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Reforming the public administration: The role of crisis and the power of bureaucracy

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ABSTRACT

The need to balance austerity with growth policies has put government efficiency high on the economic policy agenda in Europe. Administrative reforms that boost the internal efficiency of bureaucracy can alleviate the trade-off between consolidation and public service provision. Against such a backdrop, this paper constructs (and makes available) a novel reform indicator to explore the determinants of public administration reforms for a panel of EU countries. The findings support political-economic reasoning: An economic and fiscal crisis is a potent catalyst for reforms, but a powerful bureaucracy constrains the opportunities of a crisis to promote reform. Furthermore, there is some suggestive evidence for horizontal learning from other EU countries, and for vertical learning associated with a particular type of EU cohesion spending.

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1. Introduction

The recent European crisis has put the issue of government efficiency high on the agenda of economic policy reform. With strictly binding budget constraints, the pressure on more effective public service provision has grown. Policy measures that alleviate bureaucratic slack and red tape can also alleviate the trade-off between consolidation and public service provision. Reforms aiming at higher productivity in public service provision – such as strategies of devolution and decentralization, implementation of competitive mechanisms within the public sector, revised budget practices and procedures, performance-oriented approaches to budgeting and management, and reliance on e-government – can then be a substitute for cuts in spending or tax increases (Currstine et al., 2007).

Hence, fostering public administration efficiency is a natural candidate for any long-run growth agenda in general, and for countries in fiscal trouble in particular. It is not surprising that approaches to improve the organization and working properties of public administration are part of virtually all reform programs of European governments under fiscal stress. However, it cannot be taken for granted that reform rhetoric always stands for reform substance. Reform activity is deeply rooted in bureaucratic incentives, principal-agent problems and political-economic equilibria. This paper tries to understand some of these determinants of public administration reform with a particular focus on the role of crises and the power of bureaucracy.

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There are at least three closely related and well-developed strands in the empirical literature (briefly surveyed in the next section), which, however, hardly ever focus on efficiency enhancing internal reforms of public administration. First, there is a larger field studying the timing and extent of reform decisions in general. The covered reform areas are typically related to product and labor markets, welfare benefits and tax reforms, whereas efficiency enhancing internal reforms of public administration have so far been almost completely neglected. Second, there is a growing literature that measures efficiency and productivity of public service. These studies aim at understanding the existing heterogeneity in jurisdictional efficiency but are hardly helpful in understanding dynamic changes and reforms. Third, a substantial literature concentrates on the drivers of fiscal consolidation. These studies, *inter alia*, also study adjustments of administrative spending. However, those spending cuts do not provide direct information on efficiency enhancing reforms, since these cuts may simply represent a reduction of service provision quality.

Our study adds to the reform literature by addressing a neglected but important topic: The determinants of reforms that aim at improving the efficiency of public administration in providing services and raising revenues. We explicitly disregard reforms changing the extensive margin of the public sector through increasing or decreasing the level of service provision. Instead, our sole interest lies in reforms that potentially change the intensive margin by improving the technical efficiency of administrative production (see [Bonesronning \(2013\)](#), for this distinction in the context of educational reform).

Our study is also novel with respect to the database employed. We construct (and make available) our reform indicator based on the European Commission's MICREF database. This choice is guided by our focus on internal reforms of the public administration. For that purpose, our reform indicator has to fulfill several requirements: It should identify a procedural innovation related to public service production or tax administration. At the same time, it should not be based on these reforms' economic outcomes that may be influenced by several other factors.

Typical outcome-related reform indicators like public expenditures or – to a lesser degree – size of the staff suffer from a fundamental identification problem since exogenous factors (business cycle, expectations, financial market conditions, etc.) may impact the measurable outcome so that the contribution of a preceding reform is hardly recognizable ([Wiese, 2014](#)). To some extent, this problem also holds for reform indicators like the World Bank's Doing Business Indicators or indicators of economic freedom that are based on expert surveys. These indicators are highly popular as a proxy for reform episodes (e.g., [Pitlik and Wirth, 2003](#); [Heinemann and Tanz, 2008](#); [Rode and Gwartney, 2012](#); [Giuliano et al., 2013](#); [Leibrecht and Pitlik, 2015](#)). However, expert opinions may also be influenced by a country's overall economic and social performance.

The search for outcome-unrelated indicators of policy inputs has recently motivated the so called “narrative approaches” in the empirical literature on fiscal policy (e.g., [Romer and Romer, 2010](#)). This literature analyses narrative records like speeches or parliamentary debates to identify those changes in fiscal policy that are not motivated by the cyclical situation and, in this respect, are exogenous. We share this literature's objective to employ a reform indicator that can serve as a policy input indicator unrelated to economic outcomes or to *anti*-cyclical strategies.

In light of these indicator requirements, the MICREF database offers several appealing features. It collects information on microeconomic reforms implemented in EU member states and provides a fine-grained classification of reform areas. This allows us to isolate reforms of public administration from other types of structural reforms. Moreover, real changes in policies or institutions are measured independently from their budgetary implications, output-related consequences, the overall budgetary stance or the current cyclical environment. Hence, MICREF nicely corresponds to the objectives of the narrative approaches. And compared to the frequently employed survey based indicators of administrative efficiency, MICREF provides less subjective measures of reforms and innovations in public administration.

In the next section we present a survey of the related literature mentioned above. In the subsequent theoretical section we analyze which factors should potentially change the political-economic equilibria that determine bureaucratic slack and, consequently, derive our testable hypotheses. The empirical part starts with a description of our reform indicators taken from the MICREF database followed by an econometric analysis. Our results, based on panel estimations of all EU countries over the years 2000–2013, confirm our theoretical reasoning: The frequent finding in the empirical reform literature that crisis induces reforms also holds for public administration reforms as a general pattern. This positive crisis effect is, however, conditional on our proxies for the power of bureaucracy: With a large bureaucracy, an economic crisis is less likely to push innovations in public service provision. Another finding relates to learning or policy-diffusion. We observe vertical learning associated with a particular type of EU cohesion spending and horizontal learning from the reform examples of other EU countries.

2. Relevant strands in the literature

Over the past decade a growing strand of literature has explored the drivers of structural reforms in industrial countries. The starting point was the observation that despite a common international environment characterized by increasing global competition, countries differed considerably in their speed of adjustment to these new constraints. The literature's empirical workhorse is the study of country panels. Examples are [Abiad and Mody \(2005\)](#), [Dreher et al. \(2009\)](#), [Pitlik and Wirth \(2003\)](#) or [Pitlik \(2010\)](#). Reforms that have been examined cover financial deregulation, product market opening, trade liberalization, labor market deregulation and adjustments of pension systems.

The existing studies focus on a rich set of potential drivers of reforms, for example, the role of political leaders' individual characteristics ([Dreher et al., 2009](#)), the role of trust ([Heinemann and Tanz, 2008](#); [Leibrecht and Pitlik, 2015](#)) or the constraints resulting from the introduction of the euro ([Duval and Elmeskov, 2006](#)). Beyond these particular interests of single studies, there are, however, common patterns in the literature: First, the occurrence of reform is typically modeled to depend on the institutional starting point, which, if highly inefficient, indicates a high need for reforms. Second, study designs frequently allow for regional

diffusion. The argument is that reforms in neighboring countries enable learning or activate yardstick competition. Third, crisis proxies are regularly included since times of economic or social crises are seen as windows of opportunities for far reaching institutional change. The argument is that a crisis shows voters that the status quo is no longer an available option whereas good economic times strengthen the status quo bias (see [Heinemann and Grigoriadis, 2016](#), for a full discussion). This empirical reform literature with its key findings and empirical testing designs is a crucial starting point for us. Nevertheless it contains one blank spot since it has neglected the determinants of efficiency enhancing public administration reforms, on which we focus.

A large literature deals explicitly with measurement and comparison of the efficiency of public service provision ([Afonso et al., 2005](#); [O'Mahony and Stevens, 2006](#)). This literature's motivation is that improved technical efficiency can be utilized for better or more productive services, or – especially in times of pressing fiscal consolidation needs – to reduce government expenditure and the overall tax burden. In line with this idea, [Angelopoulos et al. \(2008\)](#) find that what really matters for economic growth is not government size per se, but the country's size-efficiency mix. Aggregate measurement of public sector performance has also received increasing attention in certain sectors such as R&D, health and education ([Afonso and St.Aubyn, 2005](#)), but attention for the administration, or even for government in general is still rather limited. [Adam et al. \(2011\)](#) show that institutional factors and governance quality play a major role in explaining relative government efficiency at the country level; [Geys et al. \(2010\)](#) and [Asatryan and Witte \(2015\)](#) provide evidence for the local level.

Reform attempts to improve efficiency of public administration cover a wide range of possible measures (e.g., [Pollitt and Bouckaert, 2011](#); [Curristine et al., 2007](#)). Numerous instruments have been discussed under the umbrella term of New Public Management, most prominently electronic government, human resources management, performance orientation, service orientation and institutional re-organization (decentralization, agencification, market-related mechanisms), aiming simultaneously at improving internal processes and external relationship with citizens and business. While the extent to which these reforms do contribute to public administration efficiency is still not clear, it emphasizes that there are indeed potential rewards for administrative reforms. Our focus is to find the conditions under which efficiency-enhancing reforms can materialize.

A third related strand in the literature is concerned with the drivers and strategies of fiscal adjustment (cf. surveys by [Price \(2010\)](#), [Barrios et al. \(2010\)](#), [Molnár \(2012\)](#)). Among the best established results is that very high sovereign debt levels are supportive of initiating budgetary stabilization. If mounting public debt is associated with increasing costs of borrowing, financial markets may simply “force” governments to consolidate ([Mierau et al., 2007](#)). [Cahuc and Carcillo \(2012\)](#) investigate in particular the conditions under which the public wage bill can be reduced. They report that fiscal tightening occurs more often during recessions. Moreover, they find that tightening during recessions and election years is less frequent when union coverage rates are high. The notion is that public sector unions are typically opposed to employment adjustments such as wage or hiring freezes. [Heylen et al. \(2011, 2013\)](#) report that curbing government employment and public sector wages may contribute substantially to successful consolidation, but only when efficiency in administration is low. Cutting the wage bill of an efficient administration will not improve the chances of being successful.

This empirical literature on the timing and drivers of consolidation is obviously related to our interests. Reforms that boost efficiency in public service production can emerge as an outcome of spending cuts and consolidation. However, this literature ignores whether an observable decrease in expenditure originates from a reduction of service quality, or from cost savings due to a gain in efficiency.

3. The political economy of administrative reforms

Undoubtedly, reforms that make public service provision more efficient are welfare improving and beneficial to society as a whole. It is much less obvious whether these reforms are in the interest of all important veto players and interest groups and, in particular, of those who make their living in the public sector. With [Niskanen's](#) perspective of budget maximizing bureaucrats ([Niskanen, 1971](#)), cost reductions in the provision of a given level of public services should meet with resistance, as savings may lead to budget and staff cuts. Even if lifetime civil servants are well-protected insiders who have no risk of becoming unemployed (which is not necessarily the case for public sector employees in general) the cuts will in turn lower bureaucrats' self-esteem, reputation, potential for patronage and chances for promotion. Hence even a civil servant with life-long job security may be opposed to efficiency improvements.

In addition to this simple budget maximization argument there is a second, more subtle point why efficiency inducing innovations may meet with the resistance of bureaucrats. Bureaucratic power vis-à-vis voters and their elected representatives rests on the assumption that there is an information asymmetry and a monitoring problem: Public agencies are often better informed about their cost functions than the supervising parliamentarians. The larger this information asymmetry the more likely bureaucrats are to benefit from organizational slack, i.e. obtaining a budget above what is required to produce a certain output at minimum cost ([Migué and Bélanger, 1974](#); [Banks and Weingast, 1992](#)).

The problem with public administration reforms from the perspective of slack-seeking bureaucrats is that reforms, which have a potential for cost reductions, also foster cost transparency and help to monitor performance. This could hold, for instance, for measures promoting e- government, better evaluation and monitoring, or managerial accounting systems. Hence, civil servants may not only resist efficiency enhancing internal reforms just because they fear for their budgets, but also because they may be concerned about greater transparency and the consequent loss of discretion in their use of the budget.

Empirical evidence supports the expectation that public employees tend to be particularly skeptical about administrative reforms. For Norwegian reforms aiming at privatization and competitive tendering of public services, [Rattso and Sorensen \(2004\)](#) exploit survey data to show that, compared to the rest of the Norwegian population, public employees are less in favor

of reforms. Moreover, these employees assign larger weights to reform issues in their voting decision and may, therefore, be effective swing voters who are able to block a change even if it is preferred by a majority.

Overall, we would therefore expect that effective resistance against administrative reforms will increase with the size of a country's government bureaucracy. Hence, our first testable hypothesis is as follows:

H1. Countries with a higher share of public sector employees are less likely to pursue efficiency enhancing administrative reforms.

As reported in the [Section 2](#), the link between crisis (indicated by a recession, high unemployment and/or fiscal imbalances) and reform is one of the robust findings across very different reform contexts. A crisis is supposed to foster a sense of urgency for change and to overcome the status quo bias.

Deep crises are expected to reduce political opposition to reforms by lowering payoffs of obstruction, and by increasing payoffs from a policy change. In the wake of a crisis, groups interested in preserving the status quo may be more likely to accept the uncertainties associated with policy liberalization. Additionally, governments also have a higher propensity to bear the higher risks of temporary economic hardships during structural policy changes.

However, given the particular and direct role of government finances for the provision of public services, it cannot be taken for granted that a fiscal crisis (i.e. a situation of high debt and/or a high current deficit) really paves the way for cost saving administrative innovations. The following considerations even point to particularly large difficulties of boosting public sector efficiency in a situation of crisis.

The first argument is related to the budget-maximization view. In good fiscal times, public employees can realistically hope that a more efficient service production will not lead to future budget cuts because increasing economies may be used to expand the level of service production (in terms of quantity and/or quality). This expectation would lower their resistance against reforms. With urgent consolidation needs, by contrast, the rational expectation is that cheaper production will be used to reduce bureaucratic staff and cut administrative spending. For public sector employees with imperfect employment protection this implies an increasing risk of job loss. And for life time civil servants the combination of crisis and higher efficiency signals a likely reduction of agency budgets, prestige and personal income. Hence, bureaucratic opposition to reform should be fiercer in bad than in good times.

Our second argument relates to the information asymmetry between bureaucrats and politicians. [Hugh-Jones \(2014\)](#) points out that episodes of consolidation aggravate information problems of bureaucratic supervision because it becomes harder to distinguish agencies with high and low marginal productivity (of converting budget into public services). This distinction is simple with growing budgets: highly productive agencies differ from low-productivity ones in so far as, for the same increase in budget, the former increase output and/or quality more than the latter. Conversely, if budgets are cut the forced reduction of output is larger for the agency with the higher productivity. However, the low-productivity agency can then simply imitate a high-productivity agency and cut back public services more than actually needed (given its low-productivity technology). The resulting pooling equilibrium offers no hint on how to distinguish between efficient and inefficient units, as both threaten to respond to austerity with the same reduction of service output and quality.

The third argument relates to the crucial role that a country's public administration plays in times when far-reaching reform of labor markets, goods markets and the welfare state is needed. For the design and implementation of complex and interdependent reform packages the government needs the support of its bureaucracy. Hence, times of far-reaching reform needs may be exactly the time when loyal civil servants are politically most important. A far-reaching crisis - especially a fiscal crisis with urgent consolidation efforts - may be exactly the wrong time to take into account the interests of civil servants.

Thus, we do not have a clear sign expectation on the impact of a crisis in our specific reform context, since there are counterbalancing forces at work. With respect to the traditional crisis hypothesis, serious economic and fiscal problems should ease reforms in the public sector just as they facilitate labor market or welfare state reforms. However, given the particular concerns of bureaucrats, the resistance of this key interest group should be particularly fierce in times of budgetary stress. As a consequence, we have to develop our hypothesis in an indirect way. We can exploit the fact that the possibilities of the bureaucrats to obstruct reforms should be conditional on its political power. With a small bureaucracy, the electoral share of public sector employees is small, which should reduce its potential to block reforms. Hence, we expect that the crisis-specific resistance of public employees will be increasing with the size of the bureaucracy. This leads us to our second testable hypothesis:

H2. An economic and fiscal crisis is the more likely to increase the short-run occurrence of efficiency enhancing public administration reforms the lower the power of the bureaucracy.

Further predictions relate to learning processes. First, there might be learning related to the impact of the financial and technical assistance provided by the EU for its member countries ("vertical learning"). It is a standard assumption in the context of development economics that the inflow of development aid should also be related to an import of know-how (e.g., [Dreher, 2009](#)). [Heckelman and Knack \(2008\)](#) yet find that higher aid slowed liberalizing economic reform, despite aid being frequently granted to help developing countries in such reforms. An equally ambiguous consideration may apply in our context. Cohesion spending through the EU structural fund is intended to boost the growth prospect of lagging European regions through stimulating deficient growth factors. If this policy also recognizes that an inefficient public administration is a significant growth impediment, it should also be helpful to alleviate this bottleneck. However, cohesion spending might on the contrary also serve as a transfer covering higher costs in the recipient country. Thus, the test of the following hypothesis on possible vertical learning will indicate the extent to which the beneficial view prevails.

Table 1
Reform-level descriptive statistics.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Regional measures	Share of EU-imposed regulation	EU funded	Revenue impact		Expenditure impact	
				Share neutral	Amount (EUR)	Share neutral	Amount (EUR)
Public administration reforms	0.046	0.138	0.049	0.889	10,786	0.534	572,892
<i>N</i> = 621	12	35	12	171	165	208	178
Other structural reforms	0.181	0.090	0.191	0.664	26,571	0.284	436,915
<i>N</i> = 3620	150	67	135	702	589	996	771
<i>t</i> -Test in means	0.000	0.031	0.000	0.000	0.932	0.000	0.635

H0: no difference; *p*-value:

Table 2
Public administration vis-a-vis other structural reforms and governance indicators.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	<i>Government effectiveness (low-to-high)</i>				<i>Doing business (harder-to-easier)</i>			
	<i>t</i> + 1	<i>t</i> + 2	<i>t</i> + 1	<i>t</i> + 2	<i>t</i> + 1	<i>t</i> + 2	<i>t</i> + 1	<i>t</i> + 2
Public administration reforms	0.002 (0.003)	0.007* (0.004)			0.166* (0.098)	0.122 (0.107)		
All structural reforms			0.001 (0.001)	0.001 (0.002)			−0.020 (0.030)	0.031 (0.031)
GDP growth	0.004 (0.003)	0.003 (0.003)	0.004 (0.003)	0.003 (0.003)	−0.109* (0.063)	−0.132* (0.075)	−0.098 (0.063)	−0.134* (0.075)
Inflation	0.001 (0.005)	0.001 (0.006)	0.001 (0.005)	0.002 (0.006)	−0.010 (0.090)	0.039 (0.090)	−0.017 (0.091)	0.047 (0.093)
Log population	−1.279** (0.615)	−1.382** (0.667)	−1.251** (0.591)	−1.351** (0.639)	−29.041*** (10.373)	−31.454*** (9.818)	−31.320*** (10.086)	−31.254*** (9.897)
Working age population	0.029 (0.026)	0.017 (0.024)	0.028 (0.026)	0.017 (0.024)	−0.171 (0.860)	−0.284 (0.781)	−0.137 (0.860)	−0.326 (0.779)
Observations	269	257	269	257	227	221	227	221
R-squared	0.354	0.418	0.356	0.415	0.444	0.415	0.438	0.415
Countries	27	27	27	27	25	25	25	25
F	4.864	8.020	4.137	7.334	11.99	24.96	25.99	18.52

Notes: All regressions include country and time fixed effects (not reported). Standard errors (in parentheses) are clustered at the level of countries.

*** *p* < 0.01.

** *p* < 0.05.

* *p* < 0.1.

H3. Countries that benefit to a larger extent from EU cohesion spending should be more likely to reform their public administration.

A further learning-related reform driver might be the diffusion of the experience of other reformers (“horizontal learning”). Successful reform examples in other neighboring or similar countries will reduce ex ante reform uncertainty. In our context of public administration reforms, the resulting yardstick competition (Besley and Case, 1995) may also weaken the information asymmetries between voters/parliamentarians on the one hand and bureaucrats on the other hand.

H4. Efficiency enhancing administrative reforms in neighboring countries should increase the likelihood of domestic public administration reforms.

Our final hypothesis is one that is also frequently found in the literature on the political economy of economic reforms in general. The idea is to test for potential electoral cycles in the frequency of reforms, by examining whether public administration reforms are postponed from pre-election to post-election periods when political constraints are more relaxed.

H5. Efficiency enhancing administrative reforms are less (more) likely to take place in pre- (post-) election periods.

Testing these five hypotheses is our key interest in the subsequent econometric exercise for which we need an indicator for an efficiency enhancing public administration reform. We explain and describe our choice of indicator in the next section.

4. MICREF database of reforms

We construct our main variable of interest - the frequency of public administration reforms for each country and year - using qualitative information on microeconomic reforms across EU countries from the MICREF database.¹ MICREF collects data on

¹ MICREF is made publicly available by the European Commission at: http://ec.europa.eu/economy_finance/indicators/economic_reforms/micref/.

Table 3

Baseline results - the role of economic crisis and special interests in determining public administration reforms.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	Number of public administration reforms in year $t + 1$															
	Compensation share of employees in the administration								Compensation share of employees in the general government sector							
GDP growth	0.044 (0.033)	−0.028 (0.095)							0.041 (0.035)	−0.166** (0.079)						
x Size of bureaucracy		0.007 (0.009)								0.008*** (0.003)						
Unemployment rate			0.126*** (0.044)	0.328*** (0.127)							0.123*** (0.044)	0.716*** (0.231)				
x Size of bureaucracy				−0.020* (0.011)								−0.024*** (0.009)				
GG gross debt					0.033** (0.015)	0.071*** (0.021)							0.019** (0.009)	0.067** (0.028)		
x Size of bureaucracy						−0.003*** (0.001)								−0.002** (0.001)		
GG budget balance							−0.032 (0.052)	−0.038 (0.084)							0.007 (0.045)	−0.254 (0.159)
x Size of bureaucracy								0.001 (0.006)								0.010* (0.006)
Size of bureaucracy	−0.328* (0.191)	−0.307 (0.200)	−0.442** (0.192)	−0.203 (0.244)	−0.399** (0.186)	−0.205 (0.218)	−0.403** (0.165)	−0.397** (0.179)	−0.118 (0.102)	−0.117 (0.102)	−0.192** (0.095)	0.025 (0.133)	−0.154* (0.093)	−0.033 (0.118)	−0.133* (0.080)	−0.085 (0.085)
Log population	−3.949 (4.828)	−4.454 (4.930)	−4.107 (3.818)	−3.900 (3.776)	−1.983 (3.765)	−2.269 (3.591)	−3.833 (4.432)	−3.868 (4.449)	−2.755 (5.752)	−3.798 (5.967)	−2.984 (4.006)	−2.705 (3.782)	−2.581 (4.560)	−3.101 (4.658)	−2.044 (5.463)	−2.998 (5.538)
Working age population	0.024 (0.295)	0.043 (0.298)	0.066 (0.322)	0.077 (0.326)	0.099 (0.299)	0.134 (0.297)	0.005 (0.302)	0.005 (0.302)	0.034 (0.278)	0.037 (0.280)	0.102 (0.292)	0.059 (0.292)	0.093 (0.284)	0.110 (0.289)	0.018 (0.285)	−0.021 (0.283)
Observations	292	292	292	292	292	292	292	292	308	308	308	308	308	308	308	308
R-squared	0.214	0.215	0.229	0.233	0.224	0.228	0.213	0.213	0.210	0.214	0.225	0.236	0.215	0.219	0.208	0.213
Number of country	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
F	9.871	9.003	8.437	9.620	15.61	16.32	10.45	9.760	8.808	9.015	8.382	7.582	8.632	7.170	8.441	7.535

Notes: Table presents estimations of Eq. (1). All regressions include country and time fixed effects (not reported). Standard errors (in parentheses) are clustered at the level of countries.

*** $p < 0.01$.** $p < 0.05$.* $p < 0.1$.

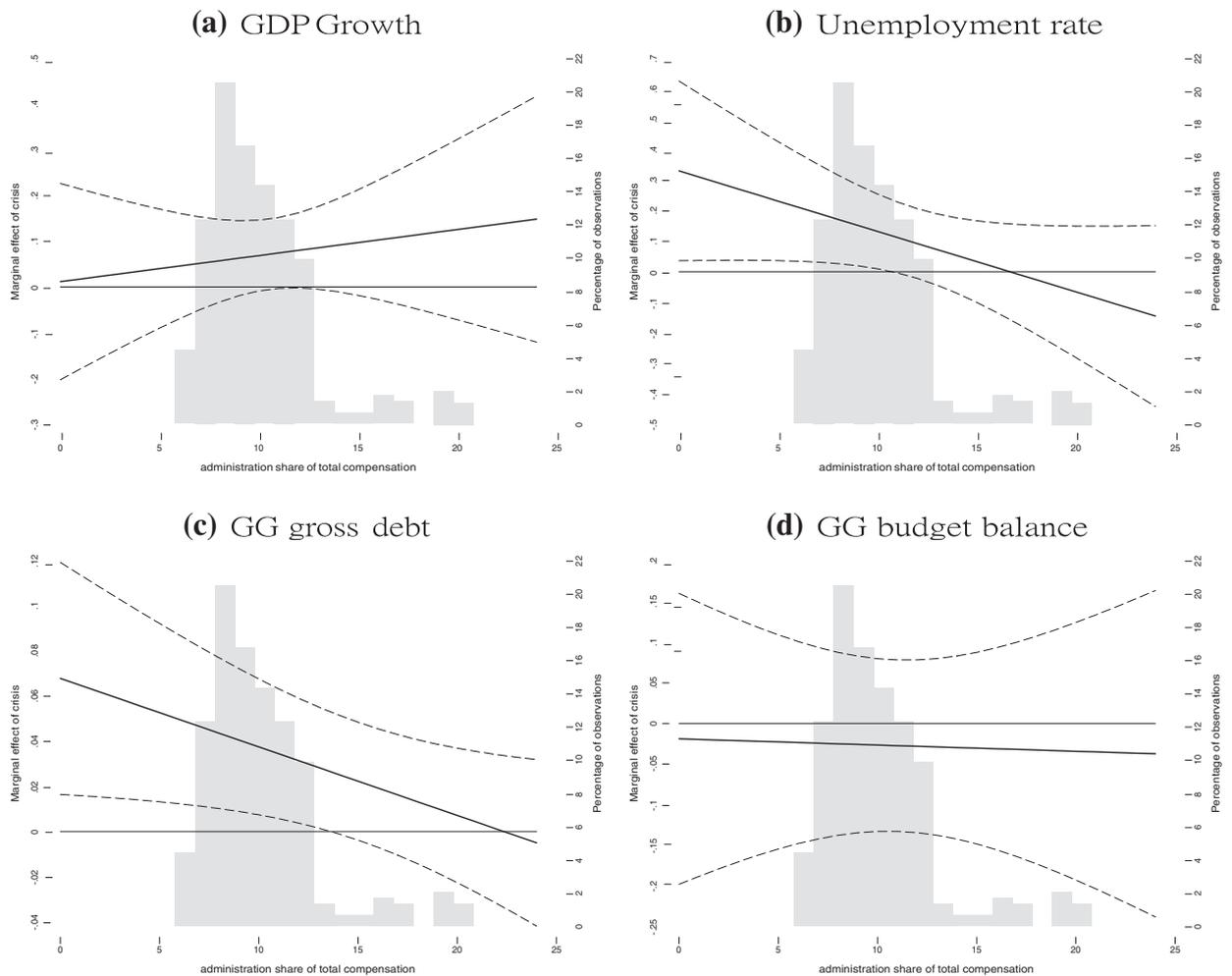


Fig. 1. Marginal effects of crisis variables on reform activity conditional on the compensation share of employees in the administration. *Notes:* Figures plot the marginal effects of crisis variables (GDP growth, unemployment rate, GG gross debt, GG budget balances) depending on the size of bureaucracy (measured as compensation share of employees in the administration, % of GDP). These relations plotted in (a), (b), (c) and (d) are estimated, respectively, in columns 2, 4, 6 and 8 of Table 3. The background-histograms present the distribution of the sample according to the size of bureaucracy.

various reforms hierarchically classified into policy domains, policy fields, areas of policy intervention, and, at the lowest level, into reform areas.² We select 13 reform areas that we think have a clear and direct relation with reforming the public administration. Appendix 2 lists the detailed descriptions of the reform areas that we classify as being directly relevant for reforming the public administration. We make this reform-level data (3620 reforms in total) and the relevant do-files for identifying public administration reforms (621 in total) as well as for generating all figures and tables of this paper available here. The sample covered is 2000–12 for EU-15 and 2004–12 for EU-27.³

As discussed in the introduction one novelty of this paper is to adopt count data on reforms rather than indicator based variables capturing the stringency of regulation and institutions. On the downside, the latter measures may perform better when making cross-time and -country comparisons since the level and change of indicators can have a similar economic interpretation. With count data the researcher is left to assume that, on average, two reforms are always better than one, without much consideration given to the weight attributed to reforms of different size and significance. Although MICREF is systematic dataset of reforms collected and coded in a unified framework, a second drawback that is usually also typical for qualitative datasets is that it cannot be completely ruled out that the reporting standards of the member states may differ.

However, despite these limitations, MICREF's data on the frequency of reforms offer a number of attractive features. First, these policy-oriented variables measure real policy changes while indicator-based reform variables are only indirect measures of reforms as they are usually derived by time-differencing the stock variables on the stringency of regulation and institutions. Second, compared to

² Details of the dataset are available at MICREF's user guide: http://ec.europa.eu/economy/finance/dbindicators/micref/documents/user_guide_en.pdf.

³ To visually illustrate the data on reforms, in Figs. 1 and 2 of the working paper version (Asatryan et al., 2015) we plot the yearly evolution of public administration (and their breakdown by topic) and all structural reforms for each country and their average for Europe.

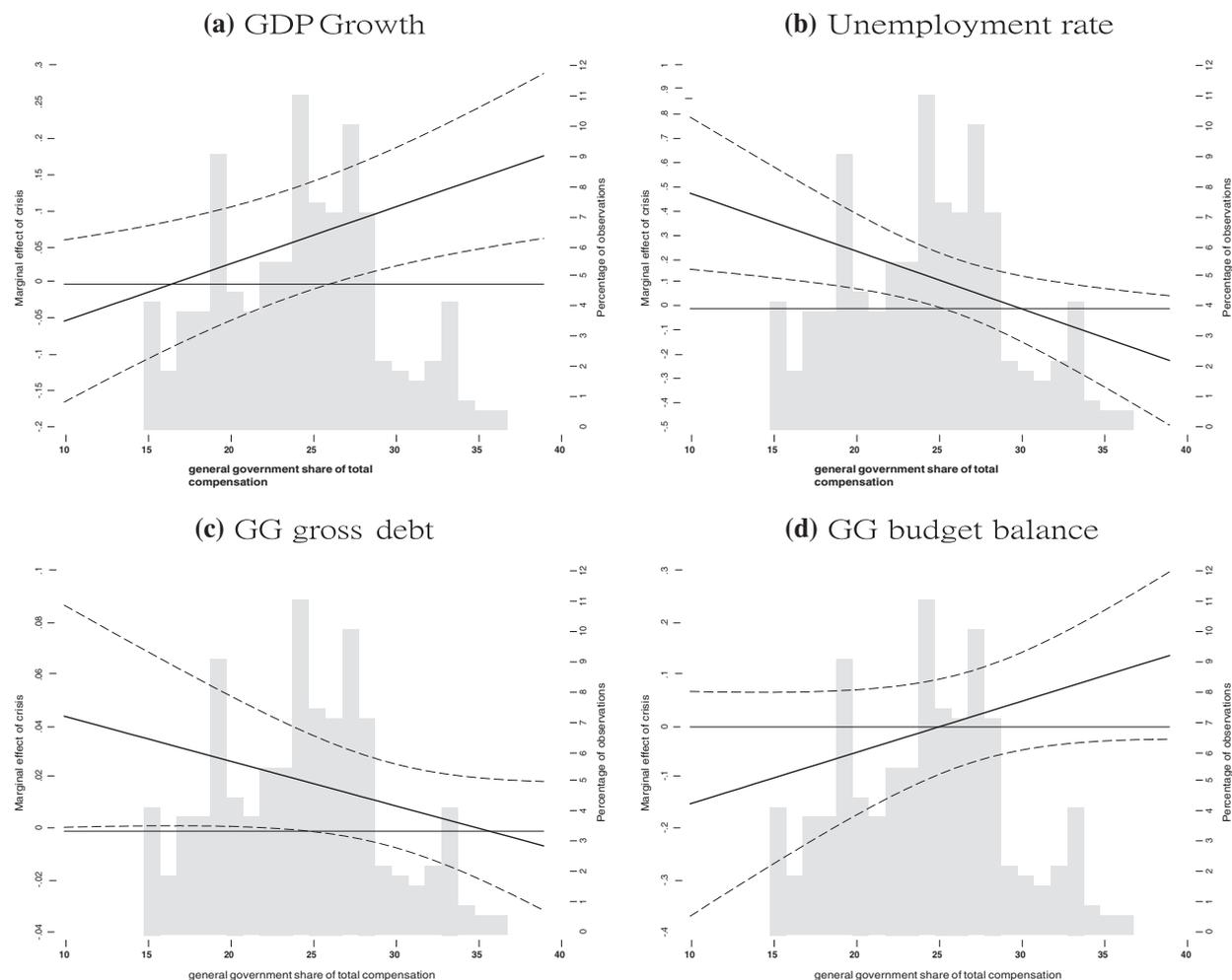


Fig. 2. Marginal effects of crisis variables on reform activity conditional on the compensation share of employees in the general government. *Notes:* Figures plot the marginal effects of crisis variables (GDP growth, unemployment rate, GG gross debt, GG budget balances) depending on the size of bureaucracy (measured as compensation share of employees in the general government sector, % of GDP). These relations plotted in (a), (b), (c) and (d) are estimated, respectively, in columns 10, 12, 14 and 16 of Table 3. The background-histograms present the distribution of the sample according to the size of bureaucracy.

survey based indicators, they are by construction less susceptible to fluctuations in the subjective expert assessments that are likely to be influenced by a country’s overall economic and political performance. Moreover, there appears to be a relatively rigid pre-selection process by the Commission as to which reforms are listed in the database. Therefore, our reform indicator is less output-distorted. Third, MICREF allows us to make a clear and transparent distinction between public administration and other reform areas. Since we are especially interested in analyzing the reform process, an additional advantage of MICREF is that it gives detailed reform-level information on specific policy measures.

Some reform-level information is summarized in Table 1 separately for public administration ($N = 621$) and all other structural reforms ($N = 3620$). Column 1 shows that on average public administration reforms are more likely to be of national scope rather than being regional measures. About every 7th reform in public administration is a transposition of EU regulation that is somewhat higher than in other reform areas (column 2), however the funding source of these reforms primarily comes from national sources (column 3). These differences between public administration and other reforms are statistically significant as indicated by the t -test in means (reported in the bottom row of Table 1).

It is also of interest to look at the (estimated) direct budgetary impact of reforms. Columns 4 and 6 of Table 1 show that public administration reforms are more often cost-neutral for the budget. The average expenditure impact of public administration reforms in cases where these are not cost-neutral amounts to about 570 thousand EUR (column 7). This is somewhat higher than the direct cost of other types of reforms, but the difference is not statistically significant.

Before proceeding to our main analysis, in the remainder of this section we run first-stage regressions to check for a possible correlation between our newly created reform measures and conventional efficiency indicators. As our independent variable we take two indices provided by the World Bank: the Ease of Doing Business indicator and the Government Effectiveness index

Table 4
Robustness of baseline results to non-linear estimation and to placebo reforms.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	
	Conditional fixed-effects Poisson model								Linear fixed-effect model								
	Public administration reforms in year t + 1								Placebo: All reforms in year t + 1								
GDP growth	0.027 (0.019)	−0.039 (0.053)							0.112 (0.123)	0.214 (0.366)							
x Comp admin employees		0.007 (0.005)								−0.011 (0.035)							
Unemployment rate			0.056*** (0.016)	0.230*** (0.086)							0.264** (0.131)	0.517 (0.424)					
x Comp admin employees				−0.017** (0.008)								−0.025 (0.033)					
GG gross debt					0.019** (0.009)	0.050*** (0.016)							0.114*** (0.044)	0.057 (0.095)			
x Comp admin employees						−0.003** (0.001)								0.005 (0.0006)			
GG budget balance							−0.010 (0.029)	−0.025 (0.058)								0.022 (0.155)	0.304 (0.364)
x Comp admin employees								0.002 (0.005)									−0.029 (0.030)
Comp admin employees	−0.181** (0.091)	−0.182** (0.091)	−0.225** (0.089)	−0.021 (0.129)	−0.231** (0.090)	−0.099 (0.097)	−0.224*** (0.083)	−0.212** (0.084)	−0.515* (0.659)	−0.544 (0.664)	−0.770 (0.686)	−0.472 (0.693)	−0.729 (0.634)	−1.021 (0.739)	−0.579 (0.649)	−0.859 (0.662)	
Log population	−3.169 (3.149)	−3.485 (3.080)	−2.356 (2.155)	−1.981 (2.144)	−1.229 (2.491)	−1.049 (2.169)	−2.685 (2.686)	−2.732 (2.656)	−29.069 (18.641)	−28.352 (19.195)	−29.187 (18.291)	−28.927 (18.392)	−22.768 (16.507)	−22.337 (16.854)	−27.557 (18.789)	−25.957 (19.413)	
Working age population	0.069 (0.135)	0.077 (0.136)	0.110 (0.145)	0.084 (0.152)	0.140 (0.141)	0.159 (0.139)	0.062 (0.133)	0.064 (0.133)	0.835 (0.977)	0.807 (0.999)	0.916 (1.060)	0.929 (1.050)	1.113 (1.003)	1.061 (1.013)	0.782 (0.995)	0.736 (1.002)	
Observations	292	292	292	292	292	292	292	292	292	292	292	292	292	292	292	292	
Countries	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	
R-squared									0.364	0.364	0.368	0.369	0.374	0.375	0.362	0.364	
F									37.91	60.65	31.22	35.22	24.17	40.49	36.08	108.3	

Notes: Table presents estimations of Eq. (1) using a conditional fixed-effects Poisson estimator in columns 1–8, and an OLS estimator in columns 9–16. All regressions include country and time fixed effects (not reported). Standard errors (in parentheses) are clustered at the level of countries.

*** $p < 0.01$.

** $p < 0.05$.

* $p < 0.1$.

Table 5

Test for reverse causality.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Compensation share of employees in the administration in year:											
	<i>t</i>	<i>t</i> + 1	<i>t</i> + 2	<i>t</i>	<i>t</i> + 1	<i>t</i> + 2	<i>t</i>	<i>t</i> + 1	<i>t</i> + 2	<i>t</i>	<i>t</i> + 1	<i>t</i> + 2
	−0.008 (0.017)	−0.006 (0.015)	0.017 (0.018)									
All PA reforms												
Positive-cost PA reforms				0.048 (0.054)	0.010 (0.074)	−0.100 (0.075)						
Negative-cost PA reforms							−0.132* (0.075)	−0.043 (0.031)	0.043 (0.050)			
Neutral-cost PA reforms										0.000** (0.014)	−0.022*** (0.014)	0.014 (0.029)
Observations	313	286	258	313	286	258	313	286	258	313	286	258
R-squared	0.259	0.278	0.359	0.258	0.277	0.359	0.270	0.279	0.359	0.258	0.279	0.358
Countries	27	27	26	27	27	26	27	27	26	27	27	26
F	39.82	55.63	72.54	42.52	59.33	73.83	52.57	38.84	81.24	42.83	71.92	83.70

Notes: All regressions include country and time fixed effects (not reported) and control for unemployment, GG gross debt, log population and share of working age population (not reported). Standard errors (in parentheses) are clustered at the level of countries.

*** *p* < 0.01.

** *p* < 0.05.

* *p* < 0.1.

from the World Governance Indicators. We then regress these indicators on the number of public administration and other reforms defined by MICREF conditional on several macro-economic controls.

The estimates collected in Table 2 provide suggestive evidence that the number of administrative reforms in year *t* is positively correlated (but statistically significant only at the 10% level) both with the Government Effectiveness index (in year *t* + 2; column 2) and the Ease of Doing Business index (in year *t* + 1; column 5). Further, by running similar regressions with reforms in other policy fields (columns 3–4 and 7–8) we find that this link is observed only for the case of public administration reforms and not for other types of structural reforms. This exercise justifies our confidence that MICREF is of particular informational value in assessing the efficiency enhancing reform activity across European public administrations.

5. Empirical strategy

Our baseline specification takes the following form:

$$PublicAdminReforms_{it} = \alpha_1 + \alpha_2 * Crisis_{it} + \alpha_3 * AdminSize_{it} + \alpha_4 * Crisis_{it} * AdminSize_{it} + \alpha_5 * Controls_{it} + \mu_i + \eta_t + \varepsilon_{it} \quad (1)$$

where the dependent variable is the number of public administration reforms in country *i* at time *t*. *Crisis* are a number of crisis-variables of interest entering the equation one-by-one: GDP growth rate, unemployment rate, general government gross debt, and general government primary budget balances. *AdminSize* captures the size of the administration. In the baseline specifications we measure public administration size as the compensation share of employees in the core sectors of government administration.⁴ We prefer the wage bill figures to data on public employment, as internationally comparable data on government employment are of a slightly questionable quality for some countries due to substantial differences in counting and collection methods. For the purpose of robustness tests we alternatively use the compensation share of employees in the general government sector (GG) according to the SNA95 categorization (rather than the core administration, which is a narrower definition of bureaucracy). *Controls* is a vector of independent variables with α_5 being a vector of parameters of the same dimension. μ_i represents a full set of country fixed effects to account for unobserved heterogeneity across countries, η_t are time fixed effects to capture time-specific shocks affecting all countries similarly, and ε_{it} is the error-term. The summary statistics along with short descriptions and sources of the employed variables are presented in Table A1 of the Appendix.

We apply a panel OLS with two-way fixed effects to estimate our baseline equation. Although our independent variable is categorical (and not continuous), in the baseline estimations we refrain from applying non-linear count data models. The main reason is that within estimators for ordered categorical variables require the application of a recoding strategy to reduce the independent variable to a binary variable.⁵

⁴ In this definition we stick to the classification of core administrative functions according to NACE Rev. 2, Section O\Public administration and defense; compulsory social security. This explicitly excludes functional spending on health or education services.

⁵ For a review, see, Geishecker and Riedl (2014), and for such a recently developed method, see, Baetschmann et al. (2014).

Table 6
EU transfers and spatial determinants of public administration reforms.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	Vertical learning										Horizontal learning					
Number of public administration reforms in years:																
	<i>t</i>	<i>t + 1</i>	<i>t</i>	<i>t + 1</i>	<i>t</i>	<i>t + 1</i>	<i>t</i>	<i>t + 1</i>	<i>t</i>	<i>t + 1</i>	<i>t</i>	<i>t + 1</i>	<i>t</i>	<i>t + 1</i>	<i>t</i>	<i>t + 1</i>
Total structural actions	0.154 (0.296)	-0.194 (0.283)														
Structural funds			-0.226 (0.331)	0.295 (0.290)												
Str. funds convergence obj.					-0.361 (0.315)	0.229 (0.297)										
Cohesion funds							-1.556 (1.274)	0.134 (1.196)								
Str. funds technical assistance									-19.364 (15.561)	47.301*** (13.893)						
Spatial reforms (weighted by distance & p.c. GDP)											0.134*** (0.025)	-0.042* (0.023)				
Spatial PA-reforms (weighted by distance & p.c. GDP)													0.701*** (0.138)	0.379** (0.154)		
Spatial PA-reforms (weighted by distance & efficiency)															0.732*** (0.142)	0.135 (0.121)
Observations	299	278	248	248	248	248	248	248	248	248	313	292	313	292	313	292
R-squared	0.200	0.200	0.268	0.219	0.269	0.219	0.271	0.218	0.268	0.224	0.096	0.013	0.108	0.027	0.138	0.011
Countries	26	26	27	27	27	27	27	27	27	27	27	27	27	27	27	27
F	6.736	10.25	7.140	9.249	6.281	8.354	6.294	10.17	8.041	25.56	8.807	1.949	7.055	2.166	7.543	1.033

Notes: All regressions include country and time fixed effects (not reported) and control for log population, share of working age population and compensation share of employees in the administration (not reported). Standard errors (in parentheses) are clustered at the level of countries.

*** $p < 0.01$.

** $p < 0.05$.

* $p < 0.1$.

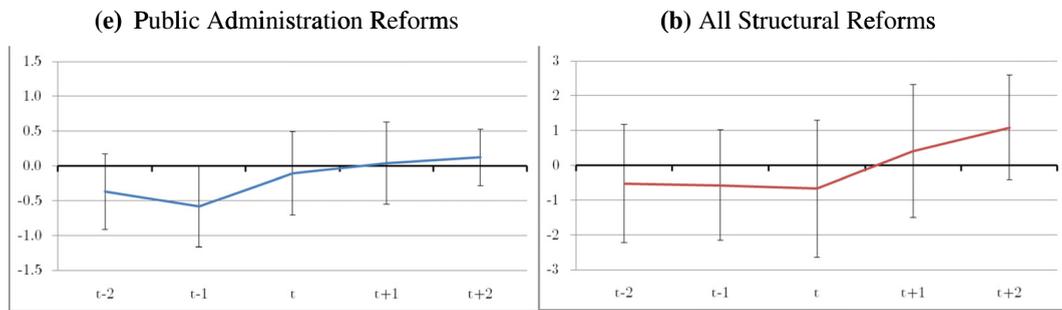


Fig. 3. Electoral cycles in reform-activity. (a) Public Administration Reforms (b) All Structural Reforms Notes: Figure plots the point estimates of election dummies in years $t - 2$ to $t + 2$ along with 10% confidence intervals. These are obtained from the estimation of the baseline model of Equation 1 by additionally including dummies for the years around elections. In Panel A (B) the dependent variable is public administration reforms (all structural reforms), $N = 192$ (192), $R^2 = 0.253$ (0.353), $F = 3.462$ (14.77). As in the baseline, all regressions include country and time fixed effects (not reported) and control for log population, share of working age population and compensation share of employees in the administration (not reported). Standard errors are clustered at the level of countries.

Since it is crucial to control for individual unobserved heterogeneity, we simply specify a fixed effects linear model, thereby avoiding the latter simplification of the reform variable. We are also mainly interested in the relative effects (rather than absolute size of parameter estimates) so that a linear approximation of the (possibly non-linear) underlying true model does not seem to be too restrictive. In this way, we also follow the practical approaches taken, for example, by Di Tella et al. (2001), Scheve and Slaughter (2004) and Senik (2004). Nevertheless, as a robustness test we also estimate the baseline equation with a conditional fixed-effects Poisson model.

6. Results

6.1. Main results

The baseline results are collected in Table 3, where we find strong support for our two central propositions. First, in line with hypothesis H1, we find that the size of the bureaucracy in year t is significantly negatively correlated with the number of public administration reforms in year $t + 1$. This result holds for both measures of bureaucracy, which are the compensation share of employees in the core public administration (columns 1–8) and in the general government (columns 9–16).

Second, we also have some evidence that economic and financial crises induce more administrative reforms. This relation holds consistently for two of our crisis measures, unemployment rate (columns 3–4 & 11–12) and general government gross debt (columns 5–6 & 13–14) – but not for GDP growth and general government budget balance. A possible explanation could be that low GDP growth and higher budget deficits may be only temporary, whereas higher unemployment and government debt figures can indicate more permanent problems. Hence, politicians are more likely to respond with reforms to the latter.

Third, in line with the hypothesis H2 we see that high unemployment and debt are more effective in inducing reforms the smaller the size of the bureaucracy. The marginal effects of the crises variables on reform activity depending on the compensation share of employees in the administration are plotted in Fig. 1. GDP growth and budget balances do not seem to have an effect on reform activity that is significantly different from zero conditional on the size of public administration. On the other hand, unemployment and debt do have a significantly positive conditional effect on public administration reforms when the administration's share of total compensation is below-average (Fig. 1 b & c). This also holds when using the general government's share of total compensation as an alternative proxy for the size of the bureaucracy (Fig. 2).

6.2. Robustness tests

We report the results of robustness tests of our baseline results in Table 4. In columns (1)–(8) we estimate a non-linear version of the baseline equation using a conditional fixed-effects Poisson model since our reform indicator is a count variable. The previous results – related to the positive association of crisis variables with the frequency of public administration reforms and the conditionality of this relationship on the size of the bureaucracy – are confirmed. In columns (9)–(16), as a placebo we take all reforms from MICREF – not just public administration reforms – as the dependent variable. While we observe that higher unemployment and debt are significantly associated with more reforms in other policy areas (columns 11 & 13), in line with a crisis explanation, the size of the public administration is not a significant driver of reforms anymore. The evidence may suggest that the bureaucracy as a special interest group opposes only those reforms that clearly fall under the subject matter of its own self-interest.

Reverse causality between reforms and size of the bureaucracy may be of further concern. That is, the compensation share of employees in the administration may decrease if the efficiency-increasing public administration reforms involve government

wage bill cuts. Our data allows for testing this proposition directly. As described in Table 1, reforms can be distinguished according to whether they are expected to result in positive, negative, or neutral costs for the budget. In Table 5 we regress these three types of reforms one-by-one on our main variable capturing the size of the bureaucracy. As expected, public administration reforms with positive budgetary costs have a positive sign in the first two years (columns 4–6) while reforms that imply positive savings for the budget have a negative sign (columns 7–10). However, only the latter correlation is statistically significant and only so for a contemporary relation (column 7). We do not find evidence that either allegedly cost-neutral reforms (columns 10–12) or all public administration reforms taken together (columns: 1–3), affect the wage bill of the administration.

While in Table 5 we find some evidence that public administration reforms that imply budgetary savings may actually aim at reducing the size of the administration, this effect seems to take place in the same year the reform was implemented and does not carry on to the proceeding years. Also taking into account that such reforms only make up a small fraction of public administration reforms, we conclude that, in general, reverse causality does not appear to be the driver of the main results presented in Section 6.1.

6.3. Extensions

In Table 6 we look at vertical and horizontal learning to test our hypotheses H3 and H4. In columns (1)–(10) we study vertical learning and test whether EU transfers increase administrative reform activity. Here, we differentiate between four different aggregates of EU cohesion spending: first, the total amounts of structural spending, second, the expenditure of structural funds only, third, the more limited spending on the convergence objective benefiting only the poor regions and, fourth, a tiny single spending item concerning technical assistance to member states. Interestingly, only for the latter category, which is on average <0.15% of GDP, there is a significant effect. By contrast, a receipt of higher amounts of cohesion spending in total is not significantly associated with more public administration reform activity.

In parallel with this vertical learning we also find some evidence for horizontal learning. We calculate spatial indicators of reform activity in other EU countries weighted by distance and per capita GDP (columns 11–14) and, alternatively, by distance and the public sector efficiency measure developed by Afonso et al. (2005) (columns 15–16). The evidence hints at significant positive spatial spillovers from other EU countries for reform activity in general, and for public administration reforms in particular.⁶

Fig. 3 tests for electoral cycles in the frequency of both public administration and other structural reforms, a hypothesis formulated in H5. We re-estimate the baseline model specified in Equation 1 by additionally including dummies for years $t - 2$ to $t + 2$ around national elections. Consistent with the literature on political economy of reforms, we find less reform activity in pre-election years both for public administration (panel a) and other structural reforms (panel b). However, the pre-election negative effect is statistically significant only in the case of public administration reforms, and only weakly significant at the 10% level.

7. Conclusion

This is the first study that explores the determinants of efficiency enhancing public administration reforms. The experience in the European crisis countries has pointed to an ineffective public sector as one of the crucial impediments to economic recovery. Accordingly, a better understanding of the constraints of administrative reforms is highly desirable. Our results indicate that, unlike in other reform contexts, it cannot be taken for granted that a crisis prepares the ground for overcoming institutional deficiencies. At least if the bureaucracy is large and powerful, the crisis–reform link is absent in the context of public administration reforms. The result for the role of EU cohesion spending is suggestive, although further research is required: There is some evidence that it is not large amounts of structural funds that appear to increase the frequency of efficiency enhancing reforms within the public administration, but a better targeted item of cohesion spending that matters. This supports the view that EU structural funds, with their preoccupation with physical infrastructure, may have neglected the bottleneck of deficient administrative capacities in the recipient countries.

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Appendix A. Additional material

The data and do-files of this paper are available at: <http://ftp.zew.de/pub/persons/ZarehAsatryan/micref/>

⁶ This evidence is also robust to other weighting schemes, such as population size. Note that in these models of horizontal learning we leave out the time fixed effects as they are likely to be correlated with the spatial reform variables.

Appendix B

Table A1

Summary statistics.

Variable	Description	Obs	Mean	Std.Dev.	Min	Max	Source
<i>Reform variables:</i>							
Public administration reforms	Number of PA reforms per year-country	336	1.848	2.007	0	15	MICREF
All structural Reforms	Number of reforms per year-country	336	12.62	7.409	1	51	–
<i>Reforms on:</i>							
Competition	Per year-country reforms in policy field competition	336	0.494	0.799	0	5	–
Education	Per year-country reforms in policy field education	336	2.214	2.343	0	13	–
Business environment	Per year-country reforms in policy field business environment	336	3.408	3.213	0	25	–
Integration	Per year-country reforms in policy field integration	336	0.637	0.877	0	6	–
R&D	Per year-country reforms in policy field R & D	336	3.003	2.823	0	17	–
Sectors	Per year-country reforms in policy field sector-specific regulation	336	2.107	2.582	0	18	–
Start-ups	Per year-country reforms in policy field start-up conditions	336	0.759	1.001	0	5	–
<i>Crisis variables:</i>							
GDP growth	GDP growth rate in %	336	2.027	3.775	–17.95	12.23	WDI
Unemployment rate	Unemployment rate in %	336	8.264	3.748	1.9	26.1	WDI
GG gross debt	Government consolidated gross debt in % of GDP	336	55.15	29.83	3.7	170.3	QOG (Gothenburg U)
GG budget balance	Net lending/borrowing in % of GDP	336	–2.677	3.932	–30.6	7	–
<i>Size of bureaucracy variables:</i>							
Compensation administration employees	Compensation share of employees in the administration in total compensation in %	313	10.07	2.87	5.8	20.6	OECD
Compensation government employees	Compensation share of employees in the general government in total compensation in %	335	24.29	4.891	14.73	36.81	–
<i>EU-transfers:</i>							
Total structural actions	Total annual structural funds as share of GDP in %	321	0.447	0.572	0.0001	2.516	EU budget financial Reports 2007–2013
Structural funds	Total annual structural funds except “cohesion funds” as share of GDP in %	258	0.286	0.4	0	2.296	–
Str. funds convergence obj.	Total annual str. funds convergence objective as share of GDP in %	258	0.238	0.389	0	2.236	–
Cohesion funds	Total annual cohesion funds as share of GDP in %	258	0.073	0.13	0	0.721	–
Str. funds technical assistance	Total annual str. funds technical assistance as share of GDP in %	258	0.001	0.004	0	0.044	–
<i>Spatial reform variables:</i>							
Spatial reforms	Spatial lag reforms in other EU countries, weighted by distance and p.c. GDP	336	12.7	4.06	3.37	21.5	MICREF, own cal.
Spatial public. admin reforms	Spatial lag PA reforms in EU countries, weighted by distance and p.c. GDP	336	1.76	0.82	0.33	4.42	–
Spatial public. admin reforms	Spatial lag PA reforms in EU countries, weighted by distance and public sector efficiency	1.82	0.91	0.43	4.53	336	–
<i>Other variables:</i>							
Government effectiveness	Government effectiveness estimate	296	1.241	0.623	–0.356	2.357	WB-WGI
Doing Business overall	Doing Business overall distance to frontier	232	71.03	8.852	46.91	87.12	WB Doing Business
Inflation rate	Inflation rate in %	336	2.766	2.741	–3.827	20.3	WDI
Ln population	Natural logarithm of population size	336	15.95	1.415	12.9	18.23	WDI
Working age population	Working age population (share of 15–64 in total) in %	336	67.67	1.871	63.76	72.57	WDI
Election year	Presidential or Legislative election held	312	0.317	0.466	0	1	DPI

Appendix C. Classification of public administration reforms

1. Reducing administrative and financial burdens for start-ups in general: Measures not specifically addressing ‘One-stop contact points’, ‘Costs for setting up a business’, ‘Minimise start-up requirements’ or ‘Capital requirements’.
2. One-stop contact points: Measures aimed at creating/improving one-stop contact points. One-stop points are expected to reduce the number of walks to public institutions to set up a business (“shoelace costs” for entrepreneurs) and/or to deliver documents related to the start-up of a business, e.g. the electronic delivery of documents.

3. Minimise start-up requirements: Measures related to changes or simplification of mandatory procedures during the pre-registration and registration phase of an enterprise or a public limited company. Examples are requirements to obtain specific certificates, registration of domicile of a business, founding deeds, approval by authorities (tax agencies, commercial court), notification of tax offices, VAT offices, statistical offices, local authorities of registration, registration with trade association/chamber of commerce, legal announcement. These factors usually determine the days needed to set-up a business.
4. Efficiency of the legal system in general: Measures not specifically addressing 'Enforcement of contracts' or 'Speedy settlement'.
5. Enforcement of contracts: Measures that: (i) clarify responsibilities between different federal levels of legislation; (ii) simplify and strengthen enforcement procedures (such as improvement of the prosecution system and legal aid); (iii) clarify existing legislation; (iv) combat late payments in commercial transactions; (v) ease the access to courts (e.g. reduction of court fees and reimbursements, compensation procedures).
6. Speedy settlement: Measures aimed at increasing the speed of settlements such as acts on accelerating legal procedures. Measures to increase the capacities of the legal system (more effective organization of courts, introduction of e-Government tools in the judicial system) are also recorded here.
7. Administrative regulation in general: Measures not specifically addressing 'Measuring and/or reducing administrative costs', 'Improving the quality of regulations', 'E-Government' or 'Rationalising public administrative services'.
8. Improving the quality of regulations: Concrete measures aimed at simplifying and clarifying the existing legislation or making it more efficient (e.g. "Better regulation programmes"). Preliminary steps, such as an undertaking of a regulatory impact assessment, could also be registered here.
9. E-Government: Measures aimed at expanding the government's use of ICT (information and communication technologies) to exchange information and services with enterprises (e.g. establishment of platforms for the submission of electronic documents); also named Government- to-Business (G2B) e-Government. The most important anticipated benefits of e-Government applied to the administration include improved efficiency, convenience and better accessibility. A number of e-Government measures are not to be recorded under this category.
10. Rationalising public administrative services: Measures directed towards achieving economies of scale within the public administration such as reforms of the size/number of municipalities and regions, and clarifying responsibilities between different governmental levels. Moreover, measures aimed at expanding the government's use of ICT to exchange information and services with other arms of government (i.e. Government-to-Government (G2G) initiatives such as common information exchange networks for several institutions).
11. Simplification of tax system: Measures aiming to reduce the time and cost of complying with fiscal obligations. These can be measures reducing the administrative burden related to taxation procedures such as delivering tax documents by electronic means (e-taxation).
12. Systematic monitoring: Establishment of monitoring institutions, monitoring procedures or evaluation methods for R&D activities.
13. Modernisation of the management: These are measures that (a) modernise the public R&D agencies, (b) establish or reform advisory bodies on R&D, (c) modernise the management of research institutions and universities.

Source: MICREF Database.

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