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Job Mobility and Unemployment

The Duration of Marginal Employment in West Germany: A Survival Analysis Based on Spell Data[1]

By Jürgen Kolb and Axel Werwatz

Summary

We use data from the German Socio-Economic Panel from 1984 to 1995 to analyze longitudinal aspects of marginal employment (geringfügige Beschäftigung) in West Germany. After discussing problems of identifying marginal employment spells, we document that marginal employment spell vary considerably in the German labor market. Spell duration in our data ranges from one month to 12 years or more. Marginal employment, however, is typically limited to brief episodes. Our results suggest that the duration of marginal employment spells is influenced by institutional factors that favor the employment of housewives. In general, marginal employment seems to be a flexible option to adapt labor supply behavior to various phases of the life cycle.

1. Introduction

Germany's labor market is generally considered to be highly regulated and inflexible.[2] It is still very much dominated by full-time employment contracts which include sizeable payments by both employees and employers to Germany's social security system. Employers, however, can also offer low-wage, low-hours positions that are largely exempt from mandatory social security contributions. Because these employment contracts permit only up to 15 hours per week and can pay only up to 630 marks per month, they are usually referred to as "marginal employment" (geringfügige Beschäftigung). Yet, the attention devoted to these contracts in public discussion has been anything but marginal (see, for instance, Wagner 1988; Fuest and Huber 1998). Indeed, when the social democrats were elected to office in late 1998, restricting the scope and the number of marginal employment positions was high on their agenda.

Because marginal employment is not easily identified in available German micro data, the political and academic discussion of the issue has, until recently, been characterized by an absence of evidence. Several recent studies have quantified and characterized marginal employment at a given point in time. Kolb and Trabert (1996), for instance, use the 1994 wave of the German Socio-Economic Panel (GSOEP) to estimate that in 1994 there were a total of 3.35 million persons for whom marginal employment was their only form of employment. Not surprisingly, women comprise the majority of this group. This paper focuses on the longitudinal aspects of marginal employment. We study the duration and number of marginal employment spells of individuals and provide evidence on whether marginal employment is just an episode in most people's labor marker careers or rather a dead end in unskilled, low-paid work that garners no social security benefits.

The remainder of this paper is organized as follows. In the next section we describe the institutional framework of marginal employment, such as its legal definition and its implications for the entitlement of the marginally employed to social security benefits. In section 3, we discuss

[1] Earlier versions of this paper were presented at conferences and seminars of the Längsschnittwerkstatt Berlin-Brandenburg 1998, the Applied Econometrics Association 1999, the European Society For Population Economics 1999, the Wissenschaftszentrum Berlin 1999 and the Missouri Valley Economic Association 2000. We are grateful to all participants, to Jürgen Schupp and to Annette Bergemann for valuable comments. We also thank the German Institute for Economic Research for providing access to the GSOEP. This research was started while Jürgen Kolb visited the Sonderforschungsbereich 373 at Humboldt-University in 1997. Financial support is appreciated. Kolb is at the Institute for Economic Research Halle, Department of Labor, and Werwatz is at Humboldt-University, Berlin and Centre for Labour Market and Social Research, Århus.

[2] See, for instance, the most recent global competitiveness report of the World Economic Forum.

how to identify marginally employed people in the GSOEP data used in this analysis. In section 4 we present a brief theoretical discussion that focuses on the labor supply aspects of marginal employment. In section 5, we present empirical results that characterize the role of marginal employment in labor market careers and we identify factors correlated with the duration of marginal employment spells. A summary of our finding concludes the paper.

2. Institutional Background

German law defines several employment categories that are exempt from social security contribution payments. We focus on a prominent focus of the public debate: low-hours, low-paying jobs of (in principle) unlimited duration, which we refer to as *marginal employment*. Legally, an employment relationship is marginal if an individual works less than 15 hours a week and his monthly paycheck does not exceed the earnings threshold that, until 1999, was annually set by the labor secretary. During our sample period of 1984 to 1994, the threshold rose from 390 DM to 560 DM. Since 1999 the threshold has been fixed at 630 DM.

If an employment relationship satisfies the above conditions, both the employer and the employee are exempt from mandatory contributions to the German social security system.[3] Benefits from the system are tied to contributions. Hence, unless the marginally employed accrue entitlements through voluntary contributions or the contributions of their spouse, they do not have access to many of the system's benefits.

Despite the above exemption, the government taxes 20 percent of the compensation paid to marginally employed workers.[4] Employers usually pay this tax.

3. Identifying Spells of Marginal Employment

Data on marginal employment are taken from the first 12 waves (1984–1995) of the German Socio-Economic Panel (GSOEP), a representative panel survey of households and their members aged 16 and above (Projektgruppe Sozio-oekonomisches Panel 1995). The unit of observation is a person/month combination. A person contributes one observation to the sample for each month he works in marginal employment. Longitudinal information on a person's labor market status is collected by asking respondents to identify his labor market status for each month of the past year. Among the ten available categories, we focus on the category labeled *in part-time or marginal employment.* Our initial sample consists of all persons whose sole labor market experience in a given month, is part-time or marginal employment.[5] Within this group we then try to distinguish the marginally employed from part-time employees, who are working in jobs with no legal limits on hours and earnings and who will generally make mandatory social security payments.

Since the GSOEP only provides information on hours worked on the survey date, at which time a respondent may or may not be in marginal employment, we rely on labor earnings to identify persons who have a spell of marginal employment at some time during the year. To check whether a part-time worker was employed in marginal work, we compare reported earnings to the earnings threshold that defines marginal employment. Because the GSOEP reports only the average monthly earnings of employed persons, it is difficult to identify short spells of marginal employment for people who worked in both marginal and regular employment in the same year. We code a person to have been in marginal employment in any month when he reported being in "part-time or marginal employment" if his average monthly earnings were less than or equal to 120 percent of the legal earnings threshold.[6] After having passed this earnings test, the duration of the marginal employment spell is measured by the number of consecutive months a respondent selects the category "in part-time or marginal employment."

4. Theoretical Background

Given that we have no data on firms, we focus our discussion primarily on the labor supply aspects of marginal employment. Since the majority of marginally employed are women, we consider the marginal employment participation decision from their perspective.[7]

4.1 Advantages and disadvantages of marginal employment

A person who would like to participate in the labor market chooses between full-time, part-time, and marginal employment. What benefits and costs lead a person to accept marginal employment? The main benefit of marginal employment is that it accommodates a flexible time-schedule and leaves room for non-labor activities like raising children or receiving education. This benefit is particularly important in Germany, where child-care facilities tend

[3] Social security benefits include health, disability, and unemployment insurance, as well as old-age pensions and costs of nursing care. Since 1999, providers of marginal employment have to pay contributions and employees get limited benefits.

[4] Since 1999 earnings from marginal employment are not taxed.

[5] We ignore persons who work in both marginal and full-time employment.

[6] Our results are similar when a strict marginal employment earnings threshold is used.

[7] Schwarze (1998) develops a model to analyze decisions of married women to enter marginal employment.

to have inflexible and restricted opening hours (Kreyenfeld and Hank 1999) and schools usually do not provide afternoon activities for pupils. In addition, it may be less costly to search for marginal employment if more such positions are available. Employers may be more likely to offer marginal employment because they enjoy tax advantages and flexibility in staffing their operations. Finally, the German income tax system favors the "sole breadwinner" household, where only one adult (usually the male) provides household income (Gustafsson et al. 1996). The taxable income of married couples is averaged to determine their tax bracket.[8] Since income from marginal employment is tax-free, the income of only the regularly employed spouse is taxed at the same tax-rate as a single person with (slightly more than) one-half the taxable income. Hence, after-tax household income may be higher for couples with one marginal and one full-time income than for a couple with one part-time and one full-time income.

Marginal employment has potential costs as well. For example, marginal employment will reduce social security contributions. This reduction will only be a cost if a marginally employed worker has no other source of benefits (e.g., through the contributions of her spouse). Marginal employment might also lower career earnings if work experience in low-wage, low-skill marginal employment fails to increase or even causes a more rapid depreciation of a person's human capital.

The tradeoff between the advantages and disadvantages of marginal employment determines whether and how long a person remains in marginal employment. Clearly, both advantages and disadvantages are related to a person's family situation. To capture these relationships in our empirical analysis, we include several variables that characterize the family background of the marginally employed.

5. Empirical Results

The above sample selection rule yields a set of marginal employment spells of varying lengths. A spell is defined by the number of consecutive months a given person worked in marginal employment. Out of a total of 5,707 possible spells, 789 had to be eliminated because no measure of income was available to determine if the spell was in marginal or regular employment. Of the remaining spells, roughly one third (1,630 spells) passed the earnings test and were included in the sample. Among these 1,630 spells, 63 percent are uncensored, 11 percent are left-censored, 20 percent are right-censored, and 6 percent are left and right-censored.

[8] This tax rate is then applied to the average income, and the resulting amount is doubled to determine the tax liability.

Figure 1

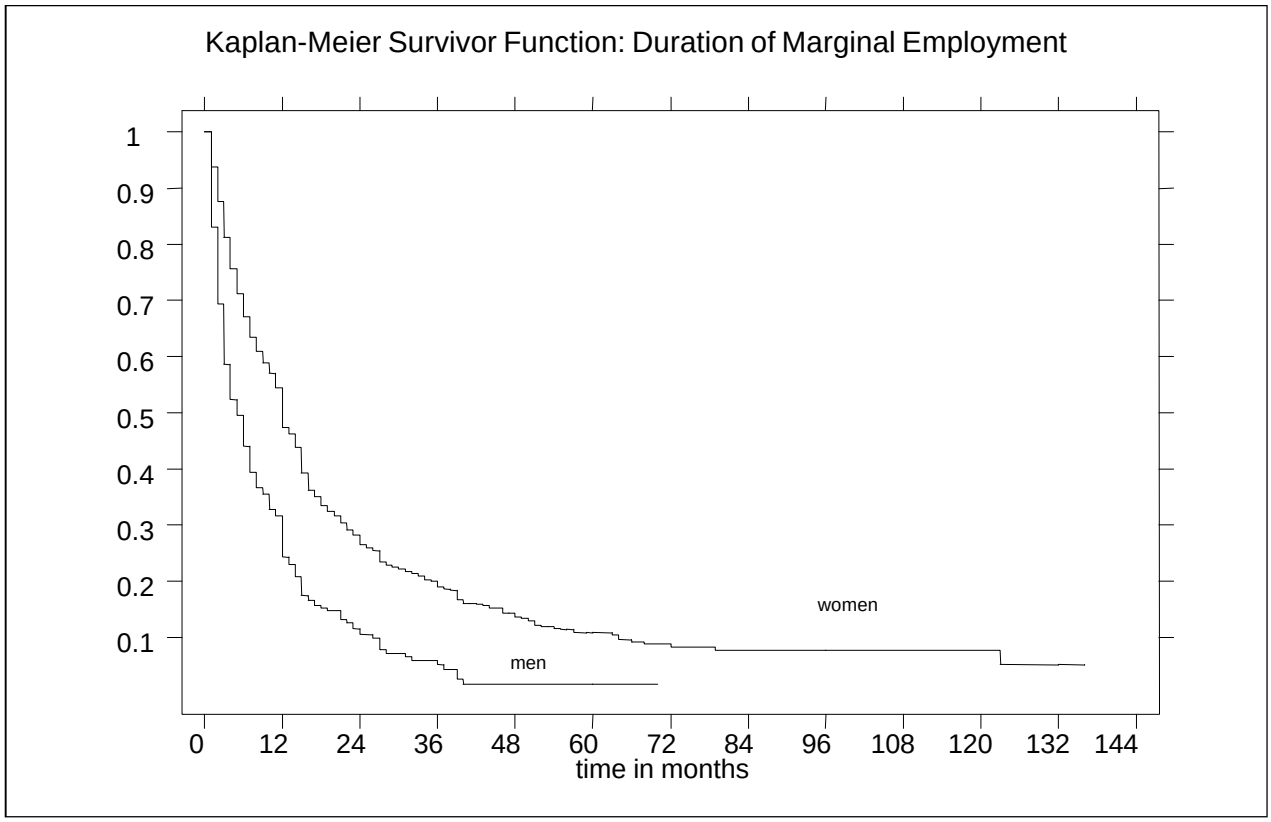


Table 1

Spell Duration of Marginal Employment

	Month at Which X Percent of Sample Remains		
	75 Percent	50 Percent	25 Percent
No. of months/men	2	5	12
No. of months/women	5	12	27
Total	4	11	23

Source: German Socio-Economic Panel, 1985–1995, authors' calculations.

The average length of the uncensored spells is 11 months but the distribution of spell length is highly right-skewed, with a median spell length of seven months. Forty percent of the spells last five months or less and only 30 percent last for more than a year. Five spells lasted the entire observation period.

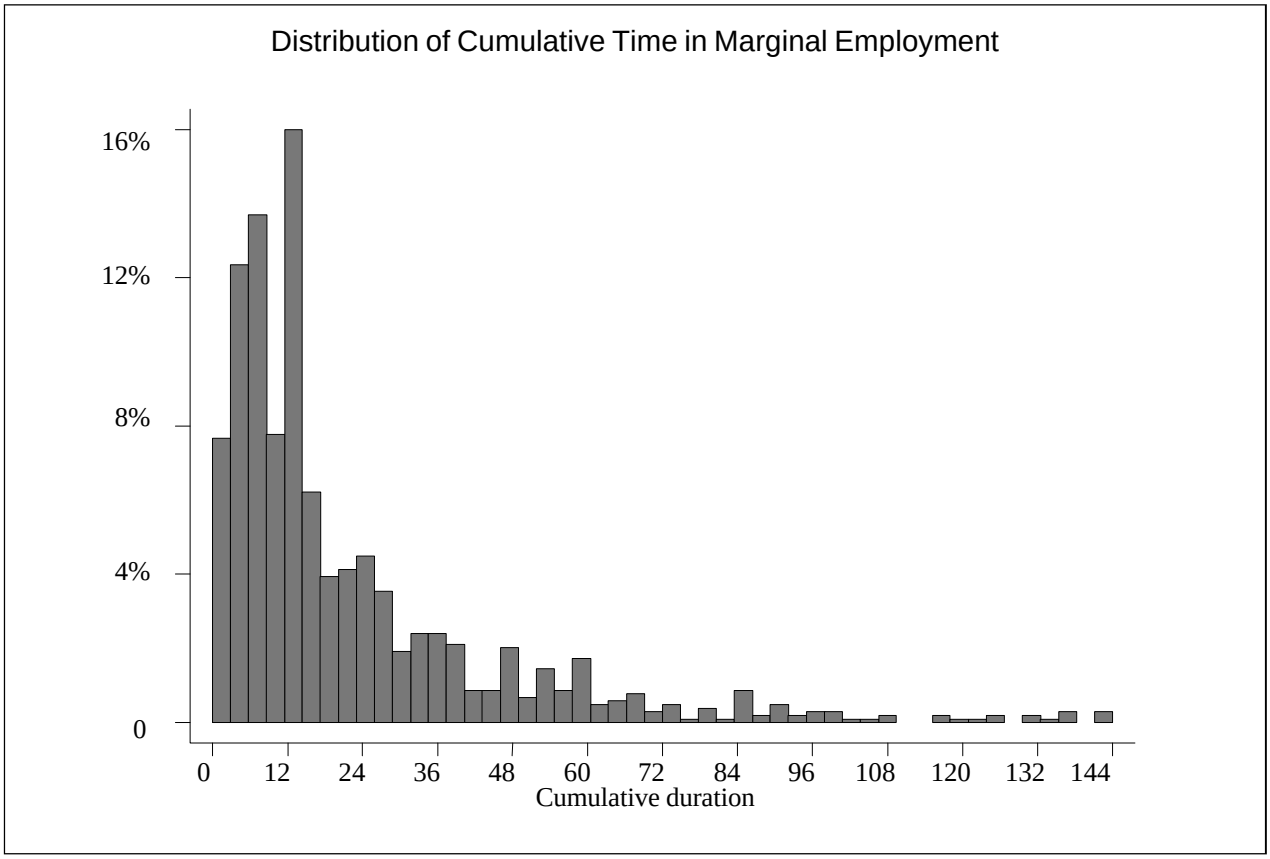
Figure 1 presents Kaplan-Meier-estimates of spell length. In these data, uncensored and right censored spells had a median spell length of 11 months. Additionally, Table 1 shows a big difference in the duration of spells of marginal employment of women and men. A spell of marginal employment typically lasts 12 months for women and only five months for men.

Sixty percent of the sample has just one spell of marginal employment. Figure 2 plots the distribution of cumulative spell length to capture total time in marginal employment for persons with single and multiple spells. Roughly 40 percent of all persons in the sample spend at most one year in marginal employment. Another 30 percent have been in marginal employment between one and two years. Hence, it appears that, for the majority of our sample, marginal employment is a more or less temporary episode.

Since most people only work episodically in marginal employment, it is interesting to investigate the labor market status of the marginally employed just before and after spells of marginal employment. Of people who enter marginal employment, 34 percent were occupied as *housewives*. Another 25 percent were employed *part-time*. Fifteen percent were in full or part-time education and 13 percent were in *full-time employment*. Of the people who exited from marginal employment, one-half became *housewives*, one-fourth entered *education* and 8 percent entered *full-time employment*.[9] Hence, direct transitions from and into full-time employment are not typical for the marginally employed. Instead, they typically enter and exit

[9] This result contrasts with the findings of Jungbauer-Gans and Hönisch (1998) who find no transition into full-time employment.

Figure 2



marginal employment from either part-time employment or being out of the labor force.

Turning to the regression analysis of spell duration, we have estimated several specifications of the Cox-proportional-hazard model (Cox and Oakes 1984; Blossfeld and Rohwer 1995) to determine how spell duration varies with characteristics of individuals and their partners. Individual characteristics include gender, age, years of completed education, and the number and duration of previous spells of marginal employment. We also include dummy variables that indicate if other kinds of spells (housewife, student, unemployed) overlap with time spent in marginal employment. Household income and dummy variables for the presence of a partner and children are included to characterize the family environment. Following Hujer and Schneider (1989), we use dummy variables to control for the high number of spells that begin in January and end in December. This clustering is known as the "heaping effect" and is thought to be an artifact unrelated to duration choice.

Table 2

Cox-Proportional Hazard Regression: Duration of Marginal Employment, Model 1 (including all spells)

Covariate	Hazard Ratio	z	P > |z|
Gender (female = 1)	0.711	–3.657	0.000
Age in years	0.988	–3.903	0.000
Years of completed education	1.037	2.416	0.016
Per-capita household income	0.999	–2.875	0.004
Number of children	0.881	–3.043	0.002
Spouse (1 = yes)	0.799	–2.315	0.021
Number of previous spells	1.229	6.222	0.000
Cum. Durat. of previous spells	0.990	–2.781	0.005
January effect	0.543	–8.089	0.000
December effect	0.394	–11.507	0.000
Number of spells in calculation		1,203	
Log-likelihood		–5,497.61	
Chi-Squared (10)		441.26	
Number of failures		910	
Prob > chi^2		0.0000	

Source: German Socio-Economic Panel, 1984–1995, authors' calculations.

The results in Table 2 indicate that spell length varies positively with age, household income, the presence of a spouse, number of children living in the household and being female. Spell duration of marginal employment is shorter for individuals with above average human capital.

In Table 3 we present regression results for the sample of individuals with a spouse present. Gender is dropped from the analysis because more than 90 percent of all housekeepers are women. We have added a dummy variable to indicate if a person is both in marginal employment and on maternity leave. This variable is included to try to capture incentives to remain in marginal employment that are created by the German maternity leave regulations. The results indicate that spell duration varies positively with income of the spouse. This result is consistent with the significant tax advantage that accrues to the marginally employed person whose spouse is in full-time employment. That advantage increases with the income of the fully employed spouse and number of children in the household. Table 3 also indicates that an individual is less likely to be observed exiting marginal employment when her labor market status is running the household.

Table 3

Cox-Proportional Hazard Regression: Duration of Marginal Employment, Model 2 (including only spells with spouse)

Covariate	Hazard-Ratio	z	P > |z|
Age in years	0.986	–3.341	0.001
Years of completed education	1.088	3.997	0.000
Number of children	0.905	–2.155	0.031
Maternity (1 = yes)	1.636	0.689	0.491
Running the household (1 = yes)	0.740	–3.258	0.001
Income/spouse	0.999	–3.300	0.001
Number of previous spells	1.198	4.889	0.000
Cum. Durat. of previous spells	0.991	–2.235	0.025
January effect	0.569	–5.901	0.000
December effect	0.322	–10.499	0.000
Number of spells in calculation		791	
Log-likelihood		–3,169.38	
Chi-Squared (11)		292.03	
Number of failures		566	
Prob > chi^2		0.0000	

Source: German Socio-Economic Panel, 1984–1995, authors' calculations.

On average, the duration of marginal employment is longer for individuals with previous spells in marginal employment. We find no significant difference between the length of marginal employment spells of women on maternity leave relative to the rest of sample. This result suggests either that German maternity leave regulations do not affect spell duration or that our simple maternity dummy variable fails to adequately capture the relevant variation in those regulations.

In Tables 4 and 5 we present regression results from models that investigate the factors associated with the risk of exiting marginal employment to specific types of activities. Table 4 reports results from a model of the hazard of exiting to full-time employment. Table 5 reports results from a model of the hazard of exiting to run a household. In these models, three dummies represent the socioeconomic state just before the marginal employment spell began (reference category is *housewife*). As Table 4 indi-

Table 4

Cox-Proportional Hazard Regression: Transition to "Full-Time Job," Model 1 (including all spells)

Covariate	Hazard Ratio	z	P>|z|
Age in years	1.019	0.997	0.885
Years of completed education	1.042	0.843	0.319
Per-capita household income	0.999	–0.144	0.885
Number of children	1.139	0.825	0.409
Spouse (1 = yes)	1.476	1.077	0.281
Status: student	7.740	3.683	0.000
Status: unemployed	10.687	4.871	0.000
Status: pensioner	0.506	–0.786	0.432
December effect	0.452	–2.849	0.004
Number of spells in calculation		1,207	
Log-likelihood		–480.81	
Chi-Squared (9)		53.46	
Number of failures		74	
Prob>chi^2		0.0000	

Source: German Socio-Economic Panel, 1984–1995, authors' calculations.

cates, our model does not explain much of the variation in transitions from marginal employment to full-time work, in part because such transitions are rare. The results do indicate, however, that, relative to housewives, students and formerly unemployed are more likely to be observed exiting marginal employment into full-time work.

The results in Table 5 show that our model is better able to account for transitions from marginal employment to running the household. Here we find that an individual from a home with higher per capita income is less likely to exit marginal employment to run a household. Individuals with more marginal employment spells are much more likely to be observed exiting marginal employment to run a household. The results in Table 4 and Table 5 are dominated by the socioeconomic state at the beginning of the marginal employment spell. These results suggest that marginal employment usually is an episode of time spent in a "secondary" job.

Table 5

Cox-Proportional Hazard Regression: Transition to "Running the Household," Model 1 (including all spells)

Covariate	Hazard Ratio	z	P>|z|
Age in years	1.002	0.308	0.758
Years of completed education	1.025	0.970	0.332
Per-capita household income	0.999	–3.859	0.000
Number of children	0.931	–1.304	0.192
Spouse (1 = yes)	3.006	3.242	0.001
Status: student	0.237	–4.127	0.000
Status: unemployed	1.216	0.560	0.575
Status: pensioner	0.076	–4.896	0.000
December effect	0.288	–10.192	0.000
Number of previous spells	1.119	4.362	0.000
Number of spells in calculation		1,198	
Log-likelihood		–2,665.06	
Chi-Squared (9)		458.41	
Number of failures		439	
Prob>chi^2		0.0000	

Source: German Socio-Economic Panel, 1984–1995, authors' calculations.

Finally, the dummy variables to control for the heaping effect are statistically significant. While the inclusion of the December dummy variable provides a better fit to this type of spell data, the interpretation of the coefficient is unclear.[10]

6. Summary and Conclusions

The results indicate that marginal employment spells are quite heterogeneous. Whereas most spells last less than two years and some even less than one month, the distribution of spell durations has a long right tail, with some spells lasting more than 12 years.

We have pointed out that certain features of the German social security and tax system make marginal employment a favorable option for married women. The results reflect these greater incentives in significantly higher spell durations among married women. This association is evidence in favor of the "breadwinner model." Interestingly, some of the variables (children, sex, household income, or income of the spouse) that tend to reduce female labor supply at the intensive (participation) and extensive margin (number of hours, given participation) are also positively correlated with spell duration in our sample of the marginally employed.

Frequent moves between non- and marginal employment provide further evidence that marginal employment may present a flexible option to adapt labor supply behavior to various phases of the life cycle. On the other hand, we have not made a serious attempt to quantify and include measures of the costs of marginal employment in terms of reduced social security payments or lower career opportunities that may be brought about by marginal employment. In future work, we will extend the observation window after marginal employment and concentrate on housewives.

Our results indicate that the extent and duration of marginal employment may be reduced, without further direct legal restrictions on this segment of the labor market, by altering women's incentives through more and better child care facilities and fewer tax breaks for breadwinner households.

[10] Our findings do not change when we drop the December dummy.

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