

**COMMENT TO
“GOVERNMENT’S PAYMENT DISCIPLINE:
THE MACROECONOMIC IMPACT OF PUBLIC PAYMENT DELAYS AND ARREARS”
BY CRISTINA CHECHERITA-WESTPHAL,
ALEXANDER KLEMM AND PAUL VIEFERS**

*Pedro Hinojo**

1 Introduction

The paper by Checherita-Westphal, Klemm and Viefers (2014) on “Government’s Payment Discipline: The Macroeconomic Impact of Public Payment Delays and Arrears” is, beyond doubt, a thorough, original and timely piece of research.

It is a thorough paper because it uses a well-grounded macroeconometric approach in order to estimate the impact of government’s payment delays and arrears, resorting to two robust techniques. Firstly, the authors take advantage of a panel data estimation to quantify the effect of these delays and arrears on several economic aggregates. Secondly, they carry out a Bayesian Vector Autorregressive (BVAR) model for a selected group of individual countries.

At the same time, it is an original piece of research because it sails into uncharted waters. The literature about this topic is scarce, if not non-existent. One proof of that is the reduced list of references included in the paper’s bibliography.

And, while original, the paper is also totally timely because some countries’ governments (notably Italy, Greece and Spain) have accumulated a significant amount of arrears in their commercial debt. Given that these countries have taken measures to tackle this issue, it is important to reach some reliable estimates about the economic impact of both the problem and its solution.

Notwithstanding that, we still have some comments and suggestions to the authors. Our comments are going to focus on how the proxy for fiscal arrears is calculated and on some caveats and shortcomings of the macroeconometric exercise. Our suggestions are directed at overhauling the paper in order to convert it into a full-blown document with some economic theory and policy implications. Therefore, we have three types of suggestions to the authors: cross-checking their macroeconometric findings with DSGE (Dynamic Stochastic General Equilibrium) models, exploring the theoretical dimension of this phenomenon of government arrears and drawing specific policy implications from their research.

We hope that the authors find our comments and suggestions constructive.

2 Comments on the macroeconometric estimation

Starting with the comments on the macroeconometric estimation, the first issue is how the authors calculate the measure of government arrears, according to this equation:

* Ministry of Economy and Competitiveness, Spain.

Comments prepared together with Juan Bógalo, Carlos Herrero and José Miguel Ramos.

Errors and omissions are Pedro Hinojo’s sole responsibility. These comments have been elaborated for research purposes and reflect personal views, not necessarily those of our institution.

Contact addresses: herrerohinojo@gmail.com and pedrohinojo@gmail.com

$$\text{Arrears} = \underbrace{\text{AF.7}}_{\substack{\text{Other} \\ \text{accounts} \\ \text{payable}}} \times \underbrace{(1 - F(T'))}_{\substack{\text{Probability of} \\ \text{exceeding the} \\ \text{legal payment} \\ \text{period (T')}}}$$

The strategy seems quite rational. The first factor tries to capture the total stock of government commercial debt with the item AF.7 in the financial accounts, labelled as ‘other accounts payable’. The second one is needed to include only that portion of commercial debt which has actually fallen into arrears.

As far as the first factor is concerned, and according to the Handbook on Financial Accounts (ECB, 2012), the variable AF.7 “other accounts payable” includes two subaccounts:

- Trade credits and advances (AF.71): arising from the extension of credit by suppliers or buyers, including advance payment.
- Other accounts payable, excluding trade credits and advances (AF.79): arising from other timing differences between transactions and the corresponding payment, including those arising from the recording of income as it accrues (related to distribution operations: taxes, social contributions, wages, rents, dividend, interest...).

In strict terms, perhaps only the subaccount AF.71 should be included to track adequately government commercial debt, as AF.79 will be mostly biased by pending tax settlements, where government has sizeable liabilities but also assets. In order to see this issue’s impact, Figure 1 plots government liabilities under the account AF.7 and its two subaccounts, on a non-consolidated basis, *i.e.*, including debt within the different layers of the public administration.

The subaccount AF.79 actually takes the lion share of AF.7 government liabilities. Nonetheless, spotting only AF.71 does not seem optimal either, as it is small for some countries well-known by the accrual of a big amount of commercial debt delays and arrears.¹ Chief among them is Spain², where using AF.71 as a proxy for commercial debt would indicate a meagre 0.9 per cent of GDP, well below the amount that has benefited from the central government plans to settle local and regional entities’ debt against their suppliers (around 4-6 per cent of GDP).

Figure 1 evidences how the account AF.7 is subject to some statistical shortcomings. Indeed, to some extent because of these limitations, the European Commission decided not to include ‘other accounts payable’ to compute the private debt and credit indicators within the Macroeconomic Imbalances Procedure (European Commission DGECFIN, 2012).

Hence, in order to circumvent those shortcomings, taking AF.7 as a whole, instead of AF.71 exclusively, may be an adequate second best. Nonetheless, it would be advisable to factor in this series on a consolidated basis, *i.e.*, filtering out debt within the public sector. In the paper, the authors do not make clear whether they are taking consolidated data. Consolidated data are precisely depicted in Figure 2.

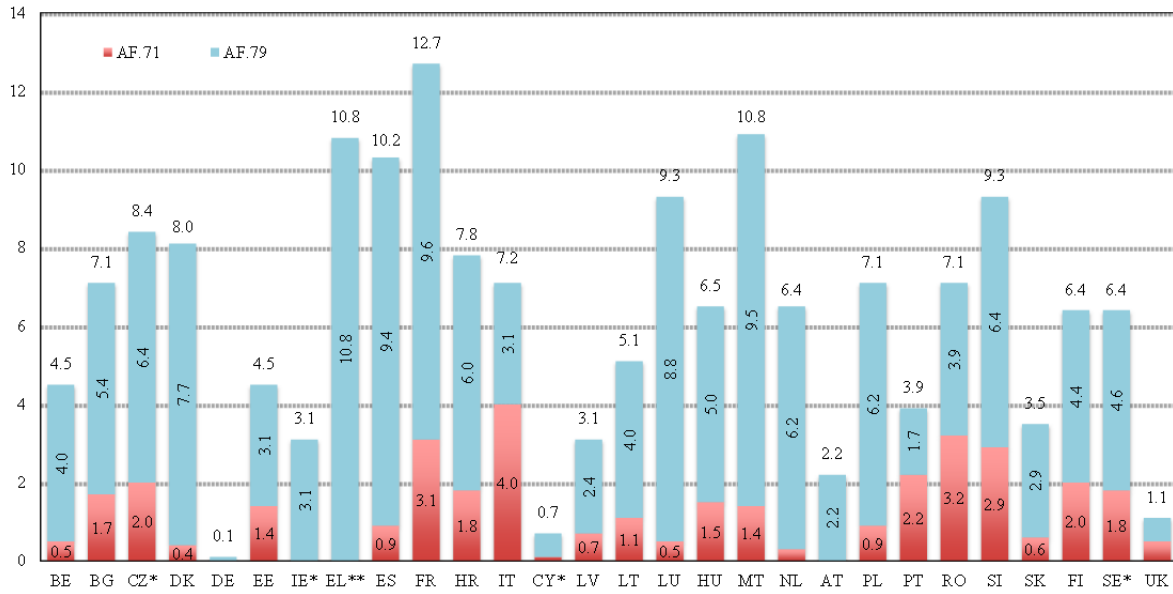
Figure 2 shows how consolidated data barely change for the AF.71 subaccount but do change substantially for some countries in the AF.79 subaccount (mainly Spain, France and Slovenia). This is logical, given that if AF.71 is bound to reflect commercial credit, the different layers of public administration do not hold among themselves this type of debt. But as AF.79 may be affected by pending tax settlements, the different levels of government would be expected to have some debt within this category among them.

¹ Actually, Greece does not have a disaggregated AF.71 account.

² This underestimation of commercial debt through the item AF.71 may be due to mismeasurement and poor accounting at a regional and local level.

Figure 1

Government AF.7 Liabilities
(non-consolidated, percent of GDP, 2012 Q4)

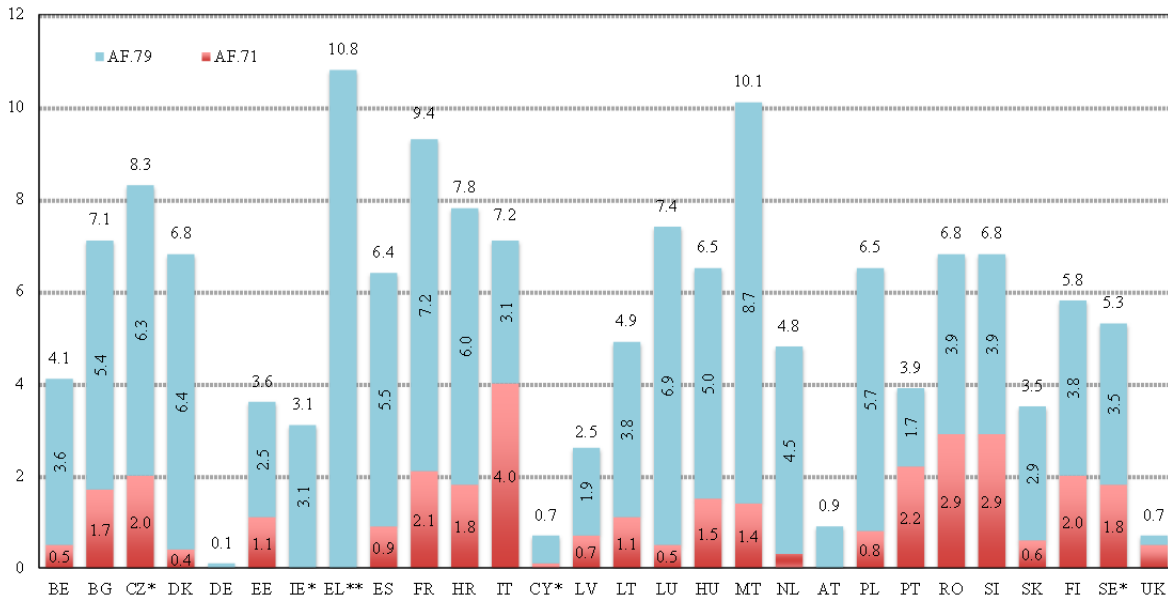


* Incomplete coverage, ** No coverage for AF.71.

Source: Eurostat.

Figure 2

Government AF.7 Liabilities
(consolidated, percent of GDP, 2012 Q4)



* Incomplete coverage, ** No coverage for AF.71

Source: Eurostat.

Therefore, as a possible compromise between imperfect alternatives, the authors could stick to its initial strategy of taking AF.7 (instead of AF.71, which in principle would be more precise) but on a consolidated basis.

As for the second factor included in the previous equation, the authors assume the following distribution function for the payment period.

$$F(t) = 1 - e^{-\lambda t}$$

$$\text{where } \lambda = \frac{1}{T^*}$$

T^* is the average period of payment so every country will have, obviously, a different distribution function. In order to see how thorough is the assumption of that specific function, we have used some actual data available for an ad-hoc estimation for the Central Government of Spain (Gobierno de España, 2013). The average period of payment for the Spanish Central Government was 61 days³ at 2012Q4, allowing the calculation of the parameter that shapes the distribution function.

$$T^* = 61 \rightarrow \lambda = 0.0167$$

This yields a distribution function like the one depicted in Figure 3. At the same time, according to official estimates (Gobierno de España, 2013), at 2012Q4 commercial debt exceeding the legal period of payment (at that time, 60 days) was €554 million, a 20 per cent of total commercial debt owed by the Central Government (€2,733 million).⁴ In short, 80 per cent of total central government debt was paid under 60 days, while the estimated distribution function would suggest a 65 per cent.

Hence, actual data (the red point in Figure 3) are tracked relatively well by the estimation (the blue line in Figure 3). There are slight differences because it is widely known that once the legal threshold is exceeded, actual payment periods tend to be even longer (Checherita-Westphal, Klemm and Viefers, 2014, and Gobierno de España, 2013). As a consequence, this distribution may paint a relatively good picture for countries prone to delays while penalising relatively diligent governments, but overall it seems an adequate assumption.

Once the estimated measure of government arrears has been constructed, it is time to check how it performs within the macroeconomic estimation, which has two dimensions: the panel technique and the BVAR.

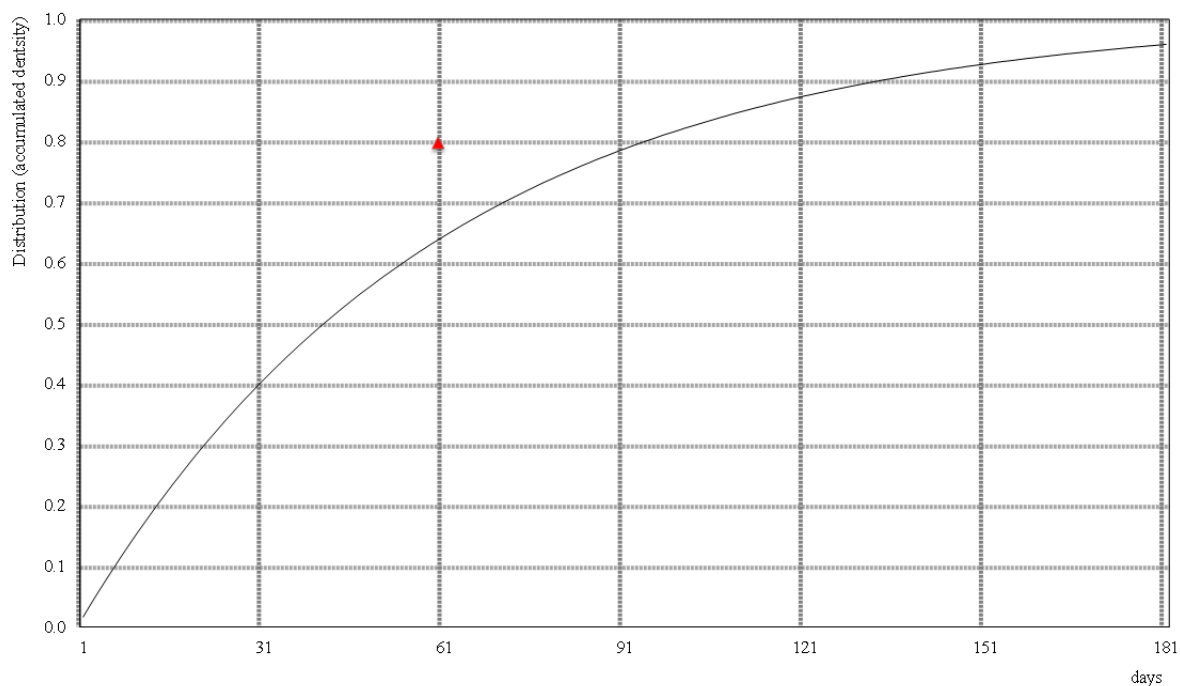
The panel data estimation is quite robust, and the authors appropriately bear in mind the potential for endogeneity and reverse causation. The different regressions yield economically and statistically significant results. The fact that government falls into substantial arrears implies smaller GDP growth, higher likelihood of private bankruptcies and lower firm profitability. On this last issue, maybe alternative measures of profitability (e.g., return on assets or return on equity) might have been considered instead of the gross operating surplus, as the latter is swayed by many factors different from firms' profitability.

In order to draw even more relevant conclusions, the impact on other variables could be tested. One of these variables could be the mark-up, as government arrears impact asymmetrically on big firms and small and medium size enterprises. The former can bear more easily the management and financial cost of arrears, resulting potentially in impaired competition and ample mark-ups.

³ These periods are much longer for local and regional governments.

⁴ AF.71 at 2012 Q4 was used to compute total commercial debt because the mismeasurement of commercial debt through AF.71 seems to be the case only for regional and local governments but not for the central. In AF.71 there are no differences between consolidated and non-consolidated data, as Figures 1 & 2 point out.

Figure 3

Distribution Function of the Payment Period*(actual, red point, and estimated, blue line)*

Source: Eurostat.

Another interesting variable could be total factor productivity (TFP). If firms have to devote financial and human resources to deal with government arrears, they will be bound to be less productive, with an impact on the whole economy's TFP.

Another macroeconomic measure to track would be the risk premium. Even if commercial and sovereign debt follow different paths, a government incurring delays will likely face a higher risk premium due to the bad signal sent to the markets. Actually, governments prone to delays should face higher costs, not only when issuing debt but also when being provided goods and services. Ideally, if data at a microeconomic level were to be available, it would be interesting to check whether public procurement costs⁵ for the same category of goods and services do change between and within countries depending on the amount of arrears.

And, finally, the authors should consider introducing private delays and arrears in their research. Given the commendable effort made in processing data from Intrum Justitia (on payment periods) and from the financial accounts (on trade credit), it could be straightforward to construct a measure for private delays similar to the one for the government. The objective of this proposal is twofold.

On the one hand, it is interesting to see how government payment practices influence private ones. Higher government payment periods will lead to arrears within the private sector through an evident direct channel, as government suppliers will tend to pay their suppliers with delays as well.

⁵ These costs would have to be adjusted by purchasing power parity (PPP) and reflect a similar type of contract.

In addition, there is an indirect and subtle channel linked to the exemplifying effect, the mistrust and the higher transaction costs triggered by a climate of uncertainty.

On the other hand, macroeconomic effects of private arrears should be appraised too. The authors suggest in the introduction that private delays within the private sector do not impact overall liquidity, as they act as a transfer of resources between individual agents. However, that transfer of resources does generate macroeconomic effects if those resources feed the financial sector, given that liquidity could be still limited if it does not flow back to the real sector. This could harm GDP (and its components) and TFP if the financial sector keeps that liquidity for unproductive uses.

Furthermore, while big firms are capable of imposing longer payment periods, SMEs are more credit-rationed and are more affected by delays, so liquidity constraints are still binding and may weigh on private consumption and investment. Given this asymmetric impact on SMEs and big corporations, private delays would again reinforce the position of the latter (capable of imposing longer payments periods), keeping mark-ups and harming GDP growth and employment creation.

As for the BVAR for individual countries, its results are not so conclusive. This is troublesome, as the panel data estimation must be interpreted with caution given the cross-country statistical issues mentioned above. The impact of arrears on growth, while negative for Spain and Portugal, is not clear for Italy. As for the interest rate, proxied by the Euribor, the results are quite different for each country. The most conclusive results are obtained for liquidity, which falls in the three countries owing to government arrears.

The authors could try to include the same variables in the BVAR than in the panel data, in order to be coherent. Profitability, for instance, is not alluded to in these BVAR models. As for interest rates, perhaps the lack of clear results could be fixed by taking a purely domestic interest rate (like the risk premium) in the Euribor's stead.

Once we have dealt with caveats and limitations of the macroeconometric estimation, we suggest some proposals, which could be useful to hone the paper.

3 Suggestions to improve the paper

We have three types of suggestions to the authors: cross-checking their macroeconometric findings with DSGE models, exploring the theoretical dimension of government arrears and proposing specific policy implications.

The first set of suggestions considers checking the results obtained in the macroeconometric estimation also with a DSGE model. This serves not only as a robustness test for the quantitative impact but also as a general reflection on the theoretical and qualitative effects, including the above-mentioned theoretical channels, like the influence on mark-ups or the TFP.

The following macroeconomic channels could be considered within a DSGE framework in order to assess the impact of government delays and arrears on economic performance:

- Government arrears imply lower profitability of private firms and, as a consequence, subdued investment and GDP growth.
- Government arrears generate liquidity constraints to private firms and especially to SMEs, weighing on investment, consumption and GDP.
- Government arrears provoke a higher likelihood of bankruptcy for private firms, again especially for SMEs. Big corporations can cope with this problem more easily and could gain

market power, increasing their mark-ups and hindering GDP growth and employment while increasing inflation.

- Government arrears make private firms incur extra outlays, like financial, management or transaction costs. This drain of resources drags down to total factor productivity and long-term growth.

Hence, as we also said in the previous section, the macroeconometric estimation could be broadened to factor in (at least some of) the above-mentioned variables which were not previously included: private consumption and investment, mark-ups, inflation or TFP. Even if small, the impact ought to be statistically significant, given the robust results obtained in the panel data.

Should we have the effect on some of these variables, shocks could be introduced in a DSGE in order to compare the (qualitative and quantitative) empirical results with a theoretical and micro-founded framework. For instance, stepping at the macroeconometric impact of government arrears on mark-ups or TFP, we could introduce in a DSGE shocks to these more exogenous variables to obtain the response of more endogenous variables like GDP (and its components) or inflation, comparing the DSGE results with the econometric exercise.

Ideally, the DSGE used as a benchmark ought to include financial market imperfections, such as liquidity-constrained (*hand-to-mouth*) consumers and limited pledgability introducing the need of lending against a collateral. These tools allow the play of the financial accelerator mechanism and capture the government arrears' harmful effect on liquidity.

The DSGE would confirm the negative effects that government arrears exert on macroeconomic aggregates, in sync with the authors' findings in the econometric exercise. Hence, the government is shooting in its own economy feet, which does not seem very rationale.

That is why our following and second suggestion to the authors is for them to explore further the theoretical dimension of this phenomenon, in order to seek microfoundations for this type of government action.

The first alternative within this excursion into the theoretical dimension could be considering whether the public sector is falling into 'strategic default' with its commercial debt, following a careful cost-benefit analysis. This phenomenon has been deeply studied with regard to sovereign debt (Borenzstein and Panizza, 2009), where default implies painful costs, like reduced and costly future borrowing, damaged reputation and the threat of international sanctions. But the government could still default in its sovereign debt if the benefits of that decision outweigh the costs. The main benefit would be indeed avoiding a painful fiscal adjustment.

As far as commercial debt is concerned, 'strategic default' should be understood as voluntarily falling into delays and arrears, which is different from pure default. The first benefit of such a strategy would be to obtain an apparently cheap financing by delaying due payments and thus avoiding issuing debt, collecting taxes or cutting other expenditure. However, there might be a penalizing increased interest rate for late payments, so the government could end up incurring higher costs.

Another potential benefit may be reporting lower deficit figures. The government would be fooling itself, as sooner or later these figures should flourish. This could be a one-off strategy for a fiscal year where a given target should be achieved, and not even so if we bear in mind that fiscal statistics are measured on an accrual basis rather than on a cash basis.

While the 'strategic' government's behavior has very limited advantages, it is actually saddled with drawbacks. Chief among them would be the higher cost of future provisions of goods and services to the public sector, as a rational response of private suppliers in a dynamic and intertemporal framework. This would be analogous to the reduced and costly borrowing in the previous case with sovereign strategic default. And there are more analogies with the sovereign

default, as reputation would be damaged as well and the risk premium could increase as a consequence.

Therefore, the puzzle is still unresolved. Falling into arrears' costs seem to exceed benefits for the government, so the public sector is at the same time fooling itself and shooting in its own feet. When we have to explain the conduct of mean and not very smart governments, our last option to square the theoretical dimension of this phenomenon is the recourse to political economy issues.

The most straightforward explanation would be a simple problem of political cycle. As we have said before, the benefits of strategically delaying commercial payments are tangible in the short run (cheap financing and cooking the fiscal books), while costs are postponed to the medium term (increased costs of goods and services, scarce commercial and sovereign borrowing and impaired reputation). Kicking the can down the road does not seem optimal (neither for the public sector nor for citizens), but it is a rational decision for government members standing for election in the short run.

There might be more complex explanations for government delays and arrears. Given the set of countries laden with this trouble, the role of trust and other intangible variables, which grease the wheels of market economies, should be further explored (Bützer, Jordan and Stracca, 2013). Furthermore, and again taking into account the group of nations affected, one should wonder whether there is a problem with the 'capitalist ethics' of certain societies.

To conclude, after exploring the theoretical dimension, our third and last suggestion to the authors in order to improve the paper is to draw policy implications for their thorough and timely research.

The first takeaway is obviously that government delays and arrears are harmful for economic activity, so the public sector should keep its own house in order so as to improve economic performance. The authors have well documented these macroeconomic effects with their econometric estimation.

But there could be more policy implications, like, for instance, the debate on whether to include commercial debt into the general definition of public debt, as market would exert more discipline. However, this would not be advisable at this moment given the statistical issues that make difficult an adequate cross-country comparison. Hence, the final policy implication is that those statistical issues should be addressed in order to see what the financial accounts AF.7, and its subaccounts AF.71 and AF.79, really include. This is important for measuring both public sector and private sector debts (European Commission DGECFIN, 2012).

Another interesting policy debate is oriented to the reduction of government payment periods. Hitherto, imposing shorter periods by law has not been effective, as some governments are blatantly circumventing these rules. Therefore, the introduction of other incentives should be regarded.

One 'soft' incentive could be the publication of average periods of payment, which could generate *beauty contest* effects as governments with the lowest periods of payment would attract the best suppliers while those prone to delays would be charged higher prices for lower quality goods and services. In countries with several layers of government, this could be a useful measure to foster competition among different government, both horizontally (among governments of the same level, for instance, municipalities) and vertically (across different levels, e.g., municipalities and regions). Spain is one of these decentralized countries and the last Law to limit commercial debt sets the publication of payment periods as a way to introduce market discipline (Boletín Oficial del Estado, 2013).

But there are also "strong incentives" on the cards to discipline governments which tend to delay payments. These sticks and carrots could apply to governments, reducing access to federal

funding (effective for subnational levels) or forcing them to adopt specific tax or expenditure measures, or to individual politicians, making them subject to fines or administrative sanctions.

Once we have dealt with drawn some comments and suggestions, we wrap them up in some conclusions.

4 Conclusions

Checherita-Westphal, Klemm and Viefers (2014) have provided a thorough, original and timely piece of research. In order to improve the paper, we have proposed them to address some issues in the macroeconometric estimation and to increase the scope of the paper by introducing theoretical and policy debates.

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