Regulation and government debt*

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Abstract

Government debt is high in most developed countries, and while it may reflect short-term attempts to kick-start the economy in times of crisis through fiscal stimulus, the longer-term consequences risk being detrimental to investment and growth. This makes it important to identify factors that are associated with debt. While previous studies have related government debt to economic and political variables, they have not incorporated the degree to which the economy is regulated. We propose three theoretical links from regulation to debt: that regulation is an indicator of market friendliness/government skepticism that also affects attitudes towards debt; that regulation has direct economic consequences; and that regulation is a signal of the state of the economy or government that leads lenders to set interest rates accordingly. In each case, the effect could be positive or negative. Using regulatory freedom (absence of detailed regulation of labor, business and credit) from the Economic Freedom of the World index, we conduct an empirical analysis covering up to 67 countries in the period 1975–2010. The main finding is that regulatory freedom affects debt development negatively. This suggests a reluctance among market-friendly politicians to embrace Keynesian-style fiscal policy, or that regulation brings with it economic outcomes that increase debt. The effect is more pronounced when the political system is fractionalized and characterized by strong veto institutions.

Keywords

Debt, Economic freedom, Regulation, Markets, Stimulus. Keynesianism

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1. Introduction

What determines the size of government debt? We propose that the degree to which an economy is regulated matters, on the basis of three theoretical links. The first one is that people who hold pro-market attitudes tend to eschew regulation and hold skeptical views about substantial government debt. The second is that regulation affects the way the economy functions in a way that influences debt. The third is that regulation may function as a signal to lenders regarding contemporaneous or future problems in the economy or the government, such that they set interest rates (that influence debt levels) accordingly.

The first proposed link assumes that ideas (in this case regarding how well markets and government function) affect policy. Keynes (1936: 383–384) famously stated:

> The ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed the world is ruled by little else. Practical men, who believe themselves to be quite exempt from any intellectual influences, are usually the slaves of some defunct economist.[1]

Undoubtedly, one of the most important economists in this regard is Keynes himself, whose ideas about the causes of and solutions to economic downturns have been powerful in affecting the mind-sets of both policymakers and economists (Hall, 1989).[2] In connection with the great recession of 2007–2009, Keynesian-type policy prescriptions were widely adopted in many countries, often advocated by economists[3], and resulting in higher government debt.

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[1] Another economist who stresses the importance of ideas for which type of policy that is chosen is Martin Feldstein: "It was not events but ideas that propelled the increasing rate of inflation … the upward drift of the inflation rate was the result of a fundamental set of beliefs about the economy and about macroeconomic policy that was shared by economists and policy officials during the past two decades" (Feldstein, 1982: 63–64).

[2] By "ideas" we mean beliefs about how the world works. These can be affected by both positive and normative elements, such as scientific facts or ideologically based preconceptions.

[3] The IGM Economic Experts Panel leaned towards the Keynesian position in 2014 (IGM, 2014). When asked whether the benefits of the U.S. stimulus will end up exceeding its costs, 20% strongly agreed, 36% agreed, 23% were uncertain and 5% disagreed. An even stronger agreement with Keynesian ideas was found in a large survey of economists some decades earlier (Frey et al., 1984). To the claim that fiscal policy has a significant stimulating impact on a less than fully employed economy, 47% generally agreed, 40% agreed with provisions and 9% generally disagreed.

However, there have always been people who were skeptical of the Keynesian prescriptions. Even though Friedman (1965) claimed that "we are all Keynesians now", he meant it in the methodological sense of analyzing the economy with aggregate macroeconomic tools, while he recognized that quite a few, including himself, were less keen on, and even opponents of, attempts to counter economic fluctuations with active stabilization policy. Such skeptical positions arguably rest on a different assessment of the relative abilities of markets and governments to function well. Where the Keynesians tend to see markets as prone to malfunction and in need of government intervention, at least temporarily, the skeptics are much more optimistic about the long-term ability of markets and more pessimistic, due to knowledge and incentive problems, about what government can do to improve matters (Pennington, 2011). This speaks in favor of a negative relationship between pro-market/government-skeptical ideas and debt. One can, however, also imagine a positive relation – if, e.g., tax cuts are prioritized very strongly – maybe as part of a conscious plan to reduce government through the "starve the beast" approach.

So while ideas of the described kind can provide a mechanism that links regulation to debt because regulatory policy reflects an overall approach to economic policy, once regulation is in place, it can have direct effects on debt as well. Thus, the second link we propose is through economic outcomes. For example, regulation could affect growth, which in turn affects the debt ratio in various ways (e.g., the denominator directly and tax revenues). Also, a regulated labor market could entail higher debt (due to higher expenditures for the unemployed and an inefficient allocation of labor, which hampers productivity). On the other hand, regulation could, if wisely designed, perhaps prevent build-up of financial imbalances and resulting bursting of bubbles, which tend to have strong effects on debt, directly and through government aid of various kinds.

The third and last link concerns regulation as a signal of economic or political problems. If lenders interpret regulation as a result of various such problems, they may increase interest rates, which tends to increase debt by making it more costly to roll over and by increasing servicing costs. However, they might, depending on circumstances, interpret regulation as a signal of solutions being implemented, in which case they would tend to lower interest rates, with a negative effect on debt.

Against this background, which leads us to expect a relation between regulation and debt, we investigate empirically if regulation is indeed related to debt and, if so, how strongly and in what direction. As our measure of regulation, we use an area of the Economic Freedom of the World index – regulatory freedom – which measures how little an economy is regulated

in the areas of labor, credit and business. We employ panel data from 67 countries with Western-style political institutions for which we have data on government debt as well as a set of policy indicators. We observe these countries in up to seven five-periods in which we are able to follow the development of their debt levels and policy changes. Our main result is that regulatory freedom is negatively related to the debt ratio: an increase in the former of one unit (on a 10-unit scale) is on average associated with a six percentage-point reduction in the debt ratio. Moving from the regulatory freedom of Greece to that of Denmark would, all other things being equal, entail a reduction in the debt ratio of ten percentage points within a five-year period.

Moreover, we interact regulatory freedom with five variables in order to see whether the relationship depends on various circumstances – and find that (i) recessions do not affect the negative relation of regulatory freedom to debt; (ii) in democracies, regulatory freedom is more negatively related to debt the more right-wing the government is (but if the government is sufficiently far to the left, regulatory freedom is not affected in its relationship with debt by the ideology of the government); (iii) the stronger the veto players, above a certain threshold, the stronger is the negative association between regulatory freedom and debt; (iv) the higher the degree of legislative fractionalization, the more regulatory freedom is able to restrain debt; and (v) there is no indication that the relationship between regulatory freedom and debt is different when the debt ratio is very high (above 90%).

These further findings indicate that regulatory freedom is affected in its influence on debt by some other factors, shown to be relevant for debt in previous studies. As such, taking the difference in political institutions, in particular veto-player strength, into account suggests that the regulatory difference between Greece and Denmark would result in a 13-percentage point debt decrease.

This study contributes to a literature which investigates determinants of government debt by proposing a new factor of importance. Previous studies have looked at a range of economic, political and institutional variables as explanatory factors of which we now mention some of the more important ones dealing with the character of government and governance.[4] Roubini and Sachs (1989) identify short tenure and the need to form government coalitions as important sources of debt. Edin and Ohlsson (1991) confirm these findings, but favor the interpretation that minority governments, rather than majority coalition

[4] We focus on political and institutional factors here, but naturally, a number of economic variables affect debt levels as well, such as unemployment, asset markets, inflation, interest rates and growth rates (see, e.g., Tujula and Wolswijk, 2007).

governments, are more prone to fiscal laxity.[5] Grilli et al. (1991) similarly find that governments who expect to stay a short time in power do not care very much about the long run and therefore tend to run up higher debt. This is mostly a problem in countries dominated by many small parties. Taking a step back to identify causes of a certain party system and the type of government it tends to produce, Persson and Tabellini (2003) confirm that majoritarian electoral systems, with fewer and larger parties, are associated with smaller deficits. Cheibub (2006) finds support for presidential systems having better fiscal outcomes than parliamentary systems, especially if the president has a strong role in the budgetary process and if he or she can veto legislation. The reason is that presidents enable voters to a larger degree to hold politicians accountable for what happens with the debt. Volkerink and de Haan (2001) and Elgie and McMenamin (2008) show that more fragmented governments have higher deficits, while governments with a large majority in the legislature have lower deficits. There are also indications that governments with an ideological orientation to the right have lower deficits. Falcó-Gimeno and Jirado (2011) investigate how the opposition affects debt in the presence of a minority government. They show that if the opposition consists of one strong party, it is reluctant to agree to debt increases, as the probability is high that it will govern in the not-so-distant future; if the opposition is a (potential) coalition, however, they are prone to accept deficits. Perotti and Kontopolous (2002) show that two indicators of fragmentation, cabinet size and coalition size, are negatively related to fiscal balance.

Furthermore, Alt and Lassen (2006) find that fiscal transparency is associated with lower government debt. Woo (2003) tests political, social-polarization and institutional variables as explanatory factors of budget deficits, and reports that sociopolitical instability, proportional parliamentary regimes, income inequality, a large cabinet and a lack of central authority in the fiscal decision-making process increase budget deficits. Koehler and König (2015) conduct an empirical analysis using synthetic controls and find that government debt in the Eurozone would have been higher without the Growth and Stability Pact, hence indicating an effect of this (arguably imperfect) institutional setting. Leachman et al. (2007) document that both strict budget institutions and federalism contribute to lower deficits. In addition, Gunzinger and Sturm (2016) test to what degree political constraints affected the size of stimulus packages in connection with the great recession. The idea is that the ease with

[5] However, de Haan and Sturm (1997) show that when correcting for errors in the so-called power-dispersion index of Roubini and Sachs, a version of which is also used by Edin and Ohlsson, it is no longer related to the growth of debt.

which political decisions in general can be taken affects the ability to undertake (debt-increasing) decisions – and it is supported by the empirical findings. However, to our knowledge, formal testing of the hypothesis that ideas play a role for debt accumulation has not been undertaken before, and we thereby think we fill an important gap in the literature. Somewhat relatedly, Lavigne (2011) looks at institutional determinants of (avoidance of) fiscal distress and of fiscal adjustments and identifies, for developing countries, a strong rule of law as negatively associated with very high debt levels but positively related to the ability to reduce these levels. For developing countries, strong budgetary institutions seem to prevent fiscal distress, whereas fiscal performance management systems make fiscal adjustment more probable.[6] Again, against the background of these preceding studies, we believe we are making a contribution to the literature by testing the role of ideas about markets vs. government (and, as we will show, how the indicator of such ideas, regulatory freedom, interacts with some other central explanatory factors identified as significant in the earlier literature).

Why is government debt a policy variable to consider? As outlined by Elmendorf and Mankiw (1999), the debt ratio is important because it affects resource usage in an economy and ultimately economic growth.[7] While, according to many economists, increased short-term debt is able to boost aggregate economic performance during downturns, long-term debt of a substantial size will tend to dampen growth, e.g., by reduced national saving and through deadweight losses from taxation needed to service the debt. Indeed, Reinhardt and Rogoff (2010) find that the debt-growth relationship is quite weak at "normal" debt ratios but that very high debt ratios (above 90% of GDP) tend to reduce growth sharply: from 3% to 1.7% over the two-century period they study, but even more, from 3% to –0.1% in the post-war sample. They did not find clear differences in this regard between emerging and advanced economies.[8] These estimates were criticized by Herndon et al. (2014), who find smaller negative effects of high debt and no particular threshold at 90%; but Reinhart et al. (2012)

[6] Political business cycles could provide a further explanatory mechanism for debt accumulation, if voters reward expansionary fiscal policy and punish more restrictive policy. However, as pointed out in an evaluation of this literature by Alesina and Passalacqua (2015: 18), such cycles "cannot be the main explanation for large and long lasting accumulation of public debt".

[7] Debt is also relevant when considering other long-term goals, such as other economic outcomes than growth (e.g., inflation and employment), intergenerational equity and fiscal sustainability – see Auerbach (2008).

[8] They also detected a positive association between high debt ratios and high inflation in emerging economies.

provide some further support for the previous findings.[9] What seems clear is that there is a negative association between high debt and growth, although the exact magnitude of the relationship is being discussed.[10] This – that debt is related to growth (perhaps differently in the short and in the long term) – is sufficient motivation to study the determinants of debt, in our view.[11]

As a background, let us present some data on debt development in Figure 1. We exemplify different developments with five democratic, Western countries: Belgium, Denmark, Greece, the United Kingdom and the United States. These countries exemplify very different debt trends.

Insert Figure 1 about here

From the crisis in the 1970s, Belgium rapidly built a growing debt level that peaked at around 140% of GDP. However, with political changes in the early 1990s and substantial deregulation from the mid-1990s, the debt levels started to decrease and have in recent years hovered around a relatively stable level of 100%. Denmark exemplifies the same type of development with debt levels accelerating in the 1970s and early 1980s after which a dramatic policy shift stopped further lending and sharp policy changes in the 1990s led to rapid repayment. Yet, as in other countries, Danish debts increased during the Financial Crisis of 2008–2010. The debt build-up as a result of fiscal stimulus is particularly clear in the United Kingdom and the United States in the figure, which was also accompanied by further regulation. Finally, the figure also shows the development of Greek debt. Fueled by almost constant budget deficits, Greek debt levels increased from the democratization in 1974, but accelerated rapidly in 2008. At that time, it became known that successive Greek governments had defrauded international actors by lying about their national accounts. A substantial part of the debt explosion therefore was that interest rates grew rapidly, which led

[9] See also Eberhardt and Presbitero (2015) for further evidence of a negative relationship but with no common threshold across countries; the same conclusion is reached by Égert (2015).

[10] One might add that high debt levels make it more difficult for stimulus to work: see Nickel and Tudyka (2014).

[11] We wish to stress that we do not make any normative statement: debt may be considered good or bad – depending on one's values and on the assessed consequences. For those who do take a normative position, knowing what determines the debt ratio should be valuable information, and we believe we provide new such information, to be added to that of previous research.

to much larger debt when large parts of the existing debts were refinanced at much higher interest rates.

The rest of the paper is structured as follows. In Section 2, we provide a brief theoretical framework to structure our analysis. We then turn to the empirics, presenting the data and empirical method in Section 3 and the results in Section 4. Concluding remarks close the paper, in Section 5.

2. Some theoretical considerations

Our theoretical considerations specify three mechanisms that link regulation to government debt. We call them reflection effects, direct economic effects and reputation effects.

2.1. Reflection effects

By "reflection" we mean that regulation matters for debt, not in a direct way but because it indicates something else: the embracement of certain ideas, that help explain both regulation and debt (cf. Manski, 1993). We thus bring the Keynesian idea to the table that ideas matter for what political decisions are taken and for economic outcomes that are a function of such decisions. By "ideas" we mean beliefs about how the world works, and we specifically consider beliefs about the relative ability of markets and government to provide socially valuable outcomes.[12] The more one thinks that the government is able and willing to correct market failures and do other things in the public interest, and the more one thinks that market actors as a whole are primarily benefitting themselves, by having selfish preferences or by being unable to effectively engage in collective action, the more one will embrace the idea of government interventions being beneficial. These interventions can be both of a micro- and macroeconomic kind, such as regulation of economic life and stabilization policy.

Figure 2 about here

[12] In this we are inspired by Pitlik and Kouba (2015), who find that *the ratio* of trust in government actors and trust in major companies determines attitudes towards government intervention: the higher it is, the more positive are the attitudes.

We begin by describing our theoretical framework, as outlined in Figure 2.[13] The key relationship we are considering here is marked in the figure with the number 1 and connects ideas (the left-hand red box) to regulation (the right-hand red box) and debt (the blue box). But there are a number of auxiliary influences along the way and a number of intermediate steps (the black boxes).

Let us begin with the policy positions of politicians. Politicians adhere to political platforms containing a number of positions: they present them during campaigns, and some get elected with the stated purpose to implement them. In devising their policy positions, they are, on the one hand, "internally motivated": they have certain basic values and they have certain beliefs about how the world works, i.e., certain ideas. The former identify the political ends and the latter clarifies (what the politicians perceive to be) the means to achieve those ends. It may be that the perceptions of which ideas "work" are influenced by the values – the politician may not search for facts in a completely value-neutral way. The ideas can concern all kinds of issues, but as remarked, we focus on the basic belief of the relative ability of government and markets to function in a way that satisfies some conception of the public interest. Politicians can hold "government-friendly/market-skeptical" or "government-skeptical/market-friendly" ideas, to simplify. On the other hand, policy positions are not only determined by the internal workings of the politicians – since the aim is to get elected, there is a need to pay attention to what voters and interest groups want as well. These may, of course, desire different things, in turn. If we assume that politicians are vote-maximizers (since no matter what they want to accomplish, they need to be in power), this could make their policy positions the result of trade-offs on the margin: between the politicians' own preferred policy positions, between the policy positions of voters, between the policy positions of necessary coalition partners and between the policy positions of interest groups (to the extent that these go in different directions). Depending on the weights put on these four factors, and beliefs about how the support of voters and interest groups varies with the policy positions taken by the politicians, a platform of policy positions emerges.[14] For example, if a politician embraces

[13] This exposition concerns democracies. For non-democratic settings, voters and the legislature are not relevant as such – authoritarian regimes often have legislatures that only have nominal power; and if there are voters, they do not *de facto* have alternatives to vote for. Still, even authoritarian leaders may want to keep people reasonably happy, to be weighed against own preferences and the influence of interest groups.

[14] We here follow the general approach of Peltzman (1976). However, the literature on public choice/political economy has documented a number of mechanisms in democratic policy processes through which politicians'

the basic value that the happiness of the people is what matters and if he is very government-friendly, then he might be inclined to propose to regulate corporations by consumer-protection legislation. If he thinks that a large segment of the electorate (especially important marginal voters) will support such a position, he is reinforced in advocating it. However, important corporate interest groups probably oppose the position and would give resources to other politicians, which is a cost to consider.[15] This overall reasoning can be extended to political parties, whose politicians are united behind a platform of policy positions after a collective process with the individual positions as inputs.[16]

The next step is the political process. It is one thing, as an elected politician or a party, to have a set of policy positions; it is another to see those positions become enacted in the legislature. Policy positions are necessary but not sufficient for political decisions. The latter are determined by governments and legislatures, whose characteristics in turn are determined by the rules of the political game (the political institutions) and whose composition are determined in elections, run, as well, in accordance with the political institutions. Many political decisions affect economic outcomes of various kinds, and some of those outcomes in turn influence the debt; and many political decisions also affect the debt directly. This is our theoretical framework for understanding a reflection effect: going from the ideas (and values) of politicians and parties, via the political process and its actors and decisions, to the fiscal effects of those decisions. Ideas play a potentially important role. Our thesis is that ideas, in

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stated ideological preferences could either be distorted or entirely reversed. Mueller (2003), Hillman (2009) and Holcombe (2016) provide compendia of such mechanisms.

[15] Could the degree of regulation, although compatible with having been implemented on the basis of an idea about how well markets work (relative to government), solely be the result of other considerations, e.g., an interest-group influence on the politicians? We do not think so, for the following reasons, although even if it were, we propose two further mechanisms for explaining the regulation–debt relationship. First, we consider it improbable that politicians who have ideas to the effect that unregulated markets work badly will be fully open to interest-group influences that oppose regulation; in addition, they will want to pay attention to voters, which reinforces their idea-based openness to regulation. Thus, even if ideas are not directly driving regulation, certain ideas seem necessary for regulation to take a certain form. Second, if interest groups that want favorable regulation are behind regulatory freedom, then one can expect them to favor a Keynesian approach during downturns, as this would probably benefit them. This implies that regulation would be negatively related to debt, and if this is found not to be the case, this suggests that politicians who are primarily driven by ideas of general market-friendliness/government skepticism are likely to block such an overall, interest-based policy approach.

[16] Plausibly, differences in policy positions are small to begin with in a given party, since politicians generally choose to join it after knowing about its previous and existing platforms. Naturally, they can contribute to changing it once they get active, but in the legislature, the party acts as a unitary actor at any given point in time.

the form of attitudes towards government and markets, shape political decisions in the realm of regulation as well as political decisions that affect debt – and we posit a negative relationship between market-friendly ideas, much regulation and high debt.

Is it reasonable to associate market-friendliness with a resistance to debt? In line with Buchanan and Wagner (1977), who certainly advance the thesis that ideas matter for human behavior, and especially so in the area of fiscal policy, we think so. We suggest that a negative view of debt results both from a resistance to Keynesian stabilization policy and from internalized fiscal norms. Resistance to short-run deficits in recessions is a result of a belief in a strong ability of markets to produce beneficial outcomes for people in general, of a belief that markets adjust in a manner which is more beneficial in the long term without government intervention after times of crises, of a belief that governments tend to face problems of incentives and knowledge that make them unlikely to succeed with interventions of various kinds and of a belief that short-term deficits tend to turn into long-run debt, as the incentives to run surpluses in good times are weak. In other words, these are specific ideas that affect their holders to take a negative view of deficits and debt. But there are also norms – what Buchanan and Wagner (1977) refer to as "the old-time fiscal religion" – that complement and reinforce the former ideas. This is an internalized view that debt is a bad thing and that the government budget should be balanced, and Keynes vigorously argued against it. A constraint on deficit spending was, in that sense, largely removed through Keynesian ideas – certainly most economists embraced the new view, but market-friendly economists and politicians retained it to a substantial degree.[17]

Even though our main hypothesis is one of a negative relationship between market-friendliness and debt, it cannot be ruled out, on theoretical grounds, that the relationship is in fact positive. One reason could be that some market-friendly people advocate an approach to debt called "starving the beast", the purpose of which is to use tax cuts as a method to reduce government expenditures (see, e.g., Mulligan, 2008). The presumption is that debt will not be tolerated and that the size of government will therefore have to be cut. However, empirical analysis seems to undermine this proposed mechanism (see Romer and Romer, 2009), and hence our main hypothesis is still that market-friendliness, as proxied by the relative absence

[17] One can regard this type of norm as an informal institution that works in a similar fashion as formal institutions that constrain political decision-making and which, e.g., Gunzinger and Sturm (2016) found to have a negative effect on the scope of stimulus programs. Furthermore, the debate about "austerity" policy after the financial crisis featured politicians (especially from Germany) who may be said to have espoused the old fiscal norm.

of substantial regulation, is negatively related to debt. Another reason could be that market-friendly politicians value certain government expenditures very strongly, such that they are increased even if this entails deficits. An example could be Ronald Reagan's defense spending in the 1980s. A third reason could be that proposed by Persson and Svensson (1989): that a market-friendly/government-skeptical government would know that it will be replaced by a market-skeptical/government-friendly government, who will want to increase public spending, and under certain conditions the former government will then borrow more than it would otherwise have to constrain its successors in their spending efforts.

2.2. Direct economic effects and reputation effects

The reflection effects described in Section 2.1 explain the regulation–debt relationship by regarding regulation as an indicator of certain ideas that affect policy positions both on regulation and debt. However, we propose two further mechanisms that can explain the relationship: direct economic effects and reputation effects.[18] In both cases, regulation is taken as the starting point: for some reason – a combination of politicians' values and ideas, the influence of interest groups and voters and the political decision-making process – it is there, and it does not matter for what reason. In and of itself, it can affect debt. These effects are illustrated by the number 2 in Figure 2, going from regulation (the right-hand red box) via economic outcomes to debt (the blue box).

The direct economic effects mean that regulation influences how the economy works in a manner that in turn has repercussions on the debt ratio. If the business sector is heavily regulated, this may impede competition, dynamism and flexibility, with fewer innovations and, as a result, slower and maybe negative economic growth.[19] If growth slows down, this can affect the debt ratio both through the numerator (through lower tax revenues, due to smaller tax bases, or higher government expenditure, e.g., to subsidize rigid sectors and fund unemployment benefits) and the denominator (which is GDP, the growth of which is retarded

[18] These two effects can be complements to the reflection effects and then reinforce the latter (since they can be present at the same time). But it could also be that reflection effects are present without these effects being there, and vice versa.

[19] See Nicoletti and Scarpetta (2003), Djankov et al. (2006) and Jalilian et al. (2007) for studies that document a negative relationship between regulation and economic growth. For an analysis of how Sweden became a "petrified", heavily regulated economy in the 1970s with a negative impact on entrepreneurship, see Johansson (2008).

and maybe even becomes negative). One particular market that tends to suffer from heavy regulation is the labor market, with adverse employment outcomes (Skedinger, 2011). Increased unemployment reduces the tax base and tax revenues, and it increases government expenditure through financial support to the unemployed, thus increasing debt. However, although these negative effects of regulation are plausible, there are some types of regulation that can have the opposite effect, e.g., certain regulation of the financial sector. That sector can, as was evident in large parts of the world in 2007–2009, bring about crises with very serious fiscal consequences. Thus, it needs to function within a well-crafted set of rules (Zingales, 2015) that, among other things, make debt build-up improbable and prevent bail-out guarantees. Still, what those optimal rules are is difficult to say (Cochrane, 2014).

The reputation effects refer to how regulation is perceived by lenders. The idea is that increased regulation is considered as a signal that influences interest rates (cf. Afonso et al., 2011; Biglaiser and Staats, 2012). The effect could go in both directions. On the one hand, regulation may be interpreted as a sign of problems – either in the economy or in government's handling of things – that market actors observe. They might react rationally by increasing interest rates, which increases debt over time by making it more costly to roll it over and by increasing the costs of servicing it. On the other hand, regulation may be seen as an indicator of political strength and a determination to solve problems in the economy, which may lead lenders to decrease interest rates, to the extent they believe that the regulation will help.

We have presented three types of effects that link regulation to debt.[20] We now turn to the empirical analysis to see whether there is a relationship and what it, if so, looks like.

3. Data and empirical method

3.1. The data

Our main data are total government debt as a share of GDP, which we get from the IMF (2016) and the World Bank (2016). We start by illustrating the structure of these data by

[20] We do not rule out that debt can also affect regulation, e.g., if politicians think that a fiscally dire situation can be alleviated through regulation. We offer one argument for why an effect from regulation to debt seems like a plausible interpretation in Section 4.2.

plotting the average debt rates in 2010–2014 for all countries in our sample; the data are depicted in Figure 3. The figure illustrates the vast diversity that stretches from a debt level of eight percent of GDP in Estonia and 11 percent in Chile to 162 percent in Greece and 231 percent in Japan.

Figure 3 about here

The remaining data are drawn from a number of different sources. Our main variable of interest is economic freedom, as measured by the Economic Freedom of the World dataset (Gwartney et al., 2016), where we primarily use the index of regulatory freedom, which measures the burden of regulations in credit, product and labor markets on a scale from 0 to 10. These data are available on a five-year basis from 1970 for an increasing number of countries. In an extension, we apply the four other elements of the overall economic freedom index, which also entails government size, legal quality, monetary freedom, and the freedom to trade internationally.

We use the following control variables, based on previous studies as well as our own theoretical considerations in the text above. We first include a lagged dependent variable, such that all effects in the following can be interpreted as influences on the *development* of debt and not associations with an equilibrium level.[21] Second, we include the five-year average growth rate of real GDP as well as a count measure of the number of years within a five-year period that growth was negative, i.e., that the country was in recession. We also control for the (log to the) size of the population, as larger countries may be better able to service a larger debt burden (as indicated by better credit ratings; see Fuchs and Gehring, in press).

In addition, we control for a number of political features that are potentially relevant. We include dummies for political instability, captured by failed coups during a given period, electoral democracy, presidential political institutions (democratic as well as autocratic) and proportional voting systems (cf. Persson and Tabellini, 2003). We also include a measure of the strength of political veto players, which may serve to lock in specific policy decisions (Justesen, 2008). Finally, we include two measures of the political situation: the ideological

[21] We emphasize that including a lagged dependent variable is equivalent to estimating *changes* in debt levels during five-year periods. Empirically, either using the change as a left-hand side variable or the level is the same as long as both specifications include a lagged dependent. The only real difference is the estimate on the lagged dependent variable.

position of the incumbent government and the legislative fractionalization of parliament, measured as the Herfindahl-Hirschmann index of parliament, or the lower house in the case of bicameral systems. We note that substantial fractionalization is likely to have similar effects as strong veto institutions.

In line with the literature presented in the Introduction, our expectations for the political variables are as follows. Presidential systems may be better at avoiding log-rolling problems that cause larger and potentially under-funded expenditures (cf. Tullock, 1981). Conversely, however, presidents may also have their own agenda and discretionary spending decisions, which could cause larger expenditures and debt burdens. Proportional voting may also contribute to such problems by creating more parliamentary instability or more fractionalized legislatures in which larger coalitions are necessary before reaching policy decisions. Our theoretical expectation would thus be that countries with proportional voting and fractionalized legislatures lead to larger debt burdens while the consequences of presidential institutions are ambiguous. Similarly, the association with government ideology is also ambiguous as left-wing governments are ideologically more prone to larger government spending but may also be better able to implement the necessary funding (Cukierman and Tommasi, 1998).

Summary statistics are given in Table 1, while we provide definitions and sources in Appendix Table A1.

Table 1 about here

3.2. The empirical method

Our data consist of an unbalanced panel of 67 countries observed in five-year periods between 1975 and 2010. In the following, we estimate all results using OLS with panel-corrected standard errors (Beck and Katz, 1995). We do so since it is reasonable to expect cross-section contemporaneous error correlation due to similar shocks across developed countries and similar developments in the international financial system. The Beck and Katz estimator allows for such correlations while also offering standard errors that are robust to heteroscedasticity in a panel setting. The estimates in the following can therefore best be

interpreted as long-run effects on debt development following policy and institutional changes.[22]

4. Results

4.1. Baseline findings

We present our baseline findings in Table 2, by gradually expanding the empirical model. While the point estimates of regulatory freedom, i.e., the absence of regulation, are relatively small in the first three specifications, as well as weakly or not at all significant, these simple estimates are likely to be subject to substantial omitted variables bias. In particular, much of the previous literature has focused on the sizeable effects of institutional differences, which we add to the model in column 4. In addition, regulatory activity is likely to differ across types of political institutions, which further exacerbates the bias.[23]

The full model points at a sizeable negative and statistically significant association with the debt ratio. Taking this finding as the basis, if regulatory freedom increases by one unit on the ten-point scale, for example going from the level of Austria to that of Canada, this comes with a lower debt ratio of six percentage points within a five-year period. This suggests that a relatively strong market orientation, in the form of a freer, less regulated economy, is related to lower debt as a share of GDP.[24]

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[22] The results in the following are robust to applying either a standard random effects estimator or adding country fixed effects. We nevertheless prefer an OLS estimator with panel-corrected standard errors, as the use of fixed effects in particular more clearly identifies short to medium run effects. We note that our choice in the present context produces the most conservative estimates. In the following, we nevertheless present results with an alternative fixed effects estimator.

[23] Estimating the association between our control variables and regulations, and using the latter as the dependent variable, illustrates the potential problems. Regulations are strongly associated with both veto player strength, proportional voting, presidential democracy and government ideology. Not including these characteristics in the specification, as in Table 2, columns 1–3, thus must give rise to omitted variable bias in our main estimate.

[24] We have also tried including four additional indicators of economic freedom, indicators that together with regulatory freedom constitute the Economic Freedom of the World Index (Gwartney et al., 2016). As can be seen in Table A2 in the Appendix, they are not related to the debt ratio in a statistically significant way. Does this undermine our first proposed mechanism, that market-friendly policy views bring with them fiscal responsibility? We would argue that it does not, because a preference for regulatory freedom can be seen as a

Table 2 about here

When looking at the control variables in column 4, we see that the lagged debt ratio is positively related to the subsequent one. By including this we can effectively be said to study the development of the debt ratio over our five-year periods. Growth is negative for the debt ratio, plausibly because if affects both the nominator (negatively, by indicating more economic activity and higher tax revenues) and the denominator (positively). Recessions have a positive effect, and larger populations are related to higher debt ratios. Turning to political variables, having experienced a coup that failed does not seem to affect debt ratios in a statistically significant way. Democracy, presidential systems and proportional electoral systems are all associated with lower debt ratios than their alternatives, while veto players (i.e., blocking features of the political institutions) are related to higher debt. On the one hand, one could have expected the opposite sign, as strong veto players indicate that it is more difficult to agree on various spending measures; but on the other hand, it could be that veto players agree by granting each other favors or that veto players effectively block certain, but not all, types of political decisions (maybe it is easier to pass tax cuts than expenditure increases). Government ideology does not appear to matter; nor does the estimate for legislative fractionalization attain statistical significance.

4.2. Conditional findings

In order to get a more granular picture of the relation between market-friendliness, as captured by regulatory freedom, and debt, we now interact our freedom variable with five other variables: recession, ideology, veto players, fractionalization and debt ratio above 90%. The idea is that these factors might affect the way in regulation affects debt – and maybe differently in democracies, which is why we, in presenting the interaction results in Table 3,

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cleaner indicator of such views than the other four areas of the index. We suggest that it is hard to distinguish, across nations, an average difference between left and right with regard to preferences for government size (most are in favor of large government), legal quality (most favor high such quality), monetary policy (low and stable inflation is quite universally supported) or openness (where the political left can be as open to trade as the political right). However, on the degree to which the domestic economy is regulated, there tend to be sharper differences, indicating the degree of market-friendliness in a better way. Still, if one does think that this undermines the first mechanism, the other two (direct economic effects and reflection effects) can still be valid.

separate results for democracies and for all countries in the sample. Throughout the table, we report only the central estimate although we apply the full specification as in Table 2, column 4.

The addition of interaction terms also alleviates another problem. We have so far interpreted our findings as causal, i.e., as evidence of an effect of changes to regulatory policy on the development of government debt. However, it also remains plausible that increasing government debt could give rise to regulatory reforms. For example, governments may react to increasing debt levels, or increasing costs of servicing a growing debt level, by attempting to regulate labor markets to avoid increasing public wage bills, or financial markets to directly regulate the interest on their domestic debt. If such mechanisms are prominent, our estimates are subject to endogeneity bias. Yet, as shown by Nizalova and Murtazashvili (2016), even in the presence of endogeneity bias, interactions can be interpreted causally as long as *one* of the interacting variables is approximately exogenous. In addition to allowing for different reactions under different economic and political conditions, the results in Table 3 therefore have the benefit of being partially causally interpretable. We believe this is a more viable solution to the potential endogeneity problem than more standard solutions.[25]

Table 3 about here

We find that the relation of regulatory freedom to debt does not depend on whether there is a *recession* or not. Turning to *government ideology*, the more complete picture of how it affects the regulatory freedom-debt relationship can be found in Figure 4, where the estimated coefficients for regulatory freedom, in its relation to debt, have been plotted against all values of ideology.[26] As can be seen, regulatory freedom is more negatively related to debt the more right-wing the government is – if the government is sufficiently far to the left that no center or right-wing party partakes in government, regulatory freedom is not affected in its relationship with debt by the ideology of the government. In a right-wing setting, in other words, the market-friendly/government-skeptical attitudes seem more potent in hindering debt. Still, the point estimate for democracies in Table 3, column 4, suggests that the more

[25] The standard solution is of course to use instruments to predict regulations. However, the most obvious candidates as identified in previous studies – ideological differences and legal origins – are also candidates for direct influences. We have been unable to find any other theoretically valid variables that provide any real identification and therefore cannot include any IV estimates.

[26] Figures 4–6 have been calculated using the delta method (Brambor et al., 2006). They cover the full sample.

right-wing the government is, the higher the debt, when controlling for regulatory freedom. Also, it seems that in democracies, the magnitude of the regulatory freedom estimate is slightly greater when accounting for the interaction effect, which suggests that market-friendly attitudes are have a stronger effect in democratic settings.

Continuing with *veto players*, the point estimates reveal that when veto players are anything but very weak, the effect of regulatory freedom is again negative, and more so the stronger the veto players. This holds both in democracies and in the full sample. Looking at Figure 5, we see the latter effect illustrated, with confidence intervals: above a certain threshold, the more veto players there are, and thus the less likely it is that regulatory reforms will be reversed, the stronger the negative association between regulatory freedom and debt. This indicates that veto players appear to make the consequences of regulation more powerful, by providing a formal-institutions constraint on decision-making, making it harder to change policy ahead.

Next, let us look at *legislative fractionalization*, which to some extent proxies for log-rolling problems as hypothesized above, but also has similar effects as strong veto institutions. To the extent that there is a significant relationship, the more split the party landscape in the legislature is, the higher the debt, in line with earlier studies. As can be seen in Figure 6, where the full relationship between the regulatory freedom-debt estimates and legislative fractionalization is shown (with relatively narrow confidence intervals), fractionalization (above low levels) strengthens the negative impact of market-friendly attitudes, as proxied by regulatory freedom, on debt. One way to interpret this last finding is that substantial fractionalization primarily has similar political functions as institutionalized veto players in the sense that it makes any policy decision, including reform reversals, less likely. However, another realistic interpretation may be that log-rolling allows governments to agree on regulatory changes with supermajorities, such that more parties publicly commit to any policy decision.

Lastly, we interact a dummy indicating whether the *debt ratio is very high (above 90%)*. Our findings indicate that this factor, which reflects a particularly dire fiscal situation, is not related to the subsequent debt ratio; nor does it affect how regulatory freedom is related to the debt ratio.

Although not direct evidence, we note that if the reverse causal direction would be dominant, we would expect regulatory reactions to increasing debt levels to be stronger when debt levels surpass some level, and when the economy is in a recession. We find no heterogeneity in the initial debt level and the reverse pattern when we interact with a

recession dummy. As we also find rather strongly significant interactions, we take these to imply that at least across some range of ideology, veto player strength and legislative fractionalization, our causal interpretation fits the actual data.

Figure 4 about here

Figure 5 about here

Figure 6 about here

4.3. Sensitivity analysis

In addition to the evidence above, we have performed a number of sensitivity analyses, two of which are reported in Table A3 in the Appendix. First, we apply fixed effects and report the findings in columns 1–3 (which should be compared to columns 4, 6 and 8 in Table 3). The main idea behind applying country fixed effects is to effectively control for the potential influence of approximately time-invariant factors such as, e.g., culture, long-term debt history and constitutional influences. These estimates are therefore arguably more robust to omitted variables bias and econometric reflection problems. When comparing the fixed effect estimates in Table A3 with the corresponding ones in Table 3, we nonetheless find that they are all in general larger, but the overall pattern is very much the same (in columns 6 and 8 of Table 3 and columns 2 and 3 in Table A3).[27] Yet, we remain agnostic of which results are closer to a "true" effect, as the fixed effects estimates are more likely to capture pure short- to medium-run effects than those in previous tables.

Second, we exclude countries with less than ten years of democratic experience to avoid specific cases of transition – not least the post-communist transition in Central and Eastern Europe – that can influence the results. These results are reported in columns 4–5 of Table A3 (which should be compared to columns 6 and 8 in Table 3). Reassuringly, we obtain quantitatively similar findings for regulatory freedom as well as the interactions. Excluding particular countries with very specific history or development, such as Argentina, Chile or Singapore, or single time periods (not shown), likewise has no consequence for our results, nor does extending the period of having been a democracy to 20 years.

Lastly, we have excluded observations with the 10% highest and 10% lowest debt levels, in order to ensure that our results are not driven by observations with

[27] However, the ideology interaction loses significance in the fixed effects estimates.

uncharacteristically high or low debt burdens. If so, the results could in principle be robust, but the findings would not generalize to most countries or situations. We nevertheless find only very small and insignificant changes in our estimates of regulatory impact. Similarly, we have excluded observations with the 10% highest and 10% lowest regulation scores, in order to ascertain that the finding also apply to variation within a "normal" regulatory scope. We again find quantitatively very small and insignificant changes in our main estimates, which all remain significant at conventional levels. These results are available on request.

We conclude that our results are robust to the most intuitively important robustness tests.

5. Concluding remarks

Government debt is of classic concern to policymakers and economists alike, not least because of the perceived benefits and costs associated with it. Whether the benefits dominate the costs, or vice versa, is a matter of contention, but it is quite clear that many are in favor of short-term deficits in order to combat recessions – often supposing both that such stimulus works and that the political incentives are such as to run subsequent budget surpluses in better times. Others are less prone to accept such Keynesian stabilization policy, on the basis of a skepticism regarding the ability and incentives of government to use its fiscal tools in a way that produces better outcomes than if markets are left alone. One can characterize this as a classic conflict between those who regard markets as functioning quite well without much government intervention and those who are skeptical of the abilities of market to produce broadly beneficial outcomes without government regulation, leadership and stimulus. The difference is a matter of holding different ideas, or beliefs about how the world works. We propose that what ideas policymakers hold affects what political decisions they want to undertake and what gets implemented in the end.

In this study, we focus on a particular type of policy, regulation, and its effects on government debt, a relation that to our knowledge has not been analyzed before. Arguably, the degree to which an economy is regulated stems from ideas regarding how well markets and government work as well, just like in the case of debt. One link between regulation and debt is therefore that of pro-market/government-skeptical ideas that cause both little regulation and high debt. But there are at least two other potential links: direct economic effects (such as regulation affecting growth and unemployment in a way that in turn

influences the debt) and reputation effects (when lenders regard regulation as a signal of either economic problems or as solutions to economic problems and set interest rates accordingly).

Our main finding is that regulatory freedom is negatively related to the debt ratio. One interpretation is that policymakers who adhere to a market-friendly/government-skeptical type of idea tend not only to not regulate the economy but also to refrain from increasing indebtedness. They reject interventions on the micro level (regulation) and on the macro level (debt-increasing stimulus or many of the large expenditure programs). But the result is also consistent with regulatory freedom entailing a well-functioning economy that is associated with lower debt and with regulatory freedom signaling a well-functioning economy that merits low interest rates from lenders.

As noted above, the effect changes to regulatory policy may be sizeable. Increasing regulatory freedom by a standard deviation – approximately 1.5 points on the ten-point scale or going from the level of Germany (6.6 in 2010) to that of Canada (8.3 in 2010) – is associated with a lower debt ratio of six percentage points within a five-year period. In other words, such a regulatory change on average induces a two-percentage point reduction of the debt level every year within a five-year period.

In a more detailed analysis, where we interact regulatory freedom with various features of the political setting, we find that *recessions* do not affect how regulatory freedom is related to debt. We note that our results thus cannot be driven merely by regulatory responses to major economic events. We further find that *ideology* tends to matter such that regulatory freedom is more negatively related to debt the more right-wing the government is (in democracies), that the stronger *veto players* are, i.e., the more difficult it is to agree on decisions, the stronger the negative association between regulatory freedom and debt, that the more *fractionalized* the legislature is, the more regulatory freedom is able to restrain debt; and that there is no indication that the relationship between regulatory freedom and debt is different when the *debt ratio is above 90%*.

Thus, regulation as well as political-institutional characteristics appear to matter for how prone policymakers are to run up debt. The link between regulation and debt can be reflection effects (market-friendly ideas), direct economic effects and reputation effects. Even though it is not the only thing that can be expected to play a role for fiscal responsibility, it is probably wise, if one cares about government debt one way or the other, to take note of the role of beliefs about the basic working properties of markets and government and to try to

influence them. Keynes tried to do so and succeeded, although the consequences of his success are still debated.

Appendix

Table A1 about here

Table A2 about here

Table A3 about here

References

Afonso, António, Pedro Gomes and Philipp Rother. 2011. Short- and long-run determinants of sovereign debt credit ratings. *International Journal of Finance and Economics*, 16(1), 1–15.

Alesina, Alberto and Andrea Passalacqua. 2015. The political economy of government debt. NBER working paper 21821.

Alt, James E. and David Dreyer Lassen. 2006. Fiscal transparency, political parties, and debt in OECD countries. *European Economic Review*, 50(6), 1403–1439.

Auerbach, Alan J. 2008. Long-term objectives for government debt. Report 2008/1, Swedish Fiscal Policy Council, Stockholm.

Beck Nathaniel and Jonathan N. Katz. 1995. Nuisance vs. substance: specifying and estimating time-series cross section models. *Political Analysis*, 6(1), 1–36.

Beck, Thorsten, George Clarke, Alberto Groff, Philip Keefer and Patrick Walsh. 2001. New tools and new tests in comparative political economy: the database of political institutions. *World Bank Economic Review*, 15(1), 165–176.

Biglaiser, Glen and Joseph L. Staats. 2012. Finding the 'democratic advantage' in sovereign bond ratings: The importance of strong courts, property rights protection and the rule of law. *International Organization*, 66(3), 515–535.

Bjørnskov, Christian. 2015. Institutional shocks and economic crises. Paper presented at the annual meetings of the Southern Economic Association, New Orleans, November 20–23, 2015.

Bjørnskov, Christian and Martin Rode. 2016. Regime types and regime change: a new dataset. Working paper, Aarhus University.

Brambor, Thomas, William Roberts Clark and Matt Golder. 2006. Understanding interaction models: Improving empirical analysis. *Political Analysis*, 14(1), 63–82.

Buchanan, James M. and Richard E. Wagner. 1977. *Democracy in Deficit: The Political Legacy of Lord Keynes*.

Cochrane, John H. 2014. Challenges for cost-benefit analysis of financial regulation. *Journal of Legal Studies*, 43(S2), S63–S105.

Cukierman, Alex and Mariano Tommasi. 1998. When does it take a Nixon to go to China? *American Economic Review*, 88(1), 180–197.

Djankov, Simeon, Caralee McLiesh and Rita Maria Ramalho. 2006. Regulation and growth. *Economics Letters*, 92(3), 395–401.

Eberhardt, Markus and Andrea F. Presbitero. 2015. Public debt and growth: Heterogeneity and non-linearity. *Journal of International Economics*, 97(1), 45–58.

Edin, Per-Anders and Henry Ohlsson. 1991. Political determinants of budget deficits: Coalition effects versus minority effects. *European Economic Review*, 35(8), 1597–1603.

Égert, Balázs. 2015. Public debt, economic growth and nonlinear effects: Myth or reality? *Journal of Macroeconomics*, 43(March), 226–238.

Elmendorf, Douglas W. and N. Gregory Mankiw. 1999. Government debt. In: Taylor, John B. and Michael Woodford (Eds.), *Handbook of Macroeconomics Vol. 1C*, Amsterdam: Elsevier, 1615–1669.

Falcó-Gimeno, Albert and Ignacio Jurado. 2011. The political and institutional determinants of fiscal adjustment: entering and exiting fiscal distress. *European Journal of Political Economy*, 27(3), 554–565.

Feldstein, Martin S. 1982. Inflation and the American economy. *Public Interest*, 67, 63-76.

Frey, Bruno S., Werner W. Pommerehne, Friedrich Schneider and Guy Gilbert. 1984. Consensus and Dissension among Economists: An Empirical Inquiry. *American Economic Review*, 74(5), 986–994.

Friedman, Milton. 1965. We are all Keynesians now. *Time*, 31 December.

Fuchs, Andreas and Kai Gehring. In press. The home bias in sovereign ratings. Forthcoming in *Journal of the European Economic Association*.

Grilli, Vittorio, Donato Masciandaro, Guido Tabellini, Edmond Malinvaud and Marco Pagano. 1991. Political and monetary institutions and public financial policies in the industrial countries. *Economic Policy*, 6(13), 342–392.

Gunzinger, Fabian and Jan-Egbert Sturm. 2016. It's politics, stupid! Political constraints determined governments' reactions to the great recession. *Kyklos*, 69(4): 584–603.

Gwartney, James D., Robert A. Lawson and Joshua C. Hall. 2016. *Economic Freedom of the World: 2016 Annual Report*. Vancouver, BC: The Fraser Institute.

Haan, Jakob de and Jan-Egbert Sturm. 1997. Political and economic determinants of OECD budget deficits and government expenditures: A reinvestigation. *European Journal of Political Economy*, 13(4), 739–750.

Hall, Peter A. (Ed.). 1989. *The Political Power of Economic Ideas: Keynesianism across Nations.* Princeton: Princeton University Press.

Henisz, Witold. 2002. The institutional environment for infrastructure investment. *Industrial and Corporate Change*, 11(2), 355-389.

Herndon, Thomas, Michael Ash and Robert Pollin. 2014. Does high public debt consistently stifle economic growth? A critique of Reinhart and Rogoff. *Cambridge Journal of Economics*, 38(2), 257–279.

Hillman, Arye L. 2009. *Public Finance and Public Policy*. Cambridge: Cambridge University Press.

Holcombe, Randall G. 2016. *Advanced Introduction to Public Choice*. London: Edward Elgar.

IGM. 2014. Economic stimulus (revisited). http://www.igmchicago.org/igm-economic-experts-panel/poll-results?SurveyID=SV_5bfARfqluG9VYrP.

Jalilian, Hossein, Colin Kirkpatrick and David Parker. 2007. The impact of regulation on economic growth in developing countries: A cross-country analysis. *World Development*, 35(1), 87–103.

Johansson, Dan. 2008. Sweden's slowdown: The impact of interventionism on entrepreneurship. In: Powell, Benjamin (Ed.), *Making Poor Nations Rich: Entrepreneurship and the Process of Economic Development*, Stanford: Stanford University Press, 250–282

Justesen, Mogens Kamp. 2014. Better safe than sorry: how property rights and veto players jointly affect economic growth. *Comparative Politics*, 46(2), 147–167.

Keynes, John Maynard. 1936. *The General Theory of Employment, Interest and Money.* London: Palgrave Macmillan.

Koehler, Sebastian and Thomas König. 2015. Fiscal governance in the Eurozone: How effectively does the Stability and Growth Pact limit governmental debt in the Euro countries? *Political Science Research and Methods*, 3(2), 329–351.

Lavigne, Robert. 2011. The political and institutional determinants of fiscal adjustment: Entering and exiting fiscal distress. *European Journal of Political Economy*, 27(1), 17–35.

Leachman, Lori L, Guillermo Rosas, Peter Lange and Alan Bester. 2007. The political economy of budget deficits. *Economics & Politics*, 19(3), 369–420.

Manski, Charles F. 1993. Identification of endogenous social effects: The reflection problem. *Review of Economic Studies*, 60(3), 531–542.

Mueller, Dennis. 2003. *Public Choice III*. Cambridge: Cambridge University Press.

Mulligan, Casey. 2008. Professor Krugman is right: "Now is not the time to worry about the deficit". Blog post, http://caseymulligan.blogspot.se/2008/10/professor-krugman-is-right-now-is-not.html (accessed 10.11.2016).

Nickel, Christiane and Andreas Tudyka. 2014. Fiscal stimulus in times of high debt: Reconsidering multipliers and twin deficits. *Journal of Money, Credit and Banking*, 46(7), 1313–1344.

Nicoletti, Giuseppe and Stefano Scarpetta. 2003. Regulation, productivity and growth: OECD evidence. *Economic Policy*, 18(36), 9–72.

Nizalova, Olena Y. and Irina Murtazashvili. 2016. Exogenous treatment and endogenous factors: vanishing of omitted variable bias on the interaction term. *Journal of Econometric Methods*, 5(1), 71–77.

Peltzman, Sam. 1976. Toward a more general theory of regulation. *Journal of Law and Economics*, 19(2), 211–240.

Pennington, Mark. 2011. *Robust Political Economy: Classical Liberalism and the Future of Public Policy*. Cheltenham: Edward Elgar.

Perotti, Roberto and Yianos Kontopoulos. 2002. Fragmented fiscal policy. *Journal of Public Economics*, 86(2), 191–222.

Persson, Torsten and Lars E. O. Svensson. 1989. Why a stubborn conservative would run a deficit: Policy with time-inconsistent preferences. *Quarterly Journal of Economics*, 104(2), 325–345.

Persson, Torsten and Guido Tabellini. 2003. *The Economic Effects of Constitutions.* Cambridge, MA: The MIT Press.

Pinkovskiy, Maxim and Xavier Sala-I-Martin. 2016. New need not be better: Evaluating the Penn World Tables and the World Development Indicators using nighttime lights. NBER working paper 22216.

Pitlik, Hans and Luděk Kouba. 2015. Does social distrust always lead to a stronger support for government intervention? *Public Choice*, 163(3), 355–377.

Reinhart, Carmen M. and Kenneth S. Rogoff. 2010. Growth in a time of debt. *American Economic Review*, 100(2): 573–578.

Reinhart, Carmen M., Vincent R. Reinhart and Kenneth S. Rogoff. 2012. Public debt overhangs: Advanced-economy episodes since 1800. *Journal of Economic Perspectives*, 26(3), 69–86.

Romer, Christina D. and David H. Romer. 2009. Do tax cuts starve the beast? The effect of tax changes on government spending. *Brookings Papers on Economic Activity*, 40(1), 139–214.

Roubini, Nouriel and Jeffrey Sachs. 1989. Political and economic determinants of budget deficits in the industrial economies. *European Economic Review*, 33(5), 903–938.

Skedinger, Per. 2011. Consequences of employment protection legislation. *Nordic Economic Policy Review*, 2(1), 45–83.

Tujula, Mika and Guido Wolswijk. 2007. Budget balances in OECD countries: what makes them change? *Empirica*, 34(1), 1–14.

Tullock, Gordon. 1981. Why so much stability? *Public Choice*, 37(2), 189–204.

Volkerink, Bjørn and Jakob de Haan. 2001. Fragmented government effects on fiscal policy: New evidence. *Public Choice*, 109(3–4), 221–242.

Woo, Jaejoon. 2003. Economic, political, and institutional determinants of public deficits. *Journal of Public Economics*, 87(3–4), 387–426.

Zingales, Luigi. 2015. Does finance benefit society*? Journal of Finance*, 70(4), 1327–1363.

Tables and figures

Table 1. Descriptive statistics

Variable	Mean	Standard deviation	Observations
Government debt	51.238	32.998	329
Growth	1.807	2.586	443
Recession	1.174	1.195	476
Log population	15.783	1.581	533
Failed coup	.011	.059	519
Democracy	.797	.375	544
Presidential	.411	.493	544
Proportional	.751	.433	498
Veto players	.366	.164	515
Government ideology	.170	.437	495
Legislative fractionalization	.161	.123	495
Debt over 90 %	.131	.337	216
Size of government	5.706	1.586	482
Legal quality	6.236	1.853	461
Sound money	7.425	2.344	493
Freedom to trade	7.054	1.957	475
Regulatory freedom	6.321	1.313	463

Table 2. Debt-ratio predictors

	1	2	3	4
Lagged dependent	.655***	.613***	.604***	.573***
	(.081)	(.076)	(.076)	(.074)
Growth		-2.399***	-2.988***	-2.805***
		(.776)	(.828)	(.799)
Recession		4.889***	4.787***	4.475***
		(1.401)	(1.399)	(1.321)
Log population		.564	.529	1.220*
		(.686)	(.688)	(.742)
Failed coup				-24.010
				(31.384)
Democracy				-13.844*
				(8.136)
Presidential				-8.959***
				(2.867)
Proportional				-9.399***
				(3.305)
Veto players				23.852**
				(9.959)
Government ideology			-4.223	-1.311
			(3.456)	(3.299)
Legislative fractionalization			-8.551	3.529
			(11.062)	(11.156)
Regulatory freedom	-2.974**	-2.109*	-1.453	-5.091***
	(1.268)	(1.208)	(1.322)	(1.509)
Regional FE	Yes	Yes	Yes	Yes
Observations	258	256	255	255
Countries	68	67	67	67
R squared	.605	.669	.675	.703
Wald Chi sq.	256.51	351.06	363.89	500.82

Note: *** (**) [*] denote significance at p<.01 (p<.05) [p<.10]. All regressions include a constant term.

Table 3. Conditional findings

	1 All	2 Democracies	3 All	4 Democracies	5 All	6 Democracies	7 All	8 Democracies	9 All	10 Democracies
Lagged	.569***	.566***	.572***	.569***	.575***	.571***	.565***	.559***	.428***	.417***
dependent	(.073)	(.074)	(.074)	(.075)	(.074)	(.074)	(.073)	(.074)	(.063)	(.062)
Recession	-9.294	-8.664	4.533***	4.435***	4.468***	4.366***	4.726***	4.677***	3.448***	3.517***
	(8.700)	(9.062)	(1.318)	(1.325)	(1.313)	(1.315)	(1.293)	(1.293)	(1.130)	(1.133)
Veto players	24.221**	23.473**	22.694**	22.249**	130.112*	193.653**	21.399**	16.007	10.442	7.774
	(9.943)	(10.315)	(9.929)	(10.187)	(74.606)	(81.922)	(9.808)	(9.888)	(8.057)	(8.273)
Government	-1.375	-.139	16.475	23.204**	-2.121	-.672	-.028	1.294	.326	1.785
ideology	(3.243)	(3.429)	(15.353)	(15.321)	(3.319)	(3.406)	(3.235)	(3.394)	(2.723)	(2.858)
Legislative	2.616	.056	4.809	2.021	2.479	-2.389	257.477***	296.565***	2.126	-.387
fractionalization	(11.029)	(11.369)	(11.229)	(11.468)	(11.174)	(11.407)	(72.037)	(76.495)	(9.392)	(9.516)
Debt over 90 %									28.084	10.473
									(18.820)	(19.139)
Regulatory	-7.494***	-7.264***	-4.376***	-4.049***	.869	4.771	2.423	3.828	-3.782***	-4.033***
freedom	(1.983)	(2.037)	(1.564)	(1.543)	(4.405)	(4.889)	(2.639)	(2.778)	(1.328)	(1.331)
Reg. *	2.045	1.940								
Recession	(1.282)	(1.341)								
Reg. * ideology			-2.643	-3.397						
			(2.251)	(2.229)						
Reg. * veto					-14.887	-24.194**				
players					(10.458)	(11.602)				
Reg. *							-37.182***	-43.369***		
fractionalization							(10.385)	(11.009)		
Reg. * debt									1.294	4.216
over 90 %									(2.709)	(2.770)
Regional FE	Yes	Yes	. Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	255	247	255	247	255	247	255	247	255	247
Countries	67	64	67	64	67	64	67	64	67	64
R squared	.706	.700	.704	.699	.705	.703	.716	.714	.793	.795
Wald Chi sq.	505.81	437.26	501.30	429.09	522.94	459.64	548.69	493.77	934.08	873.12

Note: *** (**) [*] denote significance at p<.01 (p<.05) [p<.10]. All regressions include a constant term and the full specification from Table 2, column 4.

Table A1. Definitions of variables

Variable	Definition and measurement
Government debt	Full government debt, at central government and lower levels, as a share of GDP; from IMF (2016) and World Bank (2016)
Growth	Five-year average percentage growth rate of real GDP per capita, based on Heston et al. (2012)
Recession	Number of years within a five-year period that yearly growth is negative
Log population	The logarithm to the size of population at the beginning of a five-year period
Failed coup	The share of years within a five-year period in which a failed coup occurred
Democracy	Dummy for the existence of competitive electoral democracy from Bjørnskov and Rode (2016)
Presidential	Dummy for the presidential political system from Bjørnskov and Rode (2016)
Proportional	Dummy for proportional voting system from last update of Beck et al. (2001)
Veto players	Index of veto player strength from Henisz (2001)
Government ideology	Five-step index between -1 (communist) and 1 (classical liberal) of party ideology; in coalition governments, weights are parties' seats in parliament; from Bjørnskov (2015)
Legislative fractionalization	Herfindahl-Hirschmann index of (lower house) legislature; based on data in Bjørnskov (2015)
Debt over x %	Dummy for whether end-of-period government debt is above x % of GDP
Size of government	Index of the size of government, measured on scale from 0 (maximum government) to 10 (minimum government), from Gwartney et al. (2016)
Legal quality	Index of quality and independence of legal system, from Gwartney et al. (2016)
Sound money	Index of sound money – low and stable inflation and the freedom to hold bank accounts in foreign currency, from Gwartney et al. (2016)
Freedom to trade	Index of the freedom to trade and invest internationally, from Gwartney et al. (2016)
Regulatory freedom	Index of regulatory burden in credit, labor and product markets, from Gwartney et al. (2016)

Table A2. Debt-ratio predictors, including all five areas of the Economic Freedom Index

	1	2	3	4	5
Lagged dependent	.579***	.566***	.581***	.576***	.573***
	(.075)	(.076)	(.071)	(.075)	(.074)
Growth	-2.822***	-3.086***	-3.098***	-2.946***	-2.805***
	(.836)	(.820)	(.818)	(.811)	(.799)
Recession	5.189***	4.919***	5.733***	4.869***	4.475***
	(1.350)	(1.369)	(1.407)	(1.349)	(1.321)
Log population	1.341*	1.364*	1.109	1.678**	1.220
	(.776)	(.796)	(.793)	(.780)	(.742)
Failed coup	-15.383	-24.368	-15.399	-17.639	-24.010
	(28.239)	(31.545)	(29.649)	(28.461)	(31.384)
Democracy	-9.337	-11.478	-8.676	-12.268	-13.844*
	(8.021)	(8.337)	(7.922)	(8.327)	(8.136)
Presidential	-6.849**	-9.179***	-7.164**	-9.223***	-8.959***
	(3.305)	(3.068)	(2.971)	(3.129)	(2.867)
Proportional	-4.269	-3.950	-3.047	-3.248	-9.399***
	(2.907)	(2.747)	(2.729)	(2.692)	(3.305)
Veto players	19.135*	22.405**	15.608	21.389**	23.852**
	(9.912)	(10.206)	(9.708)	(10.121)	(9.959)
Government ideology	-4.062	-3.892	-6.723**	-3.734	-1.311
	(3.272)	(3.291)	(3.301)	(3.298)	(3.299)
Legislative fractionalization	.228	.893	-.126	1.183	3.529
	(11.603)	(11.659)	(11.872)	(11.545)	(11.156)
Size of government	-1.049				
	(1.071)				
Legal quality		-1.737			
		(1.414)			
Sound money			2.197*		
			(1.138)		
Freedom to trade				-1.477	
				(1.191)	
Regulatory freedom					-5.091***
					(1.509)
Regional FE	Yes	Yes	. Yes	Yes	Yes
Observations	255	255	255	255	255
Countries	67	67	67	67	67
R squared	.692	.692	.696	.692	.703
Wald Chi sq.	475.74	481.11	484.10	471.05	500.82

Note: *** (**) [*] denote significance at p<.01 (p<.05) [p<.10]. All regressions include a constant term.

Table A3. Additional tests

	1 Fixed effects Democracies	2 Fixed effects Democracies	3 Fixed effects Democracies	4 OLS Stable democracy	5 OLS Stable democracy
Lagged dependent	.271***	.275***	.267***	.655***	.648***
	(.047)	(.046)	(.045)	(.068)	(.068)
Veto players	15.441	178.547**	9.678	231.366***	11.279
	(15.847)	(70.437)	(15.221)	(78.151)	(9.416)
Legislative	2.837	-1.300	357.137***	-8.968	253.203***
fractionalization	(3.891)	(22.569)	(89.143)	(12.112)	(79.291)
Regulatory freedom	-11.386***	-1.457	.181	6.815	2.344
	(2.249)	(4.733)	(3.568)	(4.742)	(2.652)
Reg. * veto players		-23.712**		-29.882***	
		(9.985)		(11.001)	
Reg. *			-53.236***		-37.459***
fractionalization			(13.102)		(11.299)
Regional FE	Yes	Yes	Yes	Yes	Yes
Observations	247	247	247	235	235
Countries	64	64	64	63	63
R squared	.608	.621	.645	.765	.758
Wald Chi / F	15.13	15.00	16.54	533.89	580.34

Note: *** (**) [*] denote significance at p<.01 (p<.05) [p<.10]. All regressions include a constant term and the full specification in Table 2, column 4. Stable democracy denotes countries that have been democratic for at least ten years at the time of observation. Columns 1–3 should be compared to columns 4, 6 and 8 in Table 3, while columns 4–5 should be compared to columns 6 and 8 in Table 3.

Figure 1. Debt developments in a selection of countries

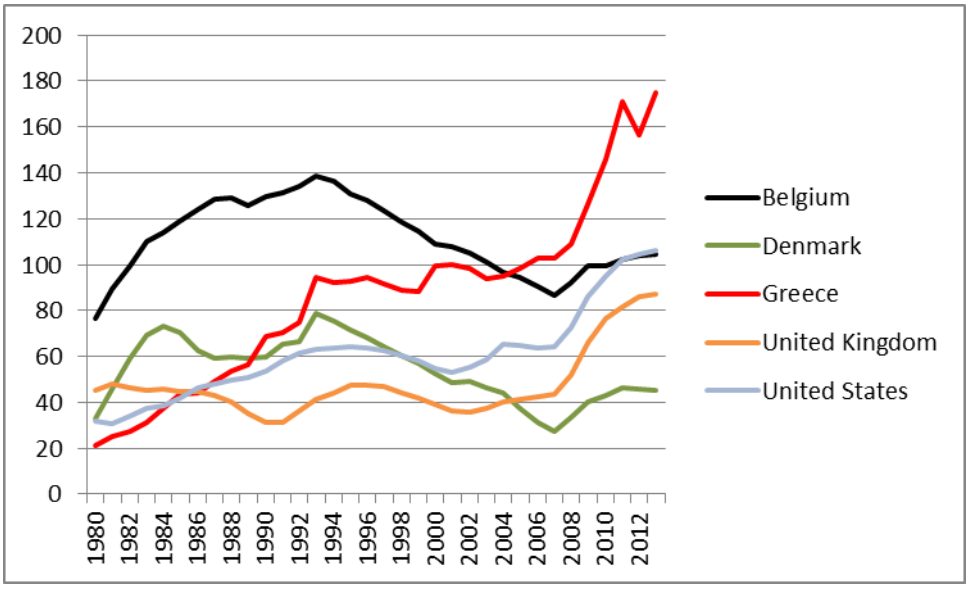


Figure 2. Theoretical framework

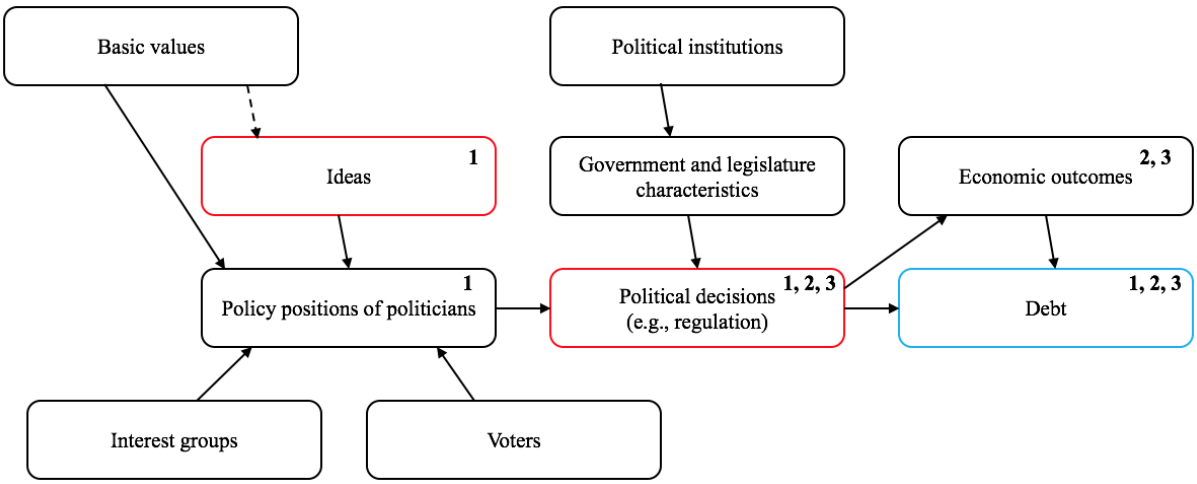


Figure 3. Debt rates, all countries in sample

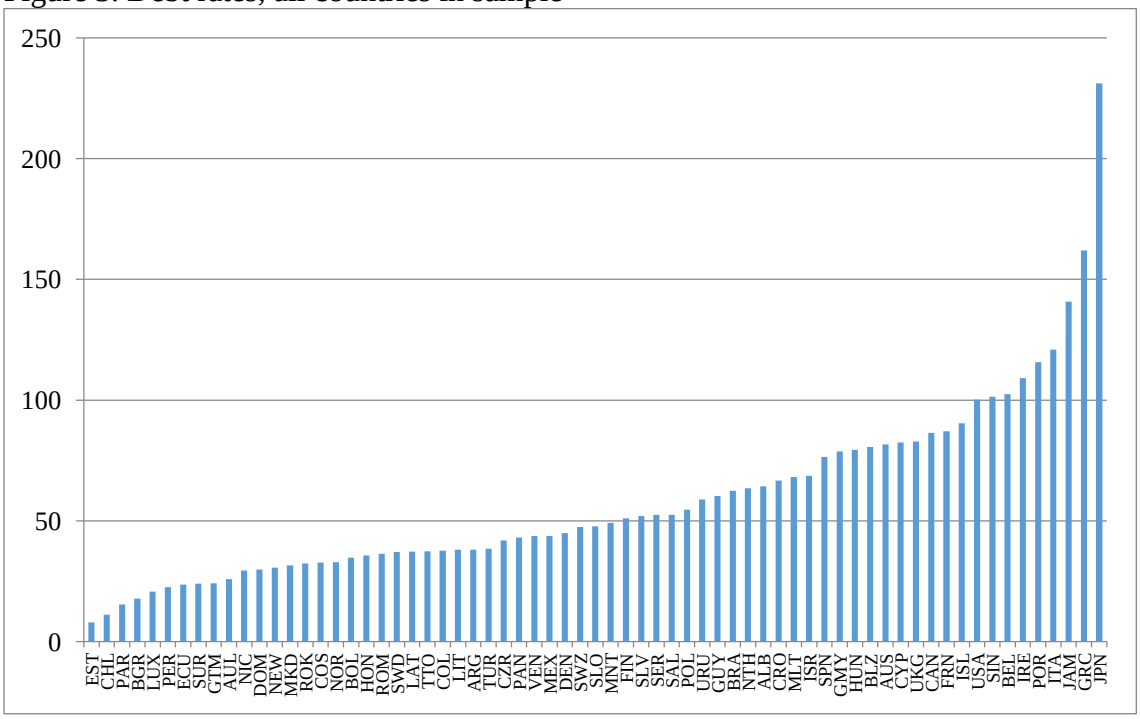


Figure 4. Effects of regulatory freedom, conditional on government ideology

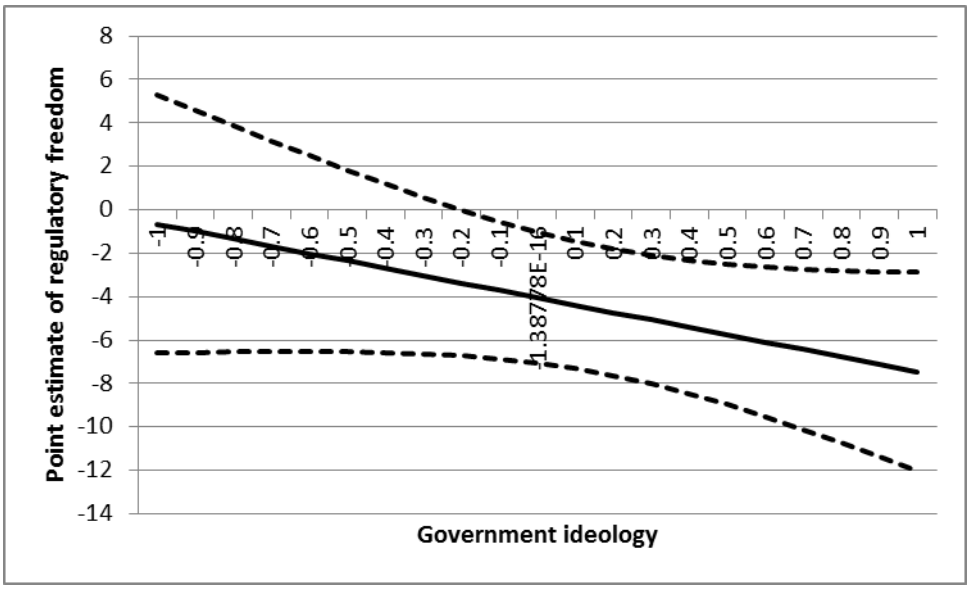
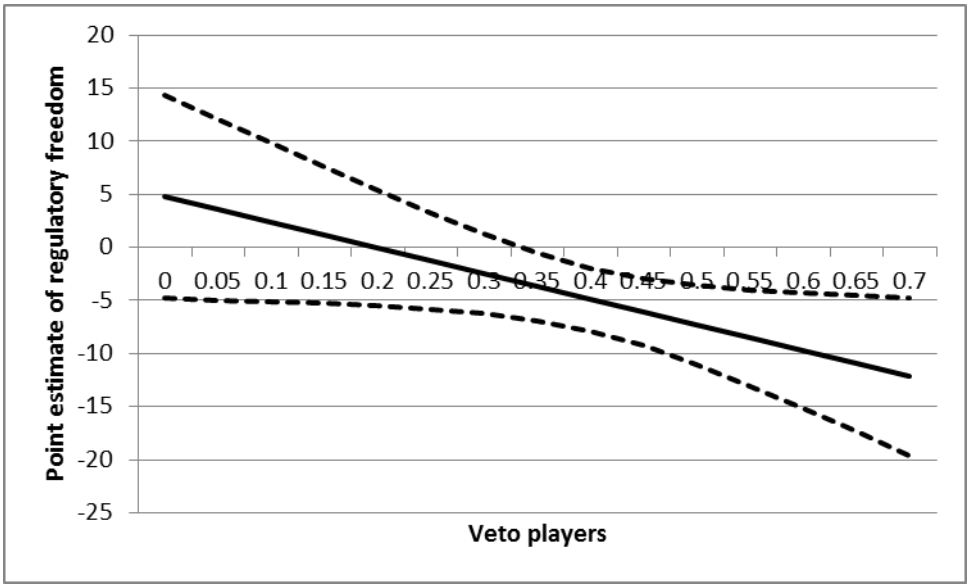
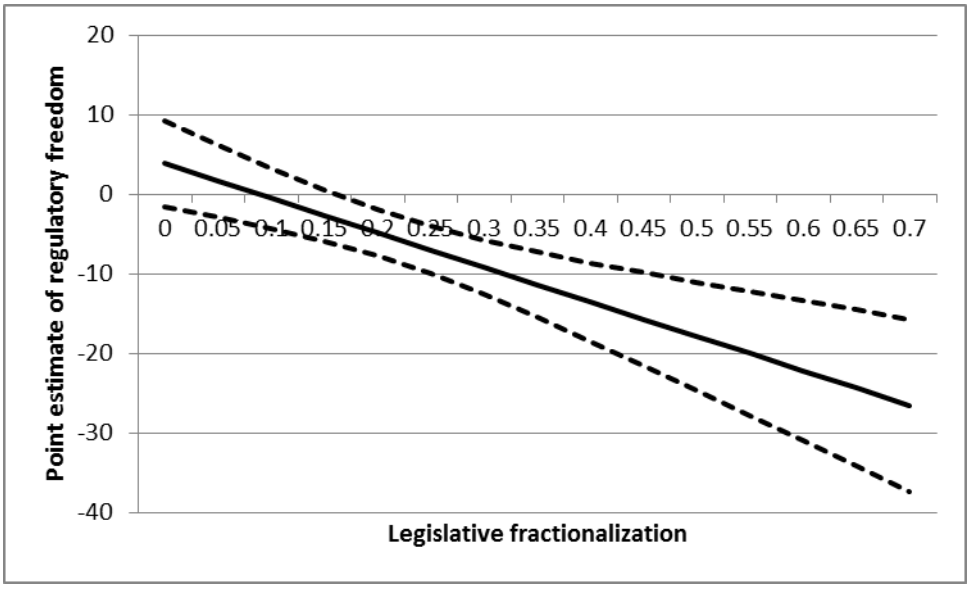


Figure 5. Effects of regulatory freedom, conditional on veto players



Note: The figure is based on results obtained with the democratic sample.

Figure 6. Effects of regulatory freedom, conditional on legislative fractionalization



Note: The figure is based on results obtained with the democratic sample.