Unemployment Duration and Earnings Exemptions:

The Role of Income Constraints

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Abstract

This paper investigates the relations between the uptake of marginal employment (ME), its connection to income constraints, and the duration of unemployment spells in Austria. As the number of unemployed soared due to the COVID-19 crisis, Austrian policy makers discussed abolishing earnings exemptions during unemployment. So far, unemployed workers are allowed to take up ME, with salaries capped at 485.85 euros a month, while receiving full unemployment benefits. Even though this large earnings exemption might distort job search incentives, ME could be a central tool for consumption smoothing during unemployment spells as well as a stepping stone into the regular labor market. If this is the case, ME should have differential outcomes for individuals with and without income constraints. To test this hypothesis empirically, I use administrative data from the Austrian Unemployment Register (AUR), combined with social security data, which contains information on the universe of unemployed individuals, their labor market history, and demographic variables from the early 2000s to today. I estimate a Cox proportional hazard model to quantify the effect of ME on unemployment duration. I find that ME significantly reduces the probability of finding a regular job. However, contrary to what orthodox economic theories predict, I find that this reduction is smaller for individuals whose unemployment benefits are below the median.

1 Introduction

Unemployment insurance (UI) and its effect on labor supply have long been a central research topic for labor economists, with an especially salient revival after the great recession (for an overview see Schmieder and Wachter 2016). The COVID-19 crisis and the subsequent situation on labor markets put the topic back on the agenda – not least because legislators increasingly discuss reforms of labor market policies. In Austria, one example that stands out is the reform of the possibility to gain additional earnings while receiving full unemployment benefits (UB). As of 2022, unemployed workers are allowed to work in marginal employment (ME), with a salary up to €485.85 a month, working up to 12 hours per week, while receiving full UB[1]. Current policy debates revolve around abolishing or restricting this earnings exemption. The effect of ME on the unemployed, however, is empirically and theoretically ambiguous. Even though this large earnings exemption might distort job search incentives, leading to longer unemployment spells, ME could be a central tool for consumption smoothing during unemployment as well as a stepping stone into the regular labor market.

Several studies examine whether marginal or atypical employment prolongs unemployment. Most of them focus on Germany, where the amount of additional earnings allowed is substantially lower than in Austria with €165 per month (Caliendo, Künn, and Uhlendorff 2016; Lietzmann, Schmelzer, and Wiemers 2017; Freier and Steiner 2007). A more recent paper investigates the effects of atypical employment on the duration of unemployment in France (Auray and Lepage-Saucier 2021). Here, atypical employment differs from ME or mini-jobs in Germany, as the amount of hours worked is higher and individuals receive no or reduced UB. The findings of previous studies are ambivalent – some identify a lock-in effect (Eppel and Mahringer 2019; Caliendo, Künn, and Uhlendorff 2016), that prolongs unemployment presumably due to reduced time and incentive for job search, while others find a positive impact via a stepping-stone effect, as ME might increase opportunities for future regular em-

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[1]The threshold of what is counted as marginal employment in Austria is raised every year, this is the value from 2022.

ployment and additional skills can be acquired (Auray and Lepage-Saucier 2021; Lietzmann, Schmelzer, and Wiemers 2017; Caliendo, Künn, and Uhlendorff 2012). Caliendo, Künn, and Uhlendorff (2016) and Auray and Lepage-Saucier (2021) also find more stable future employment for individuals with marginal employment. For Austria, one study finds longer unemployment spells for short-term unemployed individuals (up to 21 days longer) but a shortening of spells for long-term unemployed individuals (Eppel and Mahringer 2019). Another finds negative effects on future labor market outcomes such as employment and wages (Böheim and Weber 2011).

While most studies aim at establishing a causal connection between the duration of unemployment and ME, they lack explanations of what exactly shifts behavior. I want to explore *why* ME potentially prolongs unemployment spells. My hypothesis is that if ME has negative effects on labor supply in Austria, this is not because the unemployed want to enjoy more leisure but rather because individuals need additional income to smooth their consumption and avoid sliding into poverty. Consequently, this paper aims to answer the following research question: How does marginal employment influence the duration of unemployment in the presence of income constraints?

2 Theoretical Channels of Marginal Employment

The potential channels for the influence of ME on labor market outcomes are under-theorized and the influence on duration theoretically undetermined. Most of the previous literature discusses the stepping stone vs. lock-in effects of atypical or marginal employment, borrowing from the literature on temporary employment (for an overview see Filomena and Picchio 2021). According to this literature, ME might lead to shorter unemployment spells, on the one hand, as unemployed individuals meet potential future employers and keep their skill level. On the other hand, they have less time to look for a job and the attractiveness of remaining unemployed increases, hence, job search effort decreases.

The most policy-relevant channel that could lead to a shortening of the unemployment spell as well as more stable follow-up employment is the decreased depreciation of human capital (Lietzmann, Schmelzer, and Wiemers 2017) and the mitigation of negative effects of unemployment. Offering some structure as well as social contacts, ME could play a significant role in the unemployed's well-being (Jahoda et al. 1971).

2.1   The Role of Income Constraints

Marginal employment during unemployment represents a substantial earnings exemption for those receiving UB in Austria. Since the maximum amount of the earnings exemption is capped but UB varies depending on the income level prior to the unemployment spell, ME has differential relative importance with respect to the benefits an unemployed worker is receiving. Take for example a person with a net income of 1,000 euros. In Austria, she receives 550 euros UB, 55 percent of her previous net income. If she gains additional income through marginal employment, her monthly income is 1,035.85 euros – more than her previous income. If the sum of UB and the earnings of ME exceeds the potential net income, there is a clear incentive to prolong unemployment. This is the case for a net income of up to approximately 1,080 euros per month[2]. So, ME should be more attractive for low-income individuals for several reasons: (1) the relative value of ME is higher for them and (2) their skills more closely match the work experience they already have, as ME tends to be so-called low-skilled work. The question is, however, whether this heightened attractiveness of ME also increases the duration of unemployment spells differently for workers with different income levels.

Böheim and Weber (2011) outline several possible channels linked to income in their theoretical framework: workers receive UB for a fixed period of time and aim to maximize their lifetime income. In their model, costs for job search are related to earnings, so high-paying

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[2]For reference: in 2021, the poverty line in Austria was at 1,371 euros net income per month for a one-person household.

jobs require a more costly search effort. Therefore, the workers' decision also depends on earnings in future employment and not simply the benefit period. They state, relating to Chetty (2008), that workers with liquidity constraints (and those with high discount rates) will choose ME to smooth consumption (and to gain immediate increases in income). Their model predicts a prolongation of unemployment if ME is started early in the spell while "[d]ifferences in later periods should be driven by the effects of ME on search costs and wages in subsequent regular jobs" (Böheim and Weber 2011, 168).

3 Institutional Background & Data

In Austria, most employees are covered by compulsory unemployment insurance (UI). In order to be eligible for UB, first-time applicants need to have been in insurance-covered employment for 52 weeks within the last 24 months. For re-applicants, 28 weeks of insurance-covered employment within the last 12 months are needed and for individuals under 25 this drops to 26 weeks. UB is 55 percent of the past 12 months' average net income or the past 6 months' if the previous employment duration was less than a year but a person is still eligible. Depending on age and previous insurance record, individuals receive UB for 20 to 52 weeks. Afterwards, they can receive unemployment assistance (UA) for an unlimited amount of time. UA is 92 percent of previous UB, but is reduced one-to-one by the income of other individuals in the same household. A person is defined as long-term unemployed (LTU) if the unemployment spell lasts longer than 52 weeks. I approximate liquidity by severance payment eligibility (SP). A worker is eligible to receive SP if they have been with the same firm for a minimum of 36 months prior to unemployment and if they did not quit their job. Starting with the second month in employment, employers pay 1.53 percent of gross wages to a severance pay account, which employees can only access if they are eligible or retire. Individuals keep these severance payments when switching employers, reducing incentive to fire workers before crossing over the eligibility criteria.

The General Social Security Act of 1956 (or Allgemeines Sozialversicherungsgesetz – ASVG) established marginal employment in Austria. This form of employment allows a salary capped at a certain threshold, which is raised every year, and is currently set at 485.85 euros. Those marginally employed are not fully insured and do not have to pay income tax. ME increased in Austria since the late 1990s. While it is typically dominated by female workers, the share of men in ME has been steadily increasing and in 2019, before the COVID-19 pandemic, was at 38 percent. Out of all marginally employed, only around 10 percent are receiving unemployment benefits. The rest is exclusively marginally employed, has other employment or receives old-age pension (Korn and Firzinger 2020).

In my analysis, I use administrative data from the Austrian Unemployment Register (AUR), combined with social security data, which contains information on the universe of unemployed individuals who received unemployment benefits, their labor market history, and demographic variables from the early 2000s to today. I look at workers between 20 and 60 year of age, who became unemployed before 2020, using monthly data for the years 2015 to 2020. The workers in my sample were in insurance-covered employment before the spell. The data is right-censored, meaning, I do not observe the end of some unemployment spells. I exclude individuals who were part of subsidized employment or special employment programs, as these programs are usually on a full-time or part-time basis (more income and work hours than ME) and potentially influence unemployment duration as well. Figure 1 shows the share of unemployed with marginal employment in my sample. While there is clearly seasonality during a given year, the share was quite stable before the COVID-19 pandemic.

Using a five-percent sample of my data, I calculate preliminary descriptive statistics, see table 1. Individuals who had ME during unemployment were on average unemployed for longer, the share of long-term unemployed among them is substantially higher, and they were slightly less likely to have found a job after the spell. The eligibility for severance pay is similar between the two groups. The most striking difference between is the difference in UB.

6

Figure 1: Share of Individuals who Have Marginal Employment
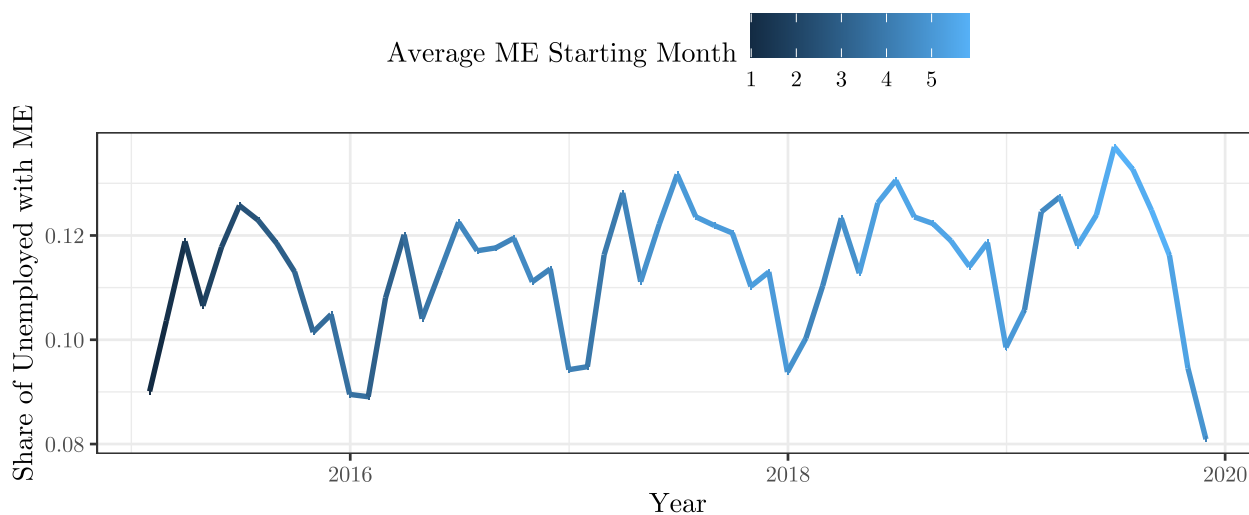
On average, a person that had ME at some point during their unemployment spell had a lower income before becoming unemployed than those who never took up ME. This explains why the first group receives 3.2 euros less of daily unemployment benefits than the latter. However, the growth in income after the unemployment spells is larger for those with ME. Taken together, this suggests that income plays an important role in the uptake of ME. The number of spells per individual are comparable in both groups. As other studies suggest, women are more likely to take up ME, as are non-citizens. However, age and university education do not differ greatly between the two groups.

Table 1: Summary Statistics AUR 5-Percent-Sample 2015 to 2020

	Unemployed			
	All Workers	No ME	Had ME	Full Sample
Mean Duration (in days)	143.7	137.5	196.0	
Mean Duration of prev. Status (in days)	536.3	537.6	524.6	
Long-term Unemployed (in %)	8.5	7.9	13.2	
Found Job (in %)	81.7	81.9	79.8	
Eligble for SP (in %)	15.6	15.7	15.1	
Mean Income prev. Employment (in Euros)	2406.1	2441.0	2090.0	
Mean Income next Employment (in Euros)	2496.2	2538.7	2128.7	
Daily Determination Base of UB				
Mean	81.3	82.4	71.5	
Median	78.3	79.5	66.3	
SD	38.9	39.0	37.2	
N (Spells)	292,075	261,115	30,960	
Number of Spells (in %)				
One Spell	38.3	38.6	36.1	
Two Spells	24.5	24.3	26.4	
Three or more Spells	37.2	37.1	37.5	
Demographics				
Female (in %)	43.5	42.7	49.3	49.0
Mean Age	40.1	40.0	40.7	44.7
University Education (in %)	2.2	2.3	2.1	5.4
Austrian Citizen (in %)	75.1	75.6	70.8	73.3
N (individuals)	106,736	94,337	12,399	786,058

Finally, I look at the behavior around the time at which individuals start ME, which significantly differs between short-term and long-term unemployed individuals. Table 2 shows at which point in time the unemployed begin their ME, differentiated by duration of the unemployment spell. While 80 percent of those who are unemployed for less than a year start ME within the first three months, over 45 percent of long-term unemployed individuals start ME only after a year. As these two groups differ so starkly in this respect, further analysis will, for now, exclude long-term unemployed individuals. For a few reasons the main focus lies on those who are short-term unemployed. For one, they are the majority of the unemployed. Additionally, for the long-term unemployed ME might not only be important from

an income perspective, but factors like structuring one's time and additional social contacts might become more important with increased length of unemployment. Splitting the sample might introduce a sampling bias.[3] As the length of unemployment spells differs between the groups, time spent in ME during unemployment is also very different, with 2.5 months for those unemployed less than a year and over 10 months for the long-term unemployed.

Table 2: Start and Duration of ME

	Unemployed less than a year	Long-term Unemployed
Start of ME (in %)		
In month 1	38.3	9.9
In month 2	27.5	6.0
In month 3	15.3	4.5
Between month 4 and 6	14.4	8.8
Between month 7 and 9	3.5	9.7
Between month 10 and 12	0.9	14.4
Between month 13 and 18		24.6
Between month 19 and 24		10.0
Start after more than 2 years		12.1
Mean Duration of ME (in months)	2.56	10.43
N (Spells)	9,039	638

Graphical evidence in the form of Kaplan-Meier survival curves supports, as expected, the claim that individuals who take up marginal employment and those with low unemployment benefits seem to be unemployed for longer periods of time than those without ME and those with high benefits, see figure 2. Next, I differentiate by the amount of UB to see whether the influence of ME is different for individuals receiving below and above the median of UB. Figure 3 in the Appendix shows that ME seems to have a slightly smaller influence on individuals with UB below the median, hinting at the potential importance for consumption smoothing. However, this difference between the two groups is not very large.

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[3]I cannot use a dummy for long-term unemployment as a control as this variable would be calculated using the duration of unemployment, which is my dependent variable.

Figure 2: Kaplan-Meier Survival Curves for Individuals with and without ME and Low UB

Grouped by ME Uptake

Grouped by Low UB
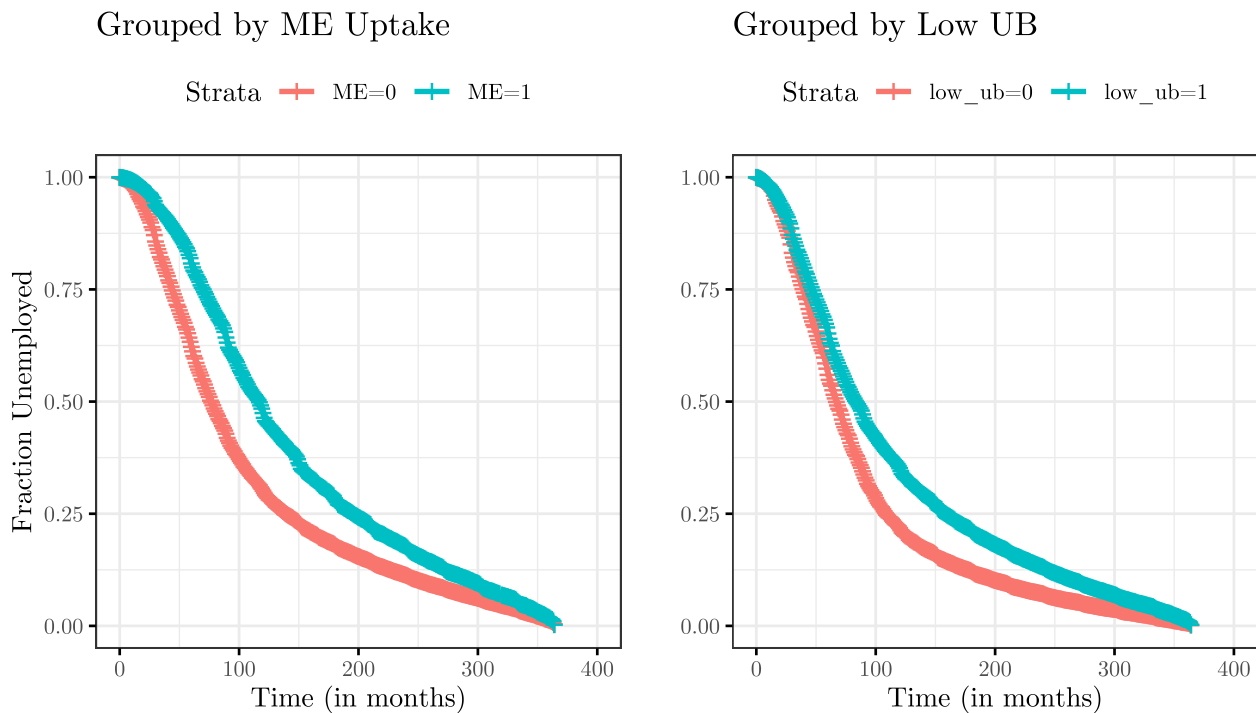
4 Empirical Strategy

I estimate a Cox proportional hazard model for exiting unemployment that depends on whether or not an individual started ME while unemployed. I treat ME as a time-invariant characteristic of the unemployment spell, meaning that if a person ever was in ME, they are "treated" for the whole spell, and estimate the following specification:

$$\theta(t|x) = \theta_0(t)\Phi(x),$$

$$\Phi(x) = exp(\beta_m ME + \beta_u UB + \beta_s SP + \gamma_{mu} ME \times UB + \tag{1}$$

$$\gamma_{ms} ME \times SP + \gamma_{us} UB \times SP + \gamma_{mus} ME \times UB \times SP + \delta_{is} + \rho X)$$

Here, θ is the hazard rate, while θ_0 is the baseline hazard, the average hazard rate by period. The ϕ-term is the influence of the control variables on the baseline hazard. The main explanatory variables are marginal employment (ME) and unemployment benefits

below the median (UB) and their interaction. I also control for severance payment eligibility (SP) to approximate the liquidity constraints of unemployed individuals, and some other variables contained in X. These are sex, age, nationality, education, previous employment duration, and the monthly unemployment rate. Industry and federal state fixed effects are also included as δ_{is}.

To identify the causal effect of ME on unemployment duration, prior research used two different approaches. The first involves matching on observable characteristics. But since everyone is eligible for this earnings exemption, there might be unobserved heterogeneity among individuals who select themselves into ME. The second is able to account for this using a timing-of-events approach, following Abbring and Van den Berg (2003). Here, the fundamental assumption for identification, however, is that individuals are not able to anticipate the start of the treatment. Following search and matching models, where unemployed individuals search for regular employment continuously, this holds. For ME this may not be the case as unemployed individuals might not continuously search for this kind of job but rather explicitly when in need of additional income, new skills or a way to structure free time. Identification is a tricky issue concerning this research question in the Austrian context. Everyone is eligible to do ME, hence there is no "natural" treatment group. We also do not observe a pre-treatment period because ME has existed in Austria since the 1950s. So, my results should be read as correlations rather than pure treatment effects of ME on the duration of unemployment.

5   Results

Table 3 shows the results for the specification in equation (1). Since the coefficients show the effect on the baseline hazard, so the average "risk" of finding a job, a negative coefficient indicates a *prolongation* of the unemployment spell. The first column shows the estimation without the connection to UB and any controls, the second adds an interaction term with

the dummy for UB being below the median, the third adds a dummy for severance pay eligibility and the last column shows the specification including all control variables. Across all specifications for the short-term unemployed, marginal employment reduces the probability of finding a job and, hence, prolongs unemployment. The same is true for receiving unemployment benefits below the median and several payment eligibility. However, once demographic controls are added, the influence of SP on unemployment duration becomes statistically insignificant.

Table 3: Cox Hazard Model Estimates: Effects on the Job-Finding Hazard

	No Controls (1)	Add UB (2)	Add SP (3)	Full Model (4)
ME	-0.376***	-0.401***	-0.381***	-0.385***
	(0.008)	(0.014)	(0.015)	(0.016)
Low UB		-0.277***	-0.297***	-0.283***
		(0.007)	(0.008)	(0.008)
SP			-0.098***	-0.004
			(0.013)	(0.015)
ME × Low UB		0.074***	0.054***	0.053***
		(0.018)	(0.020)	(0.020)
ME × SP			-0.092**	-0.091**
			(0.036)	(0.042)
Low UB × SP			0.094***	0.055***
			(0.023)	(0.019)
ME × Low UB × SP			0.092*	0.096*
			(0.050)	(0.050)
State & Industry FEs	No	Yes	Yes	Yes
Controls	No	No	No	Yes
Observations	215,131	150,078	150,078	143,890

Notes: Robust SEs in parentheses. $*p < 0.1, **p < 0.05, ***p < 0.01$

Surprisingly, ME increases the probability to remain unemployed less strongly for those with below-median unemployment benefits. This is contrary to the theories discussed in section 2, which assumes that ME is more attractive for those with low UB as the additional income is relatively higher for them. This hints at the fact that individuals with low UB do not use ME

to simply prolong their unemployment to enjoy more leisure, but rather to gain additional income and smooth consumption, *while* looking for regular employment.[4] For those who had ME and were eligible for SP the probability of finding a job is lower, while for those with low UB and SP eligibility it is higher. Workers with all three characteristics are also more likely to find a job.

5.1 Robustness

To provide more transparent evidence, table 4 shows the results of an OLS regression using the main specification from table 3 column (4). The OLS regression ignores issues such as censoring, but has a more straight-forward, linear interpretation.

Table 4: The Effect of Marginal Employment on Unemployment Duration (OLS)

	Dependent variable:
	Unemployment Duration in Days
ME	46.611***
	(2.443)
Low UB	29.841***
	(0.982)
SP	−10.801***
	(1.612)
ME × Low UB	−6.633**
	(3.032)
ME × SP	21.227***
	(4.881)
Low UB × SP	0.504
	(2.142)
ME × Low UB × SP	−15.436**
	(6.661)
Constant	552.712***
	(43.625)
Observations	193,221
R^2	0.103
Note:	*p<0.1; **p<0.05; ***p<0.01

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[4]A small but representative survey also shows that job searching efforts are not smaller for those with ME (see Schönherr 2021).

The coefficients' signs corroborate the findings from the Cox proportional hazard model and show that ME lengthens unemployment on average but is doing less so for individuals with unemployment benefits below the median. However, the effect of SP is switching signs – while the duration model indicates that SP prolongs unemployment, the OLS results show that it shortens the duration.

Finally, I estimate equation (1) using the full sample, including the long-term unemployed. Since the long-term unemployed are a relatively small group, the results do not change substantially – the coefficient for ME does not change at all. If anything, the effect of ME on unemployment duration becomes smaller for those receiving UB below the median. The LTU are likely to be part of that group, since they receive unemployment assistance, which is lower than UB. This indicates that ME might have more positive effects for those who are unemployed over a year.

Table 5: Cox Hazard Model Estimates: Effects on the Job-Finding Hazard

	Only STU (1)	Full Sample (2)
ME	-0.385***	-0.385***
	(0.016)	(0.015)
Low UB	-0.283***	-0.310***
	(0.008)	(0.008)
SP	-0.004	0.033
	(0.015)	(0.014)
ME × Low UB	0.053***	0.076***
	(0.020)	(0.020)
ME × SP	-0.091**	-0.074**
	(0.042)	(0.033)
Low UB × SP	0.055***	0.049***
	(0.019)	(0.018)
ME × Low UB × SP	0.096*	0.118**
	(0.050)	(0.046)
State & Industry FEs	Yes	Yes
Controls	Yes	Yes
Observations	143,890	151,456

Notes: Robust SEs in parentheses. $*p < 0.1, **p < 0.05, ***p < 0.01$

6 Discussion

Contrary to what orthodox theories suggest, using a Cox proportional hazard model, I find that, while ME prolongs the unemployment spell for every one, it does less so for individuals whose unemployment benefits are below the median. This finding holds over multiple different specifications. While identification issues remain, this study is the first to examine the effects of marginal employment on unemployment duration differentiated by income, offering insights into the reasons behind the uptake of ME. Since ME prolongs unemployment less for those with lower UB, individuals seem to use ME for consumption smoothing rather than to finance additional leisure. My findings have clear policy implications. In many policy debates, restricting ME is put forward as a way to reduce unemployment. Yet, if unemployed individuals use ME for consumption smoothing, like this study finds, restricting ME during unemployment might not lead to fewer unemployed or shortened unemployment spells, but likely leaves more people struggling to make a living. Future research should examine the effects of ME on the long-term unemployed closer as this is an especially vulnerable and growing group in Austria.

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Appendix

Figure 3: Kaplan-Meier Survival Curves for differentiated by UB

UB below Median

UB above Median