DIW Diskussionspapiere
Discussion Papers

Discussion Paper No. 139

Unemployment, Labor Market Training Programs and Regional Wages: An Extended Wage Curve Approach

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Berlin, August 1996

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Abstract

One common feature of all empirical wage curve studies is the underlying assumption that the unemployment rate is the natural indicator of labor market tightness. However, we observe that in many European countries governments spend remarkable amounts on labor market training programs. As training programs maintain the search effectiveness of the unemployed and enhance their skills, we incorporate these measures into the standard wage curve approach.
Our empirical work reveals an extended wage curve in East Germany. There is a nonlinear and negative relationship between wages and job searcher rates on regional labor markets. Moreover, our estimates give first hints that labor market training programs may reduce wage pressure. Within a theoretical framework like Layard/Nickell/Jackman (1991) this implies that training programs may lower equilibrium unemployment.

* *We are grateful to David Blanchflower, Uwe Blien, Thies Büttner, John Haisken-DeNew and Andrew Oswald for helpful comments. Furthermore, special thanks to Uwe Blien for supplying the regional informations about training programs and unemployment rates. All remaining errors are our sole responsibility.* *Mailing address: German Institute for Economic Research (DIW), German Socio Economic Panel Study (GSOEP), Königin-Luise-Straße 5, 14195 Berlin, Germany, Phone: +49 (030) 89789-678, Fax: +49 (030) 89789-200, e-mail: mpannenberg@diw-berlin.de.*

1 Introduction

After six years of intensive empirical research, the wage curve seems to be established as a new 'empirical law of economics', though there is an ongoing discussion about both, the reasons for a negative relationship between wages and local unemployment and the connection between the wage curve and the Phillips curve (Card 1995). One common feature of all studies is the underlying assumption that the unemployment rate is the natural indicator of labor market tightness. However, we observe that in many European countries governments spend remarkable amounts on active labor market policies, such as direct job creation, job broking activities and labor market training programs. All these policies are implemented to affect the subsequent employment opportunities of the participants and therefore to combat the high and persistent unemployment in Europe. Among these active labor market policy measures labor market training programs (LMTPs) are of high importance, because they are prefered in official proposals like the EC Presidency Conclusions of 1994. These proposals lead to non-negligible amounts of participation in LMTPs. The observed figures for some European countries are shown in table 1:

Table 1: Participation in LMTPs in some European Countries, 1992-94*

(Paricipant inflows as a per cent of the labor force)

Country	1992	1993	1994
Britain[1]	0.9	1.1	0.9
Denmark	2.1	3.2	4.2
France	3.2	3.2	- -
Germany	2.7	2.0	1.9
Netherlands	1.6	1.5	1.4
Sweden[1]	3.2	2.5	3.0

Sources: OECD, Employment Outlook 1995.
* Training for unemployed and those at risk.
[1] 1991-92, 1992-93, 1993-94.

The participants in LMTPs are - as defined by the official statistics - not part of the unemployed and would not be included in wage functions derived from the 'standard' wage curve approach. Nevertheless, these participants have to be considered as a part of the effective regional labor force, since in general LMTPs at least maintain the search effectiveness of the unemployed and enhance their skills (Layard/Nickell/Jackman 1991). For example, in East Germany the figures for the proportion of participants of LMTPs, who receive unemployment benefits six months after the end of the program, are roughly 40% for females and 22% for males in 1993 (Buttler/Emmerich 1995). Taken at face value, these figures indicate that

LMTPs have an impact on regional wages: First, LMTPs might have a decreasing effect on regional wages by raising the effective size of the regional supply of labor. Second, the existence of LMTPs may influence the behavior of unions in (regional) wage bargaining, because the individual loss of economic well-being from being laid off is reduced as training is a favorable alternative to living 'on the dole' (Calmfors/Lang 1995). This increases wage pressure.

As a consequence, we have to consider these training measures, while analyzing the relationship of regional wages and labor market tightness in economies with large scale labor market training programs. Similiar in spirit with the standard wage curve approach of Blanchflower/Oswald (1994), we extend their efficiency wage version by means of incorporating LMTPs in general and the regional ratios of unemployed job searchers and participants in training programs in particular.

Our analysis is to some extent along similar lines as recent papers on wage behavior and labor market programs in Sweden (Calmfors 1995, Calmfors/Skedinger 1995, Edin/Holmlund/Östros 1994). By and large, they observe that training programs deliver wage moderation. However, the authors stress the lack of robustness of their results. We contribute to this ongoing discussion with a focus on a transition economy like East Germany and its large scale labor market training programs.

The paper is organized as follows: First, a brief outline of the institutional background of the East German labor market is given. Second, we describe our theoretical framework for analyzing wage effects of training programs with an extended wage curve approach. Third, we describe our data and specify our wage equations. Fourth, we discuss the results of our extended wage curve estimations and compare them with those of the standard wage curve. Finally, we present our conlusions.

2 The institutional background

Discussing the adequacy of the wage curve approach as a model for describing the wage mechanisms at work in an economy with large scale LMTPs like East Germany, we have to take some specific features of the East German labor market into account. First, similar to West Germany, the wage bargaining process is located mainly on a sectoral level: Wages are the result of a bargaining process between industry-wide unions and employer federations. Due to additional regulations on German labor markets, the negotiated wage and salary agreements

can be considered as minimum wages (Büttner 1995). Second, based on political and social intentions with respect to the convergence process of the two German states, the bargaining process is still dominated by an adjustment path to West Germanys' higher wage levels. As a consequence of both, the negotiated wages do not vary very much between different regions. Nevertheless, the effectively paid wages differ more. For example, in our data the overall coefficient of variation[1] is 0.38 and ranges from 0.26 to 0.65 with regard to different regions.

The reasons for this remarkable variation are twofold: On the one hand it is well known from West German labor markets that employers often pay wages above the negotiated minimum wages (the estimated wage drift on sectoral level ranges from 8% to 11%, see for reference the studies in Gerlach/Schettkat 1995). On the other hand there is evidence that some East German employers pay wages below the 'minimum wages' due to significant higher labor costs per capita compared to West Germany (Scheremet 1995). Payed wages below the 'minimum wage' can be explained by both the non-membership in the employer federations and/or renegotiations between employers and employees at the firm level. The latter might be based on a special clause (*Öffnungsklausel*) in the negotiated contract on sectoral level. This clause allows negotiating and paying wages below the 'minimum wage' if the condition of a precisely defined poor economic performance of the firm is satisfied. Taken at face value, these facts support the efficiency wage version of the wage curve approach. The coincidence of high and persistent unemployment, which frightens workers, and highly productive new firms makes it feasible for employers to pay their employees wages due to local labor market conditions.

Concerning labor market training programs, we observe that the German government conducted large scale labor market training programs in East Germany during the period from 1992 to 1994, which is shown in table 2[2]:

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[1] Standard deviation divided by the mean of monthly gross wage/salary.

[2] We should point out that there exists another instrument of labor market policy, which is largely used in East Germany: job creation schemes (*Arbeitsbeschaffungsmaßnahmen* (ABM), *produktive Arbeitsförderung* (AF)). However, we have some reasons to exclude them from our analysis. First, after unification it took a long time to provide ABM/AF in East Germany. Therefore we observe only a (relatively) small amount of ABM/AF at the beginning of our observation period in spring 1992. Moreover, the time span for ABM/AF ranges from 1 to 4 years. Therefore, in our analyzed period the observable wage decreasing effects of ABM/AF by means of increasing the effective size of the labor force are still small. This renders it impossible to test the hypothesis of both, probably offsetting effects of labor market policy. Nevertheless, checking for specification errors we ran some wage curve regressions combining our panel data with 'regional' data at the level of East German Federal States (Bundesländer) with both, training and ABM/AF information. By and large, the above presented results for training programs remain unchanged, and the wage effects of job creation schemes are positive, but not significant.

Table 2: Training, Unemployment and Employment in East Germany

year	Participation in training programs (FuU)	Unemployment	Full Time Employment
1992	429 000	1 170 000	6 386 000
1993	355 000	1 149 000	6 196 000
1994	252 000	1 142 000	6 267 000

Sources: BA (1995), IAB (1994).

Participants in labor market training programs are subsidized by the Federal Bureau of Labor (BA) under provisions of the Worker Support Act (*Arbeitsförderungsgesetz, AFG*). According to the AFG the main goals of training programs are (1) reducing and preventing unemployment and (2) preventing workers to accept jobs, which are not in accordance with their qualifications. To be eligible for participation a person has to be unemployed or facing the risk of becoming unemployed. During training participation, treated persons receive financial compensation (*Unterhaltsgeld*), when certain conditions are met, which are mostly related to the individual employment history. The level of compensation is 65% or 73% of the previous net earnings. These levels are reduced to the amount of unemployment benefits (60% or 67%) at the beginning of 1994, which is the end of our analyzed period. Both, the financial compensation and the costs of training itself are (mostly) financed from the budget of the BA.

3 The theoretical framework

As shown in the last section, we have to consider participants in LMTPs when analyzing the relationship between regional wages and labor market tightness in East Germany. Moreover the particular institutional background of the East German labor market allows us to use an efficiency wage framework. Thus, our extended wage curve approach draws heavily on the efficiency wage version of the standard wage curve approach (Blanchflower/Oswald 1994b, Appendix 1): Like Blanchflower/Oswald we assume an economy consisting of just two regions. The described assumptions below apply to Region 1 and, with small modifications, to Region 2. The workers are risk neutral, and receive utility from income and disutility from effort. We assume that utility (u) equals the difference between income (w) and effort (e). Hence, utility is defined by $u = w-e$. Effort (e) is a fixed number determined by technology. The employees have the possibility to 'shirk' and exert $e=0$. They receive income (w) if they are not detected. Otherwise the worker is always fired and has to seek a new job with required effort

(e). We define a probability α of finding a job. In our extended wage curve model α is now a function of the rate of job searchers (S) - defined as the sum of unemployed persons and participants in training programs divided by the sum of unemployed, employed and trained persons - α=f(S), where α is convex in S. In addition, we have to consider that benefits for the unemployed (b_U) and for the participants in training programs (b_{TP}) differ. Furthermore we include a probability (p) of being unemployed versus participating in training[3]. According to the Worker Support Act (AFG), all unemployed are supposed to have the same access to training programs. The expected utility ($\overline{w}$) of a fired worker is given by

$$(1) \qquad \overline{w} = (w-e)\alpha(S) + \left[b_U p + b_{TP}(1-p)\right]\left[1-\alpha(S)\right].$$

According to Blanchflower/Oswald (1994a/b), Region 2 differs from Region 1 in two ways: (a) workers and employers receive an additional non-pecuniary benefit ϕ from living in the Region 2 and (b) both regions are affected by (stochastic) shocks to the demand for labor with known density functions. Moreover, we assume that workers are able, between periods, to migrate to Region 1 or 2.

The no-shirking equilibrium condition for Region 1 is

$$(2) \qquad w\text{-}e = \delta w + (1-\delta)\left\{(w-e)\alpha(S) + \left[b_U p + b_{TP}(1-p)\right]\left[1-\alpha(S)\right]\right\}$$

with: δ : probability of successfully shirking.

Equation (2) implies that for a no-shirking equilibrium the expected utility from not shirking (w-e) must equal that from shirking. The latter is the weighted sum of succesfully shirking (δw) and the expected utility of a fired worker $(1-\delta)\{(w-e)\alpha(S)+[b_U p+b_{TP}(1-p)][1-\alpha(S)]\}$. (2) simplifies, after some manipulation, to

$$(3) \qquad w = e + \left[b_U p + b_{TP}(1-p)\right] + \frac{e\delta}{(1-\delta)(1-\alpha(S))}$$

$$\text{with: } \frac{\delta w}{\delta S} < 0 \; ; \; \frac{\delta^2 w}{(\delta S)^2} > 0.$$

This function is convex in S, because $\alpha(S)$ is convex in S.

In Region 2, the non-shirking equilibrium condition is given by

[3] See Pannenberg (1995) for an estimation of the determinants of these probabilities.

$$(4)\ \omega - e + \phi = \delta(\omega + \phi) + (1-\delta)\left\{(\omega - e + \phi)\alpha(S) + \left[(\beta_U + \phi)\pi + (\beta_{TP} + \phi)(1-\pi)\right]\left[1-\alpha(S)\right]\right\}$$

with: ω : wage in region 2,
S : rate of job searchers in region 2,
π : probability of becoming unemployed (vs. training) in region 2,
β_U : unemployment benefits region 2,
β_{TP} : benefits during training participation region 2,

wich simplifies to

$$(5)\quad \omega = e + \left[\beta_U \pi + \beta_{TP}(1-\pi)\right] + \frac{e\delta}{(1-\delta)(1-\alpha(S))}$$

$$\text{with: } \frac{\delta\omega}{\delta S} < 0\ ;\ \frac{\delta^2\omega}{(\delta S)^2} > 0\,.$$

Equation (5) again is convex in S.

Therefore, if $b_U = \beta_U$, $b_{TP} = \beta_{TP}$ and $p = \pi$ are identical in both regions, they also have the same wage equation. These conditions are likely satisfied, because the requirements for participating in training programs by the Work Support Act (*Arbeitsförderungsgesetz*) are identical for all regions. Therefore we are able to estimate extended wage curves, which are similar to the standard approach.

4 Data description and specification of the wage equations

The data set used for the empirical analysis is drawn from sample C (East Germany) of the German Socio Economic Panel (GSOEP). This sample contains representative longitudinal data from East German households and persons[4]. We use panel data for the survey years 1992 to 1994 (wave 3 - wave 5). Our panel data are linked to a special data set of labor market areas (*Arbeitsamtbezirke*). This data set includes information on regional unemployment, regional participation in training programs and regional employment. Matching of the two data sets is done by means of merging the regional informations of the GSOEP with the 35 labor market areas in East Germany from the second data set. We select respondents who participated twice or more in the survey, who were full time employed at the date of the interview, who did not work in public service, who were not selfemployed and who did not commute to West Germany. Our dependent variable is the log of monthly gross wage/salary. We include as 'control

[4] See for details Wagner/Burkhauser/Behringer (1993).

variables' gender, the log of weekly working hours (overtime incl.), experience (squared), tenure, firm size, industry, time and regional dummies.

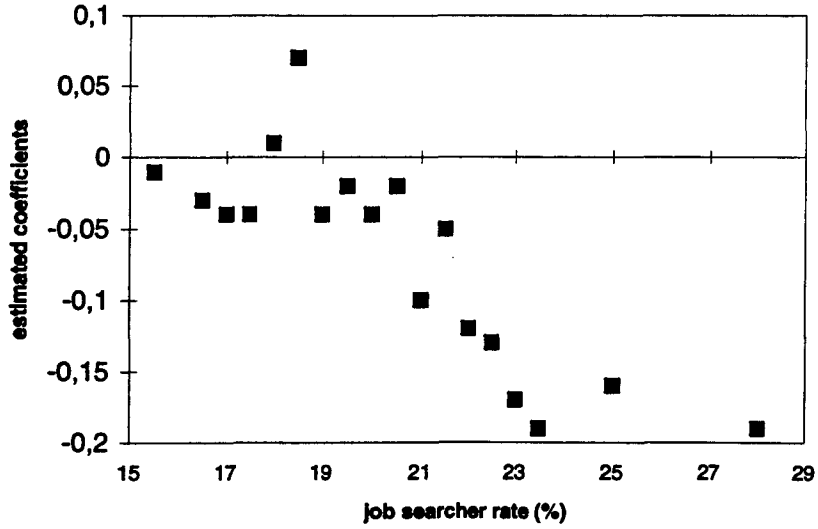
Concerning our extended wage curve based on equation (3) or (5), we have to estimate the following wage equation, if the conditions ($b_U = \beta_U$) and ($b_{TP} = \beta_{TP}$) hold:

$$(6) \qquad w = (e + b_{TP}) + (b_U - b_{TP})p + \frac{e\delta}{(1-\delta)(1-\alpha(S))} .$$

Equation (6) is both, a nonlinear funcion of $\alpha(S)$ and a function of the conditional probability of beeing unemployed (versus participating in LMTPs). To yield an estimator for the conditional probability p, we compute the ratio of participants in training programs and the sum of unemployed persons and participants in LMTPs for each regional labor market. This 'accommodation ratio' of labor market policy (*accr*)[5] is an estimator of (1-p).

Attempting to measure the impact of the regional job searcher rate on local pay, first we have to explore the shape of our extended wage curve. This is done by dividing the distribution of job searcher rates into intervalls with equal frequencies, creating dummies for all but one of these intervals and estimating a pooled regression model with the entire set of dummies, fixed regional effects and a set of control variables. The estimated coefficients are plotted in figure 1:

Figure 1: Unrestricted Extended Wage Curve



[5] The same notion is used in a different approach by Calmfors/Skedinger (1995).

Figure 1 indicates that there exists a nonlinear and negative relationship between local wages and local job searcher rates. Based on the plot, we decide to approximate our function to a logarithmic one. Hence, we employ the following extended wage curve function:

$$(7) \quad \ln(w) = \alpha_0 + \alpha_1 \ln(S) + \alpha_2 \, accr + X\beta,$$

where w is the wage, S is the rate of job searchers, accr is the accommodation ratio, X is a vector of individual and job characteristics and α_i and β are (a vector of) parameters to be estimated. In a first step, these equations are estimated by means of the 'standard' pooled regressions models with fixed regional effects and a linear one-way random effects panel model, also including regional fixed effects. The latter controls in addition for unobserved heterogeneity on an individual level. Moreover, checking for the robustness of our results we also employ an instrumental variable estimator (instruments for S and accr) and a two-way random effects model with individual and regional effects.

5 Extended Wage Curve Estimates for East Germany

As a 'point of departure', we start with the results of the replication of the standard wage curve for East Germany. Our results are presented in table 3[6].

Table 3: East German Wage Curves

	(I) *all*		(II) *all*		(III) *males*		(IV) *females*	
variable	coeff.	t-value	coeff.	t-value	coeff.	t-value	coeff.	t-value
ln(U)	-0.26**	-3.65	-0.04	-0.83	-0.04	-0.62	0.04	0.62
R^2	0.45		0.44		0.40		0.34	
F-Test	38.6**		--					
LM-Test	--		763.2**					
$Var(u_i)$	--		0.05		0.04		0.07	
$Var(\varepsilon_i)$	--		0.02		0.02		0.02	

Models: (I) Pooled OLS with fixed regional effects,
(II) FGLS with random individual and fixed regional effects,
(III) FGLS with random individual and fixed regional effects; *males* only,
(IV) FGLS with random individual and fixed regional effects; *females* only,
Source: GSOEP, years 1992 - 1994.
Number of observations: N=2135 (I,II); N=1399 (III); N=736 (IV).
Significance level: ** (0.01), * (0.05), + (0.10).
LM: Lagrange-multiplier-test-statistic;test for random effects.
$Var(u_i)$: individual specific variance component.
$Var(\varepsilon_i)$: 'classical' variance component.

[6] For reasons of clarity, in all subsequent tables the estimated coefficients of the entire set of regional dummies and all 'control' variables are omitted. The entire estimation results of model (II) in table 3 and model (II) in table 4 are given in the Appendix. All other results are available from the authors on request.

The estimates of the 'standard' pooled OLS model with regional fixed effects seem to indicate that there is a significantly negative relationship between wages and unemployment across space in East Germany with a remarkable high elasticity of regional wages with respect to the regional unemployment rate. Nevertheless our analysis is based on panel data and we have to check for the existence of unobserved heterogeneity, which is done by the LM-Test. The resulting χ^2 – value indicates that we have to use a linear panel model. The estimates of the random effects model with fixed regional effects reveal that there is no significant negative relationship between regional wages and regional unemployement in our data. Hence, we find no standard wage curve for East Germany.

Groot/Mekkelholt/Oosterbeek (1992) point out, that pooled wage curve estimates for males and females might reflect the mixture of 'pure' wage and discouraged worker effects: If unemployment induces discouraged worker effects, labor supply will decrease and hence wages will raise, given the demand of labor. Though this discouraged worker effect seems to be unlikely for East Germany, since the high and equal participation rates of males and females, which were characteristic for the former centrally planned economy, still remains after unification and lead to the variety of benefit claims provided by the Work Suppot Act (AFG), we check for these effects by running separate wage curve regressions for males and females. This is motivated by the hypothesis that the 'discouraged worker effects' might be different with respect to gender. However, the results in column 3 and 4 of table 3 reveal no effects due to gender: Both regressions yield estimates, which are again statistically not significant.

As our theoretical considerations predict, the unemployment rate may not serve as a precise indicator for labor market tightness in East Germany. Therefore, we estimate further our extended wage curve specification (6). table 4 presents our estimation results:

Table 4: Extended East German Wage Curves

	(I)		(II)		(III)	
variable	coeff.	t-value	coeff.	t-value	coeff.	t-value
ln(S)	-0.32**	-4.28	-0.10+	-1.77	-0.31	-1.59
accr	-0.006*	-2.46	-0.003+	-1.77	-0.04**	-4.01
R^2	0.46	--	0.44	--	0.47	--
F-Test	38.3**	--	--	--	39.5**	--
LM-Test	--	--	756.6**	--	--	--
$Var(u_i)$	--	--	0.05	--	--	--
$Var(\varepsilon_{it})$	--	--	0.02	--	--	--

Models: (I) Pooled OLS with fixed regional effects,
(II) FGLS with random individual and fixed regional effects,
(III) Pooled IV-Estimator (2SLS) with fixed regional effects.
Instruments are fitted values of S and accr.

Source: GSOEP, years 1992 - 1994.
Number of observations: N=2135
Significance level: ** (0.01), * (0.05), + (0.10).
LM: Lagrange-multiplier-test-statistic;test for random effects.
$Var(u_i)$: individual specific variance component.
$Var(\varepsilon_{it})$: 'classical' variance component.

The first two colums in table 4 display that there exists a stable nonlinear relationship between local wages and job searcher rates (S) in East Germany. Analogous to the estimates of the standard wage curve the pooled OLS with fixed regional effects yields signficantly negative elasticities of wages with respect to the job searcher rate, which are remarkable high. Nevertheless, the LM-test-statistic indicates that we have to use a linear panel model. Contrary to the standard wage curve estimates, the negative relationship between regional pay and regional job searcher rates holds, if we employ a panel model with fixed regional and random individual effects[7]. The estimated elasticity of wages with respect to the regional job searcher rate is -0.1 (10% level)[8]. Hence, our estimates are in line with the results of Blanchflower and Oswalds cross-national comparisons. This supports our hypothesis that in countries with large scale labor market training programs the adequate indicator for labor market tightness is the sum of unemployed and participants of LMTPs.

The estimated significantly negative coefficient of the accommodation ratio of labor market training seems to indicate that LMTPs do not increase wage pressure, though the impact of the accommodation ratio is small. This result may be subject to simultaneity bias if there exists a government policy response function, e.g. that the government spend less money on LMTPs

[7] The entire estimation results are given in the Appendix.
[8] The fact that the panel model yields smaller estimates of the wage elasticity is also observed by Bratsberg/Turunen (1996).

when unemployment is decreasing and vice versa. Such an effect might have caused a downward bias in our estimated wage functions. In order to check for this simultaneity bias we employ a two-stage least square estimator. In a first step we estimate two government policy response functions with the rate of job searchers and the accommodation ratio as dependent variables. The fitted values of these equations serve as instruments in our extended wage curve equation. According to Murphy/Topel (1985) the correct asymptotic covariance matrix is calculated. To ensure identification we use in the first step as additional variables the log of federal gross output, a 'political' dummy variable, which indicates if the Social Democratic Party (SPD) is part of the federal government and an interaction term of both variables. The SPD dummy is based on the hypothesis that parties of the political left are most favourable to LMTPs. Column 3 of table 4 reveals that the negative and significant effect of the accommodation ratios holds, but the estimated effect of the job searcher rate diminishes in terms of significance (t=1.59). Hence, we have first hints that LMTPs in East Germany at least do not increase wage pressure.

Concerning the robustness of our estimates, we have to emphasize that our results might be sensitive with respect to so-called common group errors: Meanwhile, it is well known from econometric theory that using aggregate variables like the unemployment rate or our job searcher rate in estimations based on micro data might lead to biased estimates of the t-ratios caused by common group errors (Moulton 1986, 1990). One solution to this problem is to incorporate explicitly a variance component for regions. Therefore, we employ a two way random effects model (Judge/Griffiths/Hill/Lütkepohl/Lee 1985) with an individual random effects component and a regional random effects component. We asume that both effects are constant through time. The estimated coefficients are $\alpha_1 = -0.23$ (t=-9.23) and $\alpha_2 = -0.004$ (t=-4.41); the estimated variance components are 0.05 for the individual effect, 0.02 for the regional effect and 0.03 for the 'classical' error term. Unfortunately, the estimates are biased if one of the variance components is correlated with one of the exogenous variables. This might be true for our regional variance component. Thus, we prefer the one way random effects model with fixed regional effects, which is documented in column 2 of table 4.

6 Conclusions

There is an extended wage curve for East Germany. Our estimates reveal a stable nonlinear and negative relationship between wages and job searcher rates on regional labor markets.

Furthermore, we demonstrate that in economies whith large scale LMTPs the standard wage curve approach needs to be extended by means of incorporating these measures. If we neglect the influence of LMTPs on wage setting, the estimates display no significant relationship between regional wages and labor market tightness.

Taken at face value, our estimates give first hints that labor market training programs may reduce wage pressure. Within a theoretical framework like Layard/Nickell/Jackman (1991) this implies that training programs may lower equilibrium unemployment. However, with regard to the small magnitude of the estimated impact on regional wages, policy conclusions should be drawn with caution.

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Appendix

(1) East German Wage Curve:

(FGLS with random individual and fixed regional effects; entire sample).

```
+---------------------------------------------------+
| Random Effects Model                              |
| Lagrange Multiplier Test vs. Model (3) =  763.19  |
| ( 1 df, prob value =  .000000)                    |
| Estimates:  Var[e]              =   .197589D-01   |
|             Var[u]              =   .510271D-01   |
|             Sum of Squares          .145973D+03   |
|             R-squared               .435709D+00   |
+---------------------------------------------------+
```

Variable	Coefficient	Standard Error	b/St.Er.	P[|Z|>z]	Mean of X
MALE	.19593	.17152E-01	11.423	.00000	.6553
LHOURS	.29077	.45114E-01	6.445	.00000	3.714
SCHOOL	.45377E-01	.34447E-02	13.173	.00000	11.81
EXP	.12383E-01	.37829E-02	3.273	.00106	23.16
EXPSQ	-.18709E-03	.79424E-04	-2.356	.01849	629.5
TENURE	.59266E-03	.65456E-03	.905	.36523	8.639
FSIZE1	.79530E-01	.13782E-01	5.771	.00000	.3649
FSIZE2	.10238	.17101E-01	5.987	.00000	.2248
FSIZE3	.18310	.21543E-01	8.499	.00000	.1077
BLW	-.69839E-01	.29147E-01	-2.396	.01657	.5667E-01
BBUE	.54150E-01	.33045E-01	1.639	.10128	.5246E-01
BCH	.95832E-02	.32243E-01	.297	.76630	.4496E-01
BBSE	.10351	.17962E-01	5.763	.00000	.1850
BHBV	-.16064E-01	.18348E-01	-.876	.38127	.1593
BMEK	-.51099E-02	.18892E-01	-.270	.78679	.1667
BOETV	.68071E-02	.18869E-01	.361	.71828	.9274E-01
TIME93	.14117	.78192E-02	18.055	.00000	.3293
TIME94	.25602	.99784E-02	25.657	.00000	.3386
LALQ	-.41735E-01	.50243E-01	-.831	.40616	2.807
Constant	5.7917	.22470	25.775	.00000	

Note: Number of observations = 2135. Model includes 27 regional effects.
Variable definitions are as follows:
Lhours : log of weekly hours (overtime incl.),
male : male respondent,
school : highest number of years of completed schooling,
exp : experience: age - schooling - 6,
tenure : years at current employer,
fsize1 : 20 - 199 employees,
fsize2 : 200 -1999 employees,
fsize3 : more than 2000 employers,
BLW : agriculture, forestry,
BBUE : mining, energy,
BCH : chemicals,
BBSE : construction, quarring,
BHBV : services,
BMEK : Iron, steel,
BTV : transport, communication,
time9* : dummy year 1993, year 1994,
LALQ : log of unemployment rate.

(2) Extended East German Wage Curve:

(FGLS with random individual and fixed regional effects; entire sample).

```
+---------------------------------------------------+
| Random Effects Model                              |
| Lagrange Multiplier Test vs. Model (3) =  756.62  |
| ( 1 df, prob value =  .000000)                    |
| Estimates:  Var[e]              =   .197940D-01   |
|             Var[u]              =   .506875D-01   |
|             Sum of Squares          .145170D+03   |
|             R-squared               .438813D+00   |
+---------------------------------------------------+
```

Variable	Coefficient	Standard Error	b/St.Er.	P[|Z|>z]	Mean of X
MALE	.19614	.17093E-01	11.475	.00000	.6553
LHOURS	.28989	.45127E-01	6.424	.00000	3.714
SCHOOL	.45164E-01	.34336E-02	13.153	.00000	11.81
EXP	.12475E-01	.37716E-02	3.308	.00094	23.16
EXPSQ	-.18878E-03	.79189E-04	-2.384	.01713	629.5
TENURE	.61379E-03	.65405E-03	.938	.34801	8.639
FSIZE1	.79801E-01	.13768E-01	5.796	.00000	.3649
FSIZE2	.10253	.17082E-01	6.002	.00000	.2248
FSIZE3	.18274	.21523E-01	8.490	.00000	.1077
BLW	-.69449E-01	.29105E-01	-2.386	.01702	.5667E-01
BBUE	.53463E-01	.32994E-01	1.620	.10514	.5246E-01
BCH	.10398E-01	.32198E-01	.323	.74675	.4496E-01
BBSE	.10278	.17949E-01	5.726	.00000	.1850
BHBV	-.15670E-01	.18326E-01	-.855	.39252	.1593
BMEK	-.47653E-02	.18870E-01	-.253	.80063	.1667
BOETV	.65808E-02	.18858E-01	.349	.72712	.9274E-01
TIME93	.17310	.16487E-01	10.499	.00000	.3293
TIME94	.25686	.99651E-02	25.775	.00000	.3386
LSEARCH	-.10188	.57536E-01	-1.771	.07660	2.998
ACCR	-.28495E-02	.16140E-02	-1.766	.07748	20.62
Constant	6.0309	.24849	24.270	.00000	

Note: Number of observations = 2135. Model includes 27 regional effects.
Variable definitions are as follows:

- Lhours : log of weekly hours (overtime incl.),
- male : male respondent,
- school : highest number of years of completed schooling,
- exp : experience: age - schooling - 6,
- tenure : years at current employer,
- fsize1 : 20 - 199 employees,
- fsize2 : 200 -1999 employees,
- fsize3 : more than 2000 employers,
- BLW : agriculture, forestry,
- BBUE : mining, energy,
- BCH : chemicals,
- BBSE : construction, quarring,
- BHBV : services,
- BMEK : Iron, steel,
- BTV : transport, communication,
- time9* : dummy year 1993, year 1994,
- LSEARCH : log of job searcher rate,
- ACCR : accommodation ratio.