Unemployment Persistence:
Is There Evidence for Stigma Effects?

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Non-technical summary

In this study we analyze to what extent unemployment persistence may be explained by stigmatization effects. It is a well-established finding that individuals who are unemployed in one period are more likely to be unemployed in future periods. On the one hand, high unemployment risks may be due to individual characteristics such as low qualification, a low level of motivation or a general lack of abilities. To the extent that such characteristics persist over time, they will also increase the unemployment risk of future periods, creating a spurious relationship between current and future unemployment. On the other hand, there is the alternative possibility that the unemployment experience of one period has a genuine causal effect on the unemployment risk of future periods in the sense that past unemployment causally increases the unemployment risk of future periods independently of other factors (this is usually called state dependence or true state dependence). In the empirical literature there is ample evidence for state dependence in individual unemployment histories but little is known about its sources. Possible explanations are disincentive effects of unemployment insurance, discouragement effects or decay of human capital. In this paper we analyze another possibility, namely the existence of stigma effects, meaning that individuals who are or who have been unemployed face systematically lower chances of being hired because employers interpret their unemployment as a negative signal.

The hypothesis underlying our empirical approach is that the stigma of unemployment is low when aggregate unemployment is high, as in this case, individual unemployment is not a strong signal for lower individual productivity. We use data from the German Socio-Economic Panel (GSOEP) to estimate the probability of being unemployed conditional on the employment state of the previous period (the state dependence effect) and other covariates using a dynamic, correlated random effects model.

Our results show that positive deviations of the unemployment rate from its trend are indeed associated with a significantly lower level of state dependence. Overall, we conclude that stigmatization is one explanation for state dependence in individual's employment histories and thus contributes to the explanation of high and persistent rates of long-term unemployment in Germany.

Das Wichtigste in Kürze

In dieser Studie analysieren wir, ob Stigmatisierungseffekte ein Grund für die Persistenz von Arbeitslosigkeit sind. Es ist allgemein bekannt, dass Personen, die in einer Periode arbeitslos sind, dies auch mit höherer Wahrscheinlichkeit in zukünftigen Perioden sind. Gründe für hohe Arbeitslosigkeitsrisiken in einer Periode können niedrige Qualifikation, geringe Motivation oder eine insgesamt niedrige Produktivität sein. In dem Maße wie diese persönlichen Eigenschaften über die Zeit persistent sind, erhöhen sie auch das Risiko zukünftiger Arbeitslosigkeit und erzeugen damit einen scheinbaren Zusammenhang zwischen gegenwärtiger und zukünftiger Arbeitslosigkeit. Ein alternativer Erklärungsansatz für diesen Zusammenhang ist die sog. Zustandsabhängigkeit. In diesem Fall erhöht gegenwärtige Arbeitslosigkeit kausal das Risiko zukünftiger Arbeitslosigkeit, unabhängig von anderen Faktoren. In der empirischen Literatur findet man umfassende Evidenz für die Existenz von Zustandsabhängigkeit, aber wenig Hinweise auf deren Quellen. Mögliche Gründe sind Anreizprobleme der Arbeitslosenversicherung, Entmutigungseffekte von Arbeitslosigkeit oder der durch Arbeitslosigkeit verursachte Verlust von Humankapital. In dieser Studie wird ein weiterer möglicher Grund untersucht, nämlich die Existenz von Stigmatisierungseffekten. Stigmatisierung tritt dann auf, wenn Arbeitslose systematisch geringere Chancen auf eine Beschäftigung haben, weil Arbeitgeber ihre Arbeitslosigkeit als negatives Signal werten.

Unserem Ansatz liegt die Hypothese zugrunde, dass in Zeiten, in denen die gesamtwirtschaftliche Arbeitslosenquote vergleichsweise hoch ist, Stigmatisierungseffekte niedriger ausfallen sollten, da alle Personen stärker von Arbeitslosigkeit betroffen sind und damit die Signalwirkung individueller Arbeitslosigkeit im Hinblick auf die individuelle Produktivität geringer ist. Wir nutzen Daten des Sozioökonomischen Panel Deutschland (SOEP) um das Arbeitslosigkeitsrisiko einer gegebenen Periode in Abhängigkeit des Erwerbszustands der vergangenen Periode und in Abhängigkeit weiterer erklärender Variablen zu schätzen. Wir verwenden hierzu ein dynamisches, korreliertes Random Effects Modell.

Unsere Ergebnisse zeigen, dass eine negative Trendabweichung der aktuellen Arbeitslosenrate tatsächlich mit signifikant geringerer Zustandsabhängigkeit verbunden ist. Insgesamt bedeutet dies, dass Stigmatisierung ein Grund für die Zustandsabhängigkeit in individuellen Erwerbsbiografien sein kann und damit einen Beitrag zur Erklärung der hohen und persistenten Langzeitarbeitslosigkeit in Deutschland leistet.

Unemployment persistence:
Is there evidence for stigma effects?[1]

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Abstract. We present evidence for a highly significant interaction between state dependence in individual unemployment risk and the business cycle. The disadvantage from having been unemployed in the previous period is smaller in times of relatively high unemployment and larger in times of low unemployment. This is consistent with the existence of stigma effects in the sense that unemployed individuals face difficulties finding a new job because employers interpret unemployment as a negative signal and do so especially when it is easier to find jobs, i.e. when unemployment is low.

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1 Introduction

It is a well-established finding that individuals who are unemployed in one period are more likely to be unemployed in future periods. Such a relationship may be due to two fundamentally different mechanisms (see Heckman (1981)). First, it may be the case that individuals who are unemployed in one period are so because they have characteristics that make them particularly vulnerable to unemployment. This might be observed characteristics such as low qualifications or a lack of work experience, or typically unobserved factors such as low levels of motivation, unfavorable attitudes or a general lack of abilities. To the extent that such characteristics persist over time, they will also increase the unemployment risk of future periods, creating a spurious relationship between current and future unemployment. The alternative possibility is that the unemployment experience of one period has a genuine causal effect on the unemployment risk of future periods in the sense that past unemployment causally increases the unemployment risk of future periods (this is usually called state dependence or *true* state dependence).

While there is ample evidence for state dependence effects in individual unemployment histories (see e.g. Flaig et al. (1993), Mühleisen and Zimmermann (1994), Arulampalam et al. (2000), Gregg (2001), Arulampalam (2002), Knights et al. (2002), and Hämäläinen (2003)), little is known about the possible sources of them. In principle, different mechanisms may give rise to a genuine causal effect of past to future unemployment. A possible explanation are disincentive effects of unemployment insurance, which may lead the unemployed to postpone accepting job offers. Such effects may be easily rationalized in standard job search models (see e.g. Mortensen (1977) and Burdett (1979)). A similar mechanism is at work when unemployment experiences are associated with processes of discouragement or habituation, which may make the unemployed reduce their search efforts and therefore increase the risk of remaining unemployed (Georgellis et al. (2001)). Another possibility is that unemployment leads to a decay of human capital, making it more difficult to find employment in future periods (Mincer and Polachek (1974), Pissarides (1992)). Finally, and this is the focus of this paper, there is the possibility of stigma effects, meaning that individuals who are unemployed face systematically lower chances of being hired because employers interpret their unemployment as a negative signal. This will make individuals who are unemployed more likely to stay unemployed, and individuals who were unemployed more likely to become

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unemployed again.

There are a number of theoretical contributions that explain how stigmatization effects may arise. For example, Vishwanath (1989) argues in a job search model that an employer's expectation that an applicant has high productivity declines with the number of previously observed unsuccessful matches of the person. Bikhchandani et al. (1992) and Kübler and Weizsäcker (2003) show that, if high productivity workers are more likely to send positive signals than low productivity workers (e.g. in job interviews or aptitude tests) it may become optimal for employers to invest less effort in observing the applicant's productivity on their own in favor of relying on the sequence of previously observed signals (or their results in the form of successful or unsuccessful matches in previous periods). This gives rise to informational cascades with the result that workers who were successful in the early stages of their career will remain so, and workers who were not successful will find it hard to overcome their past record, i.e. they become stigmatized. Most relevant to the present paper, Lockwood (1991) presents a model of labor market flows in which firms imperfectly test workers prior to hiring them. As high productivity workers find it easier to pass the test, they tend to exit unemployment faster than low productivity workers. This gives informational content about workers' productivity to elapsed job search durations. Lockwood then shows that it is optimal for employers to condition on this observable information by rejecting for sure those workers who have been searching for too long. Interestingly in Lockwood's model, employers will tolerate longer search durations when general unemployment is high and will be stricter when general unemployment is low. This is in line with the intuition that it looks more suspicious if a person is unemployed when conditions are generally well compared to the case where unemployment and long search durations are relatively common.

There are a few contributions that address stigmatization effects empirically. A direct approach to investigating stigma effects is adopted by Blau and Robins (1990) and Oberholzer-Gee (2007). Comparing job search outcomes for employed and unemployed workers, Blau and Robins (1990) observe that the actual job offer rate per application is greater for employed searchers than for unemployed searchers. In a field experiment, Oberholzer-Gee (2007) experimentally varies unemployment durations stated in the CVs of two administrative assistants who were looking for a job. His results indeed suggest that employers are much less inclined to invite applicants to job interviews if their CV states they are unemployed

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or even long-term unemployed. Looking at possible stigmatization effects more indirectly, Gibbons and Katz (1991) compare wages and employment outcomes of workers displaced by lay-offs and workers displaced by plant closings. They find weak evidence for stigma effects, as in certain cases laid-off workers suffer higher wage losses and longer unemployment spells than workers affected by plant closings (controlling for other characteristics). They argue that in lay-offs, low productivity workers are displaced first so that markets infer that laid-off workers are of low ability. Most closely related to the present paper, Omori (1997) argues that, if stigma effects exist, the effect of past unemployment spells on the length of future unemployment spells should depend on the circumstances under which past unemployment occurred. If unemployment was high when the person lost her job then this should give less rise to stigmatization than if it was high. Omori (1997) finds such effects for US data. Note that in contrast to the result in Lockwood (1991), here the disadvantageous effect of past unemployment is interacted with the level of *past* unemployment rather than with the level of *current* unemployment.

Using data from the German Socio-Economic Panel (GSOEP) this paper adds to the empirical evidence on stigma effects by exploring the implications of the hypotheses in Lockwood (1991) and Omori (1997) that, if stigma effects exist, the negative effects of previous unemployment on current unemployment risk should be larger if (past or current) unemployment is low and smaller if it is high. The rest of the paper is structured as follows. In section 2 we describe our data. Section 3 gives details on our econometric setup, while section 4 discusses our empirical results. Section 5 concludes.

2   Data

For our analysis we use data from the German Socio-Economic Panel (GSOEP) for the years 1991 to 2004. The GSOEP is a representative, yearly panel study that was started in 1984 for West Germany and extended to East Germany after reunification in 1990.[2] In order to take advantage of the larger sample, we only use the years after 1991. We concentrate on men because employment histories of German women are often interrupted by periods of

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[2]For more information on the GSOEP, see Haisken-DeNew and Frick (2005).

maternal leave or voluntary inactivity of which it is unclear how they should be treated in the context of possible stigmatization effects. We also drop the self-employed, civil servants, individuals under 26 and over 56 years (to avoid problems with full-time education and early retirement), and individuals who work in agriculture, construction or tourism (to rule out potential problems with seasonal unemployment). We also discard periods where our sample members do not report either to be working or unemployed. Our final (unbalanced) sample consists of 4415 individuals. Some descriptive statistics are given in table 1.

— Table 1 about here —

The dependent variable of our analysis is individual unemployment status (officially registered unemployed, full-time employed otherwise). As explanatory variables of unemployment risk in a given period we consider age, marital status, the number of children, educational qualifications (university degree, high school and/or apprenticeship, or otherwise), disability status, and whether the person has a non-EU nationality.[3] We also include a full set of year and region dummies (North, West, Middle, East, South of Germany, and Berlin). In order to measure labor market cycles, we regress the unemployment rate of each federal state on a linear time trend and interpret the residuals from these regressions as a measure of cyclical unemployment risk. Graphical inspection shows that this works well, revealing clear cycles in each federal state (not necessarily synchronized across states), see the figures A1 and A2 in the appendix. Note that differences in the *level* of unemployment over time and across regions will be picked up by the year and region dummies.

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[3]Similarly to the data used in Gibbons and Katz (1991), our data set also includes information on the reasons for unemployment. However, none of these reasons proved significant when included as regressors in our econometric model. This is in line with the results in Grund (1999) who also found no effects of these reasons when investigating stigma effects of unemployment on future *wages* using the same data set. It is unclear whether these results are due to small sample sizes or whether they reflect true relationships.

3   Econometric model

Following earlier contributions cited above, we use a dynamic binary choice model to model the evolution of individual unemployment status over time.[4] Our main model is a dynamic, correlated random-effects probit model in the form popularized by Wooldridge (2002, 2005). In our case, the model takes the form

$$y_{it} = 1 \left\{ \theta_1 y_{it-1} + \theta_2 u_t y_{it-1} + \theta_3 x_{it} + c_i + e_{it} \right\} \tag{1}$$

where

$$c_i = \alpha_0 + \alpha_1 y_{i0} + \alpha_2 \bar{x}_i + a_i, \quad a_i \sim N(0, \sigma_a^2), \quad e_{it} \sim N(0, 1). \tag{2}$$

Here, y_{it} denotes unemployment status of individual i in period t (=1 if the individual is unemployed, =0 otherwise), y_{it-1} is the unemployment status of the previous period, and $u_t y_{it-1}$ is the interaction of past unemployment status and the measure of cyclical unemployment risk in period t. The vector x_{it} collects the observed characteristics described above and c_i, e_{it} are time-invariant and time-variant unobserved determinants of unemployment risk in period t. As eq. (2) shows, the time-invariant unobserved component c_i is allowed to be correlated with the unemployment status of the initial period and the time-average of the vector of explanatory variables (to address the initial conditions problem and the possible endogeneity of explanatory variables with respect to time-invariant characteristics).[5]

If $\theta_1 > 0$, there is a dynamic causal effect of unemployment in the previous period on unemployment risk in the current period. Other things held constant, individuals who were unemployed in the previous period are more likely to be unemployed in the current period (this is the state dependence effect). As discussed above, this may be due to different

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[4]Because of its yearly design and the relatively small number of periods, our data set is not well-suited for duration analyses (see Biewen and Wilke (2005)). Moreover, it is well known that, because of the continuous sorting process inherent in duration analyses, it is much harder to separate dependence of current unemployment risk on past unemployment from unobserved heterogeneity in duration models than in dynamic binary choice models.

[5]If the unemployment risk is not influenced by unobserved determinants the contribution of the panel-level variance component to the total variance, i.e. the proportion $\rho = \sigma_a^2/(\sigma_a^2 + 1)$ should be zero.

mechanisms such as disincentives of unemployment insurance, loss of skills and motivation, or stigmatization. However, if the disadvantage from having been unemployed in the previous period is larger in times of low unemployment and smaller in times of high unemployment (i.e. $\theta_2 < 0$), this points to stigmatization effects, as disincentives of unemployment insurance and loss of skills and motivation should be independent of the business cycle (if anything, their effect should be pro-cyclical not counter-cyclical).

The rationale of stigmatization effects in the above framework is that employers interpret past unemployment as a negative signal and do so especially when it is relatively easy to find a job, i.e. when unemployment is low. Following Omori (1997) one could argue however, that it is not the *current* level of unemployment that matters, but the level of unemployment measured at the time when past unemployment occurred. The argument would be that employers discount past unemployment if it was experienced in times of difficult labor market conditions and consider it more negative if it was experienced when finding a job was relatively easy. In order to test this hypothesis we also estimate

$$y_{it} = 1\left\{\theta_1 y_{it-1} + \theta_2 u_{t-1} y_{it-1} + \theta_3 x_{it} + c_i + e_{it}\right\} \tag{3}$$

(past unemployment status is interacted with past cyclical unemployment risk).

Given the discussion above, one might wonder whether it is adequate to control for *unobserved* determinants of unemployment risk when investigating stigma effects. After all, the idea behind stigmatization is that employers use *observed* information (past unemployment status) to infer *unobserved* productivity characteristics. If reasons for past unemployment are independent of individual behaviour, stigmatization may lead to inefficient outcomes on the labor market. Of course, this still leaves plenty of room for the direct influence of unobserved characteristics, e.g. individuals may loose their job due to a lack of skills, or persons with low levels of motivation may have higher unemployment risks because their job search intensity is lower.

4   Empirical results

Table 2 presents our empirical results. Controlling for observed and unobserved characteristics, past unemployment increases current unemployment risk. This effect is large and highly

significant. However, as column (A) shows, the disadvantage from having been unemployed in the previous period strongly depends on the current state of the labor market. Dependence of unemployment risk on past unemployment status is much smaller in times of relatively high unemployment and much higher when unemployment is relatively low. The variation of this effect is sizable if one considers that the values for the cyclical unemployment rate vary between about -2 and +3. It is also highly significant. This is consistent with stigma effects as predicted by Lockwood (1991). On the other hand, if past unemployment status is interacted with *past* unemployment risk as suggested by Omori (1997) (see column (B)), there is no significant effect. This suggests that the amount of stigmatization is related to the *current* risk of unemployment and that employers do not consider the specific circumstances of past unemployment spells. This result is also in line with the fact that we found no significant effects of the reasons for past unemployment.

In the previous chapter we discussed the role of unobserved heterogeneity in the context of stigma effects. With a ρ of almost 0.3 we observe a high share of unemployment persistence that can be directly explained by unobserved individual characteristics. Whereas unobserved heterogeneity seems to play an important role, some of the control variables are not significant. For example, marital status, the number of children and health status do not seem to influence employment probabilities in a statistically significant way. On the other hand, we find a convex and statistically significant age pattern of unemployment risk with a minimal risk at the age of thirty-six years. As expected, educational qualifications significantly reduce the risk of experiencing unemployment in a given period, while being a non-EU member increases it. In addition to the effects of cyclical unemployment, we find significant year and region effects in both specifications.

— Table 2 about here —

5 Conclusion

Using data from the German Socio-Economic Panel, this paper considered individual unemployment persistence and its relationship to the business cycle. We find a strong countercyclical behaviour of unemployment persistence which begs for an explanation. The disadvantage

from having been unemployed in the previous period is high when unemployment is relatively low and low when unemployment is relatively high. This is consistent with the hypothesis that employers see unemployment as a stigma and do so especially when the conditions to find a job are relatively good. On the other hand, if unemployment is relatively high, the stigma connected to it is lower because it is a more widespread phenomenon.

Our findings contribute to the discussion about the high share of long-term unemployment in Germany. The long-term unemployed are doubly disadvantaged, as in good times, they face particular difficulties because of stigmatization, while in bad times, hiring rates are lower anyway. Even highly productive workers may be affected by this mechanism. Our results suggest that, given the high persistence of individual unemployment risk, labor market policies should devote more attention to the prevention of long-term unemployment, as long-term unemployment - through mechanisms such as stigmatization, human capital decay, and demoralization - will have the tendency to become permanent unemployment.

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Tables

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Table 1. Summary statistics (pooled sample)

Variable	Mean	Standard Deviation
unempl. status	0.034	0.181
unempl. status $(t-1)$	0.031	0.175
age	40.404	8.390
married	0.750	0.433
children in hh	0.525	0.499
1993	0.070	0.255
1994	0.066	0.248
1995	0.065	0.247
1996	0.066	0.248
1997	0.063	0.244
1998	0.060	0.238
1999	0.064	0.245
2000	0.063	0.244
2001	0.104	0.305
2002	0.104	0.305
2003	0.109	0.312
2004	0.098	0.297
unempl. status in 1992	0.038	0.192
university degree	0.298	0.457
high sch./apprenticeship	0.575	0.494
disability	0.057	0.232
non-EU nationality	0.093	0.291
North	0.127	0.333
West	0.221	0.415
Middle	0.132	0.339
Berlin	0.036	0.186
East	0.196	0.397

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Table 2. Dynamic random-effects probit model for unemployment status
(standard errors in parentheses)

Variable	(A)		(B)	
unempl. status $(t-1)$	**1.4403	(0.0686)	**1.4048	(0.0678)
unempl. status $(t-1)$ $\times$ cyclical unempl. rate in t	**-0.1795	(0.0537)		
unempl. status $(t-1)$ $\times$ cyclical unempl. rate in $t-1$			-0.0078	(0.0447)
age	*-0.1006	(0.0491)	*-0.0986	(0.0490)
age squared	*0.0014	(0.0005)	**0.0014	(0.0005)
married	-0.1452	(0.1302)	-0.1434	(0.1302)
children in hh	-0.0532	(0.0961)	-0.0545	(0.0959)
1993	-0.1029	(0.1062)	-0.1047	(0.1066)
1994	**-0.3222	(0.1192)	**-0.3144	(0.1204)
1995	**-0.5261	(0.1279)	**-0.5124	(0.1290)
1996	**-0.5107	(0.1338)	**-0.4903	(0.1341)
1997	**-0.6432	(0.1568)	**-0.6104	(0.1577)
1998	**-0.7354	(0.1515)	**-0.7250	(0.1559)
1999	**-0.8291	(0.1524)	**-0.8259	(0.156)
2000	**-0.3727	(0.1397)	**-0.3750	(0.1401)
2001	-0.1734	(0.1225)	-0.1792	(0.1218)
2002	-0.1293	(0.1217)	-0.1318	(0.1208)
2003	-0.0759	(0.1213)	-0.0728	(0.1210)
2004	-0.1657	(0.1312)	-0.1562	(0.1308)
cyclical unempl. rate in t	**0.2527	(0.0417)	**0.2164	(0.0397)
unempl. status in 1992	**0.9537	(0.0916)	**0.9812	(0.0920)
avg. age	0.0599	(0.0599)	0.0581	(0.0597)
avg. agesq.	-0.0008	(0.0007)	-0.0008	(0.0007)
avg. university degree	**-0.4463	(0.0932)	**-0.4518	(0.0931)
avg. high sch./apprenticeship	*-0.1757	(0.0808)	*-0.1785	(0.0807)
avg. married	-0.2133	(0.1504)	-0.2176	(0.1502)
avg. children in hh	0.0923	(0.1206)	0.0949	(0.1203)
avg. disability	0.0177	(0.1181)	0.0153	(0.1179)
avg. non-EU nationality	**0.3796	(0.0863)	**0.3790	(0.0862)
avg. North	0.1103	(0.0963)	0.1167	(0.0959)
avg. West	**0.2441	(0.0776)	**0.2437	(0.0776)
avg. Middle	**0.2758	(0.0887)	**0.2753	(0.0886)
avg. Berlin	**0.5272	(0.1266)	**0.5323	(0.1263)
avg. East	**0.5900	(0.0779)	**0.5992	(0.0776)
constant	*-1.4096	(0.6684)	*-1.4238	(0.6670)
σ_a	**0.6275	(0.0241)	**0.6272	(0.0241)
ρ	**0.2825	(0. 0155)	**0. 2823	(0.0156)

*= significant at 5%-level, **= significant at 1%-level

Appendix

Figure A1: Unemployment rate and linear time trend, West German states
(SH = Schleswig Holstein, HAM = Hamburg, LSAX = Lower Saxony, BRE = Bremen,
NRW = North Rhine-Westfalia, HES = Hesse, PS = Rhineland Palatinate and Saarland,
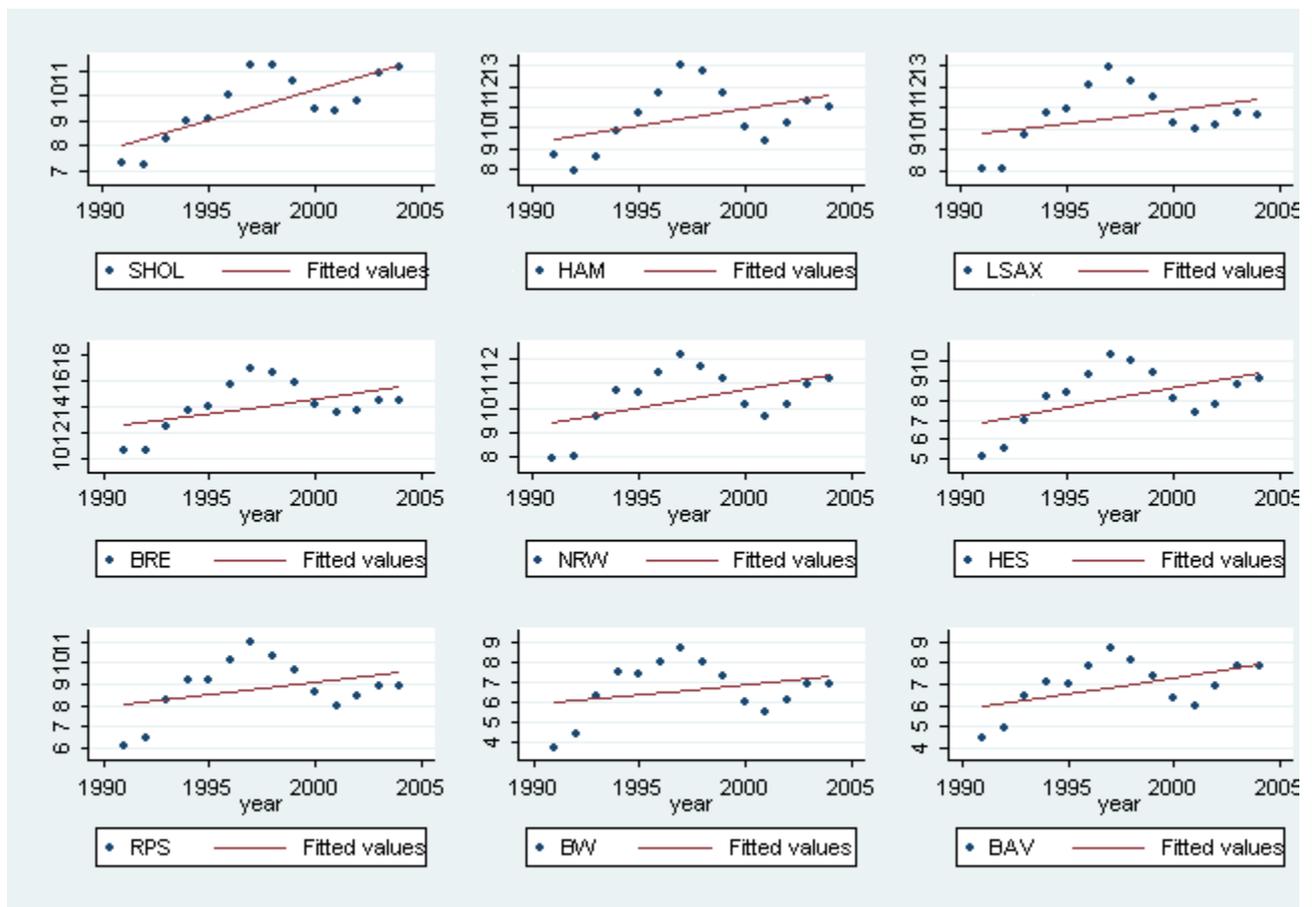R BW = Baden Württemberg, BAV = Bavaria)

Figure A2: Unemployment rate and linear time trend, East German states
(MWP = Mecklenburg-West Pomerania, BRA = Brandenburg, SAN = Saxony-Anhalt,
THU = Thuringia, SAX = Saxony)