

# Too much to die, too little to live: unemployment, higher education policies and university budgets in Germany

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**ABSTRACT** German educational spending per student has dramatically declined since the early 1970s. In this paper, we develop a theory of fiscal opportunism and argue that state governments exploit higher educational policies as an instrument of active labour market policy. By 'opening' universities to the masses and the extensive propagation of broader university enrolment during times of economic distress, state governments have an instrument at their disposal for lowering unemployment without generating negative budgetary implications. Thereby, the government pockets voter support not only by diminishing unemployment, but also by providing public goods particularly to the socially disadvantaged. At the same time, the state government risks a deterioration of educational quality owing to decreasing educational spending per student. We test our theoretical claims for the German states in a period ranging from 1975 to 2000 by means of panel fixed-effects models. The empirical results robustly support the hypothesis that rising unemployment ratios lead to increased university enrolment, but also significantly reduce the spending per student.

**KEY WORDS** Germany; higher education; unemployment; university budgets.

## 1. INTRODUCTION

In Germany, the 1970s witnessed two developments, which at a first glance appear to have little in common: the emergence of mass unemployment and a significant rise in university enrolment in the country's university system. This paper links those seemingly unrelated trends in a causal way. We argue that higher education policies provide an attractive policy instrument for governments in fighting high unemployment. Governments may reduce the pressure on the labour market by increasing the number of students. Such a strategy has at least three advantages: the increase in the number of students affects the labour market almost immediately, does not put a strain on government spending, and may trigger broad support in the population under certain conditions.

Our theoretical argument takes advantage of the research relating political business cycles to opportunistic fiscal policy-making (cf. Tufte 1978; Oatley 1999; Hallerberg 2002; Clark 2002) and at the same time provides new insights for this growing strand of literature. With early research on fiscal business cycles highlighting deficit spending, recent research turned to 'strategic budgeteering' as the government's dominant policy opportunity (Persson and Tabellini 1999; Franzese and Nooruddin 2004). Strategic budgeteering refers to the redirecting of resources from projects that have long-term benefits to projects that maximize government support in the near future. Drazen and Eslava (2005), for example, show that governments target spending on specific groups of voters at the expense of other voters.

Our project highlights another possibility: governments may increase their popularity without higher spending by reducing the quality of a 'public good'. By seemingly solving or at least addressing a problem – in this case, high unemployment – they win political support even though they give in on another policy goal – here, the quality of higher education. To substantiate our theory of the opportunistic instrumentalization of higher education policy in the German states empirically, we analyse the variance of two key characteristics of higher education policy: student enrolment and, most importantly, university budgets per student. Our study covers all German states in six periods ranging from 1975 to 2000; thus, the panel is clearly 'cross-sectional dominant'. We derive inferences based on a comparison of dynamics in our key variables between the German states. The findings robustly support our claim: states with higher unemployment figures also have higher university enrolment figures (given their population), but devote fewer resources per student.

The most important and presumably most interesting element of our theory is the claim that state governments have acted opportunistically and drew on the university system as a cheap remedy for severe tensions in the labour market. To discriminate our theory of fiscal opportunism from other explanations that match the empirical findings, we advance further empirical facts: we show that states with higher unemployment rates devote a smaller share of their budget to higher education policies. This result indicates that higher unemployment does not necessarily force the government to overall budget cuts. The government only tends to reduce educational spending. Moreover, we identify instruments enabling governments to direct additional students to relatively 'cheap' disciplines, i.e. to social and cultural sciences. While our theory would predict that governments minimize the costs of the sharp increase in student figures, it is not clear why governments would act this way if they did not behave opportunistically.

Our article contributes not only to a more in-depth understanding of German higher education policies. Most importantly, we demonstrate that *and* how political-economic theories of opportunistic government behaviour can be usefully applied to fields of research that have rarely attracted attention among political economists. Those working in the field often consider such an (imperialistic) theory transfer with reluctance. We are not aware of an

alternative theory that better matches the surprisingly large variance among the German states' higher education policies, however. As we will show, this variance cannot be explained by partisan differences and the difference in higher education policy across German states cannot be explained by features of the German political system since it applies equally to all German states.<sup>1</sup>

## 2. MEANS, MOTIVE AND OPPORTUNITY: GERMAN HIGHER EDUCATION POLICIES BETWEEN LABOUR MARKET TENSIONS AND CONSTITUTIONAL REFORMS

In this section, we provide a theory that causally links unemployment and higher education spending in the German states. Our theory of fiscal opportunism builds upon the assumptions of the literature of the political business cycle (cf. Drazen 2000 for a summary of the different approaches). Rational governments aim at being re-elected and therefore pursue opportunistic policy goals. Most importantly, governments need to react to increasing unemployment in order to safeguard their survival in political power. In this view, governments have an incentive to sacrifice long-term policy goals to achieve a short-term drop in unemployment rates. These short-sighted policies often deviate from policies maximizing aggregate welfare in the long run.

We can distinguish two versions of political business-cycle theories. Both highlight one particular aspect illustrative for the analysis of higher education policies. *Adaptive theories* trace the choice of short-sighted policies back to voters who lack a full understanding of the long-term consequences of such policies (Nordhaus 1975; Cukierman and Meltzer 1986). Deviations from an optimal policy occur if voters cannot, or do not, appropriately calculate the long-term effects of policies. In *rational theories*, the occurrence of short-sighted policies comes about owing to incomplete information of the voters about the actual qualification of the government. As Alesina *et al.* (1997: 23) wrote: 'Competence is a private information: The government knows its ability, the voter does not. Voters can assess the government's competence by observing economic outcomes.' Competent governments signal their competence by triggering macroeconomic problems which they resolve at low cost or by implementing complicated low-cost solutions to exogenously given macroeconomic problems. Incompetent governments cannot send such signals because they cannot resolve these problems at a low cost. In other words, governments have a strong incentive to fight unemployment without imposing high budget deficits since voters tend to punish them for excessive debts.<sup>2</sup>

We amend this line of argumentation by our concept of 'strategic budgeteering' and claim that – instead of increasing governmental spending – German state governments drew on the university system as a means of reducing youth unemployment. For governments, liberalizing university access in the wake of rising unemployment held many advantages because declining unemployment became visible in the short run (before the next elections), while the disadvantage of the reform – the poor quality of higher education –

remained hidden over a long period of time. Additionally, the instrumentalization of higher education policies allowed state governments to signal competence to its voters. Voters were more likely to support governments that reduced unemployment seemingly without creating further strains on the budget. On this account, governments appeared particularly attracted to choosing higher education policies as a means of coping with unemployment instead of referring to more traditional but also more costly policy instruments. By comparison, the costs of alternative instruments become almost immediately clear to the voters: budget deficits indicate higher taxes in the future, active labour market policies are often thought of as an expensive way to hide unemployment, shifting budgets requires withdrawing resources from one group of voters to attract the support of another group of voters, and so on.

However, ever since the days of Sir Arthur Conan Doyle (and possibly earlier), a convincing case against a suspect who does not confess depends on the provision of sufficient evidence of means, motive, and opportunity. The theory thus needs to provide answers to three questions: first, did state governments possess the appropriate instruments to follow such a strategy? Second, why did student enrolment constitute an attractive policy instrument for opportunistic governments, and why was this strategy potentially more attractive to governments that aimed at cutting unemployment as compared to other policy instruments – instruments such as monetary policy, fiscal policy, research and development (R&D) policy, etc.? And finally, why were governments able to reduce the quality of the higher education system without apparently reducing their political support?

### **Means: assuming ‘state responsibility’**

As of 1 January 1970, changes in rights and responsibilities in the German higher education system became effective by an amendment of the German Basic Law. This section presents an historic overview of those reforms. As we will highlight, this period was decisive in the development of German higher education, as the German federal system granted state governments the means to strategically exploit higher education policies. The reforms strengthened the role of the federal government and the state governments in higher education policy at the cost of university autonomy. State governments obtained two important instruments to opportunistically utilize higher education for labour market policies: they gained organizational and administrative autonomy over higher educational policy within their territory and attained autonomy in educational spending.

State governments were able to extensively influence the individual’s educational decision by directly planning and appropriating university places.<sup>3</sup> The governments could shorten the average time-to-degree for certain fields of study, raise public-sector salaries for graduates, and improve promotional prospects within the public sector (Baumert 1994: 658). By setting the *Curricularnormwert* at different levels, states determined the supply of university places

in the different disciplines and thereby influenced the capacity of the universities to absorb further students.<sup>4</sup> On this account, state governments can not only determine the absolute number of students, but also directly influence the number of students in different disciplines. If state governments aimed at using higher education policies as a cheap labour market instrument, then they could, for example, direct the vast number of students to disciplines that do not require laboratories, small classes, or expensive experiments.<sup>5</sup>

Additionally, state governments gained budgetary autonomy from the federal government and the universities. Since then, neither the federal government nor the universities have exerted a valuable influence on the budgetary process. The federal government influences higher education policy solely by promoting research beyond universities, financially supporting students, and developing new universities. Those policies make up less than 10 per cent of the overall educational budget (Göbbels-Dreyling 2003). The universities may pose their financial demands and co-operate with the state in the budgetary process by debating the allocation of the budget. Still, the states autonomously reach the 'final decision' over the size and allocation of resources across universities (see *Hochschulrahmengesetz*).

As this brief discussion amply demonstrates, German state governments actively gained control of a mix of policy instruments for actively influencing higher education. Together, such instruments appeared more than appropriate in raising the number of students without having to fear an equally sized boost in higher education expenditures.

### **Motive: unemployment and higher education policies**

The political takeover of state responsibility for the German universities coincided with the first increase in unemployment rates since the country's recovery from the Second World War. Unemployment exceeded 2 per cent in 1967, but the country quickly returned to full employment. However, unemployment rates began to rise sharply in the aftermaths of the first oil crisis – jumping from 273,000 (1.2 per cent of the labour force) in 1973 to 1.074 million unemployed (4.7 per cent) in 1975. In 1970, the year of the constitutional reforms in higher education policies, 411,520 students were officially enrolled at German universities. By 1975, this number had risen to 632,857. Five years later, in 1980, the number of students exceeded 750,000 and the number of unemployed had declined to 889,000 – an unemployment rate of 3.8 per cent.

These figures indicate that the expansion of enrolment contributed to the decline in the unemployment rate. Had the number of students stagnated at the 1970 figure, the number of unemployed could well have peaked at 1.3 million in 1980. More importantly, the decline in the number of unemployed between 1975 and 1980 was equally visible without the increase in the number of students. Figure 1 presents the number of students stacked on the total number of unemployed between 1971 and 1980. The figure demonstrates

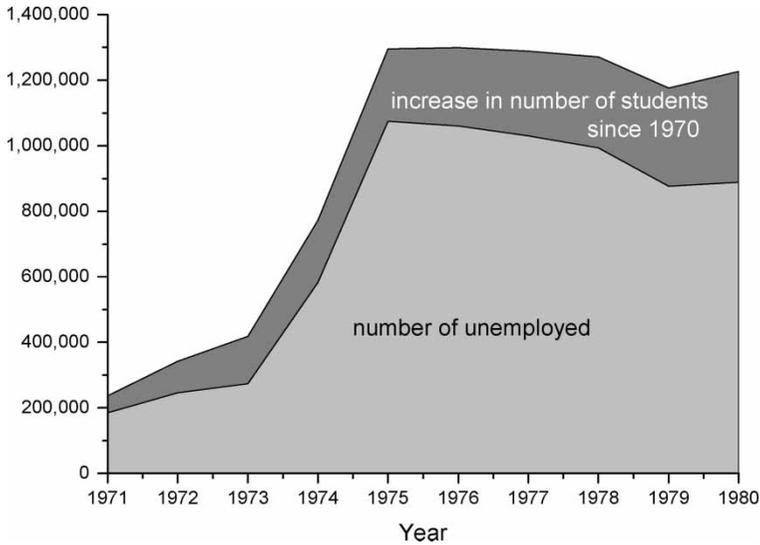


Figure 1 The increase in student numbers stacked on the total number of unemployed, 1971–1980

Source: Statistisches Bundesamt Deutschland

how important the increase in student numbers was for bringing the number of unemployed down below 1 million, which had been an important goal in the political debates of the late 1970s.

Of course, it is impossible to argue – as Figure 1 implicitly suggests – that each additional student reduced the number of unemployed by one. Yet, even if higher education policies had had a smaller effect on the number of unemployed, the importance of higher education policies for the German labour market has always been far from trivial and may never have been as important as in the 1970s.

Nevertheless, higher education policies did not per se provide an appropriate instrument of labour market policy. Universities are costly and in countries without tuition fees, public transfers per student may easily be higher than public transfers per unemployed individual. Still, a combination of 1 million students and 1 million unemployed looks preferable to politicians (and voters) than the combination of 500,000 students and 1.5 million unemployed, although higher education policies are potentially less efficient in reducing the number of unemployed than the alternatives.

Accordingly, German state governments were particularly attracted to the higher education policy because they could actually almost double the number of students without increasing higher education spending. In other words, German state governments were able to trade the quality of the university system for a significant reduction in the number of unemployed.

Analysing those figures from a political economic point of view, we see three crucial advantages in higher education policy that explain why the state

governments had a motive in exploiting higher education for short-sighted opportunistic policy goals:

- 1 An increase in the number of students leads to lower unemployment rates adding to the government's chances of remaining in political power.
- 2 While alternative strategies to fight unemployment appear costly, this strategy does *not* require any additional resources. Since the government faces budget constraints, the exploitation of higher educational policies to attain higher employment renders it a very attractive option in comparison to its more costly alternatives.
- 3 The policy allows the government to signal competence to the voters by reducing unemployment ostensibly at a low cost.

### **Opportunity: the popular politics of opening the universities**

Opportunistic short-sighted policies only pay off for politicians if voters do not anticipate the adverse long-term consequences. In our case, the governments sold the politics of 'open universities' as a social benefit to the population. Up until the opening of German universities in the late 1960s and early 1970s, German universities levied *Hörgelder* of approximately 250–300 DM per term. From 16 April 1970 tuition fees – starting with the winter term of that year – were abolished in all German states. This reform came with the right of individuals to study and the introduction of the *Bundesausbildungsförderungsgesetz* (BAföG).

Those reforms stand in contrast to the changes in other industrialized countries. Other countries expanded the budget for scholarships and stipends. Such a strategy aimed at increasing the number of highly qualified individuals. The German government, on the other hand, chose to introduce BAföG with the underlying principle of 'education as civil right' supporting individuals from lower social classes. Additionally, the construction and expansion of universities mainly served to support structurally weak regions. Just to name one example, the government founded several small universities in Rheinland-Pfalz to support the development of agrarian regions.

The population strongly supported the government because it opened the educational system to all social classes and the government bore the educational expenses. Moreover, voters could hardly predict the long-term consequences of a policy that increased the number of students. In the early 1970s, politicians who advocated an opening of the country's university system to the broader population promised to adequately raise the universities' budgets as well. Official estimates said that university budgets would expand approximately 15-fold by 1980, reaching 100 billion DM (at current prices) (Spiegel 24/1970: 63). Even if voters had deflated this promise by about 50 per cent, the increase in the budget would still have been much higher than the increase in student numbers. As it turned out, university budgets in 1980 actually remained far below 10 billion DM. Voters could have been opposed to the legal changes

of the university system only if they had completely distrusted the promises of politicians.

In sum, higher education policies provided an extremely tempting opportunity to politicians, because they sold opportunistic policies as a benefit to the majority of voters. Governments could win voter support by lowering unemployment *and* by claiming to extensively promote the provision of higher education to everyone. From their perspective, a reform of the university sector must have looked like an easy way to square the circle.

## Hypotheses

In countries with little competition between universities and where the university sector is (almost) exclusively a state-owned enterprise, governments are tempted to misuse higher education policies for opportunistic purposes. Indeed, we argued that German state governments possess the means, motives, and opportunity to take advantage of higher education policies for labour market politics.

Our argument has several testable implications. We claim that state governments have an incentive and the instruments to increase the number of students in times of economic distress in order to lower unemployment. This holds especially true if the increase in the number of students is unaccompanied by a similar increase in university budgets. State governments are especially attracted to higher education policies because they put fewer strains on the budget compared to alternative instruments. Our theory only finds support if the government does not have to increase the budget as a response to higher enrolment. We may formulate two somewhat interrelated hypotheses:

Hypothesis 1: *The number of students allowed to attend universities increases with higher unemployment rates*

Hypothesis 2: *The university budgets per student decline when unemployment rises.*

At this point we admit that these hypotheses are also compatible with other theories.<sup>6</sup> We therefore do not restrict the empirical analysis to testing the hypotheses derived from our theory directly. We offer additional evidence to discriminate between our, and potentially, rival explanations of the developments in the German higher education sector.

## 3. RESEARCH DESIGN

The German states' higher education policies provide the natural test case for the predictions of our model for several reasons. The German states satisfy the minimum requirements for our theory since they obtained almost full control over the university system in the early 1970s. In addition, analysing German states holds many intervening variables constant. For example, because the jurisdiction of the constitutional court applies to all states, partisan

preferences do not vary much across states (we nevertheless control for partisan effects), and the policy position of unions does not differ. Furthermore, the analyses of aggregated data would not constitute a very demanding test case, since university budgets declined as unemployment rose. Hence, a time-series analysis (also dubbed within case analysis) of the German case would probably just confirm the obvious. It would be simple (in fact, too simple) to identify a regression coefficient supporting our theory. The cross-state perspective appears much more demanding, as the results depend mainly on the cross-sectional variance. Rather than looking for a simultaneous development of unemployment ratios and per student spending over time, we test whether states that experienced a larger increase in unemployment reduced their universities' budget per student more than states that experienced a lower increase in unemployment. Hence, we acknowledge the strong regional patterns of the degree of unemployment in Germany. To demonstrate the independence of our results from the converse trend in unemployment and higher education policies, we also report on the results from a model suppressing the time trend in the dependent variable by adding period dummies. This procedure eliminates joint shocks (such as the second oil crisis and German unification) and trends in the data. We consider these models as robustness check.

### Measurement and data sources

As we have already discussed above, the number of freshmen and the states' university budget per student are the two dependent variables of main interest. We retrieved these variables along with our main explanatory variable, unemployment on the state level, from the German Statistical Office. State governments in principle face a prisoner's dilemma with single state governments being best off by doing nothing while all other governments increase spending in higher education. Two factors allow us to ignore the strategic situation. The German welfare state undermines the mobility of unemployed individuals. Neither can states sufficiently externalize their unemployment,<sup>7</sup> nor do prospective students show high mobility. The majority of students attend a university near the city their relatives live in (Heublein 1996). Both facets allow us to assume that all state governments face an incentive to fight or hide unemployment rather than hope to externalize the problem.

Higher education policy results from multiple influences. Partisan politics, wealth, and demographic factors may exert an influence on a state's policy *vis-à-vis* universities over time. We control for the size of the age cohorts by accounting for the number of births 20 years ago (Federal Statistical Office, Germany) and the log of per capita income on the state level (*AK Volkswirtschaftliche Gesamtrechnung der Länder*). Information on the parties' participation in government comes from the various *Landeswahlleiter* (*Länder* election supervisors).

The list of regressors is perhaps incomplete. Nevertheless, bias from omitted variables does not limit the reliability of our estimates since we run a fixed-effects model to estimate the coefficients of our exogenous variables. The unit fixed

effects effectively reduce omitted variables bias unless we have omitted a time-varying variable with a within-variance highly correlated with the within-variance of one of our regressors. Although we cannot rule out the existence of such a variable, we are unaware of one.

To our knowledge, these various data sources provide the most reliable information currently available. Yet, data on university budgets have some shortcomings: for instance, data coverage does not begin before 1975 and currently ends in 2002. From a theoretical perspective, we would have preferred to study earlier data as well, because reforms of the German system of higher education began in the late 1960s. Yet, the unemployment rates in most German states remained relatively low before 1975. For this reason we do not believe that state governments acquired control over the university system with the intention of fighting unemployment.<sup>8</sup> However, once possible, state governments did take advantage of the instruments they had. We can thus expect to catch some of the policy response to severe unemployment. Additionally, these data restrictions work against our main hypothesis, if we can still observe a significant effect of unemployment on the university budget per student by year. In this case, we can be even more confident about our theory.

The second restriction results from the periodization of the spending data. Data on university budgets between 1975 and 1985 are only available for 1975, 1980, and 1985. From 1985, we can obtain annual data. We have opted for using panel data that cover the 12 West German states over the period 1975–2000 (six periods). The East German states Mecklenburg-Vorpommern, Brandenburg, Sachsen-Anhalt, Sachsen, and Thüringen provide information only after 1992. We include these states in the last two waves, 1995 and 2000. To demonstrate robustness, we ran all models with and without the East German states.

## Methods

The analysis of panel data is typically complicated by (unobserved) unit heterogeneity, heteroscedasticity, and serially correlated errors. Over recent years, it has become common to estimate a fixed-effects model including a lagged dependent variable and to compute panel-corrected standard errors (Beck and Katz 1995). We apply this standard where possible and useful, but deviate where necessary. In particular, we compute panel-corrected standard errors for all models and apply the fixed-effects transformation where appropriate. However, demeaning the data (as fixed-effects models do) renders time-invariant variables such as the dummy for East German states perfectly collinear with the N-1 unit effects. In addition, Plümper and Troeger (2007) have shown that a fixed-effects estimation of a variable with a low within-variance to between-variance ratio is very unreliable. They suggest an estimator called fixed effects vector decomposition (FEVD), which in brief demeans all variables that have sufficient within variation and does not demean all variables that can be more reliably estimated by pooled ordinary least squares (OLS). We use this

procedure to obtain a coefficient for the East German states. In our case, a fixed-effects model is also theoretically warranted, because we are interested in analysing the effect of rising unemployment rates on changes in the states' spending per student. Running a fixed-effects model demeans both the dependent and the independent variables (see Plümper *et al.* 2005 for a discussion).

We would like to but cannot apply the Beck–Katz standard to account for temporal dependence of the data. With six periods for the West German states and two periods for the East German states, we cannot eliminate the potential for serially correlated errors. Note, however, that the autocorrelation coefficient for the Western states never exceeds 0.35. Bias from temporal dependence may exist, but it should be fairly small.

For all models, we report fixed effects and FEVD estimates, and we report large samples from all states to a small sample which consists only of the West German states. We find that all our models are fairly robust to the choice of estimators and the sample size.

#### 4. ANALYSES AND RESULTS

We have derived two predictions from our model. Student numbers tend to be higher in states with higher unemployment and – more importantly – university budgets per student are lower in states with higher unemployment. We test these two predictions in turn, leaving it to the following section to provide evidence discriminating between our theory and a purely demand-side theory of the cross-sectional variance in Germany's states' higher education policies.

##### Student numbers

To examine the relationship between unemployment and higher education policies we start by exploring the influence of the unemployment rate on university enrolment. This relationship represents a necessary condition for our argument: the argument appears unconvincing if enrolment figures in the German states do not covary with the states' unemployment figures.

Table 1 presents the regression of the number of first-year students against the unemployment rate and some control variables. We report results from two samples – a full sample and a model excluding the East German states – and from two models – a fixed-effects model and an FEVD model. The estimation proceeds without controlling for serial correlation of errors since the number of periods in our panel is too short to allow a careful modelling of dynamics. Specifically, we have only two waves for the East German *Länder*, which implies that we cannot simultaneously include unit dummies and a lagged dependent variable in the model that includes the East German *Länder*. Since in our data the bias resulting from serial correlation appears to be much smaller than the bias from unit heterogeneity, we estimate a static model.

Table 1 Fixed effects and fixed effects vector decomposition estimation of university enrolment

<i>Estimator</i>	<i>Model 1 fixed effects</i>	<i>Model 2 fixed effects</i>	<i>Model 3 FEVD</i>	<i>Model 4 FEVD</i>	<i>Model 5 FEVD</i>	<i>Model 6 FEVD</i>
Intercept	-5.259 (4.266)	-2.714 (8.183)	-1.928 (2.563)	-5.534 (3.685)	-10.417 (1.542)***	-19.512 (2.739)***
Unemployment	0.024 (0.010)**	0.022 (0.016)	0.024 (0.009)**	0.022 (0.019)	0.043 (0.009)***	0.037 (0.016)**
East German state dummy			-0.538 (0.195)***		-0.830 (0.112)***	
Per capita income (log)	1.240 (0.320)***	1.184 (0.435)***	0.949 (0.098)***	1.355 (0.364)***	0.510 (0.086)***	1.470 (0.068)***
Cohort size (log)	0.042 (0.150)	-0.011 (0.323)	0.042 (0.240)	-0.011 (0.343)		0.0907 (0.251)***
obs/N	76/16	66/11	76/16	66/11	76/16	66/11
Wald-chi <sup>2</sup> /F	897.84***	1991.17***	704.54***	324.62***	1552.94***	560.31
R <sup>2</sup>	0.965	0.964	0.965	0.964	0.980	0.979
t(eta)			28.19***	34.92***	29.56***	35.73***
excl. East German states	no	yes	no	yes	no	yes
Period dummies	no	no	no	no	yes	yes

Notes: Panel-corrected standard errors in parentheses.

\*\*\*p ≤ 0.01; \*\*p ≤ 0.05; \*p ≤ 0.1

As Table 1 shows, the number of student ‘freshmen’ covaries with the unemployment rate when we control for cohort size, per capita income, and distinguish between East German and West German states. However, the standard errors of the coefficient for the student beginner variable become significantly larger if we include the East German states.

Hence, our estimates only partly confirm the expected: with higher unemployment rates, universities become more attractive to individuals, but this effect does not apparently exist across all West German states. Yet, we are nevertheless convinced that common theories on individual motivations to attend a university hold (at least our study of German states does not cast doubt on these theories) because models 5 and 6, which account for temporal heterogeneity by including period dummies, show a robust positive impact of unemployment on enrolment figures.

Results from the fixed effects and FEVD models turn out sufficiently similar, indicating neither biased point estimates resulting from inefficiency nor bias from a correlation between time-invariant variables and the unit effects. We can therefore be confident that our estimated coefficients lie close to the truth, but one has to keep in mind that our short panel does not allow the elimination of temporal dependence.

As for the control variables, our model gives the expected signs: richer states have higher student enrolment figures and the cohort size increases student enrolment. The latter variable, much to our surprise, turns out to be insignificant. Less unexpected, significantly fewer students enrol in East German states. This goes back to the high mobility of East German students. At the same time, West German students remain more reluctant to study at East German universities than vice versa.

Our estimates also do not depend on whether we include or exclude East German states. The confidence intervals between these estimates overlap largely. Thus, the estimates are not biased because of the inclusion of East German states. This is even more important as our inferences depend almost completely on the cross-sectional variance – that is, the difference in the development of enrolment variance between German states.

### **University budget per student**

Building on this pre-test we next analyse whether the states’ university budget per student declines with the unemployment share. To some extent, we consider this test as the touchstone of our argument. If university spending per student were not lower in states with higher unemployment rates, the increase in enrolment figures could, and possible even should, be interpreted as an efficient fiscal policy measure.

This subsection asks whether, and to what extent, the unemployment rate influences university spending per student. Before estimating our models, we present some descriptive information. To start with, over the periods we observe an average per student budget (in 1975 prices) of €6,888 and an

average unemployment rate of 9.04 per cent, respectively. Restricting our analysis to the West German states, the respective numbers are €6,626 and 7.96 per cent. These findings suggest higher spending per student in East German states than in their West German counterparts. The observation is not entirely robust, though deviations between Eastern and Western states mainly result from the early years after reunification, when East German universities profited from very low student numbers.

Both university spending per student and the unemployment ratio show a high within-variance and a high between-variance. Take Baden-Württemberg as an example for the within-variance. Here, university spending per student (deflated) varied between €5,724 (in 1985) and €9,599 (in 1975), while the unemployment rate varied between 2.66 per cent (in 1980) and 7.60 per cent (in 2000). The variation between the German states appears equally strong. In 2000, the universities in Berlin spent €5,511 per student, whereas Schleswig-Holstein spent €8,105 per student.

Figure 2 compares the distribution of spending per student across German states in 1975 to the 1985 figures. States' university spending per student had converged to a much lower equilibrium in the latter period.

During the same period of time, unemployment rates rose from 4.7 per cent to 10 per cent. This already indicates a negative correlation between per-student spending and unemployment. As the regressions reported in Table 2 demonstrate, the negative correlation does not disappear if we control for per capita income, cohort size, and governmental participation of the Social Democratic Party (SDP).

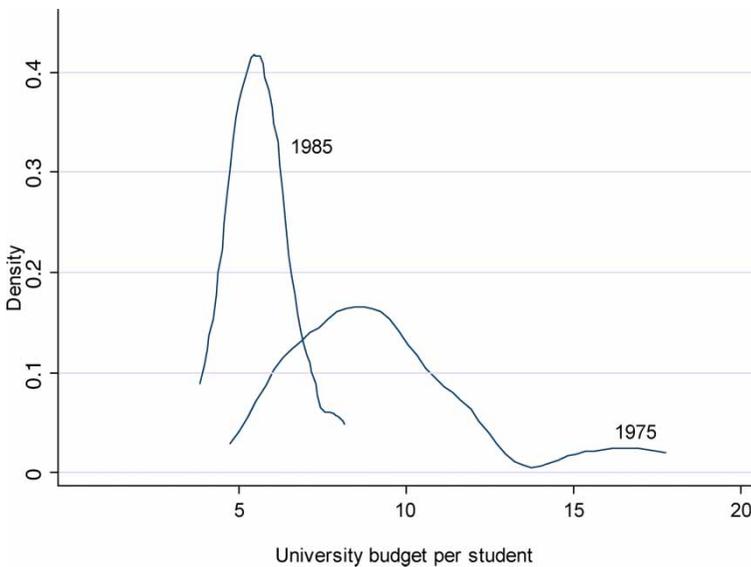


Figure 2 Kernel densities for per-student budgets (in euros, deflated), 1975 and 1985

Table 2 Fixed effects and fixed effects vector decomposition estimation of per-student spending

	<i>Model 7</i> <i>fixed effects</i>	<i>Model 8</i> <i>fixed effects</i>	<i>Model 9</i> <i>fixed effects</i>	<i>Model 10</i> <i>fixed effects</i>	<i>Model 11</i> <i>FEVD</i>
Sample	full sample	full sample	full sample	East German states excluded	full sample
Intercept	84.628 (26.628)***	85.965 (27.775)***	83.242 (27.206)***	85.207 (25.438)***	82.977 (0.346)***
Unemployment	-0.268 (0.092)***	-0.269 (0.091)***	-0.180 (0.126)	-0.142 (0.110)***	-0.268 (0.103)**
Per capita income (log)	-6.688 (2.588)**	-6.794 (2.579)***	-6.601 (2.518)***	-6.838 (2.301)***	-6.688 (2.893)**
Cohort size	-0.251 (0.173)	-0.216 (0.170)	-0.208 (0.175)	-0.233 (0.187)	-0.251 (1.473)
East German state					2.255 (0.193)***
SDP Government		0.483 (0.366)	1.529 (0.691)**	1.769 (0.832)**	
SDP Govern.* unemployment			-0.118 (0.055)**	-0.166 (0.096)*	
obs/N	76/16	76/16	76/16	66/11	76/16
Wald-chi <sup>2</sup> /F	1658.60***	3171.54***	24476.19***	429.25***	785.47***
R <sup>2</sup>	0.724	0.728	0.735	0.671	0.724

Notes: Panel-corrected standard errors in parentheses.

\*\*\*p ≤ 0.01; \*\*p ≤ 0.05; \*p ≤ 0.1.

Table 2 supports the main hypothesis derived from the theoretical considerations. University spending per student declines with high and rising unemployment. A 5 per cent increase in unemployment has an estimated conditional effect of approximately €1,000 per student on university spending – or, more precisely, a 5 per cent increase in unemployment provides an incentive to governments to allow an expansion of enrolment such that spending per student drops by €1,000. We find robust evidence for opportunistic behaviour and we find that SDP-governed states behaved significantly more opportunistically than Christian Democratic Union (CDU)-dominated states.<sup>9</sup> However, the university budget per student tends to be higher in SDP-governed states. But this holds only if the unemployment rate exceeds approximately 12 per cent. In other words, the SDP misuses universities much more as labour market instruments than the CDU.

Finally, the coefficients of per capita income negatively and significantly relate to public expenditure per university student. Richer states spend less on higher education regardless of the sample. This may be because of relatively poor states being eligible for the financial equalization scheme between the federal government and the states (*Länderfinanzausgleich*), which allowed them to react more flexibly to unemployment rates. The results we obtain are stable to changes in the model, the estimation procedure, and the sample. We also performed additional jackknife robustness checks and found again that our results do not depend on the sample.<sup>10</sup>

## 5. ADDITIONAL EVIDENCE

The empirical findings in the preceding section unequivocally support our argument. German state governments responded similarly to the increase in unemployment rates: they ‘opened’ the universities and thereby approximately doubled the number of students in little more than a decade, while at the same time keeping the university budgets around constant. Most importantly, states with relatively high unemployment rates experienced a larger decline in per-student spending. These findings bolster our claim. Governments misuse the higher education system as an effective and seemingly costless labour market instrument.

Yet, empirical evidence is often consistent with various competing explanations. The increase in unemployment could, for example, significantly reduce the number of available apprenticeships. More school-leavers could decide to attend university as a consequence. Our supply-side driven theory thus needs to be compared to demand-side theories.

### **Two sides of one coin: demand or supply-side theories of higher education**

The law of supply and demand states that with increasing demand or decreasing supply the price of a good will rise. If goods or services have no cost, demand will be at its maximum. Unfortunately, though, German universities were not

allowed to charge fees for the provision of their goods, thus manipulating the opportunity costs of studying at a German university. On an abstract level, potential students have to decide whether to obtain a university degree or not, and where and what to study. Hence, the benefits and costs of studying in Germany must be compared to the gains and costs of studying abroad. Even though there are no tuition fees in Germany, the costs of studying in Germany may easily exceed the gains. Lifetime income may increase if individuals study at universities abroad. For this reason, we cannot argue that demand ever reached its maximum.

We can argue, however, that the demand for higher education had by far exceeded supply *before* the reform of articles 75 and 91a of the *Grundgesetz*. An increase in *effective demand* had to be matched by significant changes in supply. Without the constitutional changes, student numbers might still have increased, but would never have risen so fast. This counterfactual argument can be established by taking into account the large number of lawsuits forcing universities to accept higher student numbers.

As we said before, we are reluctant to relate the constitutional changes of 1970 to the increase in unemployment five years later. However, the effective changes in Germany's higher education system certainly did not lead to a market system in which the high school graduates could freely choose where and what they wished to study. Since governments intervened heavily in enrolment numbers and university budgets, the market for higher education in Germany remained dominated by supply-side decisions.

### **Enrolment rates in the disciplines**

If university enrolment were to be purely demand-side driven, we should be able to observe an expansion of disciplines that maximize the individual's chances of finding employment and/or a desired salary upon graduation. We should observe a different pattern, however, if university enrolment were to be supply-side driven. In this view, the number of students should increase in the disciplines that are cheapest for the government to finance. The logic is straightforward: if governments opportunistically draw on universities to lower unemployment *without* putting further strains on the budget, they have no incentive to increase the budget for higher educational policies. However, some disciplines require higher investments, for example, in expensive technical equipment, laboratories, etc.<sup>11</sup> As a consequence, rising student numbers in cost-intensive disciplines run contrary to the governments' goals. Rather, they have an incentive to advocate 'cheap' disciplines – such as social sciences or humanities – in order to reduce possible budgetary costs.

How do German states direct students away from resource-intensive disciplines? Again, we need to highlight a reform of the university system. In October 1972, the state governments established a central institution for the allocation of university places (called Zentralstelle für die Vergabe von Studienplätzen, ZVS). The states commonly decide on the capacity of universities to

admit further students. As pointed out above, capacity has been always lower for cost-intensive disciplines. The ZVS then allocates the university places for those disciplines in which demand exceeds supply. With the right to determine the number of university places and the ZVS, the state governments may formally exert a great influence on the number of students in each field of study.

Furthermore, the state governments opportunistically exploited their right to determine the number of university places. Although the number of restricted disciplines fluctuated over time,<sup>12</sup> the states restricted only seven disciplines continuously: medicine, dentistry, pharmacy, biology, psychology, veterinary medicine, and business administration. From 2005, business administration does not have restricted access. Thus, most laboratory-intensive disciplines belong to the areas of study that are most restricted. Student numbers rose sharply in other disciplines.

Figure 3 illustrates the development of student enrolment by discipline.<sup>13</sup> Student numbers generally tend to increase over time, but vary considerably over fields of study. The cheapest disciplines – those with the lowest *Curricularnormwert* – experienced the sharpest increase in the number of students.<sup>14</sup> In other disciplines, student numbers increased rather moderately. As we have demonstrated above, the development of student numbers largely falls in line with the unemployment ratio. Combining both trends reveals that, in times of severe unemployment, state governments were tempted to increase the number of students in cheap disciplines. Comparing the number of students in Germany in low unemployment years and years of economic distress,<sup>15</sup> we see, for example, that the number of students has almost doubled in linguistics, cultural studies, law, political science, and economics. In medicine, the number increased by approximately 20 per cent and by less than 30 per cent in natural sciences.

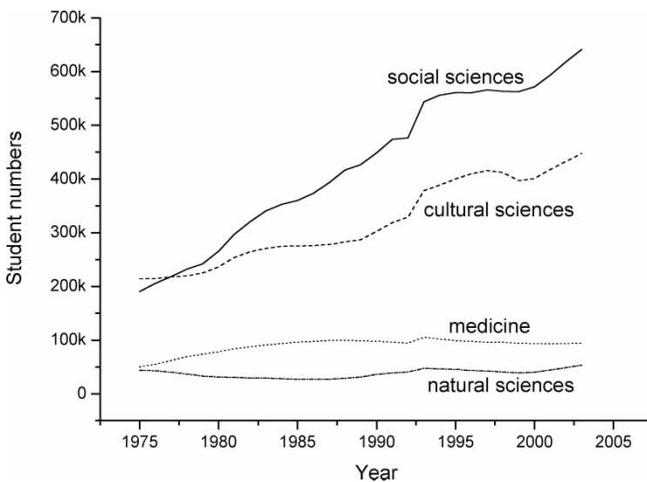


Figure 3 Number of students in the disciplines

These numbers do not support purely demand-side driven explanations of enrolment, but rather back the supply-side argument. While we would expect students to choose disciplines according to their choice of occupational career, the features of the German institutional system and the number of students in the different disciplines clearly point to the fact that university enrolment is also (and maybe mostly) supply-side driven. Governments, in order to lower unemployment without facing budgetary expansion, tend to open those disciplines to students that are not cost intensive for the government.

### Ratio of states' higher education budgets to total budgets

Finally, we seek to establish that governments in states with higher unemployment are even more inclined to reduce the share of their higher education budget to their total budget than states with lower unemployment. To interpret these data correctly one needs to know that German states are responsible for financing unemployment. Hence, the decline in the share of higher education expenditures cannot be explained by the necessity to increase transfers to a much larger number of unemployed individuals.

Table 3 reveals the expected: higher unemployment rates tend to *reduce* the relative importance of university budgets in the total budget of German states. Together with the results above, this finding indicates that state governments tend to open universities in times of high unemployment without increasing

Table 3 Fixed effects and fixed-effects vector decomposition estimation of the ratio between university budgets and total state budgets

	<i>Model 12</i> <i>fixed effects</i>	<i>Model 13</i> <i>fixed effects</i>	<i>Model 14</i> <i>FEVD</i>
<i>Sample</i>	<i>full sample</i>	<i>East German</i> <i>states excluded</i>	<i>full sample</i>
Intercept	1.151 (0.706)	-0.229 (0.846)	1.170 (0.398)***
Unemployment	-0.006 (0.001)***	-0.006 (0.002)***	-0.006 (0.001)***
East German state dummy			0.084 (0.000)***
Per Capita income (log)	-0.063 (0.068)	0.066 (0.076)	0.160 (0.013)***
Cohort Size (log)	0.110 (0.025)***	0.158 (0.035)***	0.000 (0.037)
obs./N	65/16	55/11	65
Wald-chi <sup>2</sup> /F	181152***	259.01***	197000***
R <sup>2</sup>	0.883	0.867	0.833
t(eta)			13.87***

Notes: Panel-corrected standard errors in parentheses.

\*\*\* $p \leq 0.01$ ; \*\* $p \leq 0.05$ ; \* $p \leq 0.1$ .

university budgets correspondingly. At the same time, the government does *not* reduce the overall budget. Instead of cutting education expenditure as a consequence of budgetary constraints, state governments seem to misuse universities as inexpensive means to partly contain unemployment.

To sum up, this section provided some additional evidence to discriminate between supply- and demand-side explanations of the processes we described in section 2 and analysed in section 3. While competing theories can certainly explain some parts of the evidence we provided in this article, our theory is only consistent with all the bits and pieces of evidence discussed here.

## 6. CONCLUSION

Over the last decades, the German states largely increased the number of enrolled students without adequately increasing their higher education budgets. As a consequence, the share of higher education budgets to total budgets declined. In this paper, we presented a theory of fiscal opportunism to explain those trends in the German states. Expanding the basic models of political business cycles with an argument of fiscal opportunism, we argued that the German states aimed to secure their survival in political power by exploiting higher education policies as a means of reducing unemployment at low costs. The opening of universities and an increase in enrolments led to a decline in unemployment figures. At the same time, governments could appear as competent crisis managers since they reduced unemployment without increasing budget deficits.

Accordingly, the case against German state governments misusing higher education policies is a strong one: state governments had a particularly strong motive to open higher education institutions to the masses as a labour market instrument since a reduction in unemployment without putting further strains on the budget would increase their popularity and support. They not only strived to assume command over the necessary means to increase student numbers at no or low cost. They even created those means: by reforming the German *Grundgesetz* they completely abolished the universities' autonomy over student enrolment and by establishing the ZVS they invented a powerful instrument to direct student streams into low-priced disciplines. One may ask what intentions German state governments had in acquiring authority over universities other than opening the universities without at the same time providing appropriate financial resources to them. If the German state governments were not interested in opening the universities, no further measures were required. If they wanted to open the universities without recourse to their financial resources, state governments had the option to simply provide monetary incentives to universities.

Our empirical analysis revealed that states which experienced relatively high unemployment experienced the largest decline in university spending per student. This presents the most important case for our theory: the degree of short-sightedness in German state governments depended on the severity of

the unemployment problem. States which suffered lower unemployment did less harm to their universities.

On this account, German universities, once a role model for many countries, are nowadays underfinanced and overcrowded. Over recent decades, the number of students has steadily risen, but state governments have appeared reluctant to increase the amount of budgetary resources for higher education at the same time. By international comparison, Germany ranks far behind its industrialized counterparts and the number of students per professor exceeds the student–professor ratio in most other countries.

One can hardly argue that those consequences were just unintended side-effects of a seemingly elegant solution to the emergent problem of youth unemployment. From the very onset there were many critics of Germany's higher education policy. Chancellor Helmut Schmitt himself is the most prominent example. Six years before he actually became Chancellor, he stated: 'We have too many sociologists and political scientists. We need more students who will seek respectable jobs, which are beneficial to society.'<sup>16</sup> Actually, the relative share of students 'seeking beneficial jobs' declined during his Chancellorship.

An agreement between the federal government and the state governments opened universities to the broader masses – as the policy of a doubling of student numbers without increasing higher education policy budgets was sold to the voters. This reform opened the gates for a severe loss of quality at German universities. In the end and by Organization of Economic Co-operation and Development standards, Germany has produced two effects: underfinanced universities and high unemployment figures.

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## NOTES

- 1 Without trying to be exhaustive: neither the strong position of the unions nor the increasing indebtedness of the German federal state can explain the differences in the states' higher education policies as those factors constrain state governments about equally. Even if one assumes that unions have more influence when parties on the left govern, this effect should show up in the partisan variables.
- 2 See also Jochimsen and Nuscheler (2005) and Schneider (2007) for empirical evidence for the German states.
- 3 In the 1960s, there was an acute shortage of school teachers. As a consequence, the state governments supported lectureship. By the end of the decade, 37 per cent of all students sought a university place to become school teachers.
- 4 The supply and demand of education determine the capacity of a department. The supply of education incorporates personnel in a certain discipline. The demand of education, on the other hand, depends on the number of students and the capacitive effort in a given discipline which is estimated by the state (*Curricularnormwert*). The *Kapazitätsverordnung* displays those measures.
- 5 In fact, state governments always tended to assign higher *Curricularnormwerte* medicine and other laboratory-intense disciplines, implying that they have a lower capacity to absorb students than the humanities and social sciences given the demand for education.
- 6 This phenomenon is hardly limited to our explanation. In fact, the problem is known as 'ontological relativism' and sometimes referred to as the Duhem-Quine thesis of under-determination. It simply applies to all tests of theories that cannot be interpreted as proving the theory correct (verification).
- 7 Unemployment benefit schemes are regulated by the federal government and administrated by a centralized agency.
- 8 However, the first post-war surge in unemployment in Germany took place in 1967/68.
- 9 Our estimates may to some extent suffer from reversed causality, because the unemployment rate may depend on low per-student spending. However, we believe that the resulting bias is low and in fact much more acceptable than the inefficiency that would result from using instruments for the unemployment rate.
- 10 Further robustness checks are available upon request and included in the do-file.
- 11 The *Curricularnormwert* is usually more than twice as high in disciplines such as medicine, natural sciences, etc. Also, the estimated required floor space is at least three times as high for natural sciences, engineering, or medicine as for humanities. Consequently, laboratory-intensive disciplines require higher budgets per student and are more expensive for state governments to maintain.
- 12 In fall term 1975/76, 38 disciplines were subject to restricted access. However, the number of restricted fields of study declined drastically over the years.
- 13 Unfortunately, data are not available on state level. From this, it appears impossible to retrieve cross-sectional data.
- 14 In fact, since the *Curricularnormwert* not only displays the supply of study places, but also the demand, the figure illustrates that, while the demand for medicine was quite high, a steep increase in students in this study field was not experienced.
- 15 As a low unemployment year, we take 1980 (unemployment reached 3.8 per cent). We compare those numbers to 1997 which experienced an unemployment ratio of 12.7 per cent.
- 16 'Wir haben zuviel Soziologen und Politologen. Wir brauchen viel mehr Studenten, die sich für anständige Berufe entscheiden, die der Gesellschaft nützen.' It may be worth a footnote that Schmidt himself had studied economics and political science.

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