Is the general use of benefit sanctions really effective to activate the unemployed?
Evidence from welfare recipients in Germany

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Abstract: Recently published studies that investigate the effect of benefit cuts on the employment prospects of unemployed show that sanctions substantially increase the probability of an individual to get employed. This evidence suggests at first sight that benefit sanctions are an effective tool in the activation process of the unemployed and should be used more frequently by welfare agencies to enhance employment uptake and to reduce welfare dependency. However, the effectiveness of the general usage of sanctions has not been thoroughly studied so far. In this paper we make use of a unique data set of German welfare recipients that is rich with respect to individual and agency level information. In particular we observe the general sanction strategy of a welfare agency. We apply this information to instrument individual sanctions and estimate the impact of a sanction on those individuals who would be the target group of welfare agencies if sanctions were used more frequently as part of an intensified activation strategy. Our results show that sanctions are not a remedy among this group to reduce unemployment or welfare dependency and might even be counterproductive. Therefore, we have to conclude that the general usage of sanctions is ineffective and cannot be recommended as a useful activation strategy.

JEL-Codes: C31, I38, J64

Key Words: benefit sanctions, welfare recipients, instrumental variable estimation, local average treatment effect

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1 Introduction

In recent years, considerable interest has arisen in the effects of benefit cuts on the employment prospects of unemployed individuals resulting in a number of publications. Most studies focus on sanctions imposed on unemployment benefit recipients, i.e. those persons who are covered by unemployment insurance (see, e.g., Abbring et al. 2005, Lalive et al. 2005, Svarer 2007, or Müller and Steiner 2008). Some evidence also exists for welfare recipients (see, e.g., Van den Berg et al. 2004, or summarized evidence for the US in Grogger and Karoly 2005, or Blank and Haskins 2001). So far empirical evidence suggests that benefit cuts substantially increase the probability of a sanctioned individual to find a job. For example, applying the so-called timing of events approach proposed by Abbring and Van den Berg (2003) Van den Berg et al. (2004) find that the transition rate from welfare to work more than doubles after a sanction is imposed. Similar results are found by the other cited studies suggesting that benefit sanctions are a powerful tool in the activation process. However, drawing the conclusion that sanctions should be used more frequently to combat welfare dependency might give a misleading picture since the (hypothetical) effect of a sanction on a actually non-sanctioned person is unknown. Moreover, existing studies are not without drawbacks because they mostly rely on limited individual information or are restricted to a few regions. For example, Abbring et al. (2005) use Dutch register data that contain only a small number of personal characteristics that can be used as covariates. The study of Lalive et al. (2005) considers just three out of 26 Swiss cantons and Van den Berg et al. (2005) focus merely on welfare recipients in the Dutch city of Rotterdam. These restrictions are a clear disadvantage to model the selective process of the imposition of sanctions since this process will not only depend on observable and unobservable individual characteristics but also on characteristics of the welfare or employment agency at which an individual is registered and that is in charge of the actual imposition of sanctions. Usually, sanctions are not imposed automatically when an individual does not comply with his duties during the activation process. In fact, there is some discretion at the agency level whether a sanction is applied or not. Some agencies might be quite reserved with respect to the usage of sanctions and apply sanctions rarely. Other agencies will follow a strict sanction regime and impose a sanction whenever non-compliance of a client is discovered or suspected and will punish even minor infringements. Agency characteristics are therefore a fundamental factor in the imposition process of sanctions. This agency impact has been neglected so far.

In this paper we make use of a unique data set to evaluate the effect of benefit sanctions on welfare recipients in Germany. Our outcome variables of interest are employment uptake and

termination of welfare dependency. The data set combines survey and administrative information on welfare recipients that are registered at 154 different welfare agencies across Germany. In addition the data contains regional information and information on the organisational structure of the 154 agencies and their strategies in the activation process. Due to the data structure we cannot apply a timing of events approach. Instead, we make use of the agency information contained in the data and instrument individual benefit cuts by the general strategy of agencies towards the use of sanctions. Our identification strategy therefore leads us to estimate a local average treatment effect as suggested by Imbens and Angrist (1994). Precisely, we estimate the effect of a sanction on those individuals who are not sanctioned in an agency with a reserved sanction strategy but who are sanctioned in an agency that imposes sanctions more frequently. Thus, this local average treatment effect can be interpreted as an estimate of the effectiveness of the general usage of sanctions since the effect is estimated for those individuals that are not necessarily sanctioned because of a non-compliance but simply because of the fact that the punishing agency regards sanctions as an important element of its activation and monitoring regime. Our results show that the general usage of sanctions is rather ineffective. A sanction might be effective when it is individually targeted. However, sanctions might do more harm than good if they are used frequently as part of an activation strategy.

The remainder of this paper is organised as follows. In Section 2 the German welfare system and the institutional setting of benefit sanctions are described. Section 3 introduces our data and presents some descriptive statistics. Our identification strategy is discussed in Section 4. In Section 5, we present the estimation results. Section 6 concludes.

2 The German welfare system and its sanction scheme

The German welfare system was substantially reformed at the beginning of 2005.[1] Before 2005, unemployed with no or expired unemployment benefit (UB) claims where either eligible for unemployment assistance (UA), which was conditional on previous employment, or for social assistance (SA), or a combination of both if UA was too low. Both UA and SA were means-tested. When the welfare reform came into force in January 2005, both types of benefits were replaced by the so-called unemployment benefit II (UBII). In contrast to UA,

[1] This reform was the last part of a series of four major reforms of the German labour market which were implemented from 2003 onwards. These reforms have become known as “Hartz reforms” named after the chairman of the commission which proposed the reforms. Since the reform of the welfare system is the last of the four reforms it is also referred to as “Hartz IV reform”. See Jacobi and Kluve (2007) for a brief description of all four “Hartz reforms”.

which replaced up to 57% of the previous net earnings, UBII (as former SA) does not depend on former earnings. It is means-tested where the test takes into account the wealth and income of all individuals in the household. At the beginning of 2005, the standard UBII amounted to 345 EUR in West Germany and 331 EUR in East Germany. Meanwhile, the level of UBII in East Germany was adjusted to the western level and UBII was slightly increased in both parts to compensate for inflation. Besides the standard UBII welfare payments also include compulsory social insurance contributions, rents and housing costs. Payments for special needs might be covered as well.

UBII eligibility is conditional on claimants being employable, i.e. on being capable to work for at least 15 hours per week, and conditional on age (15–64 years). Note, that unemployment is not a prerequisite for UBII receipt. Individuals who are employed but whose income is too low are also eligible for UBII. Employable claimants have to register with the local welfare agency and are obliged to participate in welfare-to-work programmes. This obligation remarks a considerable change in German welfare policy since for the first time welfare recipients are a target group of labour market activation. Before 2005, almost no effort was made to reintegrate these persons into the labour market and welfare solely relied on passive benefit payments. Since 2005, the welfare recipients' rights and duties in the activation process are usually set out in a so-called integration contract, which is an agreement between the welfare agency and the UBII recipient that contains obligations concerning programme participation and job search activities as well as services provided by the welfare agency. The integration contract is usually worked out after the first meeting of a welfare recipient with his caseworker. The caseworker is the person who counsels and advises the welfare recipient and who decides about the programmes in which his client has to participate. If the caseworker detects non-compliance of the UBII recipient during the activation process, the welfare agency has the possibility to impose a sanction. The welfare recipient is informed about the consequences of non-compliance in the integration contract and before the take up of every programme he is assigned to.

Sanctions of a duration of three months can be imposed due to various reasons. For minor non-compliances like the failure to report to the welfare agency benefits are cut by 10%. More severe infringements (lack of job search effort, refusal to accept a suitable job offer, refusal to participate in a programme) lead to a benefit reduction of 30%. In case of continued non-compliance with respect to a severe infringement a second (60%-cut) or third sanction (100%-

cut) can be imposed.[2] For UBII recipients aged less than 25 benefits can be reduced by 100% already when the caseworker detects the first non-compliance.

The caseworker plays a key role in the process of the imposition of a sanction. If he detects the non-compliance of a welfare recipient he can punish this behaviour by reducing benefits. However, he will have some discretion over the use of sanctions, i.e. whether or not he actually imposes a sanction depends not only on the infringement he observes but also some other observable and unobservable factors. One of these factors for example might be simply the personal relationship of a caseworker with his client, which, however, is in most cases unobservable for the researcher. A more important and more easily observable determinant is the general sanction strategy of the welfare agency at which the caseworker is employed. Usually, the management of a welfare agency will follow a certain approach concerning the use of sanctions. Some agency managers will consider sanctions as important tool in the activation process and therefore will issue guidelines to caseworkers to frequently impose sanctions. Managers of other agencies might be more reserved and do not encourage or even discourage the caseworkers to use sanctions. Thus, the general sanction strategy will influence caseworkers' actions and consequently induce variation in the usage of sanctions across welfare agencies. We will use this variation to instrument the individual experience of benefit cuts. Before describing this approach, we will introduce our data, in particular to shed more light on what is meant by different sanction strategies.

3 Data base and sample definition

3.1 Data

Our analysis is based on a unique data set that combines various different data sources. The core of these data is a survey of UBII recipients who have been interviewed in two waves at the beginning (January to April 2007) and around the end of 2007 (November 2007 to March 2008). The survey consists of about 20.300 realised interviews in the first wave of a stock sample of individuals who received UBII in October 2006. Despite of 93% of interviewees agreeing in the first wave to participate in the follow-up interview, attrition was rather high and mainly due to relocation problems and refusal to participate so that only 11.108 interviews could be realised in the second wave. This high attrition rate is unsatisfactory but does not give cause for serious concern with respect to our analysis since attrition happened

[2] A similar possibility exists in the case of minor non-compliances where sanctions can be increased stepwise by 10% up to a cut of 100%.

quite randomly. So, focussing on only those individuals who participated in both waves does not put any restriction on our study.

It is important to note that our sample is not drawn randomly from the population of UBII recipients as individuals with specific characteristics are over sampled. Stratification is based on the characteristics age (15-24, 25-49, 50-64), children younger than three years living in the household and lone parent status, and is done to ensure that the number of observations is sufficiently high in each stratum. In our estimation approach we will make use of sample weights that are contained in the data for each individual and that take into account both stratification and attrition. Furthermore, it is important to note that our sample is restricted to 154 out of 429 German welfare agencies and our results relate to those individuals who are registered at one of these 154 agencies. However, 154 sampled agencies are similar to all other agencies in Germany. See Appendix A for an illustration of the sampled agencies.

The survey includes individual characteristics (e.g., gender, age, marital and parent status, education, health and disability status, migration background), information on household members (number and age of household members and interviewees' relation to them), details concerning the labour market status (current labour market state, former spells of insured and minor employment, UBII receipt, participation in activation programmes) and information about benefit sanctions. Interviewees are asked whether they have ever been sanctioned by their welfare agency and if so when. We will make use of this information to construct our treatment variable (see next subsection).

The survey data have been merged with administrative data on the sampled UBII recipients provided by Germany's Federal Employment Agency for the period 1998–2007. They combine spell information from social insurance records, programme participation records and job seeker registers. This information allows to construct detailed employment histories of the sampled individuals prior to their UBII entry.

The combined administrative and survey data were linked to further data at the agency and regional level. They include a wide range of regional information reflecting labour market conditions (e.g., share of unemployed, share of welfare recipients, GDP per worker, population density) and variables that characterize the welfare agencies' organisational structure (e.g., ratio of staff to clients, customer segmentation, employer service to cooperate with firms, counselling concept, generalized vs. specialized case management (in the latter only a subgroup of welfare recipients is subject to intensified activation), authority of the welfare agency (municipality alone or joint authority of municipality and employment

agency)). This agency information was collected via surveys and case studies of all 154 sampled regions in 2006. Most importantly, these data also contain information about the sanction strategy of the welfare agencies. Agency managers were asked about the usage and importance of sanctions within their agencies. The answers of mangers were classified as depicted in Tabel 1.

Table 1: The usage of sanctions in welfare agencies (number of observations in brackets)

a) Sanctions are part of the activation strategy and applied frequently (32)
b) Sanctions are supported but are not part of the activation strategy (41)
c) Sanctions are used to comply with legal requirements (41)
d) Sanctions are regarded sceptically, but nevertheless are used (21)
e) Sanctions have no special role (neither positively nor negatively) (12)
f) Sanctions are rarely used (5)
g) Sanctions are used for general monitoring purposes, but are not regarded as useful in single cases (2)

The distribution of answers makes clear that the importance of sanctions is seen differently across welfare agencies. While some agencies use sanctions only to comply with legal requirements, other agencies will apply sanctions either more frequently, perhaps even when minor non-compliances of clients are detected, or less frequently, so that not all infringements might be punished. The ageny will therefore have an impact on the individual probability to get a sanction. Option a) of Table 1 differentiates between agencies that strategically impose sanctions with high incidence and agencies that do not. We will use this differentiation later to instrument individual sanctions.

3.2 Sample and treatment definition

We restrict our analysis to individuals who participated in both waves of the survey and who agreed to combine survey and register data. Moreover, we restrict our sample to individuals who were unemployed at the beginning of their UBII spell. As noted in the last section, unemployment is not a prerequisite for UBII receipt. But since our main interest lies in the effect of a sanction on employment uptake, a consideration of employed welfare recipients is not meaningful. These restrictions reduce our sample size to 8.299 observations. Note, that this sample is endogenous with respect to sanctions imposed before the sampling date (October 2006), as it contains in particular those persons who did not succeed in exiting UBII receipt, whereas successful exits are not observed in the sample. Thus, sanction effects prior to October 2006 cannot be identified. The sample is, however, exogenous with respect to

sanctions after the sampling date. We therefore confine our analysis to sanctions imposed after October 2006 and do not consider individuals that have been sanctioned before. This reduces our sample size further to 7.625 persons. We define as our treatment all persons that report in the first wave of the survey to have been sanctioned between November 2006 and April 2007. The remaining individuals, who report to have never been sanctioned, are used to form the control group. We end up with only a small number of sanctioned persons (262 or 3,44%). This seems to be a low number at first sight, but it fits to the general picture of sanction rates among German welfare recipients of about 5% (see, e.g., Schneider 2008). However, it is unsatisfactory because it restricts us to further split the sample to investigate the effect of sanctions within subgroups, although our descriptive statistics show that there are some subgroups especially prone to benefit cuts (see Table 2).

Table 2 about here

Table 2 shows that especially men, the young and the less qualified are likely to get benefit cuts. Moreover, singles and individuals without children and without caring responsibilities are subject to sanctions. In addition, agency characteristics seem to have an impact on sanction rates. For example, agencies that are run under sole responsibility of municipalities impose sanctions less frequent than agencies which are run in joint cooperation of municipalities and employment offices. Therefore, we acknowledge the importance of agency characteristics in the imposition of sanctions and control for them when estimating the effect of benefit cuts on welfare recipients.

Our outcome variables of interest are employment and welfare status shortly after the imposition of a sanction. In the second wave of the survey individuals report for every month between their two interviews whether or not they have been employed and whether or not they still received UBII. This information allows us to construct for all months between May and October 2007 dummy variables that indicate whether an individual has been working (if yes = 1, else 0) and whether an individual has been welfare dependent (if yes = 1, else 0). Note, that these outcome variables are not ideal. In particular the outcomes measured at the beginning of the observation period (May, June 2007) will capture a mixture of somewhat log- and short-term effects of sanctions. The outcome variables measured in September and October 2007 will be more homogenous since the distance to a sanction will be at least 5 months.

4 Identification strategy

Let $Y_i = 1$ denote employment of individual i in a given month and $Y_i = 0$ non-employment and assume that this variable is the outcome of the underlying latent model

$$Y_i^* = X_i\beta + S_i\theta + u_{1i} \qquad (1)$$
$$Y_i = 1 \text{ if } Y_i^* > 0$$
$$Y_i = 0 \text{ if } Y_i^* \leq 0$$

where Y_i^* is unobserved, X_i is a vector of covariates (individual, regional, ageny level) and S_i is a dummy variable indicating whether individual i has been sanctioned or not. Under the further assumptions that the error term u_{1i} has zero mean and is normally distributed with variance one and that all covariates X_i and S_i are exogenous, one could apply a simple probit estimation to identify the effects of the right-hand side variables on Y^*. However, in our case we cannot rule out that S_i is endogenous, i.e. it might be that $\text{Cov}(S_i u_{1i}) \neq 0$. In this case a probit estimate of the sanction effect on Y^* would be biased. Endogeneity of S_i could be due to different reasons. For example, there could be a negative selection process driven by motivation or other unobservable factors such that those individuals with unfavourable characteristics are sanctioned with higher probability. As a result the probit estimate of the effect of S_i on Y^* would be underestimated. However, there could also be a positive selection process initiated by caseworkers if those with unfavourable characteristics are not activated and thus not sanctioned. A positive selection of this kind would result in an overestimated effect of S_i on Y^*. Hence, the bias of a simple probit estimation is undetermined ex-ante.

To overcome the potential endogeneity of S_i we specify in addition to equation (1) the latent model

$$S_i^* = Z_i\delta + u_{2i} \qquad (2)$$

where the vector Z_i contains observable variables. A sanction will be imposed on individual i if $S_i^* > 0$. To allow for the possibility that unobserved factors influence both Y_i^* and S_i^*, we assume that u_{1i} and u_{2i} are distributed bivariate normal with

$$E[u_{1i}] = E[u_{2i}] = 0$$

$$\mathrm{Var}[u_{1i}] = \mathrm{Var}[u_{2i}] = 1$$
$$\mathrm{Cov}[u_{1i} u_{2i}] = \rho$$

Under these assumptions the effect of S_i on Y_i^* in equation (1) can be identified if at least one variable in Z_i is not included in X_i (see, e.g., Maddala 1983).[3] As instrument we use the sanction strategy of a welfare agency. Precisely, we differentiate between welfare agencies that frequently use sanctions as part of their activation strategy and agencies that do not. Therefore, we use option a) in Table 1 to generate the dummy variable FREQ which has value one if an individual is registered at an agency that frequently imposes sanctions as part of its activation strategy and which is zero otherwise, i.e. if the welfare agency is classified in one of the options b) to g) of Table 1. If FREQ is used as an instrument in equation (2) the estimate of θ in equation (1) can then be interpreted as a local average treatment effect (LATE) (see, e.g., Wooldridge 2002): It measures the impact of a benefit cut on those individuals who get a sanction when FREQ changes its value from 0 to 1, i.e. $\hat{\theta}$ depicts the effect of a sanction on those individuals who are sanctioned in an agency that frequently imposes sanctions and who would not be sanctioned in another agency. The identification of this local average treatment effect depends on three conditions that must be satisfied (see Imbens and Angrist 1994) and are stated in loose terms here:

1) FREQ must be a valid instrument, i.e. Cov(FREQ u_{1i}) = 0 and FREQ is partially correlated with S_i once it is controlled for X_i.
2) The probability of being sanctioned changes with the value of FREQ.
3) Individuals that are sanctioned in agencies that do not frequently sanction must also be sanctioned in agencies that frequently impose sanctions. And those individuals who are not sanctioned under FREQ = 1 should not be sanctioned under FREQ = 0 either. (monotonicity assumption)

The monotonicity assumption is not testable, but it is very likely to hold in our case. If a sanction is imposed on an individual that is registered at an agency that rarely uses sanctions, then the non-compliance must be severe and should also be detected and punished in an agency that sanctions frequently and cuts benefits even for minor infringements. Condition 2) also holds. As can be seen from Table 3, the sanction rate is indeed higher in agencies that frequently impose sanctions as part of their activation strategy. Therefore, the probability for

[3] See also Evans and Schwab (1995) for an application of this identification approach.

an individual to get a sanction increases when FREQ changes from zero to one. The partial correlation between FREQ and S_i required in condition 1) exists as well and will be shown in more detail in the next section.

Thus, the final condition that has to be shown to hold is Cov(FREQ u_{1i}) = 0. This condition requires that FREQ has no direct effect on Y_i^*. A direct effect would exist if individuals would change their behaviour due to the actual realization of FREQ. However, this is not the case. The sanction strategy a welfare agency follows is not communicated to their clients so that individuals do not know whether sanctions are used frequently or not in their respective region. Since individuals do not know their own agency's strategy they cannot make comparisons with other agencies whose strategies are even more difficult to detect. Thus, there should not be any behavioural response of individuals to the sanction strategy. In addition, nearly 50% of the interviewed persons say that they do not have much contact to fellow welfare recipients. So, it is unlikely that a general feeling about a potential sanction climate within an agency is spread among all UBII recipients.

It is also not very likely that either the sociodemographic composition of the sampled welfare recipients or the labour market situation drives the agency to adopt a certain sanction strategy. The possibility to sanction welfare recipients is rather new (introduced with the welfare reform in 2005) and therefore almost no experience about the effects of sanctions exists. Other activation measures, like e.g. training programmes, are by far more familiar to caseworkers so that can be expected that if there is a response of the activation strategy to the pool of welfare recipients or the labour market state, then this response will probably influence the usage of traditional activation tools but not that of modern ones. As can be seen from Table 3 for our sample, the composition of welfare recipients in agencies that frequently use sanctions is nearly identical to the composition in all other agencies. Somewhat large differences exist only with respect to the regional information on the population density and the share of foreigners. However, it is unlikely that these two variables drive the decision of a welfare agency to adopt a certain sanction strategy, especially in consideration of the fact that all other regional variables are fairly similar between both types of agencies.

Table 3 about here

Another justification that the sanction strategy is exogenous and does not depend on the current condition of the labour market is given by the map in Appendix B. As can be seen

from this map, agencies that sanction frequently and agencies that do not are distributed quite randomly across the sampled regions. In many cases, frequently and non-frequently sanctioning agencies border directly to each other. In the city of Berlin five welfare agencies are sampled. Two of them use sanctions frequently whereas three do not. Since Berlin can be regarded as a single labour market, which is identical for all five agencies within the city, this is further evidence that the sanction strategy does not depend on the labour market state.[4]

Given this evidence we have to conclude that the variable FREQ satisfies all requirements to be a valid instrument for the identification of the local average treatment effect we want to estimate via equations (1) and (2). Our results are presented in the next section.

5 Results

We estimate the bivariate probit model given by equations (1) and (2) via maximum likelihood estimation separately for all our 12 outcome variables (employment and welfare receipt from May to October 2007). Sample weights and clustering at the agency level are taken into account. Tables 4 to 7 exemplarily present the estimation results for both outcome measures at the beginning (May 2007) and at the end (October 2007) of our observation period. Note first, that in all estimations of equation (2) the variable FREQ has a significantly positive coefficient. Thus, the condition that FREQ must be partially correlated with S_i once it is controlled for X_i as stated in the last section is fulfilled so that FREQ is a valid instrument.

Tables 4, 5, 6 and 7 about here

When looking at the employment outcomes in Tables 4 and 5, we find that a sanction reduces the probability of an individual to find a job. However, the effect is not statistically significant. The influence of the other covariates is as expected: Men have a higher probability to find a job than women. They also face a higher risk to get sanctioned reflecting the fact that men are mostly the head of household and therefore in the focus of activation by the welfare agency. The old and the low qualified are less likely to find a job. For the old we find in addition that they have a low probability to receive a benefit cut. This gives rise to the

[4] As can be seen from the map in Appendix B, in the state of Lower Saxony no agency exists that frequently uses sanctions. This might be due to a general strategy imposed at the state level. This is further evidence that sanction strategy does not depend on labour market conditions since Lower Saxony is rather large and consists of heterogeneous regions. However, for sensitivity analysis we will exclude this state. The same is true for the city state of Hamburg where we sample only one agency that imposes sanctions frequently.

concern that not much effort is made to activate this group. Not surprisingly, persons with small children and persons who have caring responsibilities are less likely to leave unemployment. The same is true for migrants who also face more difficulties to get employed.

An equivalent picture arises for the estimations concerning further welfare receipt as given in Tables 6 and 7. Men are more likely to leave the welfare system than women. However, the estimated effect is only small and only slightly significant at the end of the observation period. Thus, even though men more often find a job, the income generated by the job seems to be insufficient in many cases. Furthermore, the old face a higher risk to stay welfare dependent. The same is true for the less qualified, the parents of small children the migrants and to a somewhat lesser extent also for persons with caring duties. For the effect of a sanction on welfare receipt we estimate a positive, however, insignificant coefficient.

Table 8 summarizes our estimates of the coefficient of the sanction variable for all outcome measures.

Table 8: Estimated effect of S_i in equation (1) for all outcome variables (employment and welfare receipt from May to October 2007)

		May	June	July	August	September	October
employment	coefficient	-0.234	-0.588	-0.518	-0.333	-0.446	-0.589
	(s.e.)	(0.997)	(1.165)	(0.843)	(1.431)	(1.039)	(0.886)
	$\hat{\rho}$	0.091	0.242	0.204	0.153	0.257	0.303
		May	June	July	August	September	October
welfare receipt	coefficient	0.066	0.176	-0.015	0.200	0.367	0.419
	(s.e.)	(1.689)	(1.097)	(1.098)	(1.030)	(1.097)	(1.702)
	$\hat{\rho}$	-0.079	-0.143	-0.047	-0.166	-0.246	-0.292

Note: Reported are coefficients of the latent model and standard errors in brackets. $\hat{\rho}$ is the estimate of $Cov(u_{1i}\ u_{2i})$ in the respective model. *** denotes p<0.01, ** denotes p<0.05 and * denotes p<0.1.

For the employment variables we find a negative but insignificant impact of the sanction variable throughout all considered months indicating that the probability to find a job tends to decrease after a sanction is imposed. The effect of a sanction on further welfare receipt is positive in most cases but not significant either. These findings are surprising at first sight. However, it has to be remembered that these estimates have to be interpreted as local average treatment effects. They measure the impact of a benefit cut on those individuals who are sanctioned in an agency that frequently uses sanctions but who would not be sanctioned in

another agency. Thus, these estimates do not give a measure of the average impact of a sanction on a randomly selected individual. Rather, they give a measure of the effectiveness of the general usage of sanctions. Given this meaning, the estimates show that the general usage of sanctions does not help to overcome unemployment or welfare dependency.

Unfortunately, the sanction effects are estimated rather imprecise as reflected by the large standard errors in Table 8. Large standard errors are a common problem in instrumental variables estimation (see, e.g., Wooldridge 2002) and can be due to small sample sizes or the usage of a weak instrument. Our sample is fairly large, even though we do not observe many sanctioned individuals. We can also rule out the usage of a weak instrument. The large standard errors are rather mainly due to the usage of sample weights which induce a certain amount of uncertainty in the estimation. In Table 9 we present our results without taking into account sample weights.

Table 9: Estimated effect of S_i in equation (1) for all outcome variables (employment and welfare receipt from May to October 2007). Estimation without sample weights.

		May	June	July	August	September	October
employment	coefficient	-0.511	-0.574	-0.601	-0.504	-0.493	-0.493
	(s.e.)	(0.629)	(0.660)	(0.543)	(0.716)	(0.685)	(0.746)
	$\hat{\rho}$	0.262	0.274	0.286	0.261	0.280	0.274
		May	June	July	August	September	October
welfare receipt	coefficient	0.206	0.380	0.262	0.427	0.574	0.173
	(s.e.)	(0.972)	(0.645)	(0.654)	(0.581)	(0.533)	(0.779)
	$\hat{\rho}$	-0.100	-0.198	-0.141	-0.229	-0.287	-0.127

Note: Reported are coefficients of the latent model and standard errors in brackets. $\hat{\rho}$ is the estimate of $Cov(u_{1i}\ u_{2i})$ in the respective model. *** denotes p<0.01, ** denotes p<0.05 and * denotes p<0.1.

As can be seen from a comparison of Tables 8 and 9 standard errors are substantially reduced when sample weights are neglected. However, standard errors are still too high to detect any significant effect of sanctions. The signs of the coefficients in Table 8 and 9 are fairly similar so that the direction of our estimated local average treatment effects is robust.

In Tables 8 and 9 also $\hat{\rho}$ the estimate of $Cov(u_{1i}\ u_{2i})$ is depicted. The estimate of ρ is positive in all employment models and negative in the models concerning welfare receipt. However, it is statistically insignificant in all estimations. If the true value of ρ is actually zero, this would mean that the unobserved factors that determine an individual's probability to get

sanctioned and the unobserved factors that impact on the probability to find a job or terminate welfare dependency are uncorrelated. In this case a simple probit model would suffice to estimate the effect of a sanction on employment uptake and welfare dependency. Note however, that this probit estimate does not measure a local average treatment effect and thus gives no information about the effectiveness of the general usage of sanctions. Instead, it measures an average treatment effect (ATE), i.e. the expected effect of a sanction on an individual that is randomly selected from the population of welfare recipients.[5] Tables 10 and 11 exemplarily present our probit estimates for May and October 2007. The results for all months are summarized in Table 12.

Tables 10 and 11 about here

Table 12: Probit estimates of the effect of S_i in equation (1) for all outcome variables (employment and welfare receipt from May to October 2007).

		May	June	July	August	September	October
employment	coefficient	-0.046	-0.097	-0.101	-0.016	0.084	0.032
	(s.e.)	(0.111)	(0.105)	(0.101)	(0.100)	(0.109)	(0.111)
		May	June	July	August	September	October
welfare receipt	coefficient	-0.098	-0.121	-0.112	-0.145	-0.142	-0.187*
	(s.e.)	(0.112)	(0.114)	(0.109)	(0.119)	(0.118)	(0.111)

As can be seen from Table 12 we do not find a significant impact on sanctions on employment via a simple probit estimate either. At the beginning of our observation period the effect of a sanction tends to be negative as in the instrumental variable estimation. It turns positive in September 2007 but the effect is insignificant throughout.[6] For welfare receipt the probit estimates show in contrast to the instrumental variable estimates a negative impact of sanctions indicating that those individual who are sanctioned have a higher probability to leave the welfare system. However, the effect is only slightly significant at the end of the observation period in October 2007.

[5] There are good reasons to stick to the instrumental variable approach even if ρ is zero, above all the possibility to account for the observable part of the selection process into sanctions and to focus on important subgroups as illustrated by the estimated local average treatment effect. Nevertheless, to give a complete picture we also present our simple probit estimates.

[6] A similar result is found by Schneider (2008) who focuses of the effect of benefit sanctions on reservation wages of welfare recipients in Germany, but in a side calculation also looks at employment and finds no significant impact of sanctions. Note, that Schneider (2008) uses a matching approach and estimates an average treatment effect on the treated.

The instrumental variable and probit estimates seem to contradict somewhat but when recalling that they measure two different effects (LATE vs. ATE) both estimates along with the empirical evidence published so far give a comprehensive picture about the effectiveness of sanctions: A sanction might have on average a positive effect for an individual with respect to employment uptake and the termination of welfare dependency, which is in the German case, however, observable only to a small degree. Yet, to achieve these potential positive effects the sanction must be clearly targeted and must be a response to an individual non-compliance. The general usage of sanctions in contrast seems to be ineffective. Those individuals, who receive a sanction simply because of the fact that the welfare agency at which they are registered frequently uses sanctions as part of its activation and monitoring strategy and who are not necessarily guilty of a severe non-compliance, will not profit from a sanction. Rather, for these individuals a sanction might do more harm than good.

6 Conclusions

Recently published studies that investigate the effect of benefit cuts on the employment prospects of unemployed show that sanctions substantially increase the probability of an individual to get employed. This evidence suggests at first sight that benefit sanctions are an effective tool in the activation of the unemployed and should be used more frequently by welfare agencies to enhance employment uptake and to educe welfare dependency. However, the effectiveness of the general usage of sanctions has not been thoroughly studied so far.

In this paper we make use of a unique data set that is rich with respect to individual and agency level information. In particular we observe the general sanction strategy of a welfare agency. We apply this information to instrument individual sanctions and estimate the impact of a sanction on those individuals who would be the target group of welfare agency if sanctions were used more frequently as part of an intensified activation strategy. Our results show that sanctions are not very helpful among this group to reduce unemployment or welfare dependency and might even be counterproductive. Therefore, we have to conclude that the general usage of sanctions is ineffective and cannot be recommended as a useful activation strategy. Moreover, we do not find much effectiveness of individually targeted sanctions either. This gives rise to the concern that welfare recipients in Germany are in an even weaker labour market position than has been assumed so far. Much research remains therefore to be done how to effectively activate Germany’s UBII recipients.

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Table 2: Descriptive Statistics

	Total	Sanctioned	Not sanctioned
Sanction rate	3,44%		
Male	46,11%	54,20%	45,82%
Age			
15-24 years	16,72%	33,21%	16,13%
25-34 years	17,93%	25,19%	17,67%
35-44 years	19,49%	17,56%	19,56%
45-57 years	34,70%	17,18%	35,33%
58-64 years	11,16%	6,87%	11,31%
School leaving certificate			
Still student	1,65%	2,29%	1,63%
No certificate	3,13%	6,49%	3,02%
Special needs school	1,40%	2,29%	1,37%
Elementary school ("Hauptschulabschluss")	41,77%	50,38%	41,46%
Junior high school ("Realschulabschluss")	34,23%	27,48%	34,47%
University entrance diploma	16,76%	9,92%	17,00%
N.A.	1,05%	1,15%	1,05%
Professional qualification			
Still studying / in apprenticeship	3,42%	4,58%	3,38%
None	22,74%	37,02%	22,23%
Vocational school	12,16%	12,60%	12,14%
Technical school	6,23%	4,58%	6,29%
Apprenticeship	44,37%	34,73%	44,71%
University of cooperative education	1,25%	0,38%	1,28%
University degree	8,18%	4,20%	8,33%
N.A.	1,65%	1,91%	1,64%
Migration background	23,11%	19,85%	23,22%
Living with partner in the same household	41,01%	31,30%	41,36%
Single parent status	16,54%	15,65%	16,57%
Number of children			
None	62,05%	67,56%	61,85%
1 child	20,83%	18,70%	20,90%
2 children	11,55%	8,78%	11,65%
3 or more	5,57%	4,96%	5,60%
Child < 3 years in the household	11,46%	9,54%	11,53%
Household size			
Single household	34,39%	42,37%	34,10%
2 persons	30,27%	28,24%	30,34%
3 or more persons	35,34%	29,39%	35,56%
Physically handicapped	11,78%	5,34%	12,01%
Home care of family member	3,69%	2,29%	3,73%
Income before UBII receipt			
Unemployment benefits/assistance or social assistance	71,65%	58,02%	72,13%
Own income	29,78%	35,50%	29,58%
Income of partner or parents	25,90%	37,79%	25,48%
Federal funded student loan	3,02%	6,49%	2,89%
Savings	19,61%	17,56%	19,68%
Other / N.A.	10,70%	11,07%	10,69%

Locality			
Urban district (vs. rural district)	28,92%	31,30%	28,83%
East Germany	25,10%	16,41%	25,41%
Employment history			
Half-months employed in the last 12 months (before 2005)	1,14	1,34	1,13
Half-months in programme in the last 24 months (before 2005)	2,42	2,52	2,42
Half-months unemployed in the last 48 months (before 2005)	20,66	14,94	20,86
Regional variables			
Unemployment ratio: high (vs. average or low)	25,50%	17,56%	25,78%
GDP per worker: high (vs. average or low)	28,49%	34,73%	28,26%
Share of welfare recipients: high (vs. average or low)	26,58%	28,63%	26,51%
Population density: high (vs. average or low)	31,66%	35,88%	31,51%
Share of foreigners: high (vs. average or low)	32,50%	39,31%	32,26%
Agency information			
Authority: municipality (vs. municipality and employment agency)	35,48%	25,57%	35,83%
Case management: generalized (vs. specialized)	37,48%	34,35%	37,59%
Activation and placement by the same caseworker	50,32%	48,47%	50,39%
Employer service	47,49%	55,73%	47,20%
Customer segmentation	29,52%	32,44%	29,42%
Ratio staff / client: above median of all agencies (vs. below median)	48,22%	53,44%	48,04%
Number of observations	7.625	262	7363

Table 3: Descriptive Statistics with respect to the sanction strategy of welfare agencies

	Frequent use of sanctions (FREQ = 1)	Non-Frequent use of sanctions (FREQ = 0)
Sanction rate	4,64%	3,15%
Male	45,77%	46,19%
Age		
15-24 years	17,69%	16,49%
25-34 years	18,65%	17,76%
35-44 years	17,96%	19,85%
45-57 years	33,81%	34,91%
58-64 years	11,89%	10,99%
School leaving certificate		
Still student	1,64%	1,66%
No certificate	2,94%	3,18%
Special needs school	1,50%	1,38%
Elementary school ("Hauptschulabschluss")	43,85%	41,28%
Junior high school ("Realschulabschluss")	33,33%	34,44%
University entrance diploma	16,05%	16,93%
N.A.	0,68%	1,14%
Professional qualification		
Still studying / in apprenticeship	3,76%	3,34%
None	21,52%	23,03%
Vocational school	10,93%	12,45%
Technical school	5,53%	6,40%
Apprenticeship	47,13%	43,71%
University of cooperative education	1,50%	1,18%
University degree	8,33%	8,15%
N.A.	1,30%	1,74%
Migration background	19,60%	23,94%
Living with partner in the same household	37,77%	41,78%
Single parent status	15,78%	16,72%
Number of children		
None	64,14%	61,55%
1 child	20,70%	20,86%
2 children	10,38%	11,83%
3 or more	4,78%	5,76%
Child < 3 years in the household	11,07%	11,56%
Household size		
Single household	38,11%	33,50%
2 persons	28,69%	30,64%
3 or more persons	33,20%	35,85%
Physically handicapped	10,72%	12,03%
Home care of family member	3,48%	3,73%
Income before UBII receipt		
Unemployment benefits/assistance or social assistance	71,86%	71,60%
Own income	29,78%	29,78%
Income of partner or parents	27,32%	25,56%
Federal funded student loan	3,07%	3,00%
Savings	20,77%	19,33%

Other / N.A.	10,31%	10,79%
Locality		
Urban district (vs. rural district)	32,92%	27,97%
East Germany	25,89%	24,91%
Employment history		
Half-months employed in the last 12 months (before 2005)	1,36	1,08
Half-months in programme in the last 24 months (before 2005)	3,03	2,27
Half-months unemployed in the last 48 months (before 2005)	22,91	20,13
Regional variables		
Unemployment ratio: high (vs. average or low)	25,55%	25,48%
GDP per worker: high (vs. average or low)	28,89%	28,39%
Share of welfare recipients: high (vs. average or low)	30,74%	25,60%
Population density: high (vs. average or low)	38,18%	30,11%
Share of foreigners: high (vs. average or low)	41,67%	30,32%
Agency information		
Authority: municipality (vs. municipality and employment agency)	14,34%	40,50%
Case management: generalized (vs. specialized)	28,83%	39,54%
Activation and placement by the same caseworker	63,93%	47,09%
Employer service	65,51%	43,21%
Customer segmentation	33,06%	28,68%
Ratio staff / client: above median of all agencies (vs. below median)	47,34%	48,43%
Number of observations	1464	6161

Table 4: Estimates of the bivariate probit model given by equations (1) and (2) using FREQ as instrument (outcome variable: employment in May 2007)

	Employment May 2007	**Sanction**
Sanction	-0,234	
	(0,997)	
Male	0,162***	0,253***
	(0,050)	(0,071)
Age (reference group: 25-34 years)		
15-24 years	-0,073	0,240**
	(0,079)	(0,106)
35-44 years	-0,021	-0,131
	(0,054)	(0,115)
45-57 years	-0,313***	-0,358***
	(0,064)	(0,129)
58-64 years	-0,754***	-0,425***
	(0,097)	(0,139)
School leaving certificate (reference group: elementary school)		
Still student	0,022	0,023
	(0,346)	(0,362)
No certificate	-0,157	0,262*
	(0,142)	(0,153)
Special needs school	-0,401**	0,332
	(0,182)	(0,243)
Junior high school	0,158***	-0,091
	(0,050)	(0,084)
University entrance diploma	0,267***	-0,238*
	(0,080)	(0,141)
N.A.	-0,039	0,221
	(0,193)	(0,297)
Professional qualification (reference group: apprenticeship)		
Still studying / in apprenticeship	-1,326***	-0,229
	(0,229)	(0,246)
None	-0,247***	0,178**
	(0,060)	(0,089)
Vocational school	0,069	0,200*
	(0,065)	(0,113)
Technical school	0,015	0,110
	(0,099)	(0,165)
University of cooperative education	-0,431**	-0,663*
	(0,177)	(0,369)
University degree	0,054	0,162
	(0,101)	(0,194)
N.A.	0,148	0,365
	(0,164)	(0,225)
Migration background	-0,180***	-0,174
	(0,063)	(0,113)
Living with partner in the same household	0,158	0,313*

	(0,098)	(0,167)
Single parent status	0,018	0,268
	(0,129)	(0,248)
Number of children (reference group: 1 child)		
None	0,061	0,009
	(0,085)	(0,192)
2 children	-0,032	-0,044
	(0,082)	(0,146)
3 or more	-0,217**	-0,067
	(0,103)	(0,173)
Child < 3 years in the household	-0,350***	-0,332**
	(0,079)	(0,141)
Household size (reference group: 2 persons)		
Single household	-0,054	0,258*
	(0,098)	(0,156)
3 or more persons	0,019	-0,152
	(0,078)	(0,124)
Physically handicapped	-0,312***	-0,191
	(0,078)	(0,133)
Home care of family member	-0,523***	-0,188
	(0,120)	(0,209)
Income before UBII (reference group: own income)		
Unemployment benefits/assistance or social assistance	0,003	-0,096
	(0,056)	(0,094)
Income of partner or parents	-0,039	0,244***
	(0,058)	(0,079)
Federal funded student loan	-0,019	0,162
	(0,129)	(0,146)
Savings	0,136**	-0,119
	(0,058)	(0,087)
Other / N.A.	-0,017	-0,032
	(0,069)	(0,119)
Locality		
Urban district (vs. rural district)	0,033	0,055
	(0,089)	(0,093)
East Germany	-0,248*	-0,352*
	(0,150)	(0,212)
Employment history		
Half-months employed in the last 12 months (before 2005)	-0,004	-0,002
	(0,005)	(0,008)
Half-months in programme in the last 24 months (before 2005)	0,002	-0,005
	(0,003)	(0,006)
Half-months unemployed in the last 48 months (before 2005)	-0,006***	-0,000
	(0,001)	(0,001)
Regional variables		
Unemployment ratio: high (vs. average or low)	0,169	0,195

	(0,150)	(0,188)
GDP per employed capita: high (vs. average or low)	0,062	0,022
	(0,058)	(0,098)
Share of welfare recipients: high (vs. average or low)	-0,078	0,080
	(0,055)	(0,091)
Population density: high (vs. average or low)	0,001	-0,044
	(0,088)	(0,121)
Share of foreigners: high (vs. average or low)	-0,042	0,059
	(0,074)	(0,134)
Agency information		
Authority: municipality (vs. municipality and employment agency)	0,012	-0,091
	(0,070)	(0,164)
Case management: generalized (vs. specialized)	0,013	0,000
	(0,048)	(0,097)
Activation and placement by the same caseworker	0,116***	-0,156*
	(0,045)	(0,089)
Employer service	-0,047	0,034
	(0,051)	(0,136)
Customer segmentation	0,014	0,098
	(0,050)	(0,088)
Ratio staff / client: above median of all agencies (vs. below median)	-0,020	0,106
	(0,048)	(0,085)
Strategy: frequent use of sanctions (FREQ = 1)		0,255***
		(0,084)
Constant term	-0,614***	-1,913***
	(0,201)	(0,312)
Number of observations	7.625	
$\hat{\rho}$	0,091 (0,462)	

Note: Reported are coefficients of the latent models and standard errors in brackets.
*** denotes p<0.01, ** denotes p<0.05 and * denotes p<0.1

Table 5: Estimates of the bivariate probit model given by equations (1) and (2) using FREQ as instrument (outcome variable: employment in October 2007)

	Employment October 2007	**Sanction**
Sanction	-0,589	
	(0,886)	
Male	0,221***	0,252***
	(0,046)	(0,070)
Age (reference group: 25-34 years)		
15-24 years	-0,094	0,241**
	(0,067)	(0,105)
35-44 years	0,054	-0,123
	(0,061)	(0,118)
45-57 years	-0,317***	-0,350***
	(0,070)	(0,130)
58-64 years	-0,894***	-0,411***
	(0,094)	(0,142)
School leaving certificate (reference group: elementary school)		
Still student	-0,083	0,011
	(0,217)	(0,357)
No certificate	-0,130	0,270*
	(0,142)	(0,149)
Special needs school	-0,408**	0,335
	(0,195)	(0,243)
Junior high school	0,090**	-0,076
	(0,045)	(0,090)
University entrance diploma	0,200***	-0,228
	(0,077)	(0,139)
N.A.	0,123	0,198
	(0,232)	(0,298)
Professional qualification (reference group: apprenticeship)		
Still studying / in apprenticeship	-0,934***	-0,242
	(0,167)	(0,243)
None	-0,302***	0,188**
	(0,058)	(0,091)
Vocational school	0,142**	0,187
	(0,061)	(0,115)
Technical school	-0,025	0,111
	(0,091)	(0,166)
University of cooperative education	-0,435**	-0,692*
	(0,181)	(0,374)
University degree	0,015	0,146
	(0,095)	(0,191)
N.A.	-0,126	0,390*
	(0,164)	(0,232)
Migration background	-0,142***	-0,180*
	(0,054)	(0,100)
Living with partner in the same household	0,263***	0,295*

	(0,099)	(0,170)
Single parent status	0,111	0,248
	(0,133)	(0,238)
Number of children (reference group: 1 child)		
None	0,041	-0,003
	(0,083)	(0,188)
2 children	-0,053	-0,047
	(0,077)	(0,141)
3 or more	-0,210**	-0,070
	(0,100)	(0,171)
Child < 3 years in the household	-0,432***	-0,335**
	(0,082)	(0,135)
Household size (reference group: 2 persons)		
Single household	0,043	0,240
	(0,104)	(0,158)
3 or more persons	0,044	-0,152
	(0,075)	(0,124)
Physically handicapped	-0,356***	-0,193
	(0,066)	(0,130)
Home care of family member	-0,610***	-0,190
	(0,120)	(0,208)
Income before UBII (reference group: own income)		
Unemployment benefits/assistance or social assistance	-0,126**	-0,098
	(0,052)	(0,087)
Income of partner or parents	-0,072	0,244***
	(0,057)	(0,078)
Federal funded student loan	0,070	0,158
	(0,127)	(0,149)
Savings	0,139***	-0,114
	(0,051)	(0,089)
Other / N.A.	-0,022	-0,030
	(0,063)	(0,119)
Locality		
Urban district (vs. rural district)	0,075	0,058
	(0,067)	(0,093)
East Germany	-0,288*	-0,382*
	(0,165)	(0,219)
Employment history		
Half-months employed in the last 12 months (before 2005)	0,001	-0,002
	(0,005)	(0,008)
Half-months in programme in the last 24 months (before 2005)	0,001	-0,005
	(0,003)	(0,006)
Half-months unemployed in the last 48 months (before 2005)	-0,006***	-0,000
	(0,001)	(0,001)
Regional variables		
Unemployment ratio: high (vs. average or low)	0,060	0,235

	(0,166)	(0,198)
GDP per employed capita: high (vs. average or low)	0,084	0,013
	(0,058)	(0,099)
Share of welfare recipients: high (vs. average or low)	-0,020	0,076
	(0,057)	(0,091)
Population density: high (vs. average or low)	-0,101	-0,056
	(0,064)	(0,125)
Share of foreigners: high (vs. average or low)	-0,066	0,074
	(0,061)	(0,135)
Agency information		
Authority: municipality (vs. municipality and employment agency)	0,016	-0,089
	(0,069)	(0,158)
Case management: generalized (vs. specialized)	-0,026	0,003
	(0,054)	(0,092)
Activation and placement by the same caseworker	0,064	-0,153*
	(0,047)	(0,089)
Employer service	-0,006	0,033
	(0,062)	(0,132)
Customer segmentation	-0,013	0,101
	(0,053)	(0,088)
Ratio staff / client: above median of all agencies (vs. below median)	-0,016	0,109
	(0,045)	(0,086)
Strategy: frequent use of sanctions (FREQ = 1)		0,250***
		(0,082)
Constant term	-0,385**	-1,899***
	(0,188)	(0,303)
Number of observations	7.625	
$\hat{\rho}$	0,313 (0,463)	

Note: Reported are coefficients of the latent models and standard errors in brackets.
*** denotes p<0.01, ** denotes p<0.05 and * denotes p<0.1

Table 6: Estimates of the bivariate probit model given by equations (1) and (2) using FREQ as instrument (outcome variable: welfare receipt in May 2007)

	Welfare receipt May 2007	**Sanction**
Sanction	0,066	
	(1,689)	
Male	-0,055	0,253***
	(0,056)	(0,070)
Age (reference group: 25-34 years)		
15-24 years	-0,034	0,242**
	(0,092)	(0,106)
35-44 years	0,153**	-0,133
	(0,062)	(0,115)
45-57 years	0,385***	-0,361***
	(0,081)	(0,122)
58-64 years	0,653***	-0,428***
	(0,118)	(0,135)
School leaving certificate (reference group: elementary school)		
Still student	0,260	0,021
	(0,228)	(0,343)
No certificate	-0,046	0,267*
	(0,149)	(0,153)
Special needs school	0,099	0,324
	(0,194)	(0,265)
Junior high school	-0,127**	-0,092
	(0,052)	(0,084)
University entrance diploma	-0,231***	-0,240
	(0,084)	(0,151)
N.A.	-0,215	0,223
	(0,243)	(0,300)
Professional qualification (reference group: apprenticeship)		
Still studying / in apprenticeship	0,041	-0,215
	(0,138)	(0,238)
None	0,294***	0,178*
	(0,091)	(0,093)
Vocational school	-0,135*	0,200*
	(0,071)	(0,108)
Technical school	0,026	0,111
	(0,097)	(0,165)
University of cooperative education	0,096	-0,643*
	(0,184)	(0,360)
University degree	0,058	0,163
	(0,102)	(0,196)
N.A.	0,029	0,364
	(0,187)	(0,226)
Migration background	0,239***	-0,170
	(0,060)	(0,108)
Living with partner in the same household	-0,051	0,317**

	(0,098)	(0,157)
Single parent status	0,573***	0,277
	(0,121)	(0,223)
Number of children (reference group: 1 child)		
None	-0,107	0,011
	(0,083)	(0,183)
2 children	-0,028	-0,052
	(0,078)	(0,150)
3 or more	0,282***	-0,073
	(0,105)	(0,172)
Child < 3 years in the household	0,260***	-0,326**
	(0,096)	(0,129)
Household size (reference group: 2 persons)		
Single household	0,089	0,259*
	(0,098)	(0,157)
3 or more persons	-0,125	-0,153
	(0,081)	(0,126)
Physically handicapped	0,094	-0,188
	(0,088)	(0,144)
Home care of family member	0,085	-0,186
	(0,157)	(0,216)
Income before UBII (reference group: own income)		
Unemployment benefits/assistance or social assistance	0,093*	-0,094
	(0,054)	(0,097)
Income of partner or parents	-0,116*	0,241***
	(0,070)	(0,093)
Federal funded student loan	-0,180	0,161
	(0,125)	(0,148)
Savings	-0,097**	-0,117
	(0,048)	(0,099)
Other / N.A.	-0,018	-0,032
	(0,072)	(0,119)
Locality		
Urban district (vs. rural district)	0,031	0,054
	(0,098)	(0,094)
East Germany	0,122	-0,344*
	(0,146)	(0,199)
Employment history		
Half-months employed in the last 12 months (before 2005)	0,010*	-0,003
	(0,005)	(0,011)
Half-months in programme in the last 24 months (before 2005)	-0,001	-0,005
	(0,003)	(0,006)
Half-months unemployed in the last 48 months (before 2005)	0,006***	-0,000
	(0,001)	(0,001)
Regional variables		
Unemployment ratio: high (vs. average or low)	0,079	0,191

	(0,142)	(0,187)
GDP per employed capita: high (vs. average or low)	0,021	0,024
	(0,057)	(0,102)
Share of welfare recipients: high (vs. average or low)	0,123**	0,080
	(0,060)	(0,092)
Population density: high (vs. average or low)	0,043	-0,042
	(0,108)	(0,118)
Share of foreigners: high (vs. average or low)	0,045	0,061
	(0,081)	(0,142)
Agency information		
Authority: municipality (vs. municipality and employment agency)	0,051	-0,090
	(0,070)	(0,178)
Case management: generalized (vs. specialized)	0,049	-0,000
	(0,052)	(0,109)
Activation and placement by the same caseworker	-0,025	-0,153
	(0,050)	(0,100)
Employer service	0,030	0,037
	(0,056)	(0,163)
Customer segmentation	0,033	0,096
	(0,048)	(0,086)
Ratio staff / client: above median of all agencies (vs. below median)	0,071	0,106
	(0,046)	(0,085)
Strategy: frequent use of sanctions (FREQ = 1)		0,255***
		(0,089)
Constant term	0,375**	-1,920***
	(0,172)	(0,294)
Number of observations	7.625	
$\hat{\rho}$	-0,079 (0,799)	

Note: Reported are coefficients of the latent models and standard errors in brackets.
*** denotes p<0.01, ** denotes p<0.05 and * denotes p<0.1

Table 7: Estimates of the bivariate probit model given by equations (1) and (2) using FREQ as instrument (outcome variable: welfare receipt in October 2007)

	Welfare receipt October 2007	**Sanction**
Sanction	0,419	
	(1,702)	
Male	-0,114*	0,255***
	(0,060)	(0,070)
Age (reference group: 25-34 years)		
15-24 years	-0,130*	0,246**
	(0,079)	(0,108)
35-44 years	0,131**	-0,135
	(0,066)	(0,112)
45-57 years	0,393***	-0,364***
	(0,088)	(0,121)
58-64 years	0,553***	-0,429***
	(0,121)	(0,135)
School leaving certificate (reference group: elementary school)		
Still student	-0,017	0,018
	(0,195)	(0,350)
No certificate	0,052	0,280*
	(0,161)	(0,161)
Special needs school	0,473**	0,340
	(0,228)	(0,245)
Junior high school	-0,145***	-0,076
	(0,056)	(0,102)
University entrance diploma	-0,274***	-0,241*
	(0,084)	(0,137)
N.A.	-0,137	0,207
	(0,258)	(0,300)
Professional qualification (reference group: apprenticeship)		
Still studying / in apprenticeship	0,090	-0,191
	(0,129)	(0,261)
None	0,225***	0,174**
	(0,084)	(0,086)
Vocational school	-0,118	0,172
	(0,072)	(0,144)
Technical school	0,060	0,118
	(0,091)	(0,167)
University of cooperative education	0,308*	-0,606
	(0,181)	(0,385)
University degree	0,093	0,140
	(0,096)	(0,210)
N.A.	0,112	0,370
	(0,180)	(0,227)
Migration background	0,137***	-0,169*
	(0,053)	(0,095)
Living with partner in the same household	-0,129	0,338**

	(0,107)	(0,167)
Single parent status	0,413***	0,314
	(0,143)	(0,246)
Number of children (reference group: 1 child)		
None	-0,089	0,021
	(0,090)	(0,173)
2 children	0,098	-0,063
	(0,076)	(0,152)
3 or more	0,331***	-0,077
	(0,108)	(0,173)
Child < 3 years in the household	0,280***	-0,328***
	(0,090)	(0,126)
Household size (reference group: 2 persons)		
Single household	0,022	0,274*
	(0,114)	(0,151)
3 or more persons	-0,099	-0,140
	(0,079)	(0,133)
Physically handicapped	0,045	-0,181
	(0,072)	(0,133)
Home care of family member	0,267*	-0,173
	(0,149)	(0,215)
Income before UBII (reference group: own income)		
Unemployment benefits/assistance or social assistance	0,204***	-0,094
	(0,044)	(0,085)
Income of partner or parents	-0,085	0,239***
	(0,074)	(0,082)
Federal funded student loan	-0,121	0,152
	(0,130)	(0,156)
Savings	-0,131**	-0,114
	(0,057)	(0,089)
Other / N.A.	0,015	-0,034
	(0,066)	(0,119)
Locality		
Urban district (vs. rural district)	-0,018	0,051
	(0,105)	(0,096)
East Germany	0,130	-0,351*
	(0,147)	(0,199)
Employment history		
Half-months employed in the last 12 months (before 2005)	-0,000	-0,004
	(0,005)	(0,009)
Half-months in programme in the last 24 months (before 2005)	-0,001	-0,004
	(0,003)	(0,006)
Half-months unemployed in the last 48 months (before 2005)	0,006***	-0,000
	(0,001)	(0,001)
Regional variables		
Unemployment ratio: high (vs. average or low)	0,153	0,208

	(0,144)	(0,195)
GDP per employed capita: high (vs. average or low)	-0,030	0,021
	(0,061)	(0,097)
Share of welfare recipients: high (vs. average or low)	0,066	0,077
	(0,071)	(0,090)
Population density: high (vs. average or low)	0,097	-0,046
	(0,116)	(0,121)
Share of foreigners: high (vs. average or low)	0,024	0,067
	(0,089)	(0,137)
Agency information		
Authority: municipality (vs. municipality and employment agency)	0,024	-0,097
	(0,080)	(0,153)
Case management: generalized (vs. specialized)	0,044	0,003
	(0,061)	(0,089)
Activation and placement by the same caseworker	-0,035	-0,150*
	(0,055)	(0,089)
Employer service	0,043	0,035
	(0,057)	(0,131)
Customer segmentation	-0,011	0,089
	(0,053)	(0,087)
Ratio staff / client: above median of all agencies (vs. below median)	0,020	0,104
	(0,052)	(0,085)
Strategy: frequent use of sanctions (FREQ = 1)		0,256***
		(0,081)
Constant term	0,267	-1,946***
	(0,170)	(0,300)
Number of observations	7.625	
$\hat{\rho}$	-0,301 (0,892)	

Note: Reported are coefficients of the latent models and standard errors in brackets.
*** denotes p<0.01, ** denotes p<0.05 and * denotes p<0.1

Table 10: Estimates of the probit model given by equation (1) (outcome variables: employment in May and October 2007, respectively)

	Employment May 2007	**Employment October 2007**
Sanction	-0,046	0,032
	(0,111)	(0,111)
Male	0,157***	0,206***
	(0,046)	(0,041)
Age (reference group: 25-34 years)		
15-24 years	-0,079	-0,114*
	(0,073)	(0,068)
35-44 years	-0,018	0,064
	(0,053)	(0,058)
45-57 years	-0,307***	-0,297***
	(0,056)	(0,063)
58-64 years	-0,746***	-0,874***
	(0,091)	(0,091)
School leaving certificate (reference group: elementary school)		
Still student	0,020	-0,090
	(0,346)	(0,218)
No certificate	-0,166	-0,159
	(0,143)	(0,131)
Special needs school	-0,410**	-0,443**
	(0,182)	(0,186)
Junior high school	0,160***	0,097**
	(0,047)	(0,043)
University entrance diploma	0,272***	0,217***
	(0,072)	(0,069)
N.A.	-0,042	0,112
	(0,188)	(0,220)
Professional qualification (reference group: apprenticeship)		
Still studying / in apprenticeship	-1,323***	-0,925***
	(0,230)	(0,172)
None	-0,250***	-0,318***
	(0,058)	(0,051)
Vocational school	0,066	0,133**
	(0,063)	(0,062)
Technical school	0,013	-0,033
	(0,097)	(0,091)
University of cooperative education	-0,428**	-0,422**
	(0,175)	(0,178)
University degree	0,051	0,004
	(0,098)	(0,092)
N.A.	0,140	-0,155
	(0,162)	(0,163)
Migration background	-0,178***	-0,132**
	(0,063)	(0,053)
Living with partner in the same household	0,153	0,246**

	(0,103)	(0,099)
Single parent status	0,013	0,095
	(0,134)	(0,134)
Number of children (reference group: 1 child)		
None	0,061	0,040
	(0,086)	(0,084)
2 children	-0,031	-0,052
	(0,082)	(0,077)
3 or more	-0,216**	-0,208**
	(0,103)	(0,101)
Child < 3 years in the household	-0,345***	-0,417***
	(0,079)	(0,081)
Household size (reference group: 2 persons)		
Single household	-0,058	0,028
	(0,099)	(0,104)
3 or more persons	0,023	0,056
	(0,074)	(0,072)
Physically handicapped	-0,309***	-0,348***
	(0,079)	(0,066)
Home care of family member	-0,521***	-0,606***
	(0,120)	(0,118)
Income before UBII (reference group: own income)		
Unemployment benefits/assistance or social assistance	0,005	-0,122**
	(0,054)	(0,050)
Income of partner or parents	-0,044	-0,089*
	(0,055)	(0,054)
Federal funded student loan	-0,023	0,056
	(0,132)	(0,128)
Savings	0,138**	0,147***
	(0,056)	(0,051)
Other / N.A.	-0,017	-0,020
	(0,068)	(0,061)
Locality		
Urban district (vs. rural district)	0,033	0,073
	(0,089)	(0,069)
East Germany	-0,245*	-0,277*
	(0,149)	(0,164)
Employment history		
Half-months employed in the last 12 months (before 2005)	-0,004	0,001
	(0,005)	(0,005)
Half-months in programme in the last 24 months (before 2005)	0,002	0,002
	(0,003)	(0,003)
Half-months unemployed in the last 48 months (before 2005)	-0,006***	-0,006***
	(0,001)	(0,001)
Regional variables		
Unemployment ratio: high (vs. average or low)	0,167	0,052

	(0,149)	(0,165)
GDP per employed capita: high (vs. average or low)	0,063	0,086
	(0,058)	(0,056)
Share of welfare recipients: high (vs. average or low)	-0,080	-0,026
	(0,053)	(0,053)
Population density: high (vs. average or low)	0,001	-0,098
	(0,088)	(0,064)
Share of foreigners: high (vs. average or low)	-0,043	-0,072
	(0,072)	(0,058)
Agency information		
Authority: municipality (vs. municipality and employment agency)	0,015	0,024
	(0,066)	(0,067)
Case management: generalized (vs. specialized)	0,012	-0,026
	(0,047)	(0,052)
Activation and placement by the same caseworker	0,118***	0,071
	(0,042)	(0,045)
Employer service	-0,047	-0,008
	(0,051)	(0,060)
Customer segmentation	0,012	-0,019
	(0,050)	(0,052)
Ratio staff / client: above median of all agencies (vs. below median)	-0,022	-0,023
	(0,046)	(0,044)
Constant term	-0,621***	-0,406**
	(0,187)	(0,180)
Number of observations	7.625	

Note: Reported are coefficients of the latent model and standard errors in brackets.
*** denotes p<0.01, ** denotes p<0.05 and * denotes p<0.1

Table 11: Estimates of the probit model given by equation (1) (outcome variables: welfare receipt in May and October 2007, respectively)

	Welfare receipt May 2007	Welfare receipt October 2007
Sanction	-0,098	-0,187*
	(0,112)	(0,111)
Male	-0,051	-0,099**
	(0,044)	(0,041)
Age (reference group: 25-34 years)		
15-24 years	-0,029	-0,114
	(0,079)	(0,071)
35-44 years	0,151**	0,124**
	(0,061)	(0,061)
45-57 years	0,380***	0,375***
	(0,060)	(0,065)
58-64 years	0,647***	0,530***
	(0,093)	(0,098)
School leaving certificate (reference group: elementary school)		
Still student	0,261	-0,012
	(0,231)	(0,200)
No certificate	-0,039	0,081
	(0,145)	(0,136)
Special needs school	0,107	0,510***
	(0,198)	(0,198)
Junior high school	-0,128***	-0,152***
	(0,048)	(0,047)
University entrance diploma	-0,235***	-0,291***
	(0,068)	(0,058)
N.A.	-0,212	-0,126
	(0,241)	(0,246)
Professional qualification (reference group: apprenticeship)		
Still studying / in apprenticeship	0,036	0,074
	(0,135)	(0,128)
None	0,298***	0,239***
	(0,076)	(0,062)
Vocational school	-0,132**	-0,108*
	(0,065)	(0,062)
Technical school	0,028	0,069
	(0,095)	(0,085)
University of cooperative education	0,092	0,296*
	(0,180)	(0,179)
University degree	0,061	0,105
	(0,099)	(0,088)
N.A.	0,036	0,141
	(0,174)	(0,161)
Migration background	0,236***	0,127**
	(0,059)	(0,050)
Living with partner in the same household	-0,046	-0,111

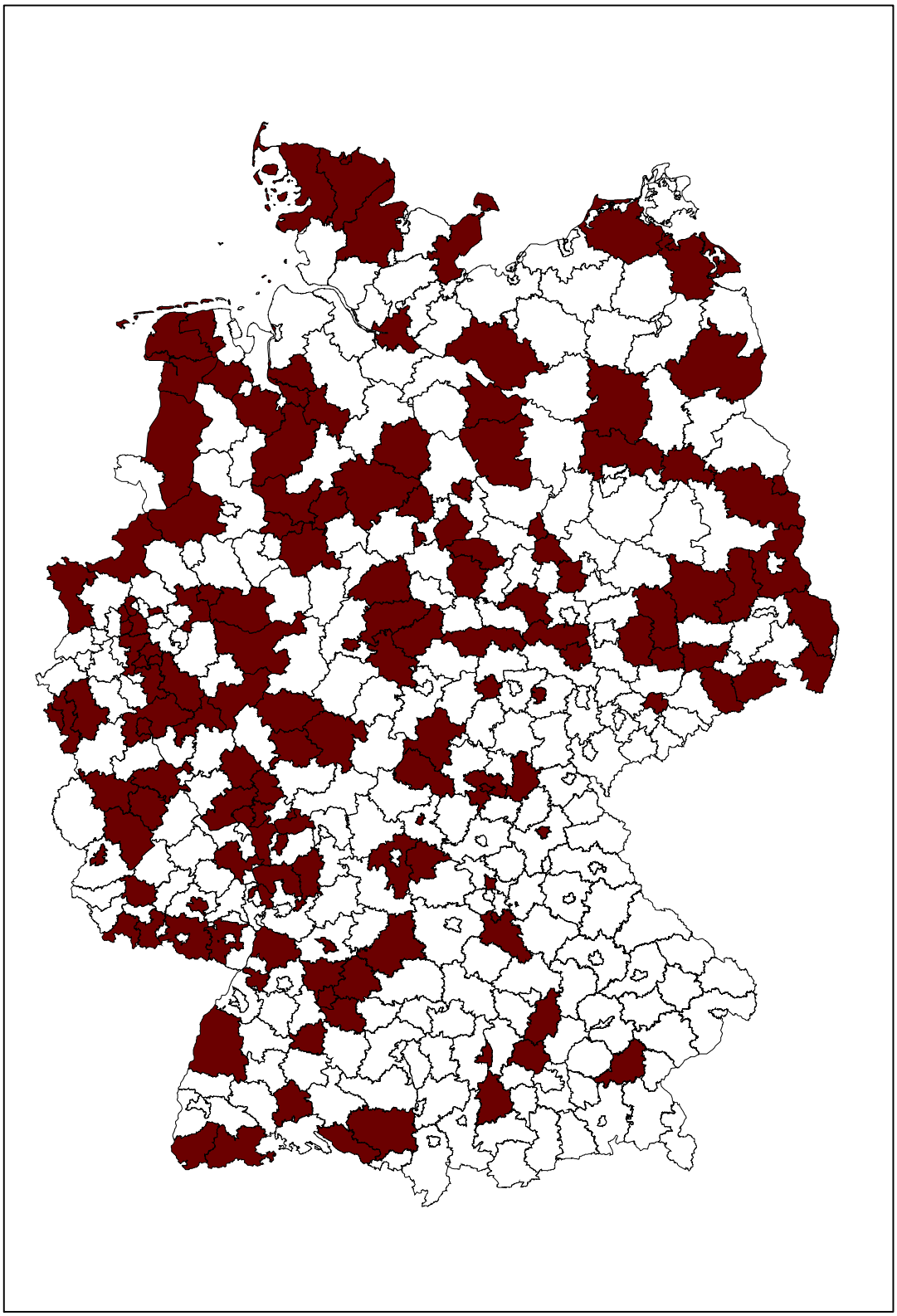
	(0,092)	(0,088)
Single parent status	0,577***	0,434***
	(0,113)	(0,112)
Number of children (reference group: 1 child)		
None	-0,106	-0,088
	(0,083)	(0,088)
2 children	-0,029	0,097
	(0,078)	(0,075)
3 or more	0,282***	0,330***
	(0,105)	(0,108)
Child < 3 years in the household	0,255***	0,264***
	(0,085)	(0,078)
Household size (reference group: 2 persons)		
Single household	0,093	0,037
	(0,092)	(0,098)
3 or more persons	-0,128*	-0,111
	(0,076)	(0,075)
Physically handicapped	0,091	0,034
	(0,080)	(0,063)
Home care of family member	0,083	0,260*
	(0,158)	(0,147)
Income before UBII (reference group: own income)		
Unemployment benefits/assistance or social assistance	0,092*	0,201***
	(0,052)	(0,043)
Income of partner or parents	-0,113*	-0,070
	(0,066)	(0,061)
Federal funded student loan	-0,176	-0,109
	(0,121)	(0,124)
Savings	-0,099**	-0,139***
	(0,046)	(0,048)
Other / N.A.	-0,019	0,012
	(0,072)	(0,063)
Locality		
Urban district (vs. rural district)	0,032	-0,014
	(0,097)	(0,103)
East Germany	0,119	0,120
	(0,143)	(0,139)
Employment history		
Half-months employed in the last 12 months (before 2005)	0,010*	-0,000
	(0,005)	(0,005)
Half-months in programme in the last 24 months (before 2005)	-0,001	-0,002
	(0,003)	(0,003)
Half-months unemployed in the last 48 months (before 2005)	0,006***	0,006***
	(0,001)	(0,001)
Regional variables		
Unemployment ratio: high (vs. average or low)	0,080	0,161

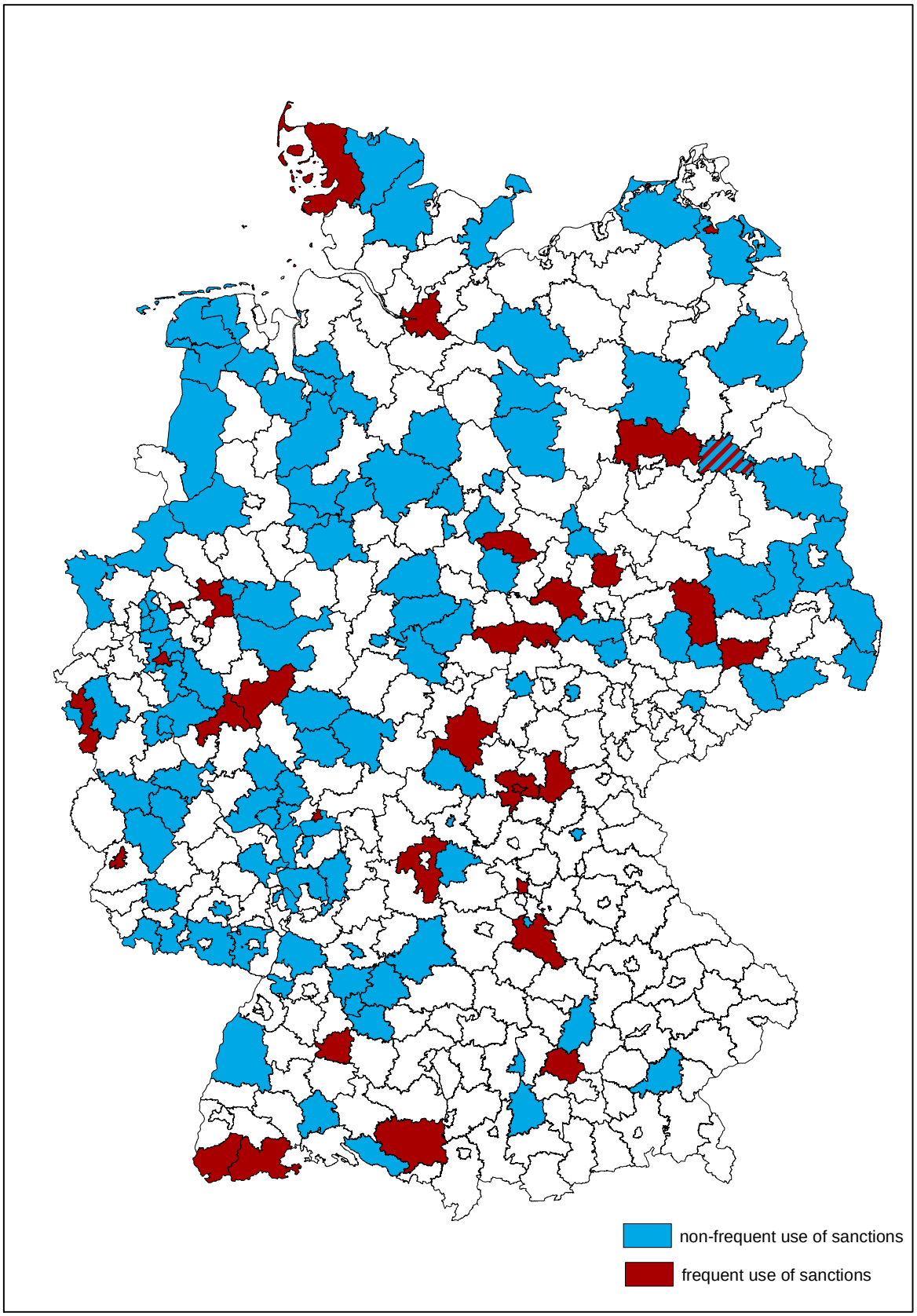
	(0,141)	(0,139)
GDP per employed capita: high (vs. average or low)	0,021	-0,030
	(0,057)	(0,059)
Share of welfare recipients: high (vs. average or low)	0,125**	0,073
	(0,054)	(0,065)
Population density: high (vs. average or low)	0,042	0,094
	(0,106)	(0,111)
Share of foreigners: high (vs. average or low)	0,047	0,030
	(0,078)	(0,080)
Agency information		
Authority: municipality (vs. municipality and employment agency)	0,050	0,017
	(0,070)	(0,078)
Case management: generalized (vs. specialized)	0,049	0,045
	(0,052)	(0,060)
Activation and placement by the same caseworker	-0,027	-0,041
	(0,047)	(0,047)
Employer service	0,030	0,045
	(0,055)	(0,055)
Customer segmentation	0,034	-0,005
	(0,048)	(0,049)
Ratio staff / client: above median of all agencies (vs. below median)	0,072	0,027
	(0,046)	(0,047)
Constant term	0,381**	0,286*
	(0,160)	(0,163)
Number of observations	7.625	

Note: Reported are coefficients of the latent model and standard errors in brackets.
*** denotes p<0.01, ** denotes p<0.05 and * denotes p<0.1

Appendix A

Location of the 154 sampled welfare agencies within Germany
(dark-coloured regions are sampled, white-coloured regions are not sampled):



Appendix B

Distribution of agencies that frequently use sanctions as part of their activation strategy: