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Social Expenditure Schemes

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# The Effect of Constitutional Commitment to Social Security on Social Expenditure Schemes <sup>\*</sup>

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## Abstract

This paper studies the effect of constitutional commitment to social security (CCSS) on different categories of social expenditure. For this purpose, we use a pooled cross sectional database for 17 EU-countries from 1990 till 2012. We run OLS models, 2SLS regression models and the Heckman two step model, with the rigidity of the constitution as exclusion restriction to correct for possible endogeneity. A positive effect is found of constitutional commitment to social security on total social expenditure and on all four categories of social security spending: old age and survivor, incapacity, unemployment and active labor market policies (ALMPs). The largest effect sizes, expressed as a percentage of average spending, are found for expenditure on unemployment and ALMPs. This indicates that CCSS has the largest effects on expenditure schemes targeted at minorities which are seen as less deserving. This is in line with the constitution being a substitute for the median voter and with the interdependent cost calculus. We find no positive effect on social expenditure schemes that are not related to CCSS, which are the social expenditure schemes on health and families. This indicates that the positive effect of CCSS on social security expenditure schemes is due to CCSS.

**JEL codes:** K31, H55, C36

**Keywords:** Constitution, Social rights, Social expenditure, Law and economics, Constitutional rigidity

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# 1 Introduction

In recent decades, politicians and academics have emphasized the role of social rights for social and economic development (Townsend, 2007; ILO, 2014). The main argument for a rights-based approach to development is that it gives an entitlement that can be enforced in court. Without such a right, people depend on the government for proper education, health care and social security. The importance of social rights in the constitution can be twofold. The constitution can provide universal rights for everyone, or protect minorities against the majority. This study provides insights in the character of constitutional commitment to social security (CCSS).<sup>1</sup> Does CCSS have the largest effects on social expenditure schemes with a universal character, being complementary to the median voter, or does CCSS have mostly an effect on expenditure categories targeted at minorities, being a substitute for the median voter.

In this paper, we study the effect of CCSS on different kinds of social expenditure. First, we are interested in the effect of CCSS on total social expenditure, which gives the importance of constitutions for social security. Second, we analyze if the effect of CCSS is most sizable on social expenditure schemes for beneficiaries who are seen as less deserving by the public opinion. We expect this if the median voter cares less about these kinds of social expenditure, leaving a larger role for the constitution. In other words, we study if political decision making and social rights in the constitution are substitutes. If political decision making and CCSS are substitutes, then we also expect that controlling for endogeneity will increase the coefficient size of CCSS.

We run OLS models, 2SLS regression models and the Heckman two step model with the rigidity of the constitution as instrument to correct for possible endogeneity. In accordance with our expectations, we find a positive effect of the rigidity of the constitution on CCSS. This is in line with Landes and Posner (1975), who argue that the discounted value of the constitution is larger when the constitution is more durable. This creates an added value of the constitution that supplements laws and policies.

We use a panel data set for 17 EU-countries from 1990 till 2012. The data on social expenditure are taken from the Social Expenditure Database (SOCX) of the

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<sup>1</sup>The use of the acronym CCSS for constitutional commitment to social security is in line with Ben-Bassat and Dahan (2008, 2016)

OECD. For CCSS, we use the indicator of Ben-Bassat and Dahan (2008), which we define as one or zero, depending on the presence of a legal provision on assistance to old age, survivors, disability, unemployment, sickness, work injury or the poor.

Our main findings are as follows. First, we find a positive significant effect of CCSS on total social expenditure. This includes a positive effect on spending on old age and survivor, incapacity, unemployment and active labour market policies. Second, the most sizable effects, expressed as a percentage of average spending, are found for spending on unemployment and active labor market policies. Thirdly, no positive effect is found on expenditure on health and family, which are not covered in CCSS. This indicates that the positive effect we observe for social security types of social expenditure is really due to CCSS and not caused by a positive attitude towards redistribution. We even find a negative effect on spending on family, suggesting that social expenditure on family is partly substituted by spending on social security.

Our paper relates to two important studies that consider the effect of commitment to social rights in the constitution. Ben-Bassat and Dahan (2008) were the first to investigate the effects of the rights to social security, education, health, housing and workers rights. They find no relation between this rights and expenditure on these different categories, except for the positive relation between the degree of constitutional commitment to social security and transfer payments and between constitutional commitment to health and health policy performance. In a more recent paper, Ben-Bassat and Dahan (2016) find a positive relation between constitutional commitment to social security and the extent and coverage of actual measures of social security laws. The studies of Ben-Bassat and Dahan (2008, 2016) are the only two studies on the effect of commitment to social security in the constitution, which makes more research on this important topic a valuable contribution.

We make the following contributions to the literature. Knowing if there is an effect of CCSS on total social expenditure contributes to research on the popular rights-based approach, as it tells us if social rights contribute to social security. Second, studying the different effects on different kinds of social expenditure allows us to explain the effect of CCSS by the median voter theorem of Black (1948) and the interdependent cost calculus of Buchanan and Tullock (1962). With this we are the first to study empirically if CCSS is a complement or a substitute to political decision making. Thirdly, an important contribution is how we correct for possible

endogeneity in our empirical methodology. We select more similar EU-countries, control for legal origin and correct for the endogeneity problem by using both 2SLS models and the Heckman two step model. We use the rigidity of the constitution as instrument to derive the effect of CCSS on social expenditure. This is more advanced than in the current literature, which is not going beyond correlations inferred from OLS models for a sample with a wide variety of countries, which we deem as insufficient to deal with the endogeneity issue as well as to draw conclusions for the more homogeneous group of EU-countries.

The outline of the paper is as follows. Section 2 gives a literature review. Here we start with a brief description of the history and rationale for the right to social security in Section 2.1. Afterwards, we build an elaborate theoretical framework on the effects of CCSS in Section 2.2, in which we link CCSS to political economy in Section 2.2.1, the interdependent cost calculus in Section 2.2.2, the expressive function of law in Section 2.2.3 and positive and negative rights in Section 2.2.4. We proceed with the related empirical literature in Section 2.3. We continue with describing the methodology with an elaborate discussion on the causes of endogeneity and the methodological solutions to deal with this in Section 3.1. We give the empirical specification in Section 3.2. We discuss the data in Section 4 and the results in Section 5. We conclude with a discussion on the implications of the results in Section 6.

## **2 Constitutional rights and social security**

### **2.1 The history and rationale for the right to social security**

The most important international document on human rights is the Universal Declaration of Human Rights (UDHR), which was adopted in 1948. The acceptance and influence of human rights has increased since then. The European Social Charter came into force in 1961 and the International Covenant on Economic, Social and Cultural Rights in 1966, introducing international social rights. Political and civil human rights became increasingly important since the Second World War, but there was a stagnation in the development of social rights in the 1980s and 1990s. This stagnation was caused by the general policy advice, following from the Washington Consensus, to restrain social expenditure to prevent market distortions (Williamson,

2000).<sup>2</sup>

The increasing importance of social rights has been induced by a resurgence of the emphasis on good institutions and human rights. As Holzmann et al. (2003) put it: “Dismissed as ineffective, expensive or even detrimental to development in developing countries for a long time, it is now increasingly understood that assisting individuals, households and communities in dealing with diverse risks is needed for accelerated poverty reduction, and sustained economic and social development.” Human rights are seen as instruments that provide a legal framework for strategies to reduce poverty. This is a shift from an instrumentalist approach of development towards an entitlements-based approach that is based on the law (Chinkin, 2001). Moreover, this implies a shift of obligations between states towards obligations between states and individual citizens.

Nowadays, an important rationale for social rights among politicians and academics is to restore the social contract between different income groups in society. Too high levels of inequality will lead to rent-seeking behavior, see e.g. Stiglitz (2012), and may put our democratic norms under pressure (Piketty, 2014). A universal approach aims to build coalitions between different groups in society, between old and young people, between high and low incomes and between people from different regions (Townsend, 2007). Almost all people will receive from a universal social security system, at one day in the future, as social insurance and social security systems provide pensions and security for the whole population, as it not only targeted at specific groups. This social insurance function will raise support for a higher level of social provision among different classes, as also the middle and higher income groups receive security from an universal social insurance system (Rothstein, 2001).

## **2.2 Theories on the effects of CCSS**

### **2.2.1 Political economy**

In a democracy, we expect the preferences of the median voter to be the most important determinant for the level of social expenditure (Hotelling, 1929; Black, 1948;

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<sup>2</sup>For example, human rights hardly played any role in the formulation of the Millennium Development Goals. The focus was on targeting the poorest people of the population rather than creating minimal living standards for all by using a rights-based approach.

Downs, 1957). The median voter attaches more value to universal kinds of social expenditure, compared to targeted forms of social expenditure, as not only the poor but also the middle class benefits from these types of expenditure. This is supported by Korpi and Palme (1998), Rothstein (2001) and Larsen (2008) who show that a more universal character of entitlements causes higher levels of redistribution. In line with this, social expenditure started to increase in OECD countries when poverty relief programs were replaced by social insurance programs (Townsend, 2007), which increased the benefit for the median voter.

When we consider the preferences of the median voter, we also need to look at altruistic preferences. Van Oorschot (2006) shows that Europeans share a common and fundamental deservingness culture for needy groups. Elderly people are seen as most deserving, closely followed by sick and disabled, whereas the unemployed are seen as less deserving. Blekesaune and Quadagno (2003) show also that public attitudes are more positive towards the old and the sick than towards the unemployed. Knowing the preferences of the median voter allows us to test empirically if CCSS is a complement or a substitute to normal laws and policies.

We are interested how CCSS can have an effect independent from the median voter. The difference between constitutional law and normal laws and policies lies mainly in the more durable character of the constitution. Landes and Posner (1975) argue that benefits for interest groups are larger if policies or laws are more durable. This makes the value of constitutional rights for interest groups greater than the value of normal laws. Politicians know that the durable character of the constitution will be questioned when they abolish or dramatically change the constitution. They also know that this would decrease the value of the constitution. For this reason, politicians are in favor of constitutions even when it limits their power, as they can use the constitution as a tool to extract rents related to a longer period than the time being an elected politician.<sup>3</sup> As the value of the constitution can be found in its durable character, we argue that the value of CCSS is larger when the constitution is more rigid. This greater value makes it more likely that politicians will implement CCSS. Therefore, we can use the rigidity of the constitution as an instrument to

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<sup>3</sup>Hence, we could explain the existence of constitutions in a multiparty system where different political parties alternate power. We can show in a game theoretical framework in which a tit for tat strategy is applied, like in Ordeshook (1992), that the Nash equilibrium is to respect the constitution.



derive the effect of CCSS on social expenditure in our empirical part.

### **2.2.2 The interdependent cost calculus**

Constitutional rights may also have economic effects by reducing the sum of external costs and decision making costs. In this context, decision making costs are the costs to arrive at a decision to which all players in the decision making process agree, whereas the external costs are defined as the costs to people that were not involved in the decision making process. Buchanan and Tullock (1962) devised the theory of the interdependent cost calculus in which there is a trade-off between decision making costs and external costs. To reach a decision, the number of costly consultations and meetings will go up exponentially when more people are involved in the decision making process. In contrast, the external costs go up exponentially the less people are involved, as their interests are less and less represented. The efficient level of involvement is where the sum of the decision making costs and external costs is lowest. Rights in the constitution can protect minorities and thereby reduce external costs. Therefore, the efficient level of the number of people involved can go down, which leads to lower decision making costs. Hence, CCSS can protect minorities and thereby reduce external costs of political decisions and decision making costs.

Besides, more potential efficiency gains will be realized, as decision making costs can be an obstacle to implement efficient policies when these decision making costs outweigh the efficiency gains. We can compare this with an efficient contract that is not concluded when transaction costs are too high (Coase, 1960). Hence, not only the decision making costs itself are an economic waste, but this decision making costs are also a barrier for efficiency gains to be implemented.

Thirdly, a reduction of the external costs affects policies through political stability. A right to social security gives security to the lower and middle class, thereby reducing external costs of political decisions on them, as they have at least some basic rights. This will generate satisfaction among the social benefits receivers and reduce political instability as their benefit to stand up against their government will be reduced. Lower risks of resistance against policies by the population will give politicians more freedom to make more rational rather than populist emotion-driven decisions. On the other hand, high satisfaction by the population can lead to lower involvement in politics and thereby lead to more rent-seeking behavior by lobby

groups, interest groups and politicians at a cost for society.

### **2.2.3 Expressive function of law**

Another way in which CCSS can have an effect on social expenditure can be explained by the expressive function of law, in which CCSS gives information and thereby influences behavior. A provision in the constitution indicates that it is more fundamental. This is another way by which the constitution reduces decision making costs as it provides the people in the decision making process with a reference point. Therefore, new generations of politicians will take the preferences of former politicians more into account when these are stated in the constitution. For example, Funk (2007) finds in his research on voting turnout that a law without penalties, targeting at the civic duty, might have a bigger impact on behavior than actions which affect the costs of provision for the public good. We expect a similar effect of CCSS as this may have an effect on the political duty to care about social security. The protection of fundamental values is of value itself as it provides legal certainty as well as social certainty. This renders it likely that commitment to social security in the constitution does have an effect on social security expenditure.

### **2.2.4 Positive and negative rights**

One of the main distinctive features of social rights compared to other rights is that social rights contain positive rights. It is easier to enforce negative rights to increase negative freedom, which means that individuals are free from external influence, than to enforce positive rights to increase positive freedom, which refers to the freedom to do things in an autonomous way (Berlin, 1969). Enforceability of social and cultural rights is much weaker than the enforceability of many other rights like property rights, contract law and other rights that put constraints on government intervention. First, because statements such as “adequate income” or “to live in dignity” raise the question when the right to social security is fulfilled. It is arbitrary and subjective when someone is living in dignity or when individuals have adequate income. Second, the responsibility of states may differ according to the level of resources of the state. Difficulties in enforcing positive rights may explain why CCSS could potentially have no effect on the different kinds of social expenditure.

## 2.3 Empirical literature

In this section, we discuss the empirical literature on the effects of social rights. Ben-Bassat and Dahan (2008) studied the effects of the rights to social security, education, health, housing and worker rights in the constitution. They constructed quantitative indicators for constitutional commitment for these five categories for 68 different countries. For social security, they studied the relationship between CCSS and the size of government and between CCSS and redistribution policy. They find no robust relation between constitutional commitment and public policy, except for the statistically significant association between CCSS and government transfers and between constitutional commitment to health and health policy performance. They find that an increase of one standard deviation in their CCSS index is associated with an increase of 1.7 percentage points in the share of transfers in GDP.

In a more recent study, Ben-Bassat and Dahan (2016) find a positive relation between their indicator of CCSS and the extent and coverage of actual measures of social security laws. The constitution seems to explain part of the cross country variation in welfare coverage around the world. They also tested for interaction effects between CCSS and the degree of constitutional review, the ease of amending the constitution, the power of NGOs and international organizations and ethnic fractionalization. In contrast with theoretical predictions, they find that these institutional factors do not have a significant influence on the effect of social security commitment in the constitution on social security policy.

When taking a broader perspective, Blume and Voigt (2007) find that basic human rights have a positive effect on investments (in physical capital) but do not contribute to productivity. In contrast to this, social rights do contribute to productivity improvements but do not have an effect on investment in physical capital. Dahan and Strawczynski (2013) find a negative effect of fiscal rules on the ratio of social transfers to government consumption. Persson and Tabellini (2005) show that a proportional electoral rule is correlated with higher government expenditure and a presidential system with lower government expenditure. From these three papers, we can conclude that constitutions do have an effect on political decision making. However, the literature regarding CCSS is based only on the two papers of Ben-Bassat and Dahan (2008, 2016).

## 3 Methodology

### 3.1 Endogeneity issues

Constitutions can be considered as a representation or expression of social and political preferences, which have a deeper root in history, culture and religion. Societies with a culture that cares more about social security are expected to have both higher CCSS and higher total social expenditure. Ben-Bassat and Dahan (2008, 2016) show that cultural values and history, like religion and legal origin, indeed have an effect on both constitutional commitment and social benefits. They find that CCSS is on average higher in countries that share the tradition of French civil law. They also find that common law countries exhibit on average a lower CCSS. Constitutional commitments for socialist countries are closer to French civil law whereas German and Scandinavian traditions resemble the English common law more closely (Ben-Bassat and Dahan, 2008). Much of the endogenous variation in CCSS can be explained by legal origin, which is related to geographical location and religion. Therefore, controlling for legal origin is needed to determine the partial effect of CCSS.

Ben-Bassat and Dahan (2016) argue that the endogeneity issue is less of a problem than we would expect, as it is hard to find common economic, cultural or other characteristics among countries that share a similar degree of constitutional commitment to social security. For example Scandinavian countries, which are known for their broad welfare state, have very different levels of CCSS. Finland has very high CCSS whereas Norway has a CCSS of zero. The same large differences for similar countries exist all over the sample with Greece having zero commitment whereas Italy has a very high CCSS. Hungary has a high CCSS while the Czech Republic has zero CCSS.

Ben-Bassat and Dahan (2016) also argue that endogeneity problems are absent if the effect of CCSS is interpreted as a proxy for stated preferences of the past, embedded in the culture. This is in line with Acemoglu et al. (2005), who argue that economic outcomes and the distribution of resources determine de facto political power, which has an effect on political institutions as the constitution. In turn, these institutions have an effect on future redistribution of resources and future political power. In this chain of causation, we measure the effect of the latest step, that is

the effect of the ‘stated public preferences in the constitution’ on ‘future political power’, namely redistribution of resources and future public preferences. In this interpretation, we thus recognize that this effect is affected by political preferences when the constitution came into force. Finding an effect of CCSS indicates that former political preferences have a stronger effect on preferences of current politicians when these are stated in the constitution. Hence, culture is not a third variable that makes CCSS endogenous, but CCSS is a proxy of stated public preferences of the past. This way of reasoning is in line with Acemoglu et al. (2005). Finding a positive effect makes us conclude that political or public preferences are more durable if they are stated in the constitution.

To avoid biases in estimating the effect of CCSS, we use the rigidity of the constitution as an instrumental variable to derive the effect of CCSS on social expenditure in a 2SLS model and in the Heckman two step model. In this models, we assume that the rigidity of the constitution has an effect on CCSS, but no independent effect on the social expenditure schemes. It is easy to imagine that CCSS is affected by the rigidity of the constitution, whereas there is no theoretical basis for such an independent effect of the rigidity of the constitution on social expenditure. CCSS is more valuable when the constitution has a higher level of rigidity. A higher level of rigidity implies a more durable character of the constitution and this would, according to Landes and Posner (1975), lead to a higher value for interest groups. After all, the added value of CCSS on top of normal policies and laws is expected to be very limited when constitutions are very adaptable. Therefore, we expect a positive effect of the rigidity of the constitution on CCSS.

In the Heckman correction model, we correct for unobserved correlation between the selection model and the second stage. We expect a positive correlation, when CCSS is a complement to political decision making. This is the case when endogeneity is mainly driven by a welfare state culture explaining both CCSS and social expenditure. But we expect a negative correlation, when CCSS is a substitute to political decision making. This implies that unobservables have a negative effect on the probability of CCSS and a positive effect on social expenditure. For instance, if the added value of a statement in the constitution would be smaller when policies or other laws are already spending a lot on social expenditure.

We also study the effect of CCSS on social expenditures on health and family. As these are not taken into account in our CCSS, we expect no significant positive

effect. However, we would still expect to find a positive significant effect of CCSS on social expenditure on family and health if part of the effect we measure is due to larger welfare regimes. Not finding such a positive effect can be interpreted as indication that the effect we find on social security expenditure is due to CCSS and not due to cultural factors that are both related with CCSS and social expenditure.

### 3.2 Empirical specification

We use various model specifications to estimate the effect of CCSS on different kinds of social expenditure. Regression equation (1) is used as a framework for the first three empirical model specifications:

$$y_{it} = \alpha_t + \gamma CCSS_{it} + X'_{it}\beta_x + \epsilon_{it}. \quad (1)$$

The dependent variables of interest are public and mandatory private gross total social expenditure and spending on old age and survivors, incapacity, unemployment, ALMPs, health and family, denoted by  $y_{it}$ . This outcome variables vary by country ( $i = 1, \dots, N$ ) and years ( $t = 1, \dots, T$ ). We regress the outcome variables on a set of year fixed effects ( $\alpha_t$ ), the control variables old age dependency ratio and GDP per capita  $X'_{it}$  with coefficients  $\beta_x$  and the explanatory variable of interest  $CCSS_{it}$  with coefficient  $\gamma$ . The choice of these two control variables in the baseline model are in line with the literature (Ben-Bassat and Dahan, 2016; Rodrik, 1998; Mulligan et al., 2010). Note that CCSS is constant over time. Therefore the first specification is cross sectional, as we only use the data for 2008, which is the year in which CCSS is measured. From specification 2 onwards we use the time period 1990-2012 and include year dummies to obtain more accurate estimates for our control variables and for CCSS. In specifications 2 and 3, we also include a first order serial correlation component in the error term and replace robust standard errors by panel corrected standard errors. Control variables for legal origin and unemployment are added in specification 3.

In specification 4, we control for endogeneity by using a 2SLS model using the rigidity of the constitution as instrument. Our first stage equation is given by regression equation (2):

$$CCSS_{it} = \alpha_t + \delta Z_{it} + X'_{it}\beta_x + \mu_{it} \quad (2)$$

In which  $Z_{it}$  denotes the rigidity of the constitution, our instrumental variable, with coefficient  $\delta$ . As constitutions are constant, the rigidity of the constitution is constant over time as well. The second stage is still equal to equation (1). The rigidity of the constitution is expected to have an effect on CCSS but no direct effect on social expenditure. As explained earlier, we can use this instrument to control for possible endogeneity to find a more accurate effect of CCSS on the different kinds of benefits. The rigidity of the constitution is expected to have a positive effect on CCSS, as the added value of CCSS on top of laws and policies is larger when the constitution is more rigid.<sup>4</sup>

Finally, specification 5 is our preferred model. Here we use the rigidity of the constitution to estimate the effect by using the Heckman two step model in which a correction for the correlation between unobservables in the selection model and unobservables in the second stage is applied (Heckman, 1979). This yields:

$$\begin{aligned} Prob(CCSS_{it} = 1|Z_i, X'_{it}) &= Prob(-\mu_{it} < \theta Z_{it} + \nu_x X'_{it}) \\ &= \Phi(\theta Z_{it} + \nu_x X'_{it}) \end{aligned} \quad (3)$$

$$\begin{aligned} y_{it} &= \alpha_t + \gamma CCSS_{it} + X'_{it}\beta_x + \rho\sigma_\epsilon \left[ CCSS_{it} \frac{\phi(\hat{\theta}Z_{it} + \hat{\nu}_x X'_{it})}{\Phi(\hat{\theta}Z_{it} + \hat{\nu}_x X'_{it})} \right. \\ &\quad \left. - (1 - CCSS_{it}) \frac{\phi(\hat{\theta}Z_{it} + \hat{\nu}_x X'_{it})}{1 - \Phi(\hat{\theta}Z_{it} + \hat{\nu}_x X'_{it})} \right] + \epsilon_{it}. \end{aligned} \quad (4)$$

where

$$\begin{aligned} \epsilon_{it} &\sim N(0, \sigma_\epsilon) \\ \mu_{it} &\sim N(0, 1) \end{aligned}$$

and

$$\rho = \frac{cov(\epsilon, \mu)}{\sigma_\epsilon}$$

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<sup>4</sup>In our robustness analysis, we find that the rigidity of the constitution is a weak instrument for the OECD sample, which is denoted by a low F-statistic. Therefore, for the OECD sample, we can only use our first three (OLS) specifications.

The first stage, follows from a probit regression model for the probability of CCSS, see equation (3).  $Z_{it}$  denotes the rigidity of the constitution, which is our exclusion restriction, with parameter  $\theta$  and  $X'_{it}$  give the explanatory variables GDP per capita and the old age dependency ratio with parameters  $\nu_x$ .  $\Phi$  is the cumulative distribution function of the standard normal distribution. Estimation of this first stage model yields results that can be used to predict the probability that a country has CCSS. Equation (4) is our second stage equation, where  $\gamma$  gives the effect of CCSS when we control for selectivity. We assume that the error terms are jointly normal and are independent and identically distributed.  $\rho$  is the correlation between unobserved determinants of  $CCSS_i$  and unobserved determinants of social expenditure.  $\sigma_\epsilon$  is the standard deviation of  $\epsilon_{it}$ . We use the inverse mills ratio to correct for selectivity, in which  $\phi$  denotes the standard normal density function and  $\Phi$  the standard normal cumulative distribution function. We use robust standard errors to correct for possible heteroscedasticity.

## 4 Data

We use a pooled cross sectional dataset for 17 EU-countries covering 23 years from 1990 to 2012.<sup>5</sup> We choose to focus on EU-countries that are represented in the OECD for the reason of data availability and because there is less heterogeneity between these developed countries, making cross country comparison more reliable. The countries Estonia, Latvia, Luxembourg and Slovenia were removed from the database, because CCSS was not available for these countries. This makes our selected countries even more comparable with regard to GDP per capita and geographical location. We focus on the period from 1990 onwards, making the data set balanced, as this enables us to take the post-Soviet countries into account; a substantial share of the data is missing for these countries for the period before 1990.

The outcome variables we consider are social expenditure variables for which we use the Social Expenditure Database (SOCX) of the OECD. Our main variable for social security is public and mandatory private gross total social expenditure as a %

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<sup>5</sup>Countries in EU sample: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Netherlands, Poland, Portugal, Spain, Sweden, United Kingdom



of GDP, which we define as total social expenditure.<sup>6</sup> This total social expenditure consists of spending on old age and survivor, incapacity, unemployment, ALMPs, health and family, which are our next dependent variables.<sup>7</sup> A description of the different social expenditure variables is given in the Appendix in Table A.1.

The explanatory variable of interest is constitutional commitment to social security, which we call CCSS. This variable is based on the indicator of constitutional commitment created by Ben-Bassat and Dahan (2008), which we transform in a dichotomous variable being 1 if there is at least a general statement in the constitution on a social right to income, unemployment, sickness, work injury, old age, survivor or disability and 0 if there is no statement on any of these categories. The choice of first taking the sum of constitutional commitment of these five categories corresponds to Ben-Bassat and Dahan (2008, 2016). A high overlap and substitutability between the different types of commitment to social security, caused by the abstract formulation of the legal provisions, makes us believe that the sum has more explanatory power than the individual commitment to social security variables.<sup>8</sup> We use a dichotomous variable in our baseline models, because we expect the existence of a legal provision in the constitution to be more important than the concreteness of this legal provision.

Table 1 gives the descriptive statistics on social expenditure for countries with and without CCSS. It shows the means of total social expenditure rates and the different kinds of social expenditure rates separately, for EU countries over the period 1990-2012. We find that total social expenditure is on average 23.5 percent of GDP in the countries with CCSS and 22.0 in the countries without CCSS. This difference is 6.9 percent relative to the mean of total social expenditure for countries without

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<sup>6</sup>Data on net total social expenditure is not available for the different expenditure types, and very limited for total social expenditure, therefore we use data on gross social expenditure.

<sup>7</sup>A very small part of total social expenditure consists of expenditure on housing and others. we choose not to analyze these kinds of social expenditure separately because of the low significance, on average 0.33% and 0.46% of GDP in the period 1990-2012.

<sup>8</sup>For example, article 20 of the Dutch constitution may explain an effect on spending in multiple categories. Article 20 of the Dutch constitution states: 1. It shall be the concern of the authorities to secure the means of subsistence of the population and to achieve the distribution of wealth. 2. Rules concerning entitlement to social security shall be laid down by Act of Parliament. 3. Dutch nationals resident in the Netherlands who are unable to provide for themselves shall have a right, to be regulated by Act of Parliament, to aid from the authorities.

Table 1: Descriptive statistics: differences in means between countries with and without constitutional commitment to social security (CCSS) for the different social expenditure variables shown as % of GDP

	Countries with CCSS	Countries without CCSS	Differences in Means	Differences (in %) relative to Countries without CCSS
Total	23.5	22.0	1.5	6.9
Old age and Survivor	9.3	9.5	0.2	-2.0
Incapacity	3.1	2.4	0.7	29.1
Unemployment	1.5	0.8	0.6	76.3
ALMPs	0.9	0.5	0.4	88.4
Health	5.6	5.8	-0.2	-3.5
Family	2.2	2.1	0.1	4.2
Observations	12	5		

Sample: 17 EU countries in the years 1990-2012.

CCSS. The relative differences are the largest for spending on unemployment and ALMPs (respectively 76,3 percent and 88.4 percent relative to the means in countries without CCSS). Further, in countries with CCSS, we observe less spending on old age and survivor (-2.0 percent) and more spending on incapacity (+29.1 percent). Regarding social expenditure which is not taken into account in CCSS, we find slightly larger spending in countries with CCSS on family (4.2 percent), whereas we find less spending on health (-3.5 percent).

Further, we create an interaction variable between CCSS and political party in office to study how constitutional commitment and political party in office have a combined effect on social security benefits. For politics, we use left-wing/center/right-wing cabinet posts in percentage of total cabinet posts from the comparative Political Data Set (Armingeon et al., 2013).

Our instrumental variable, the the rigidity of the constitution, is the average of the standardized indices for rigidity in Lorenz (2005). This index considers the factors: kinds of majority, success rate, times of voting, unicameral/bi-cameral leg-

islature, initiative actors, special body or regulator legislature, need of elections between two votes, electoral system, approval by referendum, approval by states' legislatures. The rigidity of the constitution, CCSS and total social expenditure are given for the different countries in the year 2008 in Table A.2.

The control variables we use are GDP per head of population (USD in thousands, constant prices, 2010 PPPs), the old age dependency ratio (percentage of 65+ relative to 15-64 years old), dummies for legal origin, unemployment rate (standardized unemployment rate, all persons) and year dummies, see the appendix Table A.3 for the descriptive statistics. These control variables are chosen as they have the largest effects on the social expenditure schemes and are expected to influence the effect of CCSS on social expenditure. These control variables are in line with the literature (Kittel et al., 2003; Mulligan et al., 2010; Ben-Bassat and Dahan, 2008, 2016). For legal origin we use dummies for French, English, German and Scandinavian legal origin, where we use socialist legal origin as the reference category.

In our robustness analysis, we will also investigate the effect for the sample of EU-countries together with Iceland, Switzerland and Norway, as well as for a sample of OECD countries without Japan and Korea.<sup>9</sup> Japan and Korea are outliers as they have a different Asian system with very low levels of social spending, making our results insignificant.<sup>10</sup> Japan and Korea are outliers for reasons independent of CCSS and therefore we decided to drop these two countries from our database.

## 5 Results

Table 2 presents the regression results of CCSS on total social expenditure. Column (1) shows the results for the year 2008 where we only control for GDP per capita and the old age dependency ratio. This specification suggests a positive effect, significant at a 10 percent level, indicating that countries with CCSS spend on average 1.99

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<sup>9</sup>Countries in OECD sample: Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom and the United States

<sup>10</sup>Reasons for low spending in Japan and Korea can be found in social policies as means rather than as goals, larger involvement of family and private sector in the welfare mix, late start of welfare system, top-down development of social policies, colonial past and the neglect for social services targeting woman (Hong, 2014).

percentage points of GDP more on total social expenditure. This implies that the mean total social expenditure rate for countries with CCSS is 9% higher than for countries without CCSS.

In Column (2), we use the years 1990-2012 and add year dummies to our empirical specification. The robust standard errors are replaced by panel corrected standard errors and we include a first order serial correlation component. The effect of CCSS on total social expenditures slightly increases and is highly significant now.

Adding control variables for the unemployment rate and legal origin, in column (3), does not change much. German legal origin and Scandinavian legal origin have the largest positive effect on total social expenditure, socialist and English legal origin the lowest. The unemployment rate increases total social expenditure, which we expected as it controls for business cycle differences.

The effect of CCSS on total social expenditure increases to 3.05 percentage points in our 2SLS model, in which we use the rigidity of the constitution as instrument. An increase in the coefficient suggests an underestimation of the effect size when we do not control for endogeneity. This could be explained by the constitution being a substitute for political decision making. In the first stage regression, we find a large positive effect of the rigidity of the constitution on CCSS. The F-test of excluded instruments is easily rejected with an F-value of 73.59, see Table 3, suggesting sufficient relevance of our instrument.

In column (5), the effect size increases to 3.76 percentage points when we control for unobserved correlation between our selection model and second stage regressions by using the Heckman two step model. The effect size in our preferred specification, column 5, is a substantial 17% relative to the mean of total social expenditure for countries without CCSS. Also the extent to which the Heckman two step model is correcting for unobserved correlation, denoted by  $\rho$ , is with a value of  $-0.38$  within acceptable proportions. The negative  $\rho$  means that there is a lower probability of CCSS when other factors (e.g. politicians or labor unions) already take care of social expenditure.

Table 4 presents the effect of CCSS on the different social spending categories when we split up total social expenditure. The largest effect sizes, expressed as a percentage of average spending, are found for expenditure on unemployment and ALMPs. In our preferred specification, column 5, a positive effect of 2.11 percentage points is found for expenditure on unemployment, which is an increase of 248%

Table 2: Estimation results of constitutional commitment to social security (CCSS) on total social expenditure

	(1)	(2)	(3)	(4)	(5)
CCSS	1.990*	2.198***	2.261***	3.053***	3.763***
	(1.099)	(0.664)	(0.862)	(0.939)	(1.015)
Old age dependency ratio	0.574***	0.599***	0.214**	0.692***	0.708***
	(0.104)	(0.087)	(0.083)	(0.059)	(0.061)
GDP per capita	1.081	-0.858**	-1.534***	1.336***	1.282***
	(0.671)	(0.402)	(0.518)	(0.243)	(0.249)
Unemployment rate			0.185***		
			(0.034)		
French legal origin			4.325***		
			(1.277)		
English legal origin			1.577		
			(1.268)		
German legal origin			10.170***		
			(1.451)		
Scandinavian legal origin			8.432***		
			(1.450)		
Constant	3.957	8.243***	12.230***	0.111	-0.614
	(2.602)	(1.853)	(2.068)	(1.651)	(1.720)
Year dummies	No	Yes	Yes	Yes	Yes
Method	OLS	OLS	OLS	2SLS	Heckman
Standard errors	Robust	PCSE	PCSE	Robust	Robust
AR(1) component	NO	YES	YES	NO	NO
Years	2008	1990-2012	1990-2012	1990-2012	1990-2012
Countries	17	17	17	17	17
Observations	17	382	359	382	382
R-squared	0.601	0.748	0.843	0.459	

Sample: EU-countries. Instrument: the rigidity of the constitution. \* denotes significant at the 10% level, \*\* at the 5% level and \*\*\* at the 1% level.

Table 3: First stage results: the rigidity of the constitution on constitutional commitment to social security (CCSS)

VARIABLES	(1) CCSS
Rigidity constitution	0.225***
	(0.026)
Old age dependency ratio	-0.016**
	(0.007)
GDP per capita	0.040
	(0.028)
Observations	382
R-squared	0.131
F-statistic	73.59

\* denotes significant at the 10% level, \*\* at the 5% level and \*\*\* at the 1% level.

Table 4: Estimation results of constitutional commitment to social security (CCSS) on different kinds of social expenditure

	(1)	(2)	(3)	(4)	(5)	% $\Delta$
Total social expenditure	1.990*	2.198***	2.261***	3.053***	3.763***	17%
	(1.099)	(0.664)	(0.862)	(0.939)	(1.015)	
Correlation (rho)					-0.363	
Old age and Survivor	0.698	-0.005	0.063	3.233***	2.464***	26%
	(1.154)	(0.525)	(0.620)	(0.688)	(0.522)	
Correlation (rho)					-0.609	
Incapacity	0.684	0.681***	0.736***	0.784**	0.691**	28%
	(0.433)	(0.243)	(0.219)	(0.329)	(0.343)	
Correlation (rho)					-0.020	
Unemployment	0.475	0.757***	0.797***	2.122***	2.107***	248%
	(0.290)	(0.195)	(0.187)	(0.351)	(0.098)	
Correlation (rho)					-0.924	
ALMPs	0.282**	0.427***	0.479***	0.492***	0.475***	99%
	(0.100)	(0.074)	(0.073)	(0.110)	(0.067)	
Correlation (rho)					-0.108	
Health	-0.066	0.055	0.004	-0.030	0.056	1%
	(0.375)	(0.223)	(0.335)	(0.237)	(0.145)	
Correlation (rho)					-0.142	
Family	-0.063	0.119	0.218	-2.303***	-1.684***	-79%
	(0.404)	(0.160)	(0.203)	(0.409)	(0.0742)	
Correlation (rho)					0.983	
Year dummies	No	Yes	Yes	Yes	Yes	
controls legal origin	No	No	Yes	No	No	
controls unemployment	No	No	Yes	No	No	
Method	OLS	OLS	OLS	2SLS	Heckman	
Standard errors	Robust	PCSE	PCSE	Robust	Robust	
AR(1) component	NO	YES	YES	NO	NO	
Years	2008	1990-2012	1990-2012	1990-2012	1990-2012	
Countries	17	17	17	17	17	

Sample: EU-countries. Instrument: the rigidity of the constitution. \* denotes significant at the 10% level, \*\* at the 5% level and \*\*\* at the 1% level.

relative to the mean of expenditure on unemployment in countries without CCSS. For expenditure on ALMPs we find a coefficient of 0.48, which is an increase of 99% relative to the mean. Although smaller in relative size, we still find large positive significant effects of CCSS on expenditure on old age and survivor and on incapacity. A positive coefficient of 2.46 is found for old age and survivor, which is about 26% relative to the mean in countries without CCSS and we find a positive effect of 0.69 percentage points for incapacity which is about 28% relative to the mean. However, for the effect on old age and survivor we find no significant effect in specifications (2) and (3), suggesting that we have to be more careful in drawing conclusions. We find a negative rho for all kinds of social expenditure except for expenditure on family benefits. Meaning that for all these other social expenditure schemes, there is a lower probability of CCSS when other factors (e.g. politicians or labor unions) already take care of social expenditure.

No significant positive effect is found on health and family spending, which are not taken into account in the CCSS variable. This provides extra evidence that the effects we find on social security expenditure are really due to CCSS and not due to a third factor, such as a large welfare state. We even observe a negative significant effect on family, suggesting that this social expenditure type is substituted by expenditure on social security. This may be explained by government budget constraints or because the government takes into account the total budget of the needy, which is already higher when they can rely on generous social security benefits.

The results remain the same in the robust analysis. Table A.4 in the appendix shows that the results are robust when we add the European non-EU countries: Iceland, Norway and Switzerland. Table A.5 shows robust results in our sample of 28 OECD countries, when we exclude Japan and Korea as they have a different Asian system. Further, we find the same positive effects when we only consider the period before the Great Recession (1990-2009), in Table A.6. Finally, the results remain robust when we standardize the 3 values with the lowest and highest rigidity of the constitution and when we transform the variable for the rigidity of the constitution in a dichotomous variable, to correct for possible outliers, see Table A.7 and Table A.8.

We study non-linear effects in Tables A.9 and interaction effects with politics in Table A.10, see the appendix. In Table A.9 we observe significant negative effects of the square of CCSS on total social expenditure, suggesting that the concreteness

of CCSS is less important than the statement itself. Regarding interaction effects with politics, no effect is found of left-wing cabinet seats on social expenditure, nor of left-wing cabinet seats interacted with CCSS, see Table A.10 appendix. We find some evidence that more right-wing cabinet seats translate in lower total social expenditure but that the interaction between right-wing cabinet seats and CCSS has a positive effect on total social expenditure. This suggests that right-wing politicians reduce total social spending less when there is CCSS. However, more research is required on this result as the effect is not significant in specifications (2) to (4).

## 6 Discussion and conclusion

In this paper, we studied the effect of constitutional commitment to social security (CCSS) on different kinds of social expenditure. We used a pooled cross sectional database for 17 EU-countries from 1990 till 2012.

The main challenge of research on institutions like CCSS is that they are related to many other things like culture, religion, legal origin, geography, political institutions, etc. We deal with this potential endogeneity problem extensively by limiting the sample to more similar EU-countries, control for legal origin and use 2SLS models and the Heckman two step model with the rigidity of the constitution as exclusion restriction.

First, we find a positive significant effect of CCSS on total social security expenditure, which increases when we control for endogeneity. This includes positive effects on the categories of social expenditure on old age and survivor, incapacity, unemployment and active labor market policies. This is in accordance with the rights-based approach to development, which supplements the focus on market institutions and property rights with human rights and social policies (Townsend, 2007; ILO, 2014). This result corresponds with the findings of Ben-Bassat and Dahan (2008, 2016) who find a positive relation between CCSS and transfer payments and between CCSS and the extent and coverage of measures of social security laws.

Second, the results show that the added value of CCSS is mostly found for expenditure on unemployment and ALMPs. Only a minority of the citizens are beneficiaries of social spending on unemployment or active labour market policies. Besides, Blekesaune and Quadagno (2003) and Van Oorschot (2006) show that the



general public perceives the unemployed as less deserving than the old and disabled, suggesting lower support for spending on the unemployed by the median voter. This could explain why CCSS, rather than the median voter theory alone, can explain the scope of expenditure on unemployment and ALMPs. Hence, the importance of CCSS is mainly to protect minorities, which makes CCSS a substitute for political decision making. This is also in line with the theory of the interdependent cost calculus, in which Buchanan and Tullock (1962) argue that the role of the constitution is mainly to protect minorities. These theories are also supported by finding more sizable effects when we control for endogeneity, indicating that CCSS and politics are indeed substitutes.

Thirdly, No positive significant effect is found for expenditure on families and health which are the two social expenditure categories that are not included in CCSS. This indicates that the positive relation between CCSS and the social security types of social expenditure is really due to CCSS and not due to different social preferences that affect both CCSS and social expenditure.

Future research is necessary on the the mechanisms by which CCSS could effect different types of social expenditure. Another valuable contribution would be to exploit changes in CCSS over time, as we rely on a limited amount of variation due to the time invariance of our index for constitutional commitment to social security.

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# Appendix

Table A.1: The OECD social expenditure categories

Category	Description
Old-age	Pensions, early retirement pensions, home-help and residential services for the elderly.
Survivors	Pensions and funeral payments.
Incapacity	Care services, disability benefits, benefits accruing from occupational injury and accident legislation, employee sickness payments.
Health	Spending on in- and out-patient care, medical goods, prevention.
Family	Child allowances and credits, childcare support, income support during leave and sole parent payments.
ALMPs	Active Labour Market Policies: employment services, training youth measures subsidized employment, employment measures for the disabled.
Unemployment	Unemployment compensation, severance pay and early retirement for labour market reasons.
Housing	Housing allowances and rent subsidies.
Other	Social policy areas, non-categorical cash benefits to low-income households, other social services; i.e. support programs such as food subsidies.

Description of the different categories is taken from OECD (2007)

Table A.2: Descriptive statistics: values of constitutional commitment to social security (CCSS) and the rigidity of the constitution for the different countries

Country	Year	Total	CCSS	Rigidity const.
<b>EU countries</b>				
Austria	2008	26.40	0	-0.47
Belgium	2008	26.31	1	0.64
Czech Republic	2008	18.21	0	-0.18
Denmark	2008	27.44	1	0.37
Finland	2008	23.34	1	-0.08
France	2008	28.54	1	-0.64
Germany	2008	25.30	0	0.16
Greece	2008	21.41	0	-0.34
Hungary	2008	22.65	1	-0.41
Ireland	2008	18.49	1	-0.43
Italy	2008	26.19	1	-0.16
Netherlands	2008	20.16	1	0.65
Poland	2008	20.23	1	-0.02
Portugal	2008	22.57	1	-0.47
Spain	2008	22.19	1	0.58
Sweden	2008	25.95	1	-1.12
United Kingdom	2008	21.72	0	-2.03
<b>Other European countries</b>				
Iceland	2008	20.24	1	
Norway	2008	20.35	0	0.05
Switzerland	2008	22.48	1	0.36
<b>Other non-European OECD countries</b>				
<b>Anglo-Saxon:</b>				
Australia	2008	18.87	0	0.88
Canada	2008	16.31	0	0.55
New Zealand	2008	19.35	0	-1.91
United States	2008	16.84	0	2.07
<b>Non-Anglo-Saxon:</b>				
Chile	2008	12.18	1	0.44
Israel	2008	15.96	0	
Mexico	2008	6.84	1	
Turkey	2008	11.58	1	
<b>Asian countries</b>				
Japan	2008	20.18	1	1
Korea	2008	8.26	1	0.44

The rigidity of the constitution is not available for Iceland, Isral, Mexico and Turkey

Table A.3: Descriptive statistics of all used variables: extension of Table 1.

Variable	Obs	Mean	Std. Dev.	Min	Max
Total	382	23.0	4.3	12.4	34.6
Old age and survivor	382	9.3	2.8	3.1	17.5
Incapacity	382	2.9	1.238	0.8	6.4
Unemployment	388	1.3	1.0	0.0	4.6
ALMPs	388	0.8	0.5	0.1	2.7
Health	390	5.7	1.1	3.2	8.5
Family	382	2.2	1.0	0.3	4.5
CCSS (dummy)	391	0.71	0.46	0	1
CCSS (non-dichotomous)	391	0.64	0.72	0	2.14
Rigidity constitution	391	-0.23	0.65	-2.03	0.65
GDP per capita (in thousands)	390	3.1	0.8	0.9	4.8
Old age dependency ratio	391	23.3	3.4	15.5	32.2
Unemployment rate	362	8.6	3.8	1.7	24.8
French civil law	391	0.41	0.49	0	1
English common law	391	0.12	0.32	0	1
German law	391	0.12	0.32	0	1
Socialist law	391	0.18	0.38	0	1
Scandinavian law	391	0.18	0.38	0	1

Sample: EU-countries.



Table A.4: Estimation results of constitutional commitment to social security (CCSS) on different kinds of social expenditure: sample of EU-countries plus Norway, Switzerland and Iceland

	(1)	(2)	(3)	(4)	(5)
Total social expenditure	2.134*	1.655***	1.496***	2.385***	2.122**
	(1.058)	(0.501)	(0.491)	(0.903)	(0.837)
Old age and Survivor	0.776	0.067	0.190	3.380***	3.040***
	(0.921)	(0.418)	(0.557)	(0.683)	(0.785)
Incapacity	0.421	0.252	0.165	0.617*	0.328
	(0.409)	(0.180)	(0.107)	(0.318)	(0.329)
Unemployment	0.499*	0.611***	0.479**	1.876***	1.984***
	(0.277)	(0.193)	(0.206)	(0.304)	(0.246)
ALMPs	0.266**	0.336***	0.428***	0.354***	0.350***
	(0.112)	(0.087)	(0.095)	(0.113)	(0.115)
Health	0.175	0.207	0.061	-0.231	-0.063
	(0.417)	(0.215)	(0.276)	(0.235)	(0.152)
Family	-0.058	-0.046	0.052	-2.387***	-1.869***
	(0.388)	(0.165)	(0.141)	(0.399)	(0.089)
Year dummies	No	Yes	Yes	Yes	Yes
Method	OLS	OLS	OLS	2SLS	Heckman
Standard errors	Robust	PCSE	PCSE	Robust	Robust
AR(1) component	NO	YES	YES	NO	NO
Years	2008	1990-2012	1990-2012	1990-2012	1990-2012
Countries	20	20	20	19	19

Instrument: the rigidity of the constitution. The rigidity of the constitution is not available for Iceland, leaving 19 countries in specification (4) and (5). \* denotes significant at the 10% level, \*\* at the 5% level and \*\*\* at the 1% level.

Table A.5: Estimation results of constitutional commitment to social security (CCSS) on different kinds of social expenditure: sample of OECD countries minus Japan and Korea

	(1)	(2)	(3)
Total social expenditure	1.989** (0.847)	1.299** (0.576)	1.694*** (0.616)
Old age and Survivor	1.185* (0.675)	0.641* (0.369)	0.103 (0.546)
Incapacity	0.559 (0.410)	0.442*** (0.145)	0.315** (0.157)
Unemployment	0.379 (0.229)	0.378** (0.156)	0.564*** (0.167)
ALMPs	0.265*** (0.094)	0.332*** (0.066)	0.442*** (0.084)
Health	-0.379 (0.366)	-0.412*** (0.114)	-0.021 (0.340)
Family	0.044 (0.402)	-0.026 (0.170)	0.286** (0.119)
Year dummies	No	Yes	Yes
Method	OLS	OLS	OLS
Standard errors	Robust	PCSE	PCSE
AR(1) component	NO	YES	YES
Years	2008	1990-2012	1990-2012
Countries	28	28	28

Only OLS models lead to reliable results when considering the OECD, because the rigidity of the constitution has lower explanatory power for CCSS (lower F-statistic) and it is harder to argue that the exclusion restriction still holds as the rigidity of the constitution may be endogeneous due to larger cultural differences when considering the OECD rather than merely the EU countries represented in the OECD. Japan and Korea are excluded from the sample as they have a different Asian system of social security, in which social expenditure is typically much lower. \* denotes significant at the 10% level, \*\* at the 5% level and \*\*\* at the 1% level.

Table A.6: Estimation results of constitutional commitment to social security (CCSS) on different kinds of social expenditure: period before Great Recession (1990-2008)

	(1)	(2)	(3)	(4)	(5)
Total social expenditure	1.990*	2.226***	2.565***	3.544***	3.949***
	(1.099)	(0.696)	(0.603)	(1.086)	(0.992)
Old age and Survivor	0.698	0.202	0.475	3.598***	2.766***
	(1.154)	(0.295)	(0.502)	(0.782)	(0.853)
Incapacity	0.684	0.701**	0.746***	0.705*	0.560
	(0.433)	(0.275)	(0.200)	(0.386)	(0.400)
Unemployment	0.475	0.672***	0.604***	2.066***	2.049***
	(0.290)	(0.160)	(0.147)	(0.368)	(0.112)
ALMPs	0.282**	0.389***	0.480***	0.464***	0.463***
	(0.100)	(0.0823)	(0.0862)	(0.128)	(0.0713)
Health	-0.0662	0.0778	0.133	0.0280	0.118
	(0.375)	(0.200)	(0.237)	(0.242)	(0.129)
Family	-0.0633	0.141	0.242	-2.043***	-1.772***
	(0.404)	(0.159)	(0.204)	(0.423)	(0.104)
Year dummies	No	Yes	Yes	Yes	Yes
Method	OLS	OLS	OLS	2SLS	Heckman
Standard errors	Robust	PCSE	PCSE	Robust	Robust
AR(1) component	NO	YES	YES	NO	NO
Years	2008	1990-2008	1990-2008	1990-2008	1990-2008
Countries	17	17	17	17	17

Sample: EU-countries. Instrument: the rigidity of the constitution. \* denotes significant at the 10% level, \*\* at the 5% level and \*\*\* at the 1% level.

Table A.7: Estimation results of constitutional commitment to social security (CCSS) on different kinds of social expenditure: highest and lowest values of rigidity standardized

	(1)	(2)
Total social expenditure	2.562*	3.362**
	(1.545)	(1.341)
Old age and Survivor	-0.391	0.464
	(0.969)	(0.586)
Incapacity	2.486***	1.695***
	(0.718)	(0.282)
Unemployment	2.687***	2.134***
	(0.608)	(0.084)
ALMPs	0.806***	0.666***
	(0.177)	(0.090)
Health	-0.317	0.026
	(0.367)	(0.150)
Family	-2.397***	-2.026***
	(0.572)	(0.095)
Year dummies	Yes	Yes
Method	2SLS	Heckman
Standard errors	Robust	Robust
AR(1) component	NO	NO
Years	1990-2012	1990-2012
Countries	17	17

Sample: EU-countries. Instrument: the rigidity of the constitution. Highest values of rigidity, for The Netherlands, Belgium and Spain, are standardized to 0.37 and the lowest values of rigidity, for United Kingdom, Sweden and France, are standardized to -0.47. By this standardization we try to be as objective as possible as we choose 3 outliers of both sides of the distribution. The values 0.37 and -0.47 are equal to the values of the fourth observation from both sides of the distribution. This choice is also based on the consideration that the mean of the rigidity of the constitution is slightly negative. For the Heckman model on family expenditure we did not control for the old age dependency ratio as there was a discontinuous region encountered. \* denotes significant at the 10% level, \*\* at the 5% level and \*\*\* at the 1% level.

Table A.8: Estimation results of constitutional commitment to social security (CCSS) on different kinds of social expenditure: rigidity as a dichotomous variable

	(1)	(2)
Total social expenditure	4.357*** (1.074)	3.894*** (0.870)
Old age and Survivor	2.657*** (0.747)	1.708*** (0.492)
Incapacity	2.078*** (0.430)	1.621*** (0.235)
Unemployment	1.676*** (0.300)	2.130*** (0.097)
ALMPs	0.466*** (0.112)	0.514*** (0.111)
Health	-0.534** (0.248)	0.126 (0.145)
Family	-1.506*** (0.316)	-1.829*** (0.107)
Year dummies	Yes	Yes
Method	2SLS	Heckman
Standard errors	Robust	Robust
AR(1) component	NO	NO
Years	1990-2012	1990-2012
Countries	17	17

Sample: EU-countries. Instrument: the rigidity of the constitution. The dichotomous variable for the rigidity of the constitution = 1 if the the rigidity of the constitution  $> -0.17$  and 0 otherwise. Countries with a rigid constitution are Belgium, Denmark, Finland, Germany, Italy, The Netherlands, Poland and Spain. Countries with no rigid constitution are Austria, Czech Republic, France, Greece, Hungary, Ireland, Portugal, Sweden and the United Kingdom. For the Heckman model on family expenditure we did not control for the old age dependency ratio as there was a discontinuous region encountered. \* denotes significant at the 10% level, \*\* at the 5% level and \*\*\* at the 1% level.

Table A.9: Estimation results of constitutional commitment to social security (CCSS) on different kinds of social expenditure: CCSS as non-dichotomous variable

	(1)	(2)	(3)	(4)
<hr/>				
Total				
CCSS	5.629*	1.621	4.219**	4.542***
	(2.641)	(1.655)	(1.743)	(1.523)
CCSS squared	-2.794**	-1.008	-2.698***	
	(1.230)	(0.763)	(0.763)	
<hr/>				
old age and Survivor				
CCSS	1.783	-0.681	1.213	4.810***
	(2.407)	(1.067)	(1.017)	(0.878)
CCSS squared	-0.872	0.382	-0.582	
	(1.069)	(0.452)	(0.448)	
<hr/>				
Incapacity				
CCSS	0.749	-0.454	0.659	1.167**
	(1.307)	(0.660)	(0.423)	(0.578)
CCSS squared	-0.275	0.212	-0.447**	
	(0.619)	(0.337)	(0.202)	
<hr/>				
Unemployment				
CCSS	1.836	1.707***	1.299***	3.175***
	(1.038)	(0.535)	(0.356)	(0.773)
CCSS squared	-0.779	-0.790***	-0.584***	
	(0.527)	(0.247)	(0.156)	
<hr/>				
ALMPs				
CCSS	0.48*	0.506**	0.772***	0.736***
	(0.251)	(0.230)	(0.198)	(0.217)
CCSS squared	-0.216*	-0.258**	-0.451***	
	(0.104)	(0.121)	(0.103)	
<hr/>				
Health				
CCSS	0.793	0.580	0.196	-0.0446
	(0.949)	(0.466)	(0.537)	(0.355)
CCSS squared	-0.573	-0.387*	-0.255	
	(0.539)	(0.215)	(0.232)	
<hr/>				
Family				
CCSS	0.166	-0.408	0.503	-3.426***
	(1.210)	(0.306)	(0.403)	(0.754)
CCSS squared	-0.099	0.103	-0.359**	
	(0.552)	(0.134)	(0.167)	
<hr/>				
Year dummies	No	Yes	Yes	Yes
Method	OLS	OLS	OLS	2SLS
Standard errors	Robust	PCSE	PCSE	Robust
AR(1) component	NO	YES	YES	NO
<hr/>				
Years	2008	1990-2012	1990-2012	1990-2012
Countries	17	17	17	17
<hr/>				

Sample: EU-countries. Instrument: the rigidity of the constitution. \* denotes significant at the 10% level, \*\* at the 5% level and \*\*\* at the 1% level.

Table A.10: Estimation results of constitutional commitment to social security (CCSS) on total social expenditure: interaction with politics

	(1)	(2)	(3)	(4)	(5)
CCSS	4.394** (1.655)	2.399*** (0.595)	2.229*** (0.819)	4.715 (2.982)	3.201*** (1.081)
Government left	0.030 (0.020)	0.002 (0.003)	-0.000 (0.003)	0.027 (0.026)	0.002 (0.007)
Government left*CCSS	-0.062* (0.029)	-0.004 (0.004)	-0.000 (0.003)	-0.029 (0.040)	0.012 (0.010)
CCSS	-1.105 (1.251)	2.117*** (0.608)	2.370*** (0.834)	1.272 (1.558)	1.997** (0.942)
Government right	-0.040** (0.0146)	-0.005 (0.003)	0.002 (0.003)	-0.040*** (0.0148)	-0.041*** (0.007)
Government right*CCSS	0.084*** (0.020)	0.004 (0.004)	-0.003 (0.004)	0.031 (0.024)	0.035*** (0.010)
CCSS	3.564** (1.159)	2.197*** (0.668)	2.145*** (0.825)	3.006*** (0.926)	3.507*** (0.782)
Government center	0.034 (0.038)	0.002 (0.007)	-0.007 (0.006)	0.064*** (0.016)	0.077*** (0.011)
Government center*CCSS	-0.086 (0.048)	0.006 (0.008)	0.012* (0.007)	-0.068*** (0.020)	-0.084*** (0.012)
Year dummies	No	Yes	Yes	Yes	Yes
Method	OLS	OLS	OLS	2SLS	Heckman
Standard errors	Robust	PCSE	PCSE	Robust	Robust
AR(1) component	NO	YES	YES	NO	NO
Years	2008	1990-2012	1990-2012	1990-2012	1990-2012
Countries	17	17	17	17	17
Observations	17	381	359	381	381

Sample: EU-countries. Instrument: the rigidity of the constitution. \* denotes significant at the 10% level, \*\* at the 5% level and \*\*\* at the 1% level.

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