Institutional Quality and Capital Inflows: Theory and Evidence*

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Abstract

This paper analyzes, both theoretically and empirically, the link between capital inflows and the quality of economic institutions. To this purpose, we construct a small-open economy model of the "soft budget constraint" syndrome wherein persistently cheap funding from abroad (i) raises the prevalence of extractive projects and (ii) expands their support by the (benevolent) government *ex post*. While the government may in principle limit the prevalence of extractive projects *ex ante*, the incentives to do so is limited when foreign borrowing is cheap. Using a large sample of countries, and controlling for reverse causality and omitted variable bias, we confirm empirically that capital inflows are followed by a decline in the quality of domestic economic institutions. Our model and empirical analysis help explain the divergence between southern European countries (Spain, Portugal, Italy and Greece) and the rest of OECD countries since the mid-1990s.

Keywords: Institutions, current account.

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1 Introduction

Institutions, broadly defined as the set of rules and constraints that shape economic behavior and incentives, are a key determinant of economic development.[1] But institutions are also known to be at least partly endogenous to economic conditions, and notably to the incentives that agents face.[2] In the specific context of open economies, the importance of having appropriate economic institutions domestically is often seen as a precondition for capital inflows to lead to balanced economic activity and stable long-run growth. However, little is known about the reverse impact of capital inflows on local economic institutions.

In this paper, we analyze the link between capital inflows and the quality of local economic institutions. We provide a theoretical model of this link, and then proceed to take the model to the data. The main prediction of the model is that capital inflows affect the quality of institutions *negatively*; a prediction that, according to our empirical investigations, is supported by the evidence.

Attempting to understand the relation between capital inflows and the quality of economic institutions raises two challenges. The first one is theoretical: in the context of open economies, capital inflows are generally conceived as a relaxation of the borrowing constraints faced by domestic residents, that is, as a reduction in the credit frictions they face; how can improvements in credit conditions have potentially deleterious effects on the domestic economy, via lower institutional quality? The second challenge is empirical: given that capital flows are also likely endogenous to the quality of institutions, how can one disentangle the two-way causality running between the two?

We take up the first challenge by interacting the borrowing constraint faced by domestic residents in international capital market with a *soft budget constraint syndrome* generating domestic investment distortions. Soft budget constraints arise when the government has limited ability to commit to future policies and, more specifically, limited ability to commit *not* to refinance the inefficient projects undertaken by domestic residents. This distorts investment decisions domestically because entrepreneurs expecting to be bailed out *ex post* are more likely to launch inefficient investment projects *ex ante* –as the losses on them are expected to be socialized. While initially identified in the context of planned economies, the soft budget constraint syndrome has soon been recognized to be a generic investment friction potentially plaguing any economy –developed, developing and transition alike.[3] As far as we

[1] **?** notoriously defined institutions as the "humanly devised constraints that structure political, economic and social interactions", whether these constraints be formal ("constitution, laws, property rights") or informal ("sanctions, taboos, customs, traditions and codes of conduct").

[2] See, e.g., **?????**

[3] See **????**

are aware, however, studies of the soft budget constraint syndrome have essentially focused on closed economies, bypassing the fact that much domestic investment –including inefficient investment– comes from international capital flows. Symmetrically, open economy models obviously give a central role to capital flows, but they typically abstract from soft budget constraints at the domestic level. Our formal analysis suggests that the *interactions* between those two frictions may explain the deleterious effect of capital inflows on the quality of institutions, because the *relaxation* of the borrowing constraint may lead to a *worsening* of the soft budget constraint syndrome.

To be more specific, in our model the domestic economy is endowed with a fraction of *extractive* projects, that is, projects that are beneficial to their owners but only at the expense of other agents –and are thus socially inefficient. Extractive projects are ex-ante indistinguishable from socially efficient projects and the government has a limited ability to commit not to rescue extractive projects once their true type is revealed. When the government rescues an extractive project, the agent (public or private) running the project appropriates the benefits, while the government can compensate the losses incurred by the other agents. Had the government the ability to commit not to rescue extractive projects, domestic agents would have no incentives to run them in the first place (i.e., because they would adequately internalize the potential losses). Extractive projects and the benefits that agents derive from them can be understood as the gains from diverting public funds into private pockets and, more generally, as the lack of enforcing contracts or well defined property rights. We interpret the equilibrium share of extractive projects undertaken by domestic agents as proxy for the level of institutional quality, and we allow the government to limit the number of extractive projects that can be undertaken, at some cost.[4] For a given institutional setup (an ex-ante fraction of extractive projects, a technology for limiting the prevalence of such projects, and its associated costs), we analyze how external financing conditions affect the equilibrium share of extractive projects, our proxy for the *equilibrium* quality of institutions. We show that a persistently low world interest rate reduces the cost of rescuing extractive projects and hence induces more agents to run them in the first place; that is, institutions *worsen* following easier borrowing conditions.

Our theoretical analysis has several distinctive testable implications about the link between capital inflows and institutional quality, which we spell out and examine in the data. Using large panels of countries over the period for which the data on institutional quality is available,

[4]We think of this cost not only as a direct pecuniary cost (e.g., the cost of implementing an effective legal and judicial system, of maintaining efficient regulatory and supervisory authorities in competition, banking, etc.) but also as less direct, non-pecuniary cost such as the political cost of reducing future politicians' discretion.

we confirm that persistent capital inflows are systematically followed by a decline in the quality of domestic institutions.[5] In undertaking this empirical investigation, we tackle the second challenge mentioned above, namely, that of measuring the causality running form capital inflows to the quality of institution, purged from reverse causality and omitted variable bias. In order to do so we deploy an empirical strategy that (i) examines a wide variety of dimensions of institutional quality; (ii) shows that capital inflows unambiguously *lead* the decline in institutional quality –and not the other way around. To robustly show point (ii), we use different strategies to identify exogenous variations in capital inflows. In particular, we use fixed exchange rate regimes, past values of the level of institutional quality, and regional capital inflows into the surrounding countries. Our empirical findings are robust across a number alternative econometric specifications, suggesting that our results are not purely driven by the endogeneity of capital inflows to institutional quality.

We conclude our study by focusing on a particular region, the euro area, which is of particular interest for two reasons. First, several southern European countries (Spain, Portugal, Italy and Greece) experienced sharp relaxations of their borrowing constraints and large capital inflows in the run up to, and creation of, the euro currency –a sequence of events that was arguably exogenous to any of these countries taken individually. Second, these countries experienced a marked decline in the quality of their institutions thereafter. Importantly, we document that the deterioration of domestic institutions in those countries shows up in a broad range of indicators, starts well before the financial crisis of 2008, and has no parallel anywhere else in the rest of Europe, or more generally in OECD countries, over the period under consideration.[6] Therefore, the causal mechanism at work in our model may be part of the explanation for the relatively poor economic performance of these countries over the last two decades.

This paper contributes to the literature on institutions and economic outcomes by documenting the adverse effect of large and persistent capital inflows on the quality of domestic institutions. In particular, it is related to the papers studying the impact of windfalls on the quality of institutions, economic performance or economic reforms. **?**, **?** and **?** discuss incentives to reform when the budget constraint of the government is relaxed thanks to foreign aid (see also **?**, for evidence of the impact of external debt on the economic reforms). **?** investigate how monetary unions can lead to free-rider problems where countries may be

[5] We use various data sources, including multiple measures of institutional quality, all of which are part of the Quality of Governance Database compiled by **?**.

[6] Our empirical findings are in line with the narrative of **?**, who argue (mostly informally) that capital inflows lie behind the poor performance of southern European countries starting in the early 1990s. Ireland did receive capital inflows without experiencing an institutional decline, but these inflows took the form of FDIs rather than portfolio investment. We discuss this difference in the paper.

incentivized to follow lax non-monetary policies.

Our work also relates to a number of papers that study commodity booms and discuss whether the revenues associated with commodity windfalls lead to weaker institutions and lower economic growth. **?** suggest that resource abundance can lead to a deterioration of institutional quality and economic growth. **?** and **?** document the poor economic performance of countries like Nigeria, Venezuela and Mexico after having benefited from large oil windfalls. Using cross-country data, **?** document that large rents from natural resources can increase domestic corruption. **?** suggest that high commodity rents make it easier for dictators to reduce political competition. There is also evidence suggesting that the overall effect of commodity booms depends on the initial level of institutions. **?** argue that the high growth rates in per-capita income in Botswana in the middle of a commodity boom are explained by good institutions. **?** argue that the resource curse depends on the initial level of institutional quality, while **?** suggest that the rents created by the commodity windfall can exacerbate inefficiencies in the domestic economy. **?**, **?** and **?** study the adverse effects of foreign aid on domestic institutions and growth. **?** provide an example of institutional reversal leading to a sudden worsening of economic prospects, namely that which occurred in Turkey after the collapse of the Turkey-EU relations in the mid-2000s. Similar to these lines of work, we study how institutional quality responds to economic conditions, though our focus in on external borrowing.

Also different from this literature we study a model in which external financing interacts with a soft budget constraint. The "soft budget constraint syndrome" was initially identified by **?**, who argued that even profit-maximizing state-owned firms in socialist economies could safely anticipate to be bailed out *ex post*. **?** showed that the same syndrome could arise in capitalist economies whenever some centralization of credit provision is at work.[7] **?** also establish, in a different context, a connection between excess borrowing and the inability of the government to commit to optimal bail-out policies. In their model, *ex post* bail-outs concern financial intermediaries rather than firms and occur due to a strategic complementarity between the balance-sheet exposures of individual banks. The difference between their model and ours fundamentally lies in the direction of causality. In their model, the risk exposure decisions of individual banks create incentives for the government to manipulate banks' refinancing rate down, while in our model it is low world interest rates that make it optimal to start up extractive projects.

[7] See **?** for an exhaustive survey of the literature on the soft budget constraint.

2 A model of capital inflows and deteriorating institutions

In this section, we investigate theoretically how capital inflows may negatively affect the quality of economic institutions. The key channel that we formalize is that institutions need to be invested in to maintain their quality, while cheap funding from abroad deters a government's incentives to invest in institutional quality. In our model, we proxy the quality of institutions by the equilibrium number of extractive projects –i.e., projects that are beneficial to some agents but detrimental in the aggregate. The funding of these extractive projects results from a soft-budget constraint syndrome, i.e., the imperfect ability of the government to commit not to refinance them *ex post*. The government can mitigate the soft budget constraint syndrome by investing in institutional quality *ex ante*, that is, a technology that limits the number of extractive projects that private agents may be tempted to undertake or fund in the first place. We show why and how, in equilibrium, capital inflows rise and institutional quality falls when the world interest rate faced by domestic agents falls.

2.1 Agents

There are four dates ($t \in \{-1, 0, 1, 2\}$) and four types of private agents, all risk-neutral: (domestic) entrepreneurs and bankers, as well as domestic and foreign investors. Entrepreneurs need bankers' funding to undertake their projects, while bankers can raise loanable funds from domestic and foreign investors (that is, bankers are intermediaries that channel funds from investors –domestic or foreign– towards entrepreneurs). There is also a benevolent government that can raise taxes from, and make transfers to, domestic agents.

Investors

There is a large number of investors, domestic and foreign. All investors value consumption at dates $t = 0$, 1 and 2 and have a large amount of funds available for lending at date 0. Domestic investors discount future consumption at the subjective discount factor $\beta \geq 0$; we denote by x^D their total investment in domestic projects and z^D their total investment abroad.

Foreign investors have access to a perfectly elastic supply of foreign assets yielding the real interest rate $r^* > 0$; this defines the world interest rate, which is also the domestic interest rate since capital is perfectly mobile internationally. We denote by x^F and z^F foreign investors' total investment in domestic and foreign projects, respectively. The current account CA is the outflow of capital from the domestic economy i.e. $CA = z^D - x^F$.

Bankers

There is a large number of bankers, each of whom is endowed with 1 unit of goods in period 0, which can be invested in domestic entrepreneurs' projects. Bankers may also raise their stake in entrepreneurs' project by borrowing from both foreign and domestic investors, in addition to investing their own endowment. Borrowers may borrow from domestic and foreign investors (at the interest rate r^*) but they are borrowing-constrained and can only pledge a fraction ρ of their future payoffs.[8]

Entrepreneurs

There is a continuum of mass 1 of entrepreneurs, each of whom is endowed with a project in period 0, but no initial funds to start it up, and who enjoy date-2 consumption. A fraction α of entrepreneurs is endowed with an *efficient* project, and a complementary fraction with an *extractive* project. There is a continuum of types of extractive projects, which are indexed by $k \in [0,1]$. The type of a project (extractive or efficient, and the type of extractive project) is private information.

The costs and benefits associated with the various project types are as follows. With $i \geq 0$ units of goods invested in period 0, an efficient project yields in period 2 a verifiable payoff $R^g i$, $R^g \geq 0$ and a private benefit $B^g i$, $B^g \geq 0$ to the entrepreneur. In contrast, the date-2 payoff on an extractive project depends on whether or not some reinvestment takes place at date 1. More specifically, for an initial investment of size i in period 0, an extractive project of type k delivers in period 2 a verifiable payoff $R^p(k)j$, $R^p(k) \geq 0$ and a private benefit $B^p j$, $B^p \geq 0$ to the entrepreneur if only if an amount $j \in [0,i]$ is reinvested in period 1. Without loss of generality we can rank extractive projects by type in such a way that $R^p(k)$ in nondecreasing. Note that it is worthwhile for an entrepreneur to submit an extractive project for funding at date 0 only if he or she expects that some reinvestment will take place at date 1.[9] All extractive projects are assumed to be socially inefficient ex ante:

Assumption 1. $R^p(1) + B^p - 2 < 0$.

While it would be socially efficient *not* to have any extractive projects submitted for funding in the first place, we shall see later on that it may still be efficient to refinance them

[8] This form of the borrowing constraint is merely assumed here, but it can easily be granted micro-foundations based on moral-hazard considerations (see, e.g., **?**).

[9] If the entrepreneur does not expect any refinancing then he or she is in principle indifferent between submitting or not the project for funding in period 0. We assume that in this case the entrepreneur does not submit the project for funding, which could be straightforwardly rationalized by an arbitrarily small fixed cost of launching a project, or else of experiencing its failure (due, say, to the implied loss of reputation). We abstract from such costs purely for expositional clarity.

ex post once the initial investment has been sunk (provided that the social cost of reinvestment is sufficiently low). When this occurs the completion of the project benefits the entrepreneur at the expense of the other agents –hence the label "extractive".

Government

Ex-post interventions. The government discounts future outcomes at the same rate as domestic agents, i.e. β. The government can raise revenue (through taxes) in periods 1 and 2 and it can borrow from investors in periods 0 and 1 at the interest rate r^*. The money that is raised at date 1 can be used to reinvest in extractive projects (to the amount j) and to make transfers to bankers. The latter transfer is of the amount $\eta R^p(k)$, where $R^p(k)$ was defined above and $\eta \in [0,1]$ is chosen by the government (more below).

Ex-ante interventions. The government may limit ex ante (i.e. at date $t=-1$) the total number of projects that it will be tempted to bail out ex post (i.e. at date $t=1$). This commitment technology is as follows: by paying a cost $C(\gamma)$, the government can reduce the number of extractive projects that will be submitted for funding (at date $t=0$) by a scaling factor $\gamma \in [0,1]$. We assume that the cost function $C(.)$ is an increasing and convex function of γ. The cost $C(\gamma)$ may correspond not only to the actual pecuniary cost of setting up effective regulation agencies (in goods market competition, banking, etc), but also to the opportunity cost for policymakers of having adopted good institutions, namely the fact they reduce policymakers' discretionary powers (see **?**, for a discussion and the quantitative effects of such costs). As a result, the number of extractive projects that may be submitted for funding goes down from $1-\alpha$ to $\gamma(1-\alpha)$. Note that the technology for reducing the prevalence of extractive projects leaves the number of efficient projects (α) unaffected. Hence the share of efficient projects in the economy is given by:

$$\hat{\alpha} \equiv \frac{\alpha}{\alpha + \gamma(1-\alpha)} \geq \alpha, \tag{1}$$

while that of extractive projects is $1-\hat{\alpha} \leq 1-\alpha$.

We interpret $\hat{\alpha}$ as an index of institutional quality: the greater $\hat{\alpha}$, the higher the quality of institutions, since the government can prevent a larger share of extractive projects from being undertaken. Note that if the government could freely commit not to intervene in period 1, then no extractive projects would ever be submitted for funding by entrepreneurs in the first place and only efficient projects would be financed. Aggregate productivity would thus be equal to R^g.

2.2 Equilibrium

An *equilibrium* is a set of choices by the government and private agents and a set of aggregate outcomes such that :

- entrepreneurs' choices of submitting their projects for funding or not at date 0 maximise their expected utility, given their expectations of the government's date-1 refinancing and transfer policies;
- domestic bankers' choices of investment and foreign borrowing maximises their expected utility, given their expectations of the government's date-1 refinancing and transfer policies;
- the government's investment in institutional quality (γ) at date -1 maximises domestic households' welfare at date - 1 and the government's refinancing and transfer policies at date 1 maximize domestic households' welfare at date 1;
- the domestic and foreign investors optimally select their portfolios.

We work out the solution to the model backwards. First, we solve for the equilibrium outcome at date 1 (i.e., the government's ex post interventions and possibly the investors' purchase of public debt), taking decisions made in earlier stages as given. We then turn to the outcome of date 0 (i.e., entrepreneurs' and bankers' choices), taking as given the ex ante intervention of the government at date -1 as well as its (anticipated) ex post intervention at date 1. Finally, we solve for the government ex ante intervention, given the expected outcomes of the later stages of the game.

Period 1: Government's ex post interventions.

Let us describe the date-1 government decisions. The government can decide to refinance extractive projects at a scale $j(k)$ (no greater than the initial scale i by assumption), and can also compensate domestic bankers at an endogenous rate η. Crucially, the government has two options for raising funds to reinvest in projects and compensate bankers: it can either raise taxes (to the amount T^1) or issue debt (to the amount T^2). The government thus solves the following problem:

$$\max_{j\leq i, 0\leq\eta\leq 1, T^1, T^2} \int [j(k)(R^p(k)+B^p(k))+\eta R^p(k)-T^1-T^2\beta(1+r^*)]dk, \tag{2}$$

$$\text{s.t. } T^1+T^2=j+\eta R^p. \tag{3}$$

The decision about how to finance reinvestment and compensation hinges on the relative costs of taxes and debt. Issuing debt requires paying an interest to creditors but delays the collection of taxes, so the discounted marginal cost of raising one unit of resources through debt is $\beta(1+r^*)$. In contrast, the marginal cost of funds raised through current taxes is 1. As a result the government finances its expenses through debt if and only if $\beta(1+r^*)<1$.

The decision to refinance extractive projects depends on the future marginal gain of reinvestment ($R^p(k)+B^p$) and the unit cost of reinvestment (either $\beta(1+r^*)$ or 1, depending on how it is financed). Finally, the decision to compensate domestic bankers (i.e., the choice of η) must weight the gain from doing so (as measured by bankers' marginal utility of consumption) and the cost, which again depends on how this intervention is financed. The following proposition summarizes how the domestic interest rate r^* affects the government's date-1 decisions:

Proposition 1. *If $\beta(1+r^*)<1$, then:*

(i) *reinvestment in entrepreneurs' projects and transfers to bankers are optimally financed by public debt (i.e., $T^1=0$ and $T^2=j+\eta R^j$), which is purchased by foreign investors;*

(ii) *the government either reinvests in an extractive project at full scale ($j(k)=i$), or it does not reinvest at all; it reinvests in a project of type k if and only if:*

$$1+r^* \leq \beta^{-1}\left[R^p(k)+B^p\right], \tag{4}$$

so that the share of extractive projects that get refinanced is decreasing in r^*;

(iii) *the government compensates domestic bankers at full scale: $\eta=1$.*

If $\beta(1+r^*)>1$, then:

(i) *compensation is optimally financed by taxes: $T^1=j+\eta R^j$ and $T^2=0$;*

(ii) *the government either reinvests in an extractive project at full scale ($j(k)=i$), or it does not reinvest at all; it reinvests in a projects of type k if and only if:*

$$R^p(k)+B^p-1\geq 0 \tag{5}$$

(iii) *the government does not compensate domestic bankers: $\eta=0$.*

If $\beta(1+r^*)=1$, then the government is indifferent between compensating domestic bankers or not, and whether to finance bankers' compensation and entrepreneurs' reinvestment through taxes or public debt.

A few comments are in order here. First, both the decision to compensate entrepreneurs and bankers and the way it is financed depend on the interest rate in the domestic economy. Second, in the case where debt financing is preferable, equation **??** implicitly defines a threshold project type below which refinancing does not occur; in this case a lower interest rate (weakly) lowers this threshold, resulting in a greater share of extractive projects being refinanced. Last, when the domestic interest rate is high then debt financing is deterred and fiscal transfers are financed through taxes. In this region, the share of extractive projects that get refinanced becomes insensitive to the real interest rate.

Period 0: Entrepreneurs' and bankers' decisions

We now turn to domestic agents' decisions in period 0 (i.e. entrepreneurs' decision to submit projects for funding and domestic bankers' decisions to invest), given expected date-1 outcomes.

Entrepreneurs. Entrepreneurs endowed with efficient projects are always better off submitting them for funding, as their private benefits are positive ($B^g > 0$). On the other hand, entrepreneurs endowed with extractive projects receive a positive private benefit only in case of refinancing in period 1 (so that $B^p j > 0$). Hence, they submit their projects for funding only if they anticipate to be rescued by the government in period 1. Taking into account the fact that the government switches to tax financing when the interest rate is high, an entrepreneur endowed with an extractive project of type k submits it for funding at date 0 if and only if:

$$R^p(k) + B^p \geq \min\left\{\beta(1+r^*), 1\right\}. \tag{6}$$

Bankers. Domestic bankers choose the level of investment that maximizes their expected profits, subject to the borrowing constraint that they are facing, and taking as given the share of extractive projects that are submitted for funding and the government transfer they expect to receive on any funded project. Formally, a banker solves the following problem:

$$\max_i \left(\hat{\alpha} + (1-\hat{\alpha})\eta\right) R^g i - (1+r^*)(i-1) \tag{7}$$

$$\text{s.t. } (1+r^*)(i-1) \leq \rho i, \tag{8}$$

Given their objective and constraint, bankers' decisions are as follows. First, whenever

the marginal gain from investing is sufficiently large, that is, whenever

$$(\hat{\alpha} + (1 - \hat{\alpha})\eta) R^g \geq 1 + r^*, \tag{9}$$

then domestic bankers invest all their endowment and borrow up to the borrowing constraint. Investment is then given by:

$$i = \frac{1 + r^*}{1 + r^* - \rho}. \tag{10}$$

Otherwise, when $(\hat{\alpha} + (1 - \hat{\alpha})\eta) R^g \leq 1 + r^*$, then domestic bankers do not invest in domestic projects ($i = 0$).

It is important to emphasize the role of the transfers to bankers (η): it allows generating positive returns for bankers in the case the projet being financed turns out to be extractive. As a result, the expected return on projects is more likely to exceed the hurdle rate $1+r^*$. This pushes domestic bankers to invest full scale in entrepreneurs' projects despite the presence of extractive projects (which would otherwise discourage the financing of all projects, including efficient ones).

Domestic and foreign investors. Domestic investors are willing to lend to bankers whenever the interest rate exceeds their rate of time preference, i.e. whenever $\beta(1 + r^*) \geq 1$; otherwise they prefer consuming their endowment at date 0. In the latter case, domestic funding is entirely ensured by foreign investors and the country runs a current account *deficit*.

Date-0 equilibrium. We can now analyse the date-0 equilibrium as a function of the world interest rate:

Proposition 2. **(i)** *if $\beta(1 + r^*) \leq 1$, then all entrepreneurs with extractive projects of type k satisfying condition (**??**) submit them for funding;*

(ii) *if $\beta(1 + r^*) > 1$, then all entrepreneurs with extractive projects of type k satisfying condition (**??**) submit them for funding;*

(iii) *the investment scale of all funded extractive projects is given by equation (**??**).*

Period -1: Government's ex ante investment.

We now analyze the government's *ex ante* investment in institutional quality, meaning the reduction in the number of extractive projects that are submitted for funding in period 0. Given future choices, the problem of the government at date -1 is to select γ so as to maximize

(domestic) welfare, which amounts to maximise:

$$(1-\gamma)i\int\left(R^p(k)+B^p(k)-\min\left\{\beta(1+r^*),1\right\}-1\right)dk-C(\gamma) \tag{11}$$

The first order condition associated with this problem writes:

$$C'(\gamma)=-i\int\left(R^p(k)+B^p(k)-\min\left\{\beta(1+r^*),1\right\}-1\right)dk. \tag{12}$$

Suppose that $\beta(1+r^*)\geq 1$. Then the optimal investment in institutional quality is the solution to:

$$C'(\gamma)=-i\int\left(R^p(k)+B^p(k)-2\right)dk. \tag{13}$$

Given that i is a decreasing function of r^*, the optimal effort by the government γ decreases with r^* in this region: the lower bankers' leverage, the more the government is willing to spend to prevent the funding of extractive projects. Now suppose that $\beta(1+r^*)<1$. In this case, the optimal ex ante investment by the government is the solution to:

$$C'(\gamma)=-i\int\left(R^p(k)+B^p(k)-\beta(1+r^*)-1\right)dk \tag{14}$$

The right hand side is increasing in r^*, hence γ is increasing in r^*. The following Proposition summarizes our results:

Proposition 3. *The investment in institutional quality γ and the level of institutional quality $\hat{\alpha}$ have the following properties:*

(i) *γ and $\hat{\alpha}$ are marginally increasing with r^* when $\beta(1+r^*)<1$ but marginally decreasing with r^* when $\beta(1+r^*)\geq 1$;*

(ii) *γ and $\hat{\alpha}$ are strictly lower when $\beta(1+r^*)<1$ than when $\beta(1+r^*)\geq 1$.*

To summarize, the cost of government's funding affects its *ex ante* choice of institutional quality, i.e. its willingness to reduce the inefficiencies generated by the funding of inefficient projects.

2.3 Connection with the data

We are now in a position to connect our theoretical framework with the data. We proceed in two steps. First, we spell out the testable implications of our model as to the connection

between capital inflows and institutional quality. Second, we show how equilibrium institutional quality in the model ($\hat{\alpha}$) can be mapped into the indexes of institutional quality that we use in Sections 3 and 4 below.

Testable implications of the model Proposition **??** has specific testable implications as to the relation between capital inflows and institutional quality, both in the time series and in the cross-section.

Time-series variations. Consider first what happens when a country starts importing capital, so that its current account becomes negative. In our setting, this happens when the world interest rate r^* required by foreign investors falls from a level above $1/\beta - 1$ to a level below this threshold. Given the comparative-statics result (ii) in Proposition **??**, a sufficiently large fall in the world interest rate causes a decline in the level of institutional quality $\hat{\alpha}$. Next, consider what happens if the country's current account was already negative but further deteriorates. That situation occurs when the world interest rate further declines, starting from a situation where it was already below $1/\beta - 1$ and further declines. According to point (i) in Proposition **??**, this also generates a decline in institutional quality. We summarize these implications in the following corollary.

Corollary 4 (Time-series)**. (i)** *A shift from positive to negative current account leads to a decline in the level of institutional quality $\hat{\alpha}$;*

(ii) *A further decline of an already negative current account leads to a decline in the level of institutional quality $\hat{\alpha}$.*

Cross-section. Let us now turn to the cross-section. In particular, we compare two countries that only differ in terms of current account. Again based on Proposition **??**, we obtain the following corollary.

Corollary 5 (Cross-section)**.** *All else equal,*

(i) *a country with a negative current account has a lower level of institutional quality than a country with a positive current account;*

(ii) *a country whose current account is lower than that of another country also has a level of institutional quality that is worse than the other country's.*

Mapping with indexes of institutional quality The two corollaries above summarize the main implications of the model as to the dependence of the equilibrium level of institutional quality on the current account. Before moving on to the empirical analysis, we establish here the connection between our theoretical variable for institutional quality and the empirical indexes of that quality that we will be using. Our empirical indexes come four sources, namely the *World Governance Indicators* (WGI), the *Heritage Foundation* and the *International Country Risk Guide* and the *Fraser Institute*, all of which are gathered in the *Quality of Governance Dataset* (**?**). We first provide a brief description of the indexes we use, and then turn to the mapping with the model.

The WGI indexes. The WGI database covers 215 countries and characterizes the quality of a country's institutions using six measures of the quality of their governance: Voice and Accountability, Political Stability, Government Effectiveness, Regulatory Quality, Control of Corruption and the Rule of Law. Here we mostly focus on Rule of Law, and partly on Control of Corruption as well as Government Effectiveness.

The Rule of Law index (RL) measures the citizens' confidence in, and respect for, the country's laws and regulations. This index notably aggregates information about contract enforcement, property rights, the police and the courts, as well as crime. The Government Effectiveness index (GE) assesses the quality of public services and of the civil service (e.g. independence from political pressures), as well as the quality of policy formulation and the credibility of the government in implementing them. Finally, the Control of Corruption index determines whether public policies favor private interests (via different forms of corruption or capture by elites or private interests).

The WGI indexes are constructed by aggregating data from multiple sources, private or public. In particular, they gather data from both "experts" (multilateral development agencies or nongovernmental organizations) and surveys of domestic individuals and firms. We provide in the Appendix the exact list of data sources, as given by **?**, as well as additional data descriptions. These different data sources are then aggregated using an unobserved component model, wherein each data source is considered as an imperfect signal of the actual level of the index. The resulting estimate of the index is normalized so that its distribution across countries is normal with mean 0 and variance 1.[10] Hence, most realizations of this index take values between -2 and 2, and the world average remains constant at 0 over time. The unobserved component model also provides confidence intervals, which can be used to test the significance of any given evolution in the quality of institutions.

[10] See **?** for details.

Other measures of institutional quality A well-known limitation of the WGI indexes is that they are partly based on perception data and, in particular, on surveys. To deal with this potential limitations, we also look at other measures of the quality of institutions that we take from the QoG database.[11] In particular, we consider the following alternative indexes.

First, we look at the Heritage Foundation's measure of Property Rights and Economic Freedom. As described by **?**: "This factor scores the degree to which a country's laws protect private property rights and the degree to which its government enforces those laws."

Second, we take the International Country Risk Guide's Indicator of Quality of Government. Interestingly, this indicator mixes information on "Corruption", "Law and Order" and "Bureaucracy Quality", which conceptually corresponds to the WGI indexes of Control of Corruption, Rule of Law and Government efficiency.

Third, we consider the Fraser Institute's measure of "Legal Structure and Security of Property Rights". As noted by **?**, this measure includes indexes of Judicial Independence, Impartial Courts, Protection of Intellectual Property, Military Interference in Rule of Law and the Political Process and, finally, Integrity of the Legal System.

Institutional quality in the model and in the data Let us now explain how we can map these different measures of institutional quality with the level of institutional quality in the model or with the technology that the government may use *ex ante* to limit the prevalence of extractive projects.

The most direct interpretation is in terms of *Government Efficiency*, which **?** define as "perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies". In this interpretation an "extractive" project is a publicly-run project (e.g., infrastructure projects, possibly contracted out to firms), and the investment in negative NPV projects as well as the corresponding decline in the quality of publicly-run projects result in a reduction in the measured efficiency of the government.[12]

Another interpretation of the quality of institutions in the model is in terms of *rule of*

[11] We refer the interested reader to **?** for more details on this database as well as on the different measures of institutional quality.

[12] One striking example of this that comes to mind is the 2004 Olympic Games in Greece: unlike other cities, whose venues included prefabricated structures, Athens opted almost exclusively for heavy buildings; eventually the overall costs to the government (11 billion euros) was twice the projected cost. The Olympic sites are now mostly deserted. In a similar vein, in the 1990s and 2000s, Portugal promoted 15 public-private partnership (PPP) to modernize its road network, representing a total of 10 billion euro of private investment. The resulting concessions eventually gave rise to a major budgetary slippage, estimated to have cost the central government close to 1 billion euros by 2011. See **?** for similar examples.

law, which captures "perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence". In this view a project may be extractive because it is anticipated that courts will be reluctant to liquidate it outright in case of bad performance. In the presence of cheap resources for the government, a poor legal decision that gives too much to the creditors or too much to the entrepreneur can be easily compensated by transfers of any form to the former or the latter. Hence, the incentives to make and implement good investment decisions in the first place are reduced.

Finally, one can interpret the quality of institutions in the model in terms of *control of corruption*, which captures "perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests". A extractive project, in this view, is a project that yields private benefits at the expense of society as a whole. Finally, one may think of an "extractive" project as one that requires an outright breaking of the law (e.g., an illegal expropriation) to be (privately) valuable. In this interpretation, a larger share of extractive projects can be interpreted as a deterioration of the *rule of law*, which captures "perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence".

3 Cross-country evidence of the link between capital inflows and institutional quality

In this section, we test whether there is evidence of a systematic relation between capital inflows and institutional decline, in line with the implications of the theoretical model developed in the previous section. The main challenge that we face is to deal with endogeneity of capital flows and institutions. To this purpose, we conduct different exercises using a large sample of countries. Our main two exercises are twofold. First, we focus on capital inflows occurring in periods of fixed exchange rates, as those inflows are more likely to be exogenous to local economic institutions. Second, we confirm our findings by estimating a dynamic panel featuring various indicators of institutional quality as dependent variables, and capital inflows (as a fraction of GDP), as well as various controls, as independent (lagged) variables. Finally, we conduct different robustness checks: for example we instrument capital inflows by regional capital inflows to neighboring countries or we check for correlations with leading

capital inflows.

3.1 Data description.

We combine data on institutional quality from the Quality of Governance Dataset (see **?** with IFS data on Current Account (CA) as a fraction of GDP. Our primary measures of institutional quality are the World Governance Indicators, and notably the Rule of Law index ("RL") and the WGI index ("WGI", i.e. the sample average of the six indexes), but we complement them with alternative indexes from the Heritage Foundation and the International Country Risk Guide, as explained in Section 2.3 above. Our classification of exchange rate regimes comes from **?**.

We use the CA/GDP variable as the best proxy available to measure cross-country capital inflows, lacking a comprehensive and reliable cross-country dataset on long term interest rates for the sample period under study. We drop countries with less than 300,000 people or exhibiting a current account deficit or surplus higher than 10% as fraction of GDP for the whole sample. Those are mostly small islands (e.g. Palau, Seychelles, Vanuatu) or countries with large current account surpluses associated to oil production (e.g. Qatar). We also drop countries that experienced a decline in GDP of more than 10% in one year as a result of a war or civil unrest (e.g. Libya, Rwanda or Iraq). After dropping these observations the dataset contains information about 95 countries.

3.2 The effects of capital inflows

Our first exercise to investigate how capital inflows affect the quality of institutions is to use fixed-exchange rate regimes. Our presumption is that a fixed-exchange rate regime may favor capital flows between countries sharing the same peg, and so the resulting capital flows may be less subject to endogeneity with respect to local institutions. To this purpose, we first build a dummy variable using **?**'s classification of exchange rate regimes such that this dummy variable equals 1 when the exchange rate regime is either "no separate legal tender or currency union" or "pre-announced peg or currency board arrangement" and 0 otherwise. We then regress the different measures of the quality of institutions on the interaction between capital inflows and this dummy variable and a set of controls. This set of controls includes the initial value of institutional quality, the initial level of GDP per capita, the level of democracy from Polity IV data, the growth rate of GDP and its current level per capita.

Table **??** gathers the result for the Fraser Institute's Property Rights Index, the Heritage Foundation's Property Rights Index, the WGI's index for the rule of Law and the ICRG index.

Overall, all of these regressions point to a positive and significant impact of current accounts on the quality of institutions. This means that an increase in capital inflows (i.e. a decrease in current account) leads to a decline in the quality of institutions. Importantly, this conclusion holds true whatever the index of the quality of institutions that we use.

In Table **??**, we run the same regression but for more short-run capital inflows. There as well, we obtain that capital inflows deteriorate the quality of institutions, though the outcome is less statistically significant. This suggests that capital inflows must be sufficiently persistent to have a significant negative impact on the quality of institutions.

3.3 Dynamic Panel

With the goal of testing whether persistent current account deficits have an effect on the quality of institutions, we run a panel regression in which lagged values of the current account (CA) to GDP ratio is used to explain changes in the quality of institutions. As dependent variable we use the Rule of Law (RL) index and the overall WGI Index (WGI).

Given the persistence of the Rule of Law, and in order to avoid a dynamic panel bias, we run the following regression:

$$RL_{i,t} = \alpha RL_{i,t-1} + f(L)CA_{i,t} + X_{i,t}\beta + \varepsilon_{i,t}, \tag{15}$$

in which the Rule of Law depends on a one-year lag ($RL_{i,t-1}$), a vector of lagged Current Account to GDP ratios ($f(L)CA_{i,t}$, where $f(L)$ is a function of the lag operator (L), a vector of control variables ($X_{i,t}$) including the GDP growth rate, and an idiosyncratic component ($\varepsilon_{i,t}$) that is composed of a country fixed effect and idiosyncratic shock:

$$\varepsilon_{i,t} = \mu_i + \nu_{i,t}. \tag{16}$$

Given that in this specification the fixed effect is not orthogonal to the lagged Rule of Law, we estimate Equation (**??**) using a dynamic panel estimation as suggested by **?** and **?**. We use the **?** finite-sample correction given the small time dimension of our sample and the relative large number of countries and assume that that the first differences of instrumenting variables are uncorrelated with the fixed effects. We use an analogous regression for the WGI index.

Table **??** presents the results of the two-step GMM system estimation of the dynamic panel for the Rule of Law including different time lags (2, 4 and 6 years) for the CA-to-GDP ratio. Table **??** presents the results for the WGI Index.

We find that for a horizon of 4 and 6 years the estimate for past values of the CA-to-GDP

ratio is positive and significant at explaining the Rule of Law. Countries with negative CA-to-GDP ratios in the previous 4 or 6 years experienced a decline in the quality of institutions. The estimate for the 2 year horizon of past CA-to-GDP although has a positive sign is not significant at the 10% level.

These results indicate that persistent external deficits have a negative effect on institutional quality. The GDP growth rate, which we use as a control variable, is positive but not statistically significant, suggesting that business cycle events such as economic crisis have a limited effect on institutional quality. The fact that the lagged CA-to-GDP ratio remains significant after controlling for GDP growth suggests that the relationship between external financing and institutional quality is not explained by economic downturns.

Rent-seeking explanation of institutional declines. Table **??** and Table **??** also reports estimates for different sub-samples of the data. First, we exclude countries with high oil rents. Some of these countries, such as Venezuela of Ecuador, experienced a strong deterioration of institutions whilst having large, positive current account surpluses. For these countries, changes in institutional quality are likely driven rent-seeking or predatory behavior associated to high oil rents rather than by changes in external financing conditions. When excluding these countries from the sample, we find larger and more significant coefficients for the 6 year lag of the CA-to-GDP ratio.

Non-linear effects of current account deficits. We also test whether the relationship between external financing and changes in the rule of law or the WGI index depends on the initial level of institutional quality. We find higher coefficients for the relationship between CA-to-GDP and the the rule of law or the WGI index after excluding countries with the worst institutions (bottom quintile). The same is true for the sample that excludes the top countries in terms of the initial level of the rule of law. This non-linearity indicates that countries with relative good institutions can cope better with the adverse effects of capital inflows and that institutions in the worst countries are less likely to be affected by changes in financing conditions.[13]

An example of the former situation are the US. Despite having experienced a prolonged period of current account deficits, the effect of the quality of institutions remains limited and we do not observe a significant joint decline of the WGI indexes.

[13]Note that is non linear effect is consistent with the experience of the institutional decline in Southern European countries. Spain and Portugal, which started the process with relative better institutions than Italy and Greece, experienced a smaller institutional decline than the later.

3.4 Further robustness checks

To provide some further robustness, we now present some alternative estimations. First, we show simple cross-country regressions to further illustrate the connection between institutions and capital inflows. Second, we present some additional regressions where we include leads and not lags of the quality of institutions, to see whether causality can go in the opposite direction. We also test whether the relation still appears when considering neighboring countries. Finally, we also investigate what happens in case where there is a capital flow reversal.

Cross-country regressions for the whole sample period The results of the panel regression can be illustrated by a simple cross-country scatter plot. Figure **??** plots the changes in the rule of law and the mean of the CA/GDP ratio for the whole sample period and the different sub-samples used in Table **??**.

For each graph we also report the cross-country coefficient, the t-statistic and the R^2 of the following regression:

$$\triangle rl_{1996-2013} = constant + \beta \sum_{1996}^{2013} (1/years) \left[CA_i/GDP_i\right]. \tag{17}$$

This regression, although less informative than the panel regressions, shows in a simple way the relationship between capital flows and institutional quality. For samples (a) (excluding countries at the bottom quintile of the Rule of Law index) and (b) (excluding countries at the top and bottom quintile of the rule of law index) the relationship is clearly positive and statistically significant. Samples (c) (countries at the top quintile of rule of law) and (d) (countries at the bottom quintile of rule of law) have a negative but non-significant coefficient.

Testing for reverse causality and endogeneity The panel and the cross-country regressions raise the question whether the positive estimates can be result of reverse causality, namely that countries experiencing a decline in institutional quality tend to exhibit persistent current account deficits. In order to test for this possibility we run similar panel regressions but instead of using lag we use lead values of the CA-to-GDP ratio for different time horizons. This specification tests whether a decline in institutional quality preempts higher capital inflows in the future, in contrast to our first set of regressions that test whether persistent CA-to-GDP deficits in the past leads to a decline in institutional quality.

Table **??** and Table **??** show the coefficients of leading values of CA-to-GDP for different time horizons as the explanatory variable for the current level of the rule of law and the WGI Index using the one-year lag of the dependent variable and GDP growth as controls. Estimates

for the two, four and six-year horizon and for the three sub-samples are not significant. Moreover, estimate coefficients for the two and four-year horizon and the sub-sample excluding countries at the top quintile of the rule of law, turn negative, which means that, if anything, countries with a decline in institutional quality experience a subsequent reduction of capital inflows. These results suggest that the relationship between capital flows and institutions is in the direction that is relevant for the recent experience in southern Europe: from capital inflows to a deterioration of institutions.

We also test whether our main results carry to a setup whether capital inflows are measured in way that the explanatory variable is less subject to an endogeneity problem. For this purpose we construct the average CA-to-GDP ratio of neighbor countries for each country in the sample, where a neighbor is defined using land borders. Note that this variables excludes the CA-to-GDP ratio of the country itself so it is less endogenous to the dynamics of domestic institutions. This geographical criteria allows us to capture capital flows that are regional in nature and are likely to affect more than one country at the time. The downside of this setup is that it reduces the sample size as some countries don't share land borders with other nations and some borders are arguably not economically relevant for our story.

Figure **??** shows the correlation of the CA-to-GDP ratio and its neighbor's average CA-to-GDP ratio for each country-year in the sample. It also shows the relationship between the explanatory variable we use in our panel estimates, the average value of the CA-to-GDP ratio for the previous 6 years, with the average CA-to-GDP ratio of a country's neighbors for the same time period. The scatter plot and the regression we present in Figure **??** confirm that this new variable is correlated to the original explanatory variable: the coefficient of the regression is positive and highly significant.

Table **??** presents the results of a dynamic panel that use the neighbors' CA-to-GDP ratio as explanatory variable for the Rule of Law and the WGI Index. We present the results for the whole sample of countries and excluding countries with high-oil rents. The 6 year lagged average value of the CA-to-GDP ratio of neighbor countries is statistically significant at the 10% level depending on the sample and has a positive coefficient. These results go in the same direction than the baseline regression and support the view that persistent capital inflows have a negative effect on the domestic quality of institutions.

Capital Inflow reversals So far our analysis has not made a distinction between capital inflows and outflows. A natural question is whether capital inflow reversals have a positive effect on the quality of institutions. Using our cross-sectional estimates we can study whether the relationship between capital flows and changes in institutional quality is asymmetric de-

pending on whether flows are positive or negative. The top panel of Figure **??** shows the cross-country relation between the average CA-to-GDP ratio and the change in the rule of law depending on whether countries experienced a positive or negative flows over the sample period. The bottom panel shows the same relation but for a sample excluding countries at the bottom of the rule of law index.

These graphs suggest that the relation between capital flows and changes in institutional quality are driven by countries with capital inflows, although the coefficients in the regression that links the current account with changes in the rule of law are not statistically different. Also note that a good part of the weak relation between capital outflows and changes in the rule of law are driven by countries at the bottom of the distribution of the rule of law index; so once we exclude them the difference between countries with negative or positive current accounts gets smaller. Altogether we find inconclusive evidence about an asymmetric effect of capital flows on institutions.

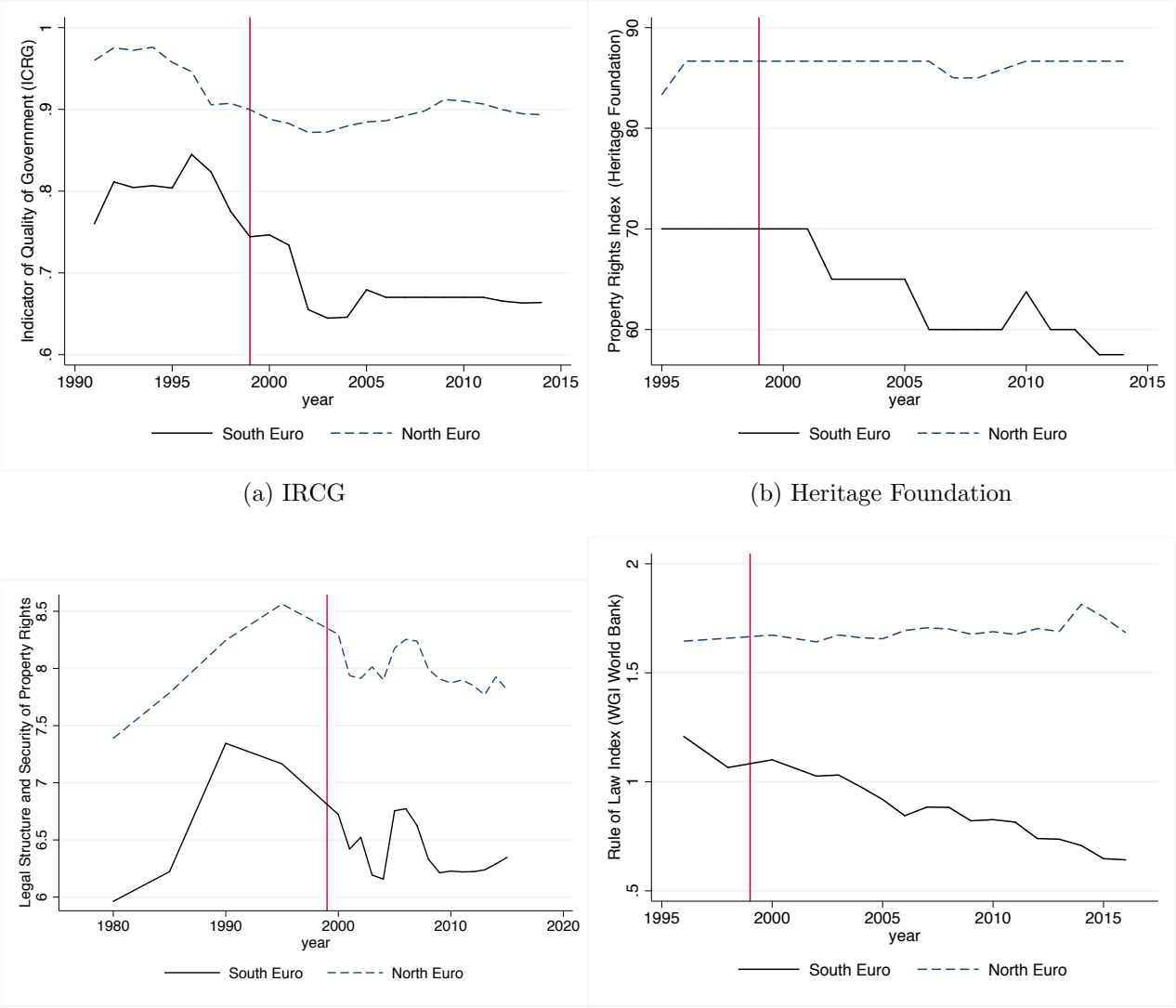
4 Capital inflows and institutional quality in the euro area

In this section, we investigate the evolution of capital flows and institutional quality in the euro area from the mid-1990s onward. The reason for paying particular attention to the euro area is twofold. First, southern European countries (Italy, Spain, Portugal and Greece) are known to have experienced large capital inflows during the run-up to, and creation of, the euro currency. Second, a number of authors have stressed that the relatively poor economic performance of these countries dates back from the mid 1990s (e.g., **?**), and may well be a very consequence of abundant capital inflows (**?????**). It is thus natural to examine how much institutional quality has declined in southern Europe after those capital inflows, as this may be part of the explanation for their relatively poor economic performance. The analysis that follows confirms that southern European countries did indeed experience a significant decline in the quality of their institutions, in contrast to the other European countries, and more generally OECD countries. Moreover, the countries that did experienced such an institutional decay were precisely the net recipients of capital over the period under consideration.

4.1 The evolution of institutions

In this subsection, we show that there is an institutional decline in the south of Europe that started in the mid/end of the 1990s. Importantly, we show that this decline is robust

feature of the data, as we obtain it through multiple indexes of the level of institutional quality. Just to illustrate this robustness, Figure **??** reports several of those indexes, extracted from different data sources.



(a) IRCG

(b) Heritage Foundation

(c) Fraser Institute

(d) WGI - Rule of Law

Figure 1 – Measures of institutional governance

In Figure **??**, Panel (a) reports the indicator of Quality of Government from the IRCG, Panel (b) Reports the Property Rights index from the Heritage Foundation, Panel (c) reports the Fraser institute' measure of "Legal Structure and Security of Property Rights" and Panel (d) reports, as a benchmark, the WGI index for the Rule of the Law.[14]

The overall picture of all these indexes is that there is divergence since the mid-1990s between southern Europe –which experienced and institutional decline– and northern Europe –which did not. Interestingly, the trends and general pattern may differ across indicator, but

[14]We obtain these data from the QoG database. See **?** for further information.

the relative decline of the south always shows up. [15]

	Greece	Italy	Portugal	Spain
RL	5 / 2	6 / 2	7 / 1	5 / 2

Table 1 – Number of decreasing / increasing underlying series.

This table reports the number of decreasing and increasing series underlying the WGI rule of law indicator. Those series start in 1996, 2000, 2002, 2006 or 2009, and we abstract from those only starting in 2006 or 2009. The first number indicates the number of decreasing series and the second one the number of increasing series.

We can confirm this conclusion by looking at the measures underlying the WGU Rule of Law index. In Table **??**, we report the number of these sub-indexes that are decreasing or increasing. Most of these sub-indexes are decreasing.[16] Finally, in Appendix **??** we provide further evidence based on some alternative measures of institutional quality , including the rest of the WGI indexes and **?**'s measure of accountability and transparency.

4.2 The role of capital inflows

After showing that there was an unprecedented decline of the indicators of institutional quality in southern European countries after the mid-1990s, let us now turn to the connection with capital inflows. First, it is well known that the creation of the euro generated large capital inflows towards the periphery of Europe and allowed southern European countries to borrow at much cheaper interest rates. This is illustrated bu Figure **??** which plots current accounts in percentage of GDP for the south of the euro area (Greece, Italy, Portugal, Spain), the north of the euro area (i.e., the rest of the euro area), and the OECD countries outside the euro area.

In a similar spirit as our regressions in Section **??**, we can correlate capital flows with variations in institutional quality. This is the purpose of Figure **??**. The left panel of Figure **??** plots the change in the WGI Rule of Law index and the average Current Account-to-GDP ratio over the same period (1996 to 2011). This figure illustrates that countries which were receiving large capital inflows also experienced a decline in the quality of their institutions. The correlation of the average current account to GDP of the 1996 to 2011 period and changes in the WGI Index over the same period is 0.3. This correlation also holds true for other measures of capital inflows such as external indebtedness or borrowing costs. This correlation

[15] For example, according to the Fraser Institute measure, southern European improved their institutional quality substantially up until the mid 90s and, notably in the 80s, when some of these countries joined the European Union. An important information on. the Fraser Institute measure is that it was only available every 5 years before 2000, for example in 1990 and 1995 in the 90s.

[16] Note that some of these indicators are survey based, but it is worth noting that the patterns are the same when considering either survey-based measures only or more objective measures.

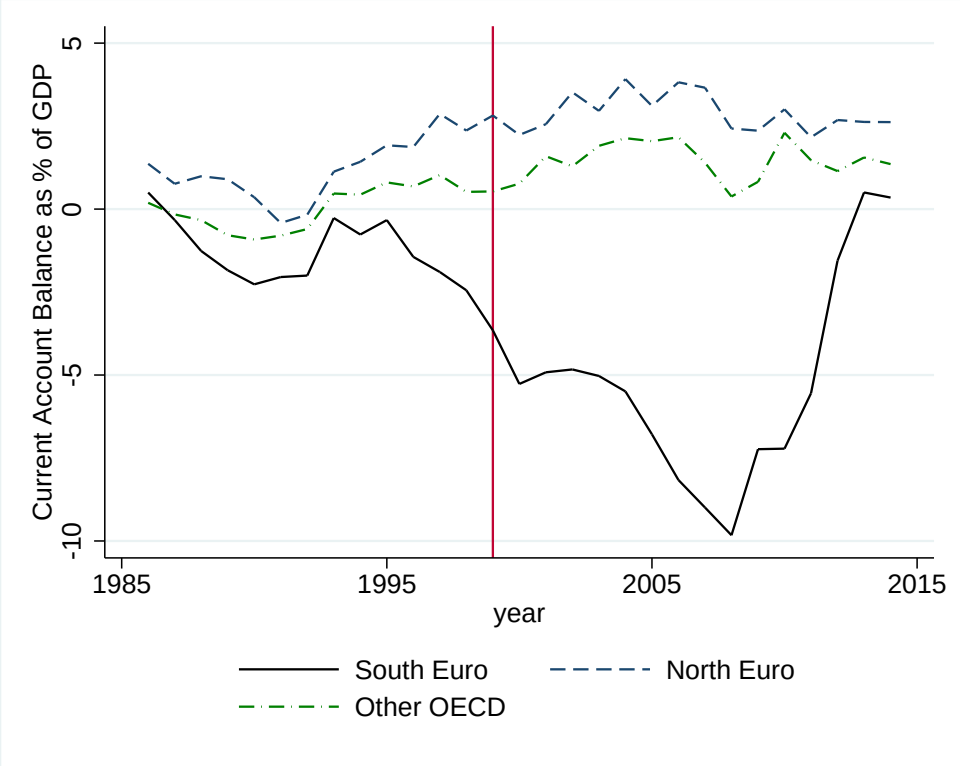


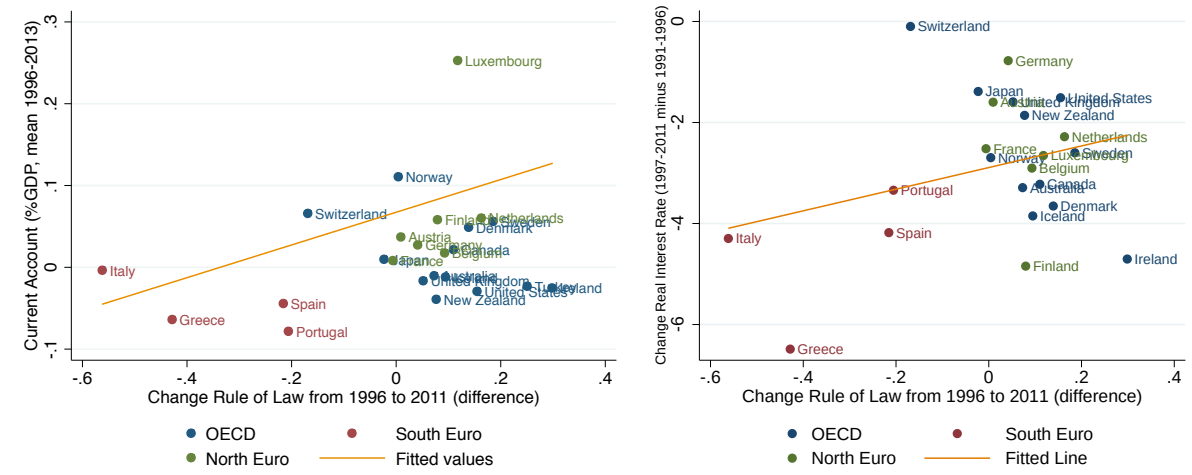
Figure 2 – Capital inflows as measured by current accounts in percentage of GDP

is not driven by surplus countries as it is higher (0.5), if we limit the sample to countries that experienced a current account deficit over the sample period. The right panel of Figure **??** plots changes in the real interest rate (the average of real interest rate in 1997-2011 minus the average in 1991-1996) against changes in the RL index. This graph shows the same pattern.

5 Conclusion

In this paper, we have studied the joint evolution of capital flows and institutional quality in an open-economy model of the soft budget constraint syndrome, and then tested the implications of the model in the data. The empirical evidence confirmed the theoretical prediction of a decline in the quality of institutions after rising capital inflows. After having examined the link between the two worldwide, we eventually focused our analysis on the euro area, so as to evaluate the ability of our model to shed light on the divergence between southern and northern European countries in terms of institutional quality since the mid-1990s. The euro area fits well the pattern suggested by the theory, just as the overall country panel does.

We see our analysis as being only a first step towards a better understanding of the determination of economic institutions in open economies. Our theoretical and empirical analysis have focused on financial openness, but there obviously are other channels by which



(a) Current Account (b) Borrowing Costs

Figure 3 – Capital inflows and institutional quality

economic openness may affect domestic institutions, most notably trade openness. We leave such alternative channels for future research.

Table 2 – Panel Regressions Institutional Quality and Capital Flows

Variables	**Property Rights Index (Fraser)**	**Property Rights Index (Heritage)**	**WGI Rule of Law**	**ICRG Index**
Lagged CA-to-GDP (10 year mean average)* dummy fixed exchange rate	0.053***	0.947***	0.015***	0.007**
	[0.023]	[0.455]	[0.007]	[0.003]
Controls				
Initial value institutional quality	0.308***	0.381***	0.728***	0.446***
	[0.076]	[0.077]	[0.068]	[0.063]
Initial GDP per capita	0.000***	0.000***	0.000***	0.000***
	[0.001]	[0.001]	[0.000]	[0.000]
Level of Democracy (Polity)	0.027	0.243***	0.050***	0.003
	[0.047]	[0.793]	[0.015]	[0.004]
GDP growth rate	0.008***	-0.033	0.001	0.000
	[0.007]	[0.231]	[0.002]	[0.001]
GDP per capita	0.000	0.000***	0.000***	0.000
	[0.000]	[0.000]	[0.000]	[0.000]
Constant	3.003***	27.295***	-0.434***	0.265***
	[0.373]	[6.638]	[0.134]	[0.030]
Observations	571	1003	864	1276
Number of Groups	83	117	116	101
R2 between	0.65	0.31	0.92	0.75
R2 overall	0.63	0.21	0.88	0.64

Note: This table reports panel estimates with random effects and robust standard errors clustered by country in brackets of a unbalanced panel of countries for the 1970-2017 period. The dependent variable is a measured of institutional quality. Four different variables are considered: The Property Rights Index from the Heritage Foundation, The Property Rights Index from the Frasier Institute, the WGI Rule of Law index from the World Bank and the Corruption, Law, Order and Bureaucracy Quality Index from the International Country Risk Guide (ICRG Index). The explanatory variables include the average Current Account to GDP ratio (CA-to-GDP) for the 10 previous years interacted with a dummy that takes the value of 1 for countries with fixed exchange rates. The controls variables include the initial level of the institutional quality index, the initial level of GDP per capita, the level of Democracy (Polity) and the GDP growth rate.

Table 3 – Panel Regressions Institutional Quality and Short-Term Capital Flows

Variables	**Property Rights Index (Frasier)**	**Property Rights Index (Heritage)**	**WGI Rule of Law**	**ICRG Index**
Lagged CA-to-GDP (2 year mean average)* dummy fixed exchange rate	0.005 [0.06]	0.246 [0.195]	0.000 [0.002]	0.007** [0.003]
Controls				
Initial value institutional quality	0.395***	0.434***	0.712***	0.446***
	[0.058]	[0.068]	[0.060]	[0.063]
Initial GDP per capita	0.000***	0.001	0.000***	0.000***
	[0.000]	[0.001]	[0.000]	[0.000]
Level of Democracy (Polity)	0.060***	0.598	0.052***	0.003
	[0.020]	[0.655]	[0.013]	[0.004]
GDP growth rate	0.002	-0.067	0.000	0.000
	[0.005]	[0.145]	[0.002]	[0.001]
GDP per capita	0.000	0.000	0.000**	0.000
	[0.000]	[0.000]	[0.002]	[0.000]
Constant	2.281***	22.443***	-0.497***	0.265***
	[0.278]	[5.407]	[0.116]	[0.030]
Observations	1286	1650	1392	1276
Number of Groups	111	120	120	101
R2 between	0.73	0.40	0.92	0.75
R2 overall	0.62	0.19	0.88	0.64

Note: This table reports panel estimates with random effects and robust standard errors clustered by country in brackets of a unbalanced panel of countries for the 1970-2017 period. The dependent variable is a measured of institutional quality. Four different variables are considered: The Property Rights Index from the Heritage Foundation, The Property Rights Index from the Frasier Institute, the WGI Rule of Law index from the World Bank and the Corruption, Law, Order and Bureaucracy Quality Index from the International Country Risk Guide (ICRG Index). The explanatory variables include the average Current Account to GDP ratio (CA-to-GDP) for the 10 previous years interacted with a dummy that takes the value of 1 for countries with fixed exchange rates. The controls variables include the initial level of the institutional quality index, the initial level of GDP per capita, the level of Democracy (Polity) and the GDP growth rate.

Table 4 – GMM Panel Regressions of Rule of Law and Lagged Current Account

Dependent Variable	Rule of Law (RL)					
Sample	(a) Full Sample			(b) Excluding oil-dependent	(c) Excluding top quintile±	(d) Excluding bottom quintile
Variables						
Lagged CA-to-GDP (10 year mean average)	0.513***					
	[0.299]					
Lagged CA-to-GDP (6 year mean average)	0.504***			0.597***	1.784***	0.675***
	[0.168]			[0.240]	[0.643]	[0.206]
Lagged CA-to-GDP (4 year mean average)		0.466***				
		[0.167]				
Lagged CA-to-GDP (2 year mean average)			0.138			
			[0.143]			
Lagged RL (one year)	0.893***	0.915***	0.945***	0.886***	0.698***	0.928***
	[0.467]	[0.489]	[0.459]	[0.485]	[0.239]	[0.042]
GDP growth	-0.134	-0.254	-0.213	-0.116	-0.536	-0.029
	[0.234]	[0.297]	[0.248]	[0.296]	[0.816]	[0.267]
Observations	773	815	856	720	606	625
Number of Groups	93	94	95	87	76	83
Chi-square (Hansen over-id test)	0.382	0.321	0.332	0.589	0.507	0.681
AR(2) (test for serial correlation)	0.249	0.207	0.197	0.349	0.497	0.290

Note: This table reports dynamic GMM estimates on the rule of law (RL) using two-step robust standard errors, in brackets, of a unbalanced panel of countries for the 1996-2013 period including the average current account to GDP ratio (CA-to-GDP) for previous years with different time horizons depending on the specification (2, 4 and 6-years average), the GDP growth rate and lags of dependent variable. Regressions use the **?** and **?** system GMM estimator. *,** and *** denote significance at the 1, 5 and 10 percent, respectively. The Rule of Law indicator is from the *WGI* of the World Bank. The Current Account to GDP ratio and GDP growth rate are from the *IFS* data of the *IMF*. The estimates are divided into four samples: (a) Full Sample, (b) Excluding oil-dependent countries, (c) Excluding countries at the bottom and (d) excluding countries at the top quintile of the rule of law distribution. Oil dependent countries are defined by having an oil rent as a fraction of GDP higher than 10%. Oil rent as a percentage of GDP is from the World Bank's *WDI*. ± When excluding the top quintile we use collapsed instruments as the sample size gets reduce because of missing observations of the countries at the bottom of the sample.

Table 5 – GMM Panel Regressions of WGI Index and Lagged Current Account

Dependent Variable	WGI Index					
Sample	(a) Full Sample			(b) Excluding oil-dependent	(c) Excluding top quintile±	(d) Excluding bottom quintile
Variables						
Lagged CA-to-GDP (6 year mean average)	0.265**			0.527***	1.362	0.753**
	[0.137]			[0.177]	[1.353]	[0.292]
Lagged CA-to-GDP (4 year mean average)		0.235*				
		[0.135]				
Lagged CA-to-GDP (2 year mean average)			0.212			
			[0.187]			
Controls						
Lagged WGI (one year)	0.892***	0.896***	0.920***	0.853***	0.539	0.873***
	[0.053]	[0.068]	[0.056]	[0.061]	[0.407]	[0.056]
GDP growth	0.072	0.174	0.221	-0.041	0.314	-0.005
	[0.149]	[0.157]	[0.168]	[0.173]	[0.584]	[0.177]
Observations	773	815	856	720	667	625
Number of Groups	93	94	95	87	76	83
Chi-square (Hansen over-id test)	0.494	0.406	0.448	0.606	0.320	0.658
AR(2) (test for serial correlation)	0.623	0.566	0.552	0.543	0.153	0.960

Note: This table reports dynamic GMM estimates on the WGI Index (WGI) using two-step robust standard errors, in brackets, of a unbalanced panel of countries for the 1996-2013 period including the average current account to GDP ratio (CA-to-GDP) for previous years with different time horizons depending on the specification (2, 4 and 6-years average), the GDP growth rate and lags of the rule law. Regressions use the **?** and **?** system GMM estimator. *,** and *** denote significance at the 1, 5 and 10 percent, respectively. The Rule of Law indicator is from the *WGI* of the World Bank. The Current Account to GDP ratio and GDP growth rate are from the *IFS* data of the *IMF*. The estimates are divided into four samples: (a) Full Sample, (b) Excluding oil-dependent countries, (c) Excluding countries at the bottom and (d) excluding countries at the top quintile of the rule of law distribution. Oil dependent countries are defined by having an oil rent as a fraction of GDP higher than 10%. Oil rent as a percentage of GDP is from the World Bank's *WDI*. ± When excluding the top quintile we use collapsed instruments as the sample size gets reduce because of missing observations of the countries at the bottom of the sample.

Table 6 – GMM Panel Regressions of Rule of Law and Lead Current Account

Dependent Variable	Rule of Law (RL)					
Sample	(a) Full Sample			(b) Excluding oil-dependent	(c) Excluding top quintile±	(d) Excluding bottom quintile
Variables						
Lead CA-to-GDP (6 year mean average)	0.434			0.319	-1.078	0.258
	[0.481]			[0.506]	[3.115]	[0.564]
Lead CA-to-GDP (4 year mean average)		-0.507				
		[0.48]				
Lagged CA-to-GDP (2 year mean average)			-0.125			
			[0.270]			
Controls						
Lagged RL (one year)	0.812***	0.917***	0.954***	0.721***	0.173	0.863***
	[0.105]	[0.074]	[0.046]	[0.191]	[0.610]	[0.107]
GDP growth	-1.48**	-0.038	-0.538	-1.139	-0.020	-0.506
	[0.610]	[0.443]	[0.421]	[1.064]	[1.316]	[0.740]
Observations	428	616	801	400	338	338
Number of Groups	93	94	95	87	77	77
Chi-square (Hansen over-id test)	0.484	0.135	0.245	0.492	0.735	0.220
AR(2) (test for serial correlation)	0.112	0.036	0.071	0.191	0.211	0.980

Note: This table reports dynamic GMM estimates on the Rule of Law using two-step robust standard errors [in brackets] of a unbalanced panel of countries for the 1996-2013 period including the average Current Account to GDP ratio (CA-to-GDP) for subsequent years with different time horizons depending on the specification (6, 4 and 2-year averages), the GDP growth rate and the two year lags of the rule of value as controls. Regressions use the **?** and **?** system GMM estimator. *,** and *** denote significance at the 1, 5 and 10 percent, respectively. The Rule of Law indicator is from the *WGI* of the World Bank. The Current Account to GDP ratio and GDP growth rate are from the *IFS* data of the *IMF*. The estimates are divided into four samples: (a) Full Sample, (b) Excluding oil-dependent countries, (c) Excluding countries at the bottom and (d) excluding countries at the top quintile of the rule of law distribution. Oil dependent countries are defined by having an oil rent as a fraction of GDP higher than 10%. Oil rent as a percentage of GDP is from the World Bank's *WDI*. ± When excluding the top quintile we use collapsed instruments as the sample size gets reduce because of missing observations of the countries at the bottom of the sample.

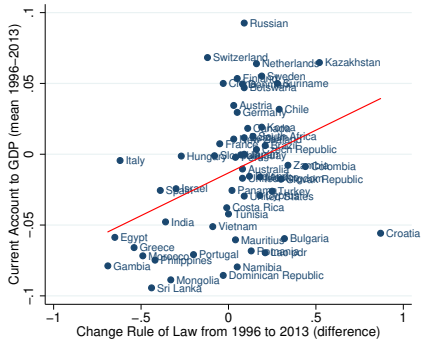
Table 7 – GMM Panel Regressions of WGI Index and Lead Current Account

Dependent Variable	WGI Index					
Sample	(a) Full Sample			(b) Excluding oil-dependent	(c) Excluding top quintile±	(d) Excluding bottom quintile
Variables						
Lead CA-to-GDP (6 year mean average)	1.125			1.437	-2.331	1.570
	[1.556]			[0.906]	[2.80]	[1.028]
Lead CA-to-GDP (4 year mean average)		0.285				
		[0.395]				
Lead CA-to-GDP (2 year mean average)			0.107			
			[0.194]			
Controls						
Lagged WGI (one year)	1.029***	0.993***	1.009***	0.8928***	0.522	1.03***
	[0.057]	[0.047]	[0.030]	[0.154]	[0.853]	[0.045]
GDP growth	-1.098	0.097	0.082	-1.412	0.539	-0.358
	[1.267]	[0.244]	[0.170]	[1.053]	[0.852]	[0.651]
Observations	428	616	801	328	338	342
Number of Groups	93	94	95	86	77	77
Chi-square (Hansen over-id test)	0.163	0.125	0.445	0.159	0.304	0.066
AR(2) (test for serial correlation)	0.060	0.072	0.062	0.272	0.105	0.173

Note: This table reports dynamic GMM estimates on the WGI using two-step robust standard errors [in brackets] of a unbalanced panel of countries for the 1996-2013 period including the average Current Account to GDP ratio (CA-to-GDP) for subsequent years with different time horizons depending on the specification (6, 4 and 2-year averages), the GDP growth rate and the two year lags of the WGI Index as controls. Regressions use the **?** and **?** system GMM estimator. *,** and *** denote significance at the 1, 5 and 10 percent, respectively. The WGI index is a sample average of the six indicators reported by the WGI of the World Bank. The Current Account to GDP ratio and GDP growth rate are from the *IFS* data of the *IMF*. The estimates are divided into four samples: (a) Full Sample, (b) Excluding oil-dependent countries, (c) Excluding countries at the bottom and (d) excluding countries at the top quintile of the rule of law distribution. Oil dependent countries are defined by having an oil rent as a fraction of GDP higher than 10%. Oil rent as a percentage of GDP is from the World Bank's *WDI*. ± When excluding the top quintile we use collapsed instruments as the sample size gets reduce because of missing observations of the countries at the bottom of the sample.

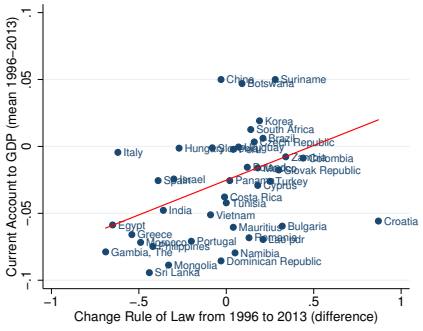
Figure 4 – Changes in the Rule of Law and External Financing: Cross-Sectional Evidence

(a) Excluding Bottom Quintile Rule of Law



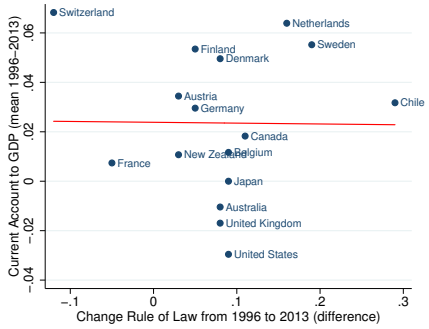
$\beta = 2.389,\ t\,(\beta) = 3.10, R^2 = 0.14$

(b) Excluding Top/ Bottom Quintile Rule of Law



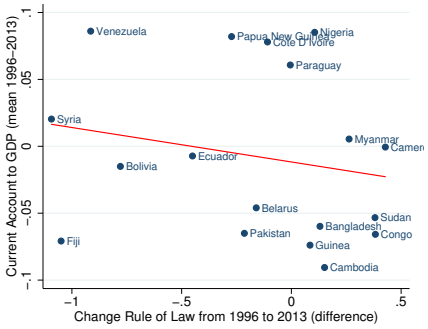
$\beta = 2.937,\ t\,(\beta) = 2.71, R^2 = 0.15$

(c) Top Quintile Rule of Law



$\beta = -.032,\ t\,(\beta) = -0.04, R^2 = 0.00$

(d) Bottom Quintile Rule of Law



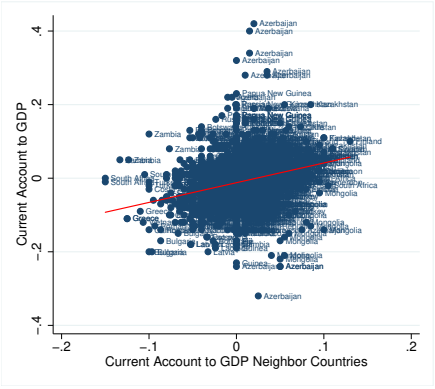
$\beta = -1.658,\ t\,(\beta) = -0.82, R^2 = 0.04$

$$\triangle rl_{1996-2013} = constant + \beta \sum_{1996}^{2013} (1/years)\,[CA_i/GDP_i]$$

Figure 5 – Current Account and Current Account of Neighbor Countries

Full Sample

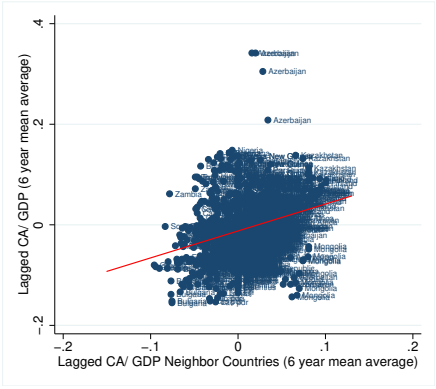
(a) Country-year



$\beta = 0.53,\ t(\beta) = 10.35, R^2 = 0.06$

$CA/GDP = \alpha + \beta\,[CA/GDP]_N$

(b) 6 year average

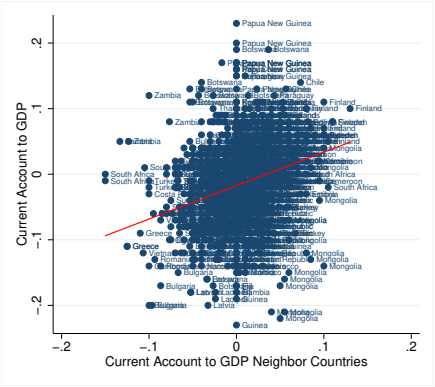


$\beta = 0.65,\ t(\beta) = 10.78, R^2 = 0.10$

$L.CA/GDP_{6.Y:A.} = \alpha + \beta L.\,[CA/GDP]_{N.6.Y.A}$

Excluding oil-dependent countries

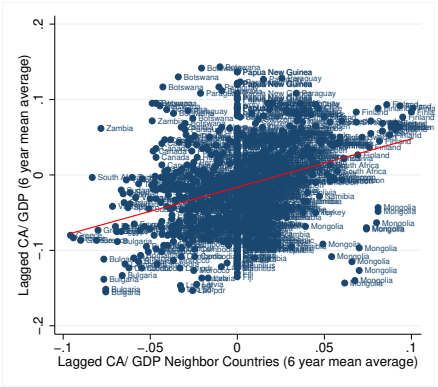
(a) Country-year



$\beta = 0.51,\ t(\beta) = 10.74, R^2 = 0.07$

$CA/GDP = \alpha + \beta\,[CA/GDP]_N$

(b) 6 year average



$\beta = 0.64,\ t(\beta) = 11.37, R^2 = 0.12$

$L.CA/GDP_{6.Y:A.} =$

$\alpha + \beta L.\,[CA/GDP]_{N.6.Y.A}$

Table 8 – GMM Panel Regressions of WGI and Rule of Law and Lag Current Account of Neighbor Countries

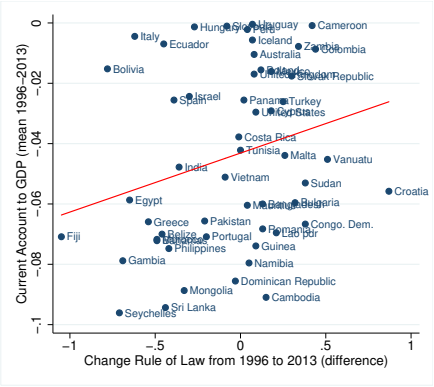
Dependent Variable	Rule of Law (RL)		WGI Index	
Sample	(a) Full Sample	(b) Excluding oil-dependent	(a) Full Sample	(b) Excluding oil-dependent
Variables				
Lagged CA-to-GDP Neighbor Countries (6 year mean average)	1.717	2.733*	5.062*	5.779
	[1.611]	[1.495]	[2.808]	[3.572]
Controls				
Lagged RL / WGI (one year)	1.009***	0.984***	0.685*	0.699*
	[0.011]	[0.127]	[0.384]	[0.375]
GDP growth	0.285	0.232	0.098	0.123
	[0.541]	[0.458]	[0.336]	[0.283]
Observations	824	764	824	764
Number of Groups	86	80	86	80
Chi-square (Hansen over-id test)	0.380	0.598	0.492	0.604
AR(2) (test for serial correlation)	0.901	0.976	0.536	0.341

Note: This table reports dynamic GMM estimates on the Rule of Law and the WGI index using two-step robust standard errors (in brackets) of a unbalanced panel of countries for the 1996-2013 period including as explanatory variable the 6 year average Current Account to GDP ratio (CA-to-GDP) of neighbor countries for and the GDP growth rate and the two year lags of the WGI Index as controls. Regressions use the **?** and **?** system GMM estimator. *,** and *** denote significance at the 1, 5 and 10 percent, respectively. The WGI index is a sample average of the six indicators reported by the WGI of the World Bank. The Rule of Law indicator is from the same source. The Current Account to GDP ratio and GDP growth rate are from the *IFS* data of the *IMF*. The definition of neighbor is that it shares a border with a country. The estimates are divided into two samples: (a) Full Sample and (b) Excluding oil-dependent countries. Oil dependent countries are defined by having an oil rent as a fraction of GDP higher than 10%. Oil Rent as a percentage of GDP is from the World Bank's *WDI*. ± The estimation uses collapsed instruments to avoid having too many instruments relative to the number of groups.

Figure 6 – Changes in the Rule of Law and Positive or Negative Current Account Balances

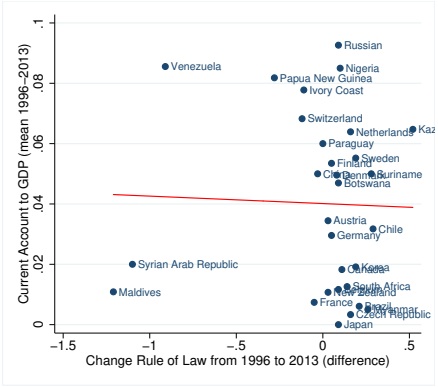
Full Sample

(a) Negative CA/GDP average



$\beta = 3.29,\ t(\beta) = 1.87, S.E = 1.75$

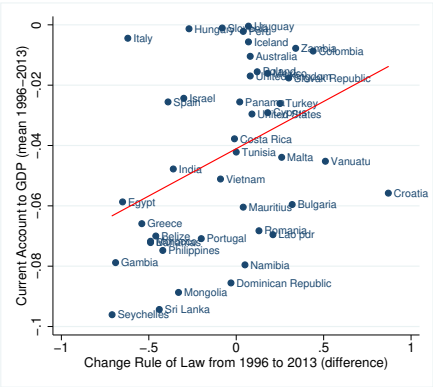
(b) Positive CA/GDP average



$\beta = -0.44,\ t(\beta) = -0.17, S.E = 2.52$

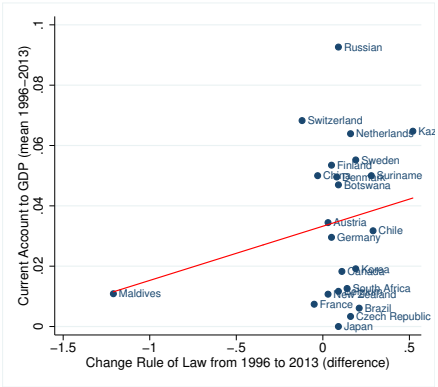
Excluding Bottom Quintile Rule of Law

(c) Negative CA/GDP average



$\beta = 4.56,\ t(\beta) = 2.52, S.E = 1.74$

(b) Positive CA/GDP average



$\beta = 2.59,\ t(\beta) = 1.01, S.E. = 2.56$

$$\triangle rl_{1996-2013} = constant + \beta\,[CA/GDP]_{1996-2013}$$

A Further evidence on the institutional decline in the South of Europe

In this appendix, we document that almost all the WGI indexes declined starting in the late 90s in the South of the euro area. Figure **??** plots the six WGI indexes of institutional quality for Greece, Italy, Spain and Portugal between 1996 and 2011, compared with the rest of the euro-area.

As is apparent from Figure **??**, the general trend in institutional quality over that period is decreasing. The timing of the decrease is sometimes different across countries or across indicators, but in general institutional quality has decreased or at best stagnated. An exception is Regulatory Quality, which first improved in the first years of the common currency but has eventually started decreasing in the mid-2000s. For all the indicators and for all four countries, the decline was initiated long before the financial crisis of 2008-2009 and the European sovereign debt crisis in 2010. This decline contrasts with the the rest of the Eurozone ("North Europe"), where institutional quality is roughly unchanged over the period under consideration.

It is useful to see that the decline also appears in alternative measures of institutional quality, as the Accountability and Transparency index built by **?**, as illustrated by Figure **??**.

To check for robustness, we can further check whether the decline was statistically significant, peculiar to the south of the euro area or due to the way the WGI are aggregated.

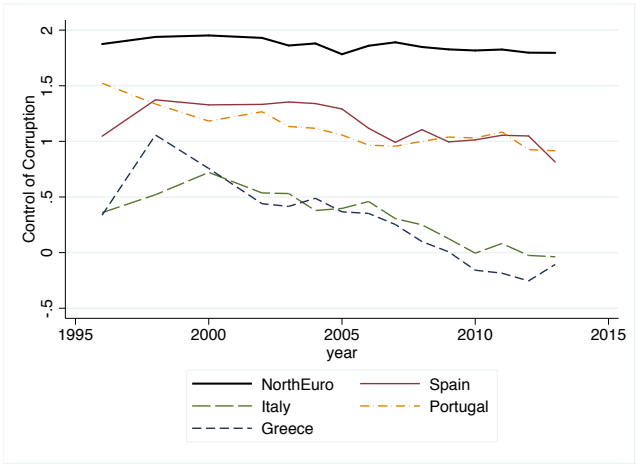
Comparison with other OECD countries Was the south of Europe specific or did other countries in the euro-area, or more generally among OECD countries, also experience this declining trend? We can obtain a first-pass answer to this question by plotting the levels of the overall WGI index in 2011 as a function of their values in 1996, for all OECD country – see Figure **??**. As this figure shows the four southern European countries started with a lower level of institutional quality and diverged away from OECD countries in the period in question.

Statistical significance. We formally test whether the decline in the level of a particular index is significant using the standard deviations provided with the WGI database estimates. Table **??** reports p-values from Wald tests that check whether the value of each indicator in 2011 is significantly lower than its value in 1996. To put these p-values into perspective, note that **?** document that, over the 2000-2009 period and for each indicator, only 8% of countries experienced a significant change at the 10% level and 18% of countries at the 25% level.[17] Due to its complex dynamics, we do not test the evolution of regulatory quality. For the other indexes, the Wald tests confirm the visual impressions provided by Figures **??** and **??**.

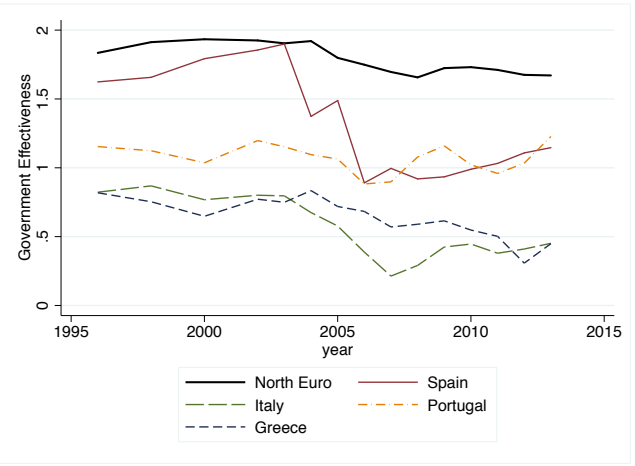
These tests conclude that all four of the southern European countries experienced a decline in the quality of institutions that is significant for at least one of the indexes at the 5% level and for the other indexes at least at the 20% level.

We stress that the magnitude and likelihood of this institutional decline are specific to the four countries under consideration and have no analogue in the Euro area or even among OECD countries. To illustrate this point, Table **??** reports the results of a formal test of the evolution of institutional quality that allows to compare southern Europe with other countries, including those for whom the indexes of institutional quality show an constant or increasing trend. To be more specific, the table reports the probabilities that at least n

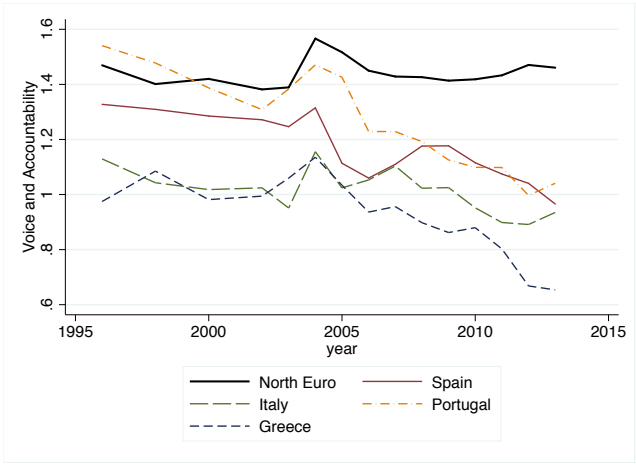
[17] Given the normalization of the indicators, this implies that 9% of countries experienced a significant decline at the 25% level, which corresponds to 19 countries.



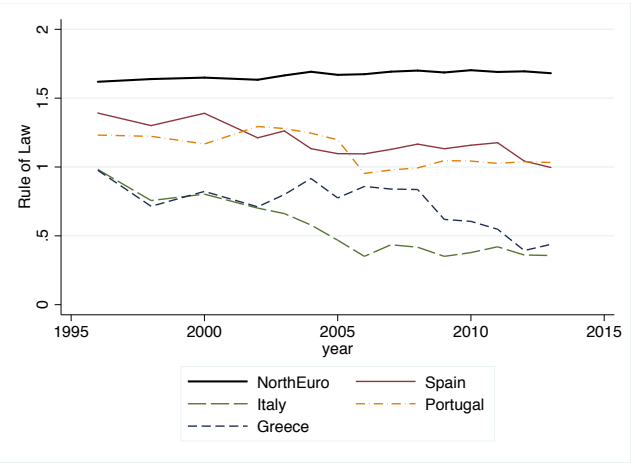
(a) Control of Corruption



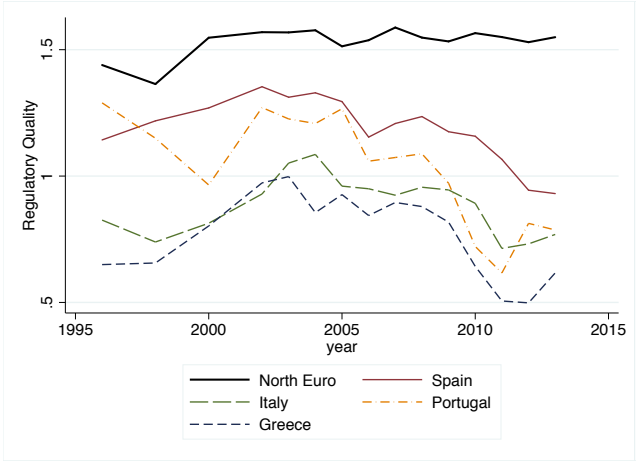
(b) Government Efficiency



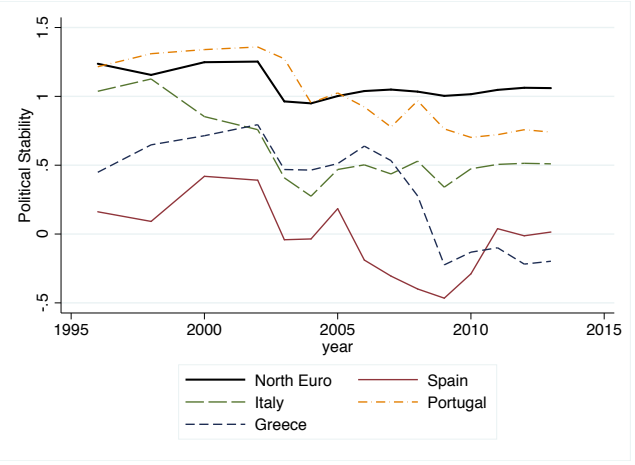
(c) Voice and Accountability



(d) Rule of Law



(e) Regulatory Quality



(f) Political Stability

Figure 7 – World Bank Indexes of institutional quality

$(= 4, 5, 6)$ out of the 6 indexes of institutional quality have jointly *decreased* over the 1996-2011 period. We run this test on southern European countries as well as on several Eurozone countries and (non-Eurozone) Scandinavian countries.

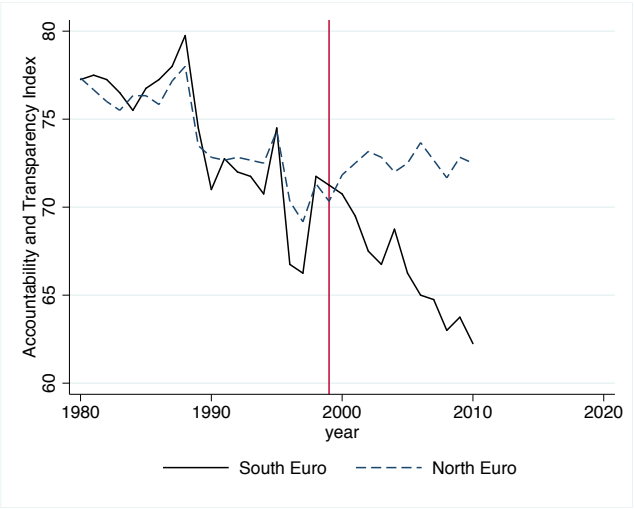


Figure 8 – Williams (2014)'s measure of Accountability and Transparency

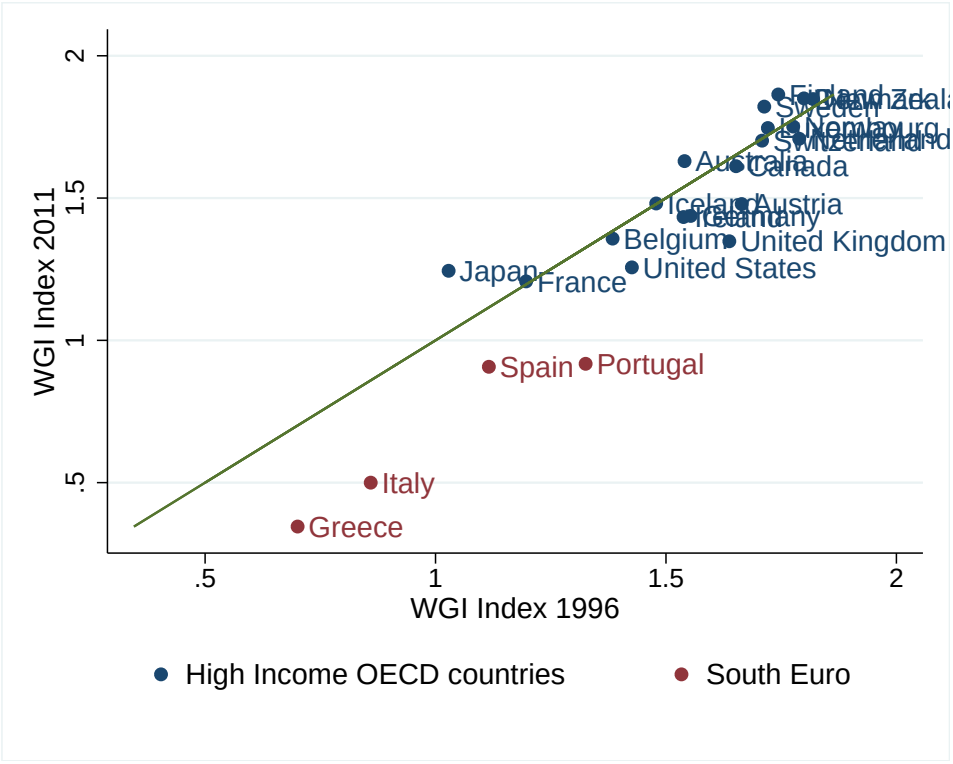


Figure 9 – WGI Index

Robustness with respect to the underlying series. The WGI indexes aggregate data from multiple sources so their composition may evolve over time. We thus check that the trends observed on the overall indexes also hold for most of the indexes' components. Table **??** reports how the series underlying each governance indicators evolve over time. For almost all indicators and for all countries, more than two thirds of the series have a downward trend, thus confirming the aggregate behavior that we have identified. There is only one exception: control of corruption in Portugal. In this case, three of the increasing underlying series are in fact close to be constant.

	At least 6 indexes	At least 5 indexes	At least 4 indexes
Greece	42.9%	84.6%	98.0%
Italy	26.8%	71.2%	94.6%
Spain	11.5%	44.3%	78.9%
Portugal	43.2%	83.5%	97.5%
Belgium	0.3%	4.1%	19.8%
France	0.2%	3.0%	16.9%
Germany	1.5%	14.7%	48.5%
Netherlands	3.2%	21.0%	54.7%
Denmark	0.2%	3.0%	15.5%
Norway	1.1%	9.4%	33.0%
Sweden	$< 0.1\%$	1.8%	14.0%

Table 9 – Probabilities of decrease of WGI indexes

This table reports probabilities that WGI indexes jointly decrease during the 1996-2011 period.

	VA	PS	GE	RL	CC
Greece	6 / 2	5 / 1	4 / 1	5 / 2	5 / 0
Italy	5 / 3	4 / 2	5 / 0	6 / 2	4 / 1
Portugal	8 / 0	4 / 2	3 / 2	7 / 1	1 / 4
Spain	7 / 1	4 / 2	4 / 1	5 / 2	4 / 1

Table 10 – Number of decreasing / increasing underlying series.

This table reports the number of decreasing and increasing series underlying each indicator. Those series start in 1996, 2000, 2002, 2006 or 2009, and we abstract from those only starting in 2006 or 2009. The first number indicates the number of decreasing series and the second one the number of increasing series.

B World Governance Indicators.

In this appendix, we provide some further elements on the World Governance Indicators as well as robustness checks for the decrease in institutional quality in the periphery of Europe.

Data sources. The WGI indicators are based on "expert" or survey-based indicators. We list here all these databases.

"Expert" sources. These include: African Development Bank Country Policy and Institutional Assessments (GOV), Asian Development Bank Country Policy and Institutional Assessments (GOV), Bertelsmann Transformation (NGO), Freedom House Countries at the Crossroads (NGO), Global Insight Global Risk Service (CBIP), European Bank for Reconstruction and Development Transition Report (GOV), Economist Intelligence Unit Riskwire & Democracy Index (CBIP), Freedom House (NGO), Global Integrity Index (NGO), Heritage Foundation Index of Economic Freedom (NGO), Cingranelli Richards Human Rights Database and Political Terror Scale (GOV), IFAD Rural Sector Performance Assessments (GOV), JET Country Security Risk Ratings (CBIP), Institutional Profiles Database (GOV), IREEP African Electoral Index (NGO), International Research and Exchanges Board Media Sustainability Index (NGO), International Budget Project Open Budget Index (NGO), World Bank Country Policy and Institutional Assessments (GOV), Political Risk Services International Country Risk Guide (CBIP), Reporters Without Borders Press Freedom Index (NGO), US State Department Trafficking in People report (GOV), Yearbook Global Insight Business Conditions and

Risk Indicators (CBIP).

CBIP stands for Commercial Business Information Provider, GOV for Public Sector Data Provider and NGO for Nongovernmental Organization Data Provider.

Surveys. These include: Afrobarometer, Business Enterprise Environment Survey, Transparency International Global Corruption Barometer Survey, World Economic Forum Global Competitiveness Report, Gallup World Poll, Latinobarometro, Political Economic Risk Consultancy Corruption in Asia Survey, Vanderbilt University Americas Barometer, Institute for Management and Development World Competitiveness.