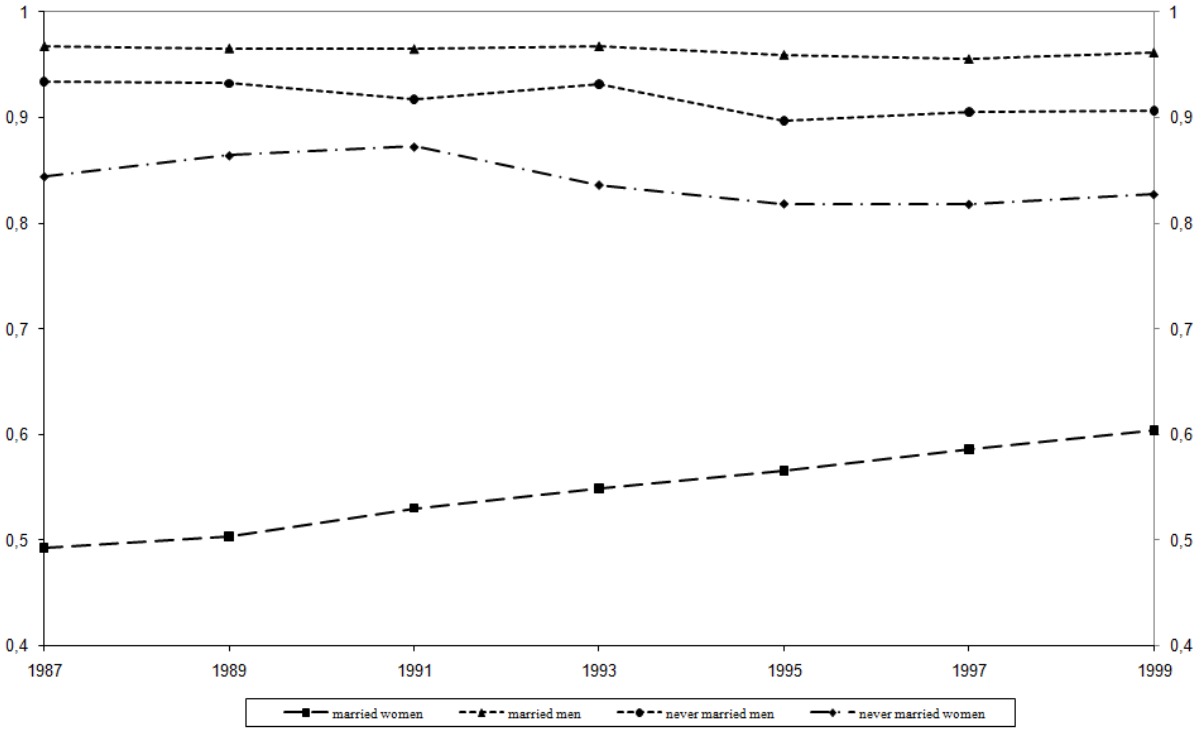


Figure B2: Weekly hours (if employed)