The impact of participation tax rates on labor supply decisions*

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Abstract

This paper investigates the importance of work incentives for the decision to take up work. Tax-benefit system inherent work incentives at the extensive margin are measured by the Participation Tax Rate (PTR), a concept established by optimal tax theory. Low work incentives are expected to increase the probability of favoring unemployment and transfer recipience over labor market participation. We provide evidence that decreasing PTR, i.e. increasing work incentives, does increase the probability of taking up work significantly, although the size of the effect is small.

JEL Classification: H24, H31, J22, J65
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1 Introduction

In many European welfare states, major labor market reforms have been undertaken in the last three decades to tackle the enduringly high unemployment rates. Under the general impression that generous benefits and high marginal taxes were to blame for low incentives to take up work, out-of-work benefits have been reduced and taxes cut. These reform efforts are backed by a wide range of empirical studies on labor supply elasticities showing that behavioral responses are higher at the extensive margin than at the intensive margin, particularly for low-income individuals.[1] Hence, a misshapen tax-benefit design at the extensive margin may create high efficiency costs.

At the same time, labor supply decisions at the extensive margin received growing attention in the theoretical literature on optimal taxation. Recent contributions to optimal tax theory incorporate both the extensive margin and the intensive margin.[2] In optimal tax theory, the effective marginal tax rate (EMTR) measures work incentives at the intensive margin and the participation tax rate (PTR) at the extensive margin, which in turn led to a growing literature estimating the PTR for various tax-benefit systems.[3] The PTR captures the after-tax financial gain from taking up work.

In Germany, rising unemployment after reunification in 1990 ushered in a period of labor market and tax reforms. Beginning in 1994, eligibility for unemployment benefits was tightened and sanctioning mechanisms introduced to push the unemployed into work. Personal income tax reforms between 1998 and 2005 substantially reduced marginal and average tax rates. The most radical changes, the so-called *Hartz reforms*, were introduced between 2003 and 2005 slashing out-of-work benefits particularly for long-term unemployed and low-income individuals:

[1] See Meghir and Phillips (2010) for an overview of empirical studies on labor supply elasticities.

[2] See, e.g., Saez (2002) or Jacquet et al. (2013).

[3] For cross-country studies on PTRs in EU countries see Immervoll et al. (2007), Immervoll et al. (2009) and O'Donoghue (2011). These studies rely on the simulation model EUROMOD based on the tax-benefit rules prevailing in the year 1998. Country studies on PTRs over time are, e.g., Bartels (2013) for Germany, Dockery et al. (2011) for Australia, Adam et al. (2006) and Brewer et al. (2008) for UK as well as Pirttillä and Selin (2011) for Sweden. See Bartels (2013) for a comparison of short-term vs. long-term PTRs.

The threshold for marginal employment not subject to social security contributions was raised which in turn reduced the fraction of the working age population eligible for unemployment benefits. The entitlement for unemployment benefits was reduced further by raising the required number of months in employment. Ultimately, earnings-related unemployment assistance for the long-term unemployed was replaced by means-tested social assistance. Consequently, PTRs have decreased and work incentives increased for these groups over time. On the other hand, labor market participation increased regardless of age since the last part of the *Hartz reforms* was introduced in 2005 as Figure 1 depicts.

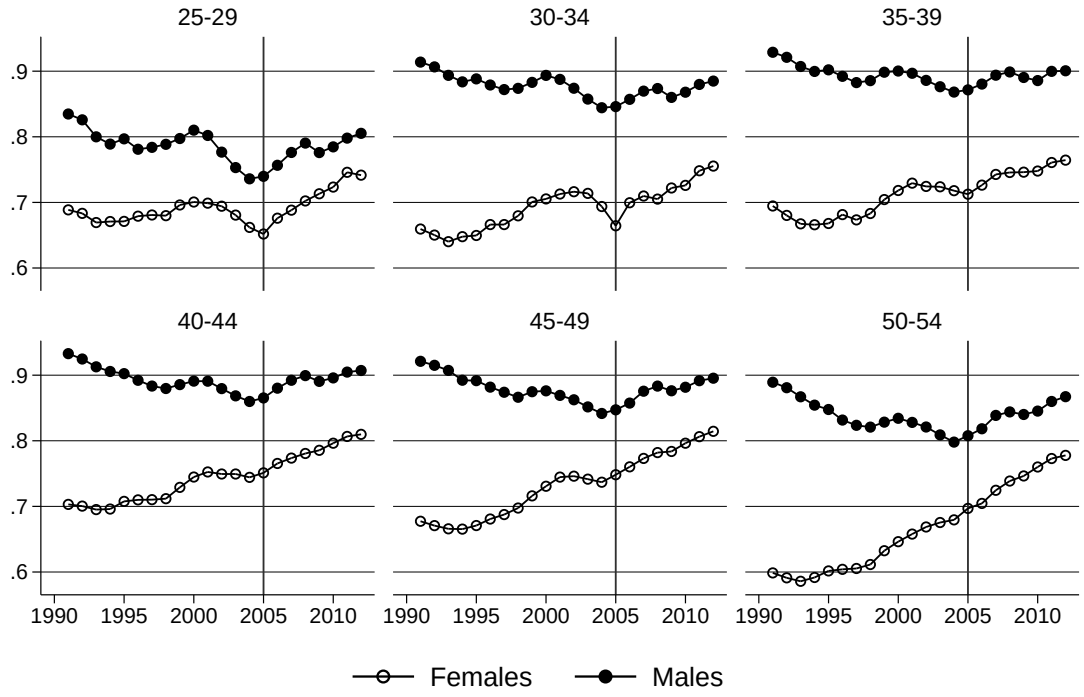
This paper examines the extent to which the increase of work incentives inherent in the tax-benefit system contributed to raise the probability of taking up work. The existing literature studies the effect of work incentives on either aggregate unemployment (e.g. Bassanini and Duval, 2009), unemployment duration (e.g. Caliendo et al., 2013) or labor market participation within particular social insurance programs such as pensions (e.g. Börsch-Supan, 2000; Staubli and Zweimüller, 2013). We measure work incentives for all individuals in the labor force independent of their labor market status by the PTR. We find that lower PTR significantly increase the probability to take up work in a time period of major changes of the German tax-benefit system towards higher work incentives from 1994 to 2010.

The paper is organized as follows: Section 2 introduces the concept of the PTR, explains three simulation scenarios to obtain an individual PTR and provides a description of the data as well as the estimation strategy. Our results are presented in section 3. Section 4 concludes.

2 Methodology

As a context for our empirical analysis we assume that the individual i can choose between the two labor market states E employed or U unemployed. Assume that the individual will only decide to work if $u_{it} = X_{it}\beta + \epsilon_{it} > 0$, where utility u_{it} is the sum of a deterministic utility component depending on observed characteristics X_{it} and parameters β to be estimated and a random utility component ϵ_{it}. We aim at

Figure 1: Labor market participation in Germany



Source: Mikrozensus.
Note: Share of population by age group employed in the respective year.

estimating the importance of the financial gain from working measured by the PTR for the participation decision.

2.1 Data

The analysis is based on a subsample from the SOEP survey years 1994 to 2010. The SOEP is a representative panel study containing individual and household data in Germany from 1984 onwards and was expanded to the New German Laender after German reunification in 1990. All household members are interviewed individually once they reach the age of 16.[4]

The sample only includes individuals who are aged between 25 and 54 to avoid distortions due to early or partial retirement. Individuals who are self-employed or civil servants and, as a consequence, did not necessarily contribute to unemployment insurance are dropped as are disabled. Only individuals belonging to households

[4]See Wagner et al. (2007) for further information on the SOEP.

classifiable as single, single parent or married couple with or without children are included. Furthermore, individuals with earnings in E below 33% of the marginal employment threshold are dropped. Households enter the sample twice, if both adults meet the requirements outlined above.

Participation decisions are largely correlated with characteristics like gender, marital status and number as well as earnings size of other household members. Table 1 presents the number of observations by gender and labor market status. The first three columns give the share of males and females in state E and U in 1999, 2004 and 2009. The fourth column provides these shares over the period 1999-2009 and gives the share of those who took up work, i.e. changed labor market status from U to E, between 1999 and 2009. Approximately 90% of the working age population is employed which is in line with Mikrozensus data presented in Figure 1. Female labor participation rises from about 88% to 92%. About 4% took up work after a period of unemployment between 1999 and 2009.

Table 1: Number and share of observations

		1999	**2004**	**2009**	**1999-2009**
	all	4,650	4,897	4,620	50,497
	all	91.5%	88.9%	92.2%	90.0%
E	males	95.2%	91.6%	93.0%	92.6%
	females	87.9%	86.3%	91.6%	87.5%
	all	8.5%	11.1%	7.8%	10.0%
U	males	4.8%	8.4%	7.0%	7.4%
	females	12.1%	13.7%	8.4%	12.5%
	all				3.9%
U → E	males				3.2%
	females				4.6%

Source: SOEP, own calculations.
Note: Shares are weighted.

2.2 Participation Tax Rate

The PTR measures the change in household net taxes from labor market state E to U as a fraction of individual earnings in labor market state E. Net taxes T paid by the household h are income taxes t_h including social security contributions reduced by benefits b_h. Individuals in high-income households will pay positive T to the government as taxes will exceed benefits. Individuals in low-income households will

predominantly receive benefits from the government which results in negative T. According to Immervoll et al. (2007) an annual PTR can thus be denoted as

$$PTR_h = \frac{T(y_h^E) - T(y_h^U)}{y_i^{E,w}}, \tag{1}$$

where y_h^E is gross household income, $T(y_h^E)$ is household net taxes and $y_i^{E,w}$ is individual labor earnings in labor market state E. Gross household income is the sum of labor earnings, asset income, private transfers, private pensions and social security pensions of all household members. y_h^U is gross household income if setting individual earnings to zero and holding constant other household members' labor income and household income from other sources. $T(y_h^U)$ is household net taxes in case the individual is unemployed and in labor market state U.

If household net taxes are equal for both labor market states, then the PTR is zero and incentives to take up work are not distorted. But a welfare state providing income support in state U usually leads to $t_h^U < b_h^U$ resulting in $T(y_h^U) < 0$ as unemployment benefits will surpass taxes paid for the declined household income y_h^U. In sum, the change in net taxes will be positive in presence of a welfare state and the PTR will be higher than zero for most individuals. The higher the PTR, the more do generous income support programs reduce the financial gain from working. The PTR is one, if the change in net taxes $T(y_h^E) - T(y_h^U)$ (numerator) is equal to individual earnings $y_i^{E,w}$ (denominator). In this case, there is no financial gain from working. If out-of-work income support exceeds earnings, then the PTR can be even greater than 1.

In order to obtain a PTR for all individuals in the labor force independent of their observed labor market status E or U, the non-observed state has to be simulated. All simulations are based on IZAΨMOD.[5] We employ three simulation scenarios:

1. Take observed hours for E, gross household income y_h^E and individual earnings $y_i^{E,w}$ from the SOEP data. Gross household income in U is then given by $y_h^U = y_h^E - y_i^{E,w}$.

[5]See Löffler et al. (2014) for a documentation of the simulation model.

2. Simulate $y_i^{E,w}$ for 20 hours of work and compute y_h^E and y_h^U accordingly.

3. Simulate $y_i^{E,w}$ for 40 hours of work and compute y_h^E and y_h^U accordingly.

In a second step, we then apply the tax-benefit rules of the respective year to obtain household taxes t_h and public transfers b_h for both states E and U assuring consistent assumptions regarding deductions etc. E.g., household taxes paid in state U are the sum of income tax $t_h^{U,inc}$ assessed on the basis of y_h^U, solidarity surcharge $t_h^{U,S}$ and social security contributions s_j^U on spouse's earnings $y_j^{E,w}$ if the spouse j is working in E. Household public transfers are the sum of unemployment benefits, unemployment assistance, maternity benefits, social assistance, housing allowances and child benefits. A potential increase in benefits when changing from E to U will occur for unemployment benefits, unemployment assistance, social assistance and housing allowances. In contrast, maternity benefits and child benefits do not depend on household income and remain constant for E and U.

Several factors lead to variation of PTRs among the population. Individual earnings is a major determinant in the denominator of the PTR-formula. The PTR is higher, the lower wage and/or weekly working hours. On the other hand, real wage growth may lead to lower PTRs and higher work incentives. Apart from earnings, PTRs heavily depend on the household context that determines the change in net household taxes between E and U in the numerator of the PTR-formula. High PTRs can be generated by both high out-of-work income provided by the welfare state and large reductions in household net taxes when changing to state U. The two terms strongly depend on the level of spouse's earnings and other household income sources.

A PTR of 80% for a single earning 24,000 Euro annually can arise from $T(y_h^E) - T(y_h^U)$ equal to 19,200 Euro such that $\frac{19{,}200}{24{,}000} = 80\%$. Net taxes in E result from taxes on earnings of 11,000 Euros and zero transfers. Net taxes in U result from zero taxes and unemployment benefits of 8,200 Euro. The PTR is attributable to the sum of an in-work tax rate equal to $\frac{11{,}000}{24{,}000} = 46\%$ and an out-of-work gross benefit ratio equal to $\frac{8{,}200}{24{,}000} = 34\%$.

Table 2 shows the importance of each component for the PTR by household type before and after the reform period in both labor market states. The PTR can

be broken down into its components as follows

$$PTR_h = \frac{(t_h^{E,inc} + s_h^E - b_h^E) - (t_h^{U,inc} + s_h^U - b_h^U)}{y_i^{E,w}}, \tag{2}$$

Table 2 gives the median share of each component in E and U for a certain household type. The median share of incomes taxes in individual earnings for all household types decreases from 21% in 1994 to 15% in 2006, whereas the median share of social security contributions rises from 19% in 1994 to 21% in 2006. The median share of benefits in state U decreased from 43% to 40%. Interestingly, the share of in-work-benefit for sole-earner-households increased from 4% to 7%, which reflects the policy change in the beginning of the 2000s. In sum, the PTR decreases for each household type between 1994 and 2006.

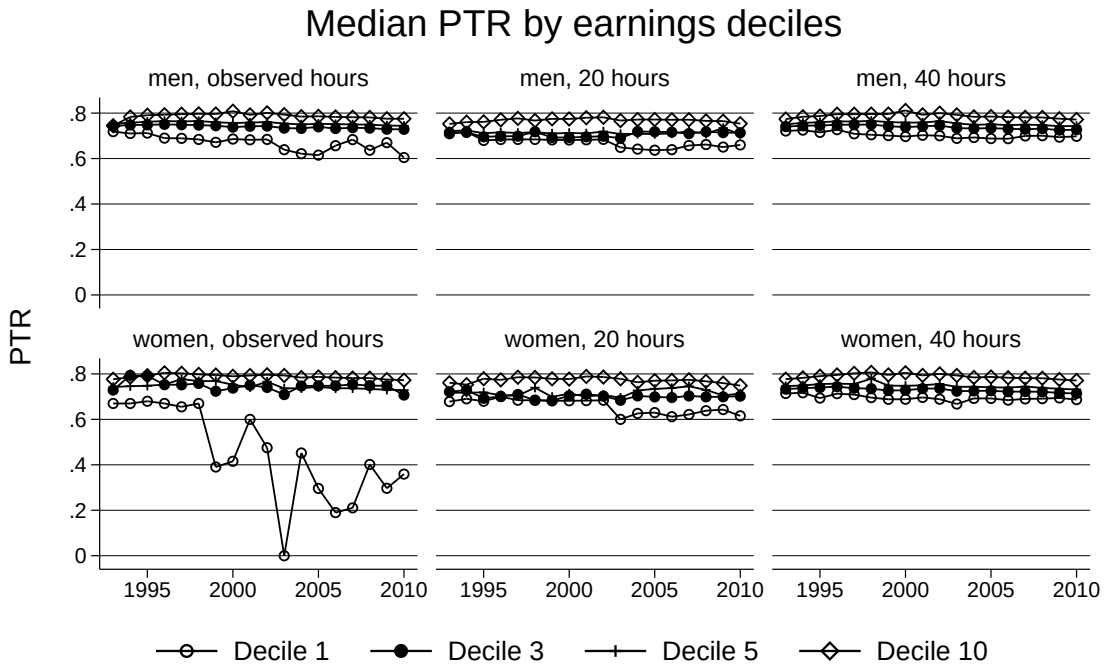
Table 2: PTR components' share in individual earnings $y_i^{E,w}$ in %, observed hours

Household	E			U			
type	$t_h^{inc}/y_i^{E,w}$	$s_h/y_i^{E,w}$	$b_h/y_i^{E,w}$	$t_h^{inc}/y_i^{E,w}$	$s_h/y_i^{E,w}$	$b_h/y_i^{E,w}$	PTR
1994							
Single	18%	19%	0%	0%	0%	40%	77%
Sole earner	9%	19%	4%	0%	0%	48%	72%
First earner	24%	30%	1%	3%	11%	41%	80%
Second earner	45%	52%	2%	24%	33%	46%	84%
Total	21%	19%	1%	0%	0%	43%	82%
2006							
Single	13%	21%	0%	0%	0%	38%	72%
Sole earner	5%	21%	7%	0%	0%	49%	68%
First earner	19%	31%	0%	0%	11%	39%	78%
Second earner	39%	59%	0%	20%	38%	42%	82%
Total	15%	21%	0%	0%	0%	40%	76%

Source: SOEP & IZAΨMOD, own calculations.

Figure 2 depicts PTRs by earnings decile, gender and simulation scenario. Each graph presents the median PTR within an earnings decile in the respective year. E.g., men in the top decile face a PTR of about 80%, whereas the PTR of men in the lowest decile is only about 60% regardless of the simulation scenario. PTRs are lowest for the rising female labor force who often take up marginal employment

Figure 2



Source: SOEPv29 & IZAΨMOD, own calculations.

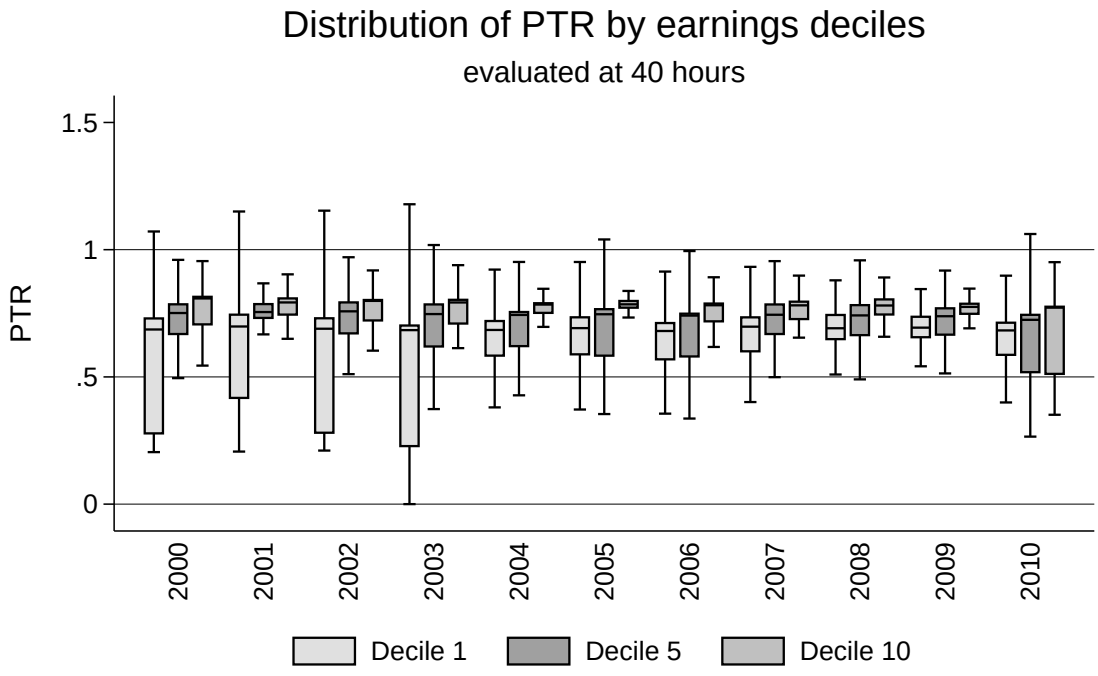
where they do not become eligible for unemployment benefits.

If we instead focus on the PTR distribution within earnings deciles as presented in Figure 3 for the simulation scenario with 40 hours, we see that the dispersion of PTRs decreases with earnings. I.e., individuals in the lowest earnings decile largely differ in the PTRs they face, whereas almost all individuals in the highest decile have a PTR of about 80%. The lowest decile contains both low-income first earners not eligible for unemployment benefits, but for social assistance, and side-earners (mostly women) not eligible for any out-of-work benefits because of the breadwinner's high earnings (mostly men).

The larger variety of living arrangements of women is also mirrored by a larger dispersion of PTRs as can be taken from Figure 4.

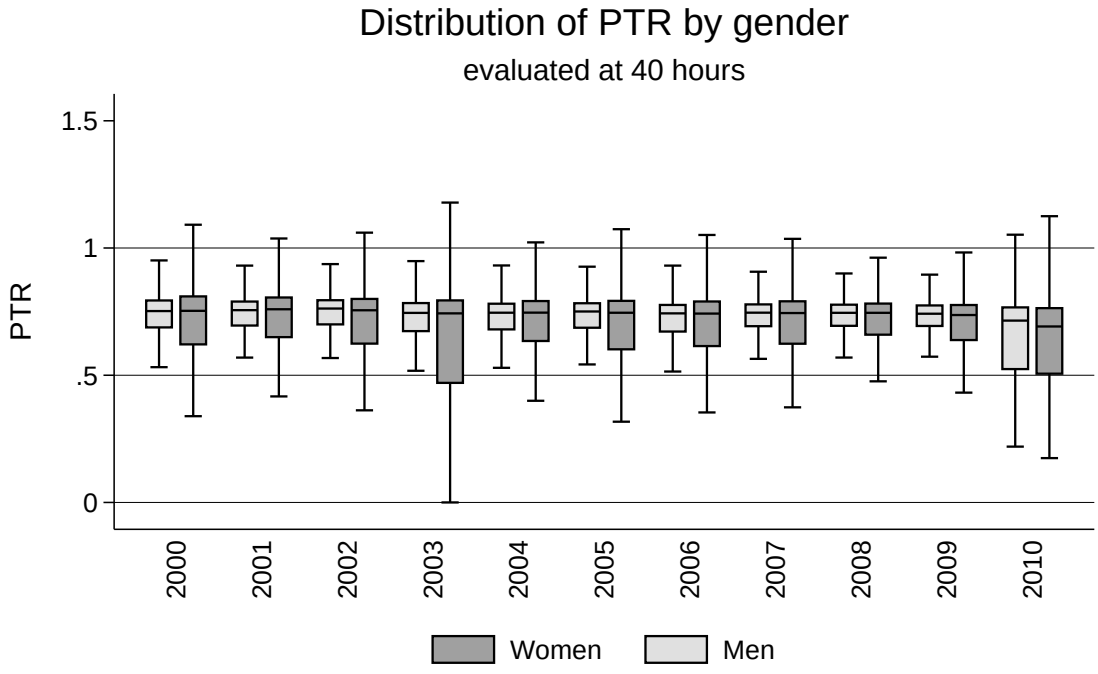
Younger individuals aged 25-34 tend to face lower PTRs than older age groups as presented by Figure 5. A shorter employment history induces young individuals to be less eligible for unemployment benefits.

Figure 3



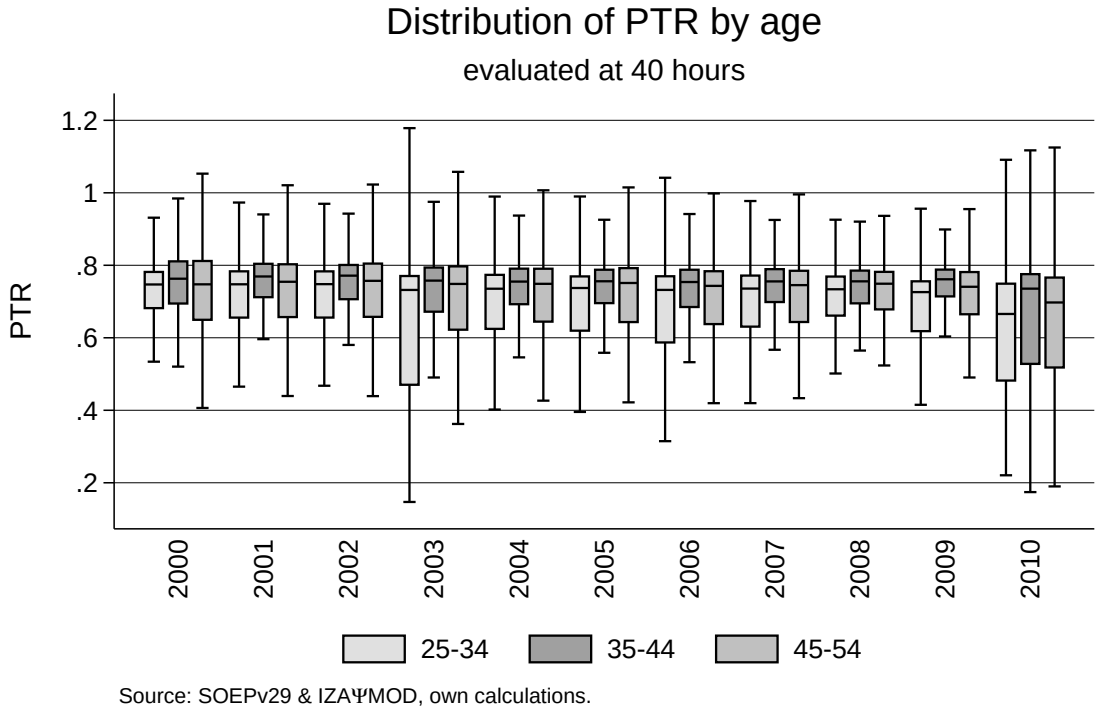
Source: SOEPv29 & IZAΨMOD, own calculations.

Figure 4



Source: SOEPv29 & IZAΨMOD, own calculations.

Figure 5



Source: SOEPv29 & IZAΨMOD, own calculations.

2.3 Estimation

In our empirical application, we test for an effect of the PTR on work incentives in two different ways. First, we test whether a lower PTR is associated with a higher likelihood of being employed, i.e., we ask the question whether lower work incentives (lower PTRs) contribute to a higher likelihood of labor market participation. This is captured by the following regression model, where the dependent variable is the binary employment status E_{it} of individual i in period t. The main explanatory variable of interest is the contemporaneous participation tax rate PTR_{it}. Controls captured by X_{it} include age, household type, region and state-year unemployment rates. Year fixed effects capture business cycle fluctuation affecting labor demand and are denoted by μ_t. The error term is denoted ϵ_{it}. We estimate this equation with ordinary least squares (OLS) and in an individual fixed effects (FE) framework exploiting individual variation around an individual time-invariant effect denoted α_i in order to capture unobserved heterogeneity, such as a preference for leisure that

deviates from the mean.

$$P(E_{it}) = X'_{it}\beta + \gamma PTR_{it} + \alpha_i + \mu_t + \epsilon_{it} \tag{3}$$

Alternatively, we additionally test whether changes in work incentives in period $t-1$, (e.g., an increase by lowering the PTR) raises the likelihood of switching the labor market status from being unemployed in period $t-1$ (U_{t-1}) to being employed in period t (E_t) following a change in the PTR, i.e., $\Delta PTR_t = PTR_t - PTR_{t-1}$. This is captured by the following model

$$P(U_{t-1} \rightarrow E_{it}) = X'_{it}\beta + \gamma \Delta PTR_{it} + \alpha_i + \mu_t + \epsilon_{it} \tag{4}$$

Additionally, we test all models using a grouping estimator following Blundell et al. (1998). The motivation for this is that, similar to the case of labor supply elasticities, the individual PTR may be an endogenous regressor, since it depends on individual wages. In order to capture the effect of variation in the PTR solely from variation in policies over time, we use group membership according to gender, year, three cohorts (born before 1960, in the 1960s, 1970 or later) and skill (high-skilled, medium- or low-skilled) as an instrument for the PTR and hence using variation in mean PTRs across groups.

3 Results

Regression results are presented in Tables 3–8. All regressions are estimated for all individuals as well as separately by gender. In addition, we include interactions of the (change in) PTR with age and the state-year unemployment rate in order to see whether there are heterogeneous effects for younger and older workers and whether the incentive effect from the PTR is affected by regional labor market conditions.

Tables 3 shows the OLS regression results for employment status E separately for all individuals, as well as for males and females and without and with interacting the participation tax rate with age and the regional unemployment rate. All models show that the PTR is positively correlated with participating in the labor market.

While this may be surprising at first, this can be explained by a positive selection into employment. In the descriptive part of the paper we have shown that the PTR increases over the earnings distribution. This is especially true for older workers. The positive selection of individuals with high PTRs into employment is confirmed by our results from individual fixed-effects regressions presented in Table 4. The results for the coefficient on the PTR are substantially smaller (though still positive), which means that a large part of the OLS result is driven by unobserved individual characteristics. In addition, the interaction with age is no longer insignificant. Hence, the employment status outcome seems not to be an appropriate measure to study the effect of tax-benefit system's work incentives.

A more suitable measure may be represented by the change of employment status from being unemployed to take up work, and hence explicitly taking into account the participation decision of currently unemployed. Regression results for OLS and individual fixed effects are presented in Tables 5 and 6. We find a statistical significant negative effect of an increasing PTR (which means lower work incentives) on the likelihood of switching from non-employment into employment. This means that policy reforms aiming at increasing work incentives indeed have an impact on individuals' likelihood of leaving non-employment. The effect is particularly strong for young individuals and for women.

Finally, as a robustness check, we present results from an instrumental variable approach in Tables 7 and 8, where we use a grouping instrument for the PTR. The previous results are broadly confirmed, but effects are not significant anymore. Only for men, the effect of the PTR on the likelihood of taking up work is now negative. However, we do again find a significant negative effect in line with our expectations.

Table 3: OLS Results: Employment status E (40 hours)

	All		Males		Females	
	(1)	(2)	(3)	(4)	(5)	(6)
PTR	0.749***	0.505***	0.668***	0.449***	0.787***	0.515***
PTR*age 35-44		0.294***		0.265***		0.295***
PTR*age 45-54		0.456***		0.436***		0.451***
PTR*U-rate		-0.001		-0.000		0.001
age 35-44	-0.024***	-0.223***	-0.027***	-0.208***	-0.017**	-0.214***
age 45-54	-0.053***	-0.366***	-0.036***	-0.338***	-0.067***	-0.374***
U-rate	-0.003***	-0.003	-0.003**	-0.002	-0.004***	-0.005
East	0.026***	0.026***	-0.006	-0.006	0.058***	0.057***
Skilled	-0.034***	-0.032***	-0.030***	-0.028***	-0.032***	-0.030***
Unskilled	-0.097***	-0.093***	-0.081***	-0.077***	-0.095***	-0.092***
Single parent	-0.015*	-0.022**	0.031*	0.029*	-0.036***	-0.045***
Couple	-0.018***	-0.019***	0.016***	0.015**	-0.055***	-0.056***
Family	-0.061***	-0.065***	-0.002	-0.004	-0.134***	-0.139***
Constant	0.478***	0.644***	0.540***	0.688***	0.444***	0.631***
Year Dummies	yes	yes	yes	yes	yes	yes
Adjusted R^2	0.196	0.206	0.156	0.167	0.228	0.238
Observations	64147	64147	29987	29987	34160	34160

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4: FE Results: Employment status E (40 hours)

	All		Males		Females	
	(1)	(2)	(3)	(4)	(5)	(6)
PTR	0.190***	0.178***	0.217***	0.309***	0.154***	0.048
PTR*age 35-44		0.071		-0.055		0.151**
PTR*age 45-54		-0.002		0.005		0.003
PTR*U-rate		-0.001		-0.006		0.005
age 35-44	-0.003	-0.054	-0.003	0.037	-0.007	-0.114**
age 45-54	-0.010	-0.010	-0.028	-0.032	-0.006	-0.010
U-rate	-0.004*	-0.003	-0.002	0.003	-0.007*	-0.010*
East	-0.025	-0.026	-0.001	-0.002	-0.038	-0.040
Skilled	-0.163***	-0.164***	-0.146***	-0.145***	-0.175***	-0.174***
Unskilled	-0.160***	-0.160***	-0.136***	-0.136***	-0.175***	-0.174***
Single parent	-0.028	-0.028	-0.039	-0.040	-0.027	-0.027
Couple	-0.021**	-0.021**	-0.014	-0.014	-0.015	-0.015
Family	-0.058***	-0.058***	-0.019	-0.019	-0.065**	-0.066**
Constant	0.961***	0.969***	0.930***	0.867***	0.985***	1.056***
Year Dummies	yes	yes	yes	yes	yes	yes
Adjusted R^2	0.024	0.024	0.028	0.029	0.023	0.025
Observations	64147	64147	29987	29987	34160	34160

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 5: OLS Results: Employment status change $U \rightarrow E$ (40 hours)

	All		Males		Females	
	(1)	(2)	(3)	(4)	(5)	(6)
Δ PTR	-0.073***	-0.111***	-0.036*	-0.065**	-0.098***	-0.145***
Δ PTR* Δ U-rate		-0.001		0.000		-0.002
Δ PTR*age 35-44		0.054		0.047		0.060
Δ PTR*age 45-54		0.068*		0.047		0.086*
age 35-44	-0.024***	-0.026***	-0.020***	-0.021***	-0.029***	-0.031***
age 45-54	-0.026***	-0.028***	-0.024***	-0.025***	-0.028***	-0.030***
Δ U-rate	-0.007***	-0.007***	-0.004	-0.004	-0.010**	-0.010**
East	0.012***	0.012***	0.014***	0.014***	0.009*	0.009*
Skilled	0.004	0.004	0.008*	0.008*	-0.001	-0.001
Unskilled	0.026***	0.025***	0.019**	0.019**	0.027***	0.027***
Single parent	0.023***	0.023***	0.002	0.002	0.025***	0.026***
Couple	0.010***	0.010***	0.005	0.005	0.013***	0.014***
Family	0.014***	0.014***	0.003	0.003	0.027***	0.027***
Constant	0.031***	0.033***	0.042***	0.043***	0.042***	0.044***
Year Dummies	yes	yes	yes	yes	yes	yes
Adjusted R^2	0.011	0.012	0.007	0.007	0.015	0.016
Observations	48987	48987	22843	22843	26144	26144

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 6: FE Results: Employment status change $U \rightarrow E$ (40 hours)

	All		Males		Females	
	(1)	(2)	(3)	(4)	(5)	(6)
Δ PTR	-0.107***	-0.142***	-0.074***	-0.100**	-0.132***	-0.174***
Δ PTR* Δ U-rate		-0.008		0.000		-0.010
Δ PTR*age 35-44		0.034		0.037		0.033
Δ PTR*age 45-54		0.071*		0.050		0.088
age 35-44	-0.012*	-0.013*	-0.003	-0.004	-0.018*	-0.020*
age 45-54	-0.002	-0.004	0.011	0.010	-0.010	-0.013
Δ U-rate	-0.009***	-0.008***	-0.004	-0.003	-0.013***	-0.013**
East	-0.006	-0.008	-0.002	-0.002	0.006	0.003
Skilled	-0.026	-0.026	-0.011	-0.011	-0.042	-0.043
Unskilled	-0.013	-0.013	0.001	0.001	-0.022	-0.023
Single parent	0.009	0.009	0.028	0.027	0.008	0.009
Couple	0.001	0.001	-0.009	-0.009	0.010	0.010
Family	0.002	0.001	-0.011	-0.011	-0.005	-0.005
Constant	0.085***	0.086***	0.078***	0.079***	0.106***	0.109***
Year Dummies	yes	yes	yes	yes	yes	yes
Adjusted R^2	0.012	0.013	0.007	0.008	0.019	0.020
Observations	48987	48987	22843	22843	26144	26144

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 7: IV Results: Employment status E (40 hours)

	All	Males	Females
	(1)	(2)	(3)
PTR	0.385***	0.362***	0.375***
age 35-44	0.002	0.001	0.003
age 45-54	-0.000	-0.015	0.007
U-rate	-0.004***	-0.004**	-0.006***
East	0.003	0.001	0.009
Skilled	-0.167***	-0.190***	-0.143***
Unskilled	-0.156***	-0.162***	-0.146***
Single parent	-0.016	-0.058**	-0.027*
Couple	-0.018***	-0.013*	-0.022**
Family	-0.062***	-0.016	-0.099***
Constant	0.829***	0.869***	0.821***
Year Dummies	yes	yes	yes
Observations	70612	33198	37414

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 8: IV Results: Employment status change $U \rightarrow E$ (40 hours)

	All	Males	Females
	(1)	(2)	(3)
Δ PTR	-0.113	0.148	-0.253**
age 35-44	-0.010**	-0.009	-0.010
age 45-54	-0.004	0.001	-0.006
Δ U-rate	-0.006***	-0.004**	-0.006***
East	0.020	0.020	0.017
Skilled	-0.034***	-0.024	-0.043**
Unskilled	-0.032**	-0.030*	-0.032*
Single parent	0.009	0.009	0.008
Couple	0.001	-0.004	0.006
Family	0.003	-0.008	-0.001
Constant	0.040***	0.038**	0.040**
Year Dummies	yes	yes	yes
Observations	51456	24123	27333

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

4 Conclusions

This paper has investigated the importance of work incentives for the decision whether or not to work. Tax-benefit system inherent work incentives at the extensive margin were measured by the Participation Tax Rate (PTR), a concept established by optimal tax theory. Low work incentives are expected to increase the probability of favoring unemployment and transfer recipience over labor market participation. The paper provides evidence that lower PTR implying higher work incentives increase the probability for the unemployed to take up work significantly.

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