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CHIEF EXECUTIVES' TERM LIMITS AND FISCAL POLICY CHOICES: INTERNATIONAL EVIDENCE

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Chief Executives' Term Limits and Fiscal Policy Choices: International Evidence

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ABSTRACT

According to reputational models of political economy, a term limit would change the behavior of chief executives because they do not have to stand for election. We test this hypothesis in a sample of 59 countries over the period 1975-1997. We use both cluster analysis and paned data estimation techniques. We are unable to find any significant difference in the behavior of term limited chief executives with respect to those who are not. This is in contrast with some previous empirical results on US and international data.

Keywords: term limits, comparative politics, fiscal policy.

JEL Codes: E62, H11

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1. Introduction

In recent years a number of papers regarding the effects on economic policy of a government's term limit have been published in major economic journals. This echoed a much wider debate on the subject of term limits for both government and Parliament that took place among Political Science scholars. The issue was particularly hot in the U.S in the 1990s, where the introduction of a term limits constitutional amendment for Congress members was brought to the floor twice but gained only a simple, not the requested two-third majority.

The opinions about the opportunity to introduce term limits for offices responsible for economic policy vary a great deal, and this is also true if we consider fiscal policy only. In this respect, the three major positions in favor of the introduction of term limits are the following:

- according to the so-called logrolling hypothesis (Reed *et al.*, 1998), term limits, reducing tenure, would reduce that special competence a member of Parliament acquires with time to make agreements with other members so as to have his spending proposal pass, while voting in favor of theirs (vote trading). Term limits would therefore reduce public spending;
- some models insist on the notion of elected representatives' shirking (Dick and Lott, 1993). By "shirk" they generally mean deviating from the median voter's preferences. Term limits, reducing tenure, reduces the time the incumbent may use to build entry barriers enabling him to shirk without risking no re-election. The effect on fiscal policy is here undetermined, as it depends on how the incumbent's preferences are different from the median voter's. However, it is often implicitly understood that less tenure implies less spending;
- though not often cited in reference to the term limits debate, a number of Political Economy models (Persson and Svensson, 1989; Tabellini and Alesina, 1990 among others) point to the distortionary effect of elections on an incumbent's fiscal policy when there is high uncertainty about his successor's identity. The distortion goes in the direction of too much public debt issued in the last term.

Critics of the introduction of term limits may be divided into two categories: those who simply criticize the above arguments and those who propose different models. Among the former, many are dubious on the causal relationship between term limits and tenure and

other object that party discipline and the necessity to build a reputation to aspire to other political positions already do the job term limits would do, so their introduction would not make a great difference. Instead, the models suggesting the introduction of term limits is a bad idea are centered on the disciplinary role of elections. Depending on whether they assume rational retrospective or rational forward looking voting behavior, they are reputation building models or models of competence based on signaling games (like Besley and Case (1995), of which more in section. 2). The absence of a perspective to be re-elected may induce an incumbent to misrepresent the median voter's preferences, and since this is often supposed to be fiscal conservative it means that a lame duck is likely to put less effort in keeping public spending down.

The empirical literature on the relationship between term limits and fiscal policy is not as wide as the theoretical one, and in almost all cases uses U.S. states data,[1] with possibly only one exception (Johnson and Crain, 2004). We summarize its findings in the following paragraph. Our plan is here to conduct an empirical investigation on the subject using two very wide and recent databases: Persson and Tabellini (2003) and Beck *et al.* (2001). Our approach is to try with two different tools: a traditional one, multivariate analysis, which we enrich of many political variables, and cluster analysis. To our knowledge, the latter has never been used to investigate the relationship between term limits and fiscal policy. It complements the former in the following sense: our idea here is to consider as cases country-year units, such as Australia 1970 and Belgium 1980. We take deficit and expenditure impulses as variables and consider how the clusters we obtain, particularly the clusters with extreme values for the fiscal variables, relate to the classification of cases according to the political index for term limits.

The remainder of the paper is organized as follows: section 2 presents the contributions by economists on the relationship between term limits and fiscal policy, with a particular stress on recent empiric findings; section 3 illustrates our choices in terms of clustering procedures and fiscal variables used in our cluster analyses; section 4 introduces the model used for the regression analysis; par. 5 summarizes the results using both investigating tools. Section 6 concludes.

[1] In many U.S. states the governor's office has been subject to a one or two term limitation for a long period of time.

2. Term limits: theory and empirics

A model of politicians' behavior under term limits is provided by Besley and Case (1995).[2] They build a model based on asymmetric information about politicians' type or imperfect information about the state of the world, in which the reelection mechanism can raise effort or reduce opportunistic behavior. Politicians are characterized by some unobservable type ω_I, with probability π_i associated to each type. Once in power they take an unobservable choice α (the amount of effort) which contributes to the success of policy making. Voters get the probabilistic payoffs r. The model is set up in two periods: in the first the incumbent chooses his action, and the outcome r is realized. Then voters make a reelection decision. The policy choice of the incumbent changes whether or not a term limit is binding. If there is a term limit the policy maker maximizes his immediate payoffs. If he can stand for reelection there is room for reputation building since he can get utility from two different periods, given that he is reelected. Therefore, if two terms are allowed, incumbents who give higher first-term payoffs to voters are more likely to get reelected. Those in their last term put less effort and give less payoffs to voters with respect to their first term in office, on average. Besley and Case also provide empirical evidence to their model, using data for 48 US states from 1950 to 1986. They estimate the effect of term limits on taxes, expenditures, minimum wage and workers compensation, controlling for variables such as state income per capita, the proportion of population between the ages of 5 and 17, the proportion of population above age 65, and state population, plus year- and country-dummy. Results show that there is a positive and significant effect of term limits on taxes and expenditure, whereas there is a significant negative effect on minimum wages. The effect on workers compensation is positive but not robust to different specifications of the model. In addition, these effects are mainly driven by incumbent Democrats.

Besley and Case (2003) update their previous results using data from 1950-1997. They find that term-limited governors tend to significantly increase state spending. However, previous results concerning taxes are not replicated: per-capita taxes are insignificantly lower. This result is analyzed in more detail by considering the relationship between term limits and taxes year by year. It appears that the effect of term limits was significantly positive in the first half of the period, then it turned significantly negative (and with much higher dispersion)

[2] Smart and Sturm (2004) show that term limits are welfare improving because of the selection effect induced by more truthful behavior. For detailed accounts on term limits (mainly affecting legislators) see Grofman (1996) and Lopez (2003).

in the second half of the sample. No reason is given to this striking change. On the one hand, these results suggest that term limits distort policy choices, on the other hand, do not allow any systematic expectation of the direction of the distortion. Possibly, a problem of omitted variables may be at work in this situation.

Other papers have empirically analyzed the effect of term limitation on fiscal variables for the US. Crain and Tollison (1993) find that governor term limits have a positive and significant effect on budget deficits and revenues, but not on expenditures in the 1960-1989 period. Crain and Oakley (1995) analyze differences in capital stocks and flows between states with and without term limits. Using data for the eighties they find that the stock of state government capital per capita, the change in the stock, and the percentage change in the stock are lower in states without term limits. Recently, List and Sturm (2004), for the period 1960-1999, find that governors in the last term of office spend significantly less in environmental protection. However, the term limit effect is softened in states where a large fraction of citizens belong to environmental groups. Also, the term limit effect is smaller as long as the margin of majority in the gubernatorial race is larger.

Johnson and Crain (2004) extend the empirical analysis of Besley and Case to a panel of 48 democracies over the period 1972-1990. Their results closely resemble those of Besley and Case. A term limitation rule leads to both higher government expenditure and revenue. Furthermore, they look at possible different effects of one- and two-term limit: it appears that executives subject to the latter constraint are even more prone to engage in higher government expenditure and tax revenue, in fact one-term limit is significant, while the two-term limit is not significant. From a theoretical point of view, this happens because the one-term limited chief executive cannot undertake in any reputation building activity, neither those during the first term as two-term limited executives, because he cannot stand in the following election. This finding is also consistent with the fact that term limits increase the volatility of fiscal policy but not the overall size of the government.

This analysis suffers from some possible drawbacks. First, although it considers economic and demographic factors specific to each country, it neglects the role of different institutions in shaping fiscal policy. A growing literature maintains that presidential/parliamentarian forms of government affect the incentives of politicians to engage in more responsible fiscal policies because of accountability and capturing by special interests groups. Moreover, all the countries in which there are term limits happen to be a subset of presidential democracies, therefore controlling for this, address a possible omitted

variables problem. To overcome this problem we add a number of institutional variables in the spirit of comparative political economics, as discussed in Section 3.

3. Cluster analysis

3.1 Choice of appropriate clustering procedures

Cluster analysis consists of a number of procedures of automatic classification enabling to see which “cases”, units which are differently characterised under many observable aspects (“variables”), are more similar to one another. Similarity measures are metrics and the criteria by which cases are clustered are algorithms, so cluster analysis is a tool for grouping cases in an objective way in the sense that the only subjective intervention is the choice of metrics and algorithm.

There are two fundamental choices one is confronted with before any cluster analysis: the metrics by which case similarity is measured and the clustering method and algorithm. In fact, there are several clustering methods (hierarchical agglomerative, hierarchical divisive, partitioning, etc.) and within each method one can choose among a number of clustering algorithms. We have chosen clustering methods and algorithms having the peculiar objectives of our research in mind. Those performed by the available software (SPSS 11.5) were the hierarchical agglomerative method, with a number of clustering algorithms to choose among, and a specific algorithm within the iterative partitioning method, the K-means cluster. We have considered the hierarchical agglomerative method associated with the Ward algorithm (also known as intra-group least squares) and the K-means cluster.

The purpose of a hierarchical agglomerative method is to join together cases into successively larger clusters, using some measure of similarity. One begins with each case in a class by itself and then “relaxes” the criterion as to what is and is not unique. This is the same as saying that the threshold regarding the decision whether to declare two cases to be members of the same cluster is lowered. At the first step, when each case represents its own cluster, the distances between cases are defined by the chosen metrics. Once several cases have been linked together the distances between those new clusters may be determined ion different ways. One can link two clusters together when *any* two cases in the two clusters are closer together than the respective linkage distance (the "nearest neighbours" or single linkage option). Or the distances between clusters are determined by the greatest distance between any two cases in the different clusters (i.e., by the "furthest neighbours"): this option is called

complete linkage. Ward's algorithm is distinct from all other methods because it uses an analysis of variance approach to evaluate the distances between clusters. In short, this method attempts to minimize the Sum of Squares (SS) of any two (hypothetical) clusters that can be formed at each step.

In the K-means clustering procedure the number of clusters is user-specified. The program will start with *k* random clusters, and then move objects between those clusters with a goal to minimize variability within clusters and maximize variability between clusters. This is done through an iterative routine involving the calculation of the clusters'centroids, of the Euclidean distances between all cases and the centroids and the re-assignment of cases to the nearest centroid.

Our aim was to obtain clusters that were not long, but spherical, and composed by a similar number of cases. With respect to other hierarchical agglomerative methods, the Ward algorithm actually tends to form new clusters at every step of aggregation instead of having single-case clusters being included in an already formed bigger cluster. This determines that at the highest steps of aggregation it is more common to have distinct clusters with similar dimension than to find a very big cluster and some small or single-case clusters.[3]

As for the K-means cluster, the performance with respect to cluster dimensions is similar to the one of the hierarchical agglomerative method plus Ward algorithm option, but there is an advantage with respect to all hierarchical agglomerative methods which lies in the revision in the cluster assignment of every case at each step of aggregation. In fact, in hierarchical agglomerative clustering once two cases are united in one cluster they will not be divided at further steps of aggregation. However, the K-means clustering also suffers from a limitation which is typical of all partitioning methods, namely the computational impossibility to consider all possible case partitions given a number of clusters one wishes to impose. This means one risks to obtain a sub-optimal division of cases in clusters, a sort of local maximum instead of an absolute one (this risk is linked to the choice of the initial partitioning).

[3] When using the hierarchical agglomerative method with the Ward algorithm SPSS requires to choose among a number of metrics, and our choice has been for the City Block (or Manhattan block). This metrics does not use squares, but absolute values to measure the distance of cases in terms of the different variables characterizing them. We did so because one of the two variables (*EXPIMP*) had a slightly wider range of values. We wanted to avoid the possibility that this fact influenced the clustering results in the sense that these reflected too great a weight given to *EXPIMP* in the calculation of case similarity. Instead, the Euclidean distance is the default option when one uses the K-means cluster.

It is often suggested that the question of the different weights attributed to variables in the calculation of case similarity can be solved by transforming the very variables into their standardised values, also called z-scores. This usually recommended when the variable relative values are conditioned by the use of different measure units, and this is not the case here. However, we have found that only the results obtained by transforming the fiscal variables into their z-scores were of some significance. For both clustering methods several steps of aggregation have been considered: from 6 to 2 clusters.

3.2 Construction of the fiscal variables used in the cluster analysis.

We define, as in Alesina and Perotti (1995), the effect of a government's political action in a given year on a country's fiscal stance as its "fiscal impulse". In our cluster analysis we consider two elements: the expenditure impulse and the deficit impulse. It is possible to use different proxies for these. A first option is to use first differences of total central government spending and of (minus) government surplus, both divided by GDP, which are available in our dataset for a very large number of countries. We call these *DCGEXP* and *DDEF*, respectively. *DCGEXP* and *DDEF* are rough proxies for two reasons. The first one is that they are calculated regardless of the fact that some government's expenditure is not dependent on the present government's deliberate action, but they are the consequence of previous governments' obligations. Interest payments, in particular, are not to be regarded as a minor heading in current expenses, given that our sample includes the Eighties and a large number of Latin American and less developed countries. The second drawback in using *DCGEXP* and *DDEF* is that their fluctuations may be due to business cycles, which are not accounted for.

We therefore use also finer proxies. *DSSW* and *DPDEF* are first differences calculated starting from CGREV and SSW. We consider the latter as a proxy for current expenditure minus interest payments (divided by GDP). *DPDEF* is therefore an indicator for a country's yearly change in primary deficit, still divided by GDP.[4]

In order to account for the business cycle, a third definition of expenditure and deficit impulses have been used. For each year, we calculate a world average for *CGEXP* and *CGREV* and subtract them from each country's *CGEXP* and *CGREV* data for that year. We

[4] This comes with a cost, namely a slightly lower number of countries considered. Moreover, the quality of the SSW series for a number of countries, especially non industrialised countries, is probably debatable, as some suspicious jumps in the series show. Finally, *SSW* do not include all current expenses save interest payments, so

then calculate first differences. Here are the definitions of total expenditure impulse and total deficit impulse, the two variables we obtain:

$$TOTEXPIMP = (CGEXP - YAVCGEXP)(t) - (CGEXP - YAVCGEXP)(t - 1), \quad (1)$$

$$TDEFIMP = [(CGEXP - YAVCGEXP) - (CGREV - YAVCGREV)](t) - [(CGEXP - YAVCGEXP) - (CGREV - YAVCGREV)](t - 1). \quad (2)$$

We finally construct a fourth couple of variables, *EXPIMP* and *DEFIMP*, by the same procedure, but using *SWW* instead of *CGEXP* as a proxy for government spending:

$$EXPIMP = (SSW - YAVSSW)(t) - (SSW - YAVSSW)(t - 1), \quad (3)$$

$$PDEFIMP = [(SSW - YAVSSW) - (CGREV - YAVCGREV)](t) - [(SSW - YAVSSW) - (CGREV - YAVCGREV)](t - 1). \quad (4)$$

EXPIMP and *PDEFIMP* should be insensitive to interest rates fluctuations and include a correction, simple as it may be, for the business cycle.[5]

4. The parametric model and data

The benchmark model is the following:

$$P_{i,t} = \gamma TL_{i,t} + \alpha Z_{i,t} + \beta I_{i,t} + \varepsilon_{i,t}, \quad (5)$$

where *P* is the relevant fiscal variable of interest (government spending, government revenue, government surplus, and social and welfare expenditure), *TL* is a dummy variable indicating whether the chief executive can or cannot stand for re-election, *Z* is a set of economic and demographic control variables, while *I* is another vector of institutional control variables.

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if we use *DSSW* and *DPDEF* as a proxies for the expenditure and deficit impulses we must impose a ceteris paribus condition on all expenses which are not included and are different from interest payments.

[5] In contrast to these advantages, they may have the same drawbacks as *DSSW* and *DPDEF*. A second correction has also been tried: yearly continental averages for *SSW* and *CGREV* have been subtracted in the construction of the deficit and expenditure impulses. The relative results are available upon request.

Finally, ε is the error term, and subscripts i and t represent countries and time, respectively. We always include country-dummies to control for unobserved specific effects.[6]

We use two main dataset. The central variable of our analysis is *TL*, which takes value equal to 1 when the current chief executive cannot run by a constitutional provision for the office in the next elections. This is taken from the Database of Political Institutions (DPI henceforth, Beck *et al*., 2001), a comprehensive source compiled by a research group at the World Bank.[7] Institutional, fiscal, and control variables are taken from the 60-country panel data by Persson and Tabellini (2003). This panel spans from 1960 through 1998. The latest version of the Database of Political Institutions (DPI2000) extends over 1975 to 2000 for 177 countries. However, DPI does not include St. Vincent and the Grenadines, therefore our merged database covers 59 countries over the period 1975-1997.[8]

Among demographic and economic control variables we consider: *LYP*, the natural logarithm of real per-capita GDP because the Wagner Law argues that government intervention is a normal good, whose demand increases as long as income increases; openness to foreign trade lagged one year, defined as the sum of import and export over GDP (*OPEN*-1) because increasing the size of the public sector is seen as a form of insurance against external shocks by countries that are more open to international trade (Rodrik, 1998);[9] the natural logarithm of population (*LPOP*) to take into account size effect in the provision of public goods; *YGAP*, deviation of aggregate output from its trend value in percent, obtained using the Hodrick-Prescott filter to capture economic cycles and the working of automatic stabilizers and discretionary fiscal policy; and proportion of population over age 65 (*PROP65*) because an older population requires higher spending in public provision of healthcare and pensions.

Institutional variables involve three main groups. Firstly, we consider whether the government is based on a presidential or a parliamentarian regime. This mainly involves the

[6] Regressions with regional and year-dummies do not affect the main results discussed in the next Section. For the sake of parsimony we do not include these variables in the estimates we show. They are available upon request. However, because a number of presidential regimes is found in Latin America, as a robustness check we include an interactive term of the term limit variable and Latin American countries (*LAM*).

[7] In the original source this variable is defined differently. It is coded *MULTPL?* and is defined as "If there are formal restraints on an executive's term (NA if not), can s/he serve additional term(s) following the current one?" If the executive's term is constitutionally limited (NA if not), can he be re-elected? A 1 is recorded if a term limit is not explicitly stated. Only limits on immediate re-election count. We have used the convention that TL = 1 if a term limit is explicitly set, and equal to 0 if it is not or there is no formal restrain on executive's term.

[8] We decided to get rid of 1998 because for that year a large number of data was missing. This caused problems in the cluster analysis, working in differences.

[9] Rodrik (1998) found this result for the lagged value of openness. We have experimented the use of the current value of *OPEN*, it turned out to be often insignificant, without affecting results concerning *TL*.

necessity of a vote of confidence by the parliament to install and keep working a government. In a presidential system, the executive is directly elected by the electorate and he is not accountable to the Parliament. In Persson *et al.* (1997) incumbents are held accountable by retrospective voters. Because of the greater concentration of powers in parliamentary regimes, politicians easily collude at the expense of voters. In equilibrium, this lower accountability results in higher taxes than in presidential democracies. Building on the idea of legislative cohesion, Persson *et al.* (2000) also argue that in parliamentary regimes a stable majority of legislators act in the joint interest of its voters. Spending is directed towards broad social welfare programs and general public goods, the opposite happening in presidential systems. The prediction is that presidential government are smaller than parliamentarian, have lower taxation and are more fiscally responsible, and favor broad spending programs. The variable *PRES* is a dummy that is equal to one under presidential systems and zero for parliamentarian systems. The variable *MAJ* records whether the voting rule is majoritarian (in this case its value is one) or proportional representation (in turn it is equal to zero). Milesi-Ferretti *et al*. (2002) show that voters anticipating government policymaking under different electoral systems have an incentive to elect representatives more prone to higher total primary spending in proportional (majoritarian) system when the share of transfer spending is high (low). In Austin-Smith (2000) under the assumption of a smaller number of parties represented under plurality than proportional representation, plurality leads to single-handed policy decisions, while more parties form coalitions under proportional representation. The interaction among elections, redistributive taxation, and endogenous formation of economic groups produces larger government expenditure under proportional representation than under plurality. Therefore the prediction is that *MAJ* is significantly negative on general government, broad spending programs. Finally, models of the political-economic cycle predict that government to signal their competence to the electorate increase spending and reduce taxes in electoral years. The dummy variable *ELEX* capture these events, being equal to one in voting years, and zero otherwise. Table 1 reports summary statistics for all these variables, and a Data Appendix gives details on definitions and sources.[10]

[Table 1 about here]

[10] A correlation matrix is available upon request from the authors.

5. Empirical results

5.1 Cluster analysis

Table 2 to Table 5 show the results of our cluster analysis. Each table refers to the use of different couples of fiscal variables and in each of them the results of the application of different clustering procedures are shown. The criteria used to select which results to show is the economic meaningfulness of the cuts between clusters. Particularly, we closely look at the cuts between the clusters of cases characterised by very high and low values for the variables, on the one hand, and those containing cases with moderate values for both fiscal impulses, on the other hand. In fact, we are interested in the political nature of the cases in the extreme clusters.

The comparison with the value of the political variable, namely *TL*, comes as a second step.[11] What we do is to consider how often, in probabilistic terms, a term limited case is in one of the clusters with extreme values for the fiscal impulses, and to compare this probability with the one characterising a non term limited case.

Speaking of the cuts in general, we must stress that the Ward and K-means methods rarely give the same partition of the data, given a chosen number of clusters. As far as the clusters with high values for the fiscal impulses are concerned, what we have here is that when Ward gives one cluster, K-means often gives two: one with high values for the expenditure impulse and not so high values for the deficit impulse, and one vice versa. However, in some cases the total number and identity of cases in the Ward very high cluster and in the two K-means very high ones are almost the same, and in many they are quite similar. As for the cluster of cases with very low values for the fiscal impulses, it is almost always one, no matter the clustering procedure, but its size may vary. Notice also that the dataset is such that very often it includes almost all cases with negative values for both expenditure and deficit impulses, even when both values are not so different from 0. This means that in this case it may only be interpreted as a cluster of very tight fiscal policies with caution.

Let us now turn to the results of the analysis. Table 2 shows that, considering *DCGEXP* and *DDEF*, the results obtained by the use of Ward, 5 clusters and K-means, 6 or 4

[11] Not all cases in the sample have a value for *TL*. In particular, all cases having non democratic governments have no value for the political variable of interest here. We have conducted our cluster analysis on the whole sample. The second phase concentrates on a sub-sample, which however accounts for 65 to 75% (depending on the variables involved) of the total.

clusters are not clear-cut.[12] As far as the cluster of cases with low values for the expenditure and the deficit impulse is concerned, it appears that all partitions imply that a term limited case has a higher probability to belong to it than a non term limited one. Still, the difference is not at all great. As for the cluster(s) of cases with high values for the fiscal variables, the Ward partition is in contrast with the two K-means results. Here a term limited case has a slightly higher, there a slightly lower probability to belong to it(them) than a non term limited one. Again, and in all three cases, the difference is negligible. In the K-means, 6 clusters case the cluster of cases with very high deficit impulse has a somewhat higher relative concentration of non term limited cases; in the cluster of cases with high values for *DCGEXP*, which is small, the difference is negligible.

[Table 2 about here]

Table 3, summarising the results obtained using *DSSW* and *DPDEF* as variables, shows a somewhat different picture in this last respect.[13] In the K-means, both 6 and 5 clusters a term limited case has a lower probability to belong to the cluster of cases with very high expenditure impulse than a non term limited one, and it has a higher probability to belong to the cluster characterized by a high deficit impulse. In the latter case the difference is also relevant: a term limited government has about double the probability to be fiscally irresponsible, as far as the deficit is concerned, with respect to a non term limited one. A reflection of this is probably the fact that here we also have accordance between the results of the Ward and the K-means clustering procedures: if we consider both types of fiscal irresponsibility together, all analyses conclude that a term limited case is more prone to it than a non term limited one. This accordance is no longer there, however, if we consider the cluster of cases fiscally characterized as stabilizations.[14]

[12] Notice that here Ward, 5 clusters and K-means, 6 clusters give good cuts with respect to the cluster(s) of very loose fiscal policies. The average values for *DCGEXP* and *DDEF* in the Ward cluster are 3.18 and 3.47, those of the K-means cluster with high values for *DCGEXP* are 7.84 and 3.40 and those with high values for *DDEF* are 2.35 and 3.70 respectively. The Ward cluster contains 193 cases, the two K-means clusters contain 28 and 155 cases respectively (183 in all). Considering that also the clusters of the very low values for the fiscal impulses are similar in the two partitions, this result is, to our aims, quite robust.

[13] All cluster results obtained starting from SSW are heavily conditioned by a small number of outliers, which is possibly due to the supposedly low quality of the data, especially as far as some less developed countries are concerned. We found that the elimination of Botswana from the sample greatly improves the quality of the analysis, so we did without it.

[14] This cluster is somewhat too little in the Ward, 6 cluster result: only 32 cases are included, with many low *DDEF* cases included in a cluster containing also lots of moderate fiscal policies cases. From this point of view, therefore, it is not the best of results. Through the K-means clustering procedures two distinct clusters of cases

[Table 3 about here]

Let us now turn to Table 4, where the results we show refer to the cluster analysis using *TOTEXPIMP* and *TDEFIMP* as variables. Qualitatively, these results do not differ from those in Table 2. This probably means that those first findings were not so much affected by the effects of the cycle on fiscal policy. This is not so surprising if we consider that less developed countries are very well represented in our sample. Their fiscal systems are unlikely to be as sophisticated as to have entries and expenses responding to income fluctuations a great deal.

[Table 4 about here]

The same is true for the comparison between Table 5, showing the results obtained by the use of *EXPIMP* and *PDEFIMP*, and Table 3. The picture we get is qualitatively the same. Here also the Ward, 6 clusters procedure obtains two distinct clusters: one with very high values for *EXPIMP* and one with very high values for *PDEFIMP*. Though the former is much smaller than the corresponding one obtained using the K-means clustering procedure, in both cases it turns out that the probability associated to a term limited case to belong to it is smaller than the one associated to a non-term limited case, just like in Table 3. The clusters of cases with very high *PDEFIMP*, which are similar in the two different partitions, are so composed that we can say a term limited case is more prone to raise the primary deficit than a non- term limited one. And very much so: the differences are here even greater than in Table 3.

[Table 5 about here]

The overall picture we get is a quite interesting one. Our interpretation of the difference between the results obtained by the use of different indicators for the expenditure and deficit impulse highlights that interest payments are often a relevant heading in national accounts, and one cannot possibly rely on first differences of total expenditure and deficit to

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are produced: one with very low values for *DSSW* and *DPDEF* often not too different from 0, and one vice versa. The probabilities shown in Table 3 are the sum of the probabilities associated to these two clusters.

get a clear picture of a government's fiscal impulse. The relevant findings are therefore those in Table 3 and 5. It appears that a term limited government has about double the probability to expand primary deficit with respect to a non term limited one. Coupled with the result that the same is not true for expenditure, it means lame ducks tend to cut taxes. However, it is also more probable that they operate a stabilisation. This second finding is not so evident, though, and we must also remember that generally the clusters of cases with low values for the expenditure and deficit impulses are often characterised by the fact that they contain numerous cases with not so low values.

5.2 OLS estimation

Table 6 reports the effects of term limits on government spending. Estimates (1) to (3) are based on the linear model, and estimate (5) is linear on the first difference of the dependent variable. Estimate (4) has an OLS double-log specification as in Johnson and Crain (2004). *TL* is always insignificant with the exception of (4), when *TL* is interacted with *LAM*, a dummy variable indicating Latin American countries.[15] In this case *TL* is significantly positive, whilst the interactive term is significantly negative. The proportion of population above age 65 has a significantly positive effect, and majoritarian elections and presidential democracies have a negative effect on government expenditure, as predicted by the theory. *LYP*, *LPOP*, and *OPEN*-1 are often significant at the lowest level, but *OPEN*-1 is negative, in contrast with models of government expenditure as protection from external shocks. Economic cycles (*YGAP*) have an impact on spending. Some differences are found in (6), where *PROP65* is significantly negative, and the institutional variables turn out to be insignificant. The adj-R^2 is quite high with the exception of (6). The Wald statistic evaluates the estimated relationships. It is asymptotically distributed as a χ^2 with degrees of freedom equal to the number of variables except the constant. All statistics are highly significant.

[Table 6 about here]

The relationship between government revenue and term limits confirms the previous results (Table 7). *TL* is not significantly different from zero in all specifications but the one concerning the endogenous variable in first-differences, when it is significantly positive at the

[15] Results for regressions with the iterative term should be taken with some caution, since the correlation between *TL* and *TL*LAM* is quite high.

10% level. *TL*LAM* is significantly negative, but does not affect *TL*. Institutional covariates are significant with a negative effect on revenues, but the estimates concerning *MAJ* are consistent, whilst the significance of *PRES* varies across estimations. *PROP65* is significantly positive, with the exception of (5). The logs of population and per-capita income are significantly positive although not consistently and a low level. *OPEN*-1 is insignificant, but we should note that Rodrik (1998) maintains that more open economies have higher government spending as an insurance against external shocks, but has no expectations on the effect on government revenues. We include openness among independent variables, but in a few specifications we do not consider it because of the insignificance of the relevant coefficients. *ELEX* is significantly negative suggesting that governments lower taxes in electoral years to show their competence to get reelected. All estimates explain a very large part of the variability of the data, and the Wald statistic is always highly significant. Estimate (5) represents an exception in both cases.

[Table 7 about here]

Results in Table 8 concerning term limits and government surplus are clearly in line with those regarding its components. Term limits do not have a significant effect on government surplus. Structural variables are usually significant, with the exception of *PROP65*. Majoritarian elections have a positive effect on budget, whereas presidential systems do not. Surprisingly, the estimate of *YGAP* points towards no effects of economic cycles to the budget surplus. In contrast, incumbent governments tend to manipulate the budget surplus in electoral years. The double-log specification (4) does not change the results. The models show a smaller ability to explain the variability of the dependent variable with respect to government spending and taxes. However, their specifications appear satisfactory.

[Table 8 about here]

The relationship between term limits and social and welfare spending (Table 9) is partially different compared with the other fiscal variables: we uncover a sizable negative relation between them, although this occurs at the 10% significance level, and it is not consistent with both the double-log and the first-difference specifications. Furthermore, the significance of *TL* increases when it interacts with *LAM*. Population is a determinant of

welfare spending, while per-capita GDP is not. In analogy with previous results that do not favor the idea that government spending is used by more open economies as a protection against external shocks, *OPEN*-1 significantly reduces this social and welfare expenditure. *MAJ* and *PRES* are negatively related to spending, although the estimates of the former are more precise than those of the latter. An elder population increases this area of expenditure, which is negatively related to *YGAP*.

[Table 9 about here]

5.3 GMM estimation

Because of the time dimension of our panel, OLS estimates of regressions involving lagged values of the dependent variable in the right-hand side are likely to be severely biased. Therefore, we use the Generalized Method of Moments (GMM) presented by Arellano and Bond (1991). Among independent variables we use the fiscal variable of interest lagged one, term limits, majoritarian voting rule, presidential system, log of population, log of per-capita GDP, openness lagged one, and proportion of population aged above 65. As instruments for the lagged dependent variable we use one further lag of that variable and lag one and two of all the previous economic variables.

A battery of diagnostic tests is used to check the validity of the specifications. The Sargan test is asymptotically distributed as a χ^2 with as many degrees of freedom as overidentifying restrictions, under the null hypothesis of the validity of the instruments. The statistic m_2 concerns the absence of second-order serial autocorrelation. It is based on the standardized average residual autocovariances, which are asymptotically N(0, 1) variables under the null of no autocorrelation. Again, the Wald statistic concerns the overall significance of the estimations.

The estimates regarding *CGEXP* closely follow the static panel, showing an insignificant effect of *TL*, and significantly negative effects of the two institutional variables. Diagnostic statistics maintain the significance of the model, the correctness of overidentifying restrictions, and absence of serial correlation. The same consistent results concerning term limits are obtained for *CGREV* and *SPL*. The specifications of the models appear correct, however the m_2 statistic for *SPL* is very close to the rejection boundary. In the estimate concerning SSW, *TL* is negative but borderline insignificant, with a p-value equal to 0.122.

This is in contrast with the static panel, where it was significantly negative at the 10% level. Specification and diagnostic test point toward the correctness of the model.

[Table 10 about here]

6. Conclusions

In this paper we have analyzed the effects of term limits on some fiscal variables in a panel of 59 countries. We use both a cluster analysis and traditional parametric methods (OLS and GMM). The former is particularly important because it is applied for the first time in this area of research, and leaves the data talking by themselves without imposing much structure. Results are quite consistent across different methods: term limits appear to have insignificant effects on government spending, revenue, surplus and social and welfare spending. This is in contrast with previous results concerned with the US states and international data. These results do not support models of reputation building in political economy, but may provide some indirect support to partisan models of political behavior. A chief executive whose days are numbered may be interested in securing election to the candidate of his own party. After all, parties outlives their candidates.

Data appendix

Central government spending as a percentage of GDP (*CGEXP*), central government revenue as a percentage of GDP (*CGREV*), central government surplus as a percentage of GDP (*SPL*) central government expenditure consolidated in social services and welfare spending as a percentage of GDP (*SSW*), natural logarithm of population (*LPOP*), natural logarithm of per-capita GDP (*LYP*) in constant dollars - base year 1985 - expressed in international prices, openness lagged one year - defined as the sum of import and export over GDP (*OPEN*-1), percentage of the population aged 65 and more (*PROP65*), dummy variable for majoritarian voting rule (*MAJ*), dummy variable for presidential system (*PRES*), deviation of aggregate output from its trend value in percent (*YGAP*), and dummy variable for elections of a country executive, both presidential and legislative, (*ELEX*) are taken from Persson and Tabellini (2003). The dummy variable for chief executive that cannot stand for re-election (*TL*) is taken from Beck *et al.* (2001).

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Table 1 – Summary statistics

		Mean	S.D.	Min	Max
CGEXP	Central government expenditure (% of GDP)	29.035	10.574	8.087	67.702
CGREV	Central government revenue (% of GDP)	26.367	10.338	2.679	62.017
ELEX	Election	0.238	0.426	0	1
LYP	Log of per-capita GDP	8.737	0.742	6.510	9.998
LPOP	Log of population	15.852	1.7635	12.150	20.685
MAJ	Majoritarian electoral rule	0.342	0.475	0	1
OPEN-1	Openness (% of GDP) lagged 1	66.465	38.086	8.8683	208.644
PRES	Presidential regime	0.346	0.4758	0	1
PROP65	Proportion of population aged above 65	8.857	4.719	1.247	17.842
SPL	Central government surplus (% of GDP)	-3.222	4.308	-24.450	22.631
SSW	Social and welfare expenditure (% of GDP)	8.268	6.577	0.019	24.532
TL	Term limit	0.193	0.3952	0	1
YGAP	GDP gap	-0.152	2.975	-20.214	15.660

Table 2 - Clustering variables: DCGEXP, DDEF.

Clustering method	very high DCGEXP		very high DDEF		both very high		both very low	
	TL	no TL	TL	No TL	TL	no TL	TL	no TL
Ward, City Block, 5 clusters	-	-	-	-	16.47	16.02	9.57	8.97
K-means, 6 clusters	2.68	2.27	11.49	13.15	14.17*	15.42*	9.19	7.90
K-means, 4 clusters	-	-	-	-	15.70	16.02	26.81	25.59

Sample: 1199 cases. Here and in the following tables numbers are probabilities: 2.68 is the probability for a case politically characterised as term limited to belong to the cluster of cases with very high expenditure impulse (relative frequency multiplied by 100). In the K-means, 6 clusters partition there is no cluster with both *DCGEXP* and *DDEF* having high values: here and in the following tables *values are the sum of the probabilities to belong to the cluster with very high *DCGEXP* and to the cluster with very high *DDEF*. This sum is shown for comparison with the results of the other clusterings.

Table 3 - Clustering variables: DSSW and DPDEF.

Clustering method	very high DSSW		very high DPDEF		both very high		both very low	
	TL	no TL	TL	no TL	TL	no TL	TL	noTL
Ward, City Block, 6 clusters	-	-	-	-	8.97	8.41	2.56	3.69
K-means, 6 clusters	1.28	2.51	8.97	4.28	10.25*	6.79*	28.84	22.74
K-means, 5 clusters	7.05	9.60	9.61	4.87	16.66*	14.47*	33.33	28.94

Sample: 919 cases (no Botswana). See Table 2 for details.

Table 4 – Clustering variables: TOTEXIMP and TDEFIMP.

Clustering method	very high TOTEXIMP		very high TDEFIMP		both very high		both very low	
	TL	no TL	TL	no TL	TL	no TL	TL	no TL
Ward, City Block, 6 clusters	-	-	-	-	14.94	12.79	14.55	12.91
K-means, 6 clusters	2.68	1.55	6.89	8.37	9.57*	9.92*	10.72	8.84
K-means, 4 clusters	-	-	-	-	13.02	13.27	23.75	22.95

Sample: 1199 cases. See Table 2 for details.

Table 5 - Clustering variables: EXPIMP, DEFIMP.

Clustering method	very high EXPIMP		very high DEFIMP		both very high		both very low	
	TL	no TL	TL	noTL	TL	no TL	TL	noTL
Ward, City Block, 6 clusters	1.20	3.33	6.02	2.17	-	-	15.66	11.59
K-means, 6 clusters	8.43	10.14	7.22	2.89	-	-	-	-

Sample: 856 cases (no Botswana). See Table 2 for details.

Table 6 - Government spending and term limits (OLS)

	(1)	(2)	(3)	(4)	(5)
Dependent variable	CGEXP	CGEXP	CGEXP	LCGEXP	DCGEXP
C	15.637***	21.5219***	-16.645***	2.357***	1.583***
	(1.281)	(4.754)	(5.721)	(0.659)	(0.497)
TL	-0.108	0.3673	3.478*	0.028	-0.020
	(1.425)	(1.333)	(1.822)	(0.063)	(0.397)
LYP	3.994*	3.836	2.694	0.005 (0.073)	0.170
	(2.197)	(2.213)	(1.897)		(0.979)
LPOP	4.315*	4.383*	4.609*	0.253	-1.253
	(2.186)	(2.125)	(2.579)	(0.204)	(1.149)
PROP65	1.375***	1.469***	1.226***	0.224**	-0.271***
	(0.309)	(0.374)	(0.381)	(0.107)	(0.060)
OPEN-1	-0.044*	-0.047*	-0.073*	-0.026	-0.023***
	(0.028)	(0.029)	(0.038)	(0.060)	(0.005)
PRES	-1.220***	-1.8736***	-1.864***	-0.135**	0.706
	(0.202)	(0.221)	(0.455)	0.057	(0.534)
MAJ	-1.589***	-1.943***	-2.917	-0.064**	0.293
	(0.547)	(0.631)	(0.690)	(0.026)	(0.377)
YGAP	-0.096*	-0.093*		0.002 (0.006)	-0.018
	(0.053)	(0.053)			(0.043)
ELEX		0.1927			
		(0.204)			
TL*LAM			-4.446*		
			(2.300)		
N	1206	1205	1162	1213	1197
Adj-R^2	0.885	0.885	0.889	0.888	0.201
Wald	76.25	544.31	557.7	361.08	106.41
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]

Numbers in parentheses are robust standard errors. Numbers in brackets are p-values. *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively. Estimation (5) is in double-log form.

Table 7 - Government revenue and term limits (OLS)

	(1)	(2)	(3)	(4)	(5)
Dependent variable	CGREV	CGREV	CGREV	LCGREV	DCGREV
C	8.588***	8.735***	-4.016***	3.315***	-0.503**
	(1.317)	(1.312)	(1.613)	(1.633)	(0.439)
TL	0.308	0.394	1.617	0.032	0.495*
	(1.049)	(1.045)	(1.082)	(0.059)	(0.292)
LYP	3.946*	3.538*	4.301***	0.045	-1.609*
	(2.036)	(1.979)	(1.855)	(0.073)	(0.913)
LPOP	6.721**	7.923***	9.178**	0.450***	1.007
	(3.310)	(2.837)	(2.976)	(0.169)	(0.958)
PROP65	1.548***	1.545***	0.972***	0.436***	0.024
	(0.253)	(0.255)	(0.332)	(0.115)	(0.174)
OPEN-1	-0.015		-0.033*	-0.035	
	(0.019)		(0.019)	(0.079)	
MAJ	-4.945***	-4.996***	-3.673**	-0.142***	0.365***
	(0.709)	(0.694)	(1.048)	(0.044)	(0.159)
PRES	-9.336***	-9.413***	-7.201***	1.095*	-0.429
	(1.734)	(1.721)	(1.653)	(0.583)	(1.078)
YGAP	-0.014				
	(0.037)				
ELEX		-0.484***	-0.454***	-0.022***	-0.494**
		(0.159)	(0.161)	(0.007)	(0.217)
TL*LAM			-2.729*		
			(1.560)		
N	1172	1170	1119	1169	1147
Adj-R^2	0.925	0.926	0.932	0.915	0.352
Wald	199.6	202.8	407.5 [0.000]	23.49	8.597
	[0.000]	[0.000]		[0.001]	[0.072]

Numbers in parentheses are robust standard errors. Numbers in brackets are p-values. *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively. Estimation (5) is in double-log form.

Table 8 - Government surplus and term limits (OLS)

	(1)	(2)	(3)	(4)
Dependent variable	SPL	SPL	SPL	DSPL
C	-9.950***	-15.527***	-10.747***	-2.224***
	(1.457)	(4.247)	(3.491)	(0.503)
TL	-0.828	-0.810	-0.503	0.107
	(0.699)	(0.700)	(0.421)	(0.234)
LYP	3.369*	3.439*	3.512*	-1.159*
	(2.019)	(1.933)	(1.934)	(0.598)
LPOP	3.677**	3.765**	3.686**	0.723
	(1.770)	(1.756)	(1.746)	(0.613)
PROP65	0.333	0.264	0.261	0.199**
	(0.375)	(0.364)	(0.365)	(0.089)
OPEN-1	0.045***	0.047***	0.046***	0.003
	(0.024)	(0.025)	(0.025)	(0.002)
MAJ	-0.552***	-1.399***	0.871	-0.785**
	(0.074)	(0.353)	(0.614)	(0.381)
PRES	0.477	6.038***	6.499***	0.649
	(1.163)	(2.076)	(2.959)	(0.432)
YGAP	0.035			
	(0.051)			
ELEX		-0.495***	-0.491***	-0.413**
		(0.159)	(0.179)	(0.198)
TL*LAM			-0.561	
			(0.973)	
N	1170	1176	1125	1153
Adj-R^2	0.519	0.517	0.529	0.318
Wald	322.6	40.85	187.4	15.40
	[0.000]	[0.000]	[0.000]	[0.009]

Numbers in parentheses are robust standard errors. Numbers in brackets are p-values. *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively.

Table 9 - Social and welfare spending and term limits (OLS)

	(1)	(2)	(3)	(4)	(5)
Dependent variable	SSW	SSW	SSW	LSSW	DSSW
C	17.568***	21.527***	2.489	1.741***	2.581***
	(4.968)	(4.753)	(1.457)	(0.513)	(0.683)
TL	-0.845*	-0.849*	-0.520**	-0.122	-0.049
	(0.454)	(0.454)	(0.163)	(0.107)	(0.063)
LYP	1.240	1.305	-0.284	-0.079	0.075
	(1.012)	(1.014)	(0.844)	(0.189)	(0.245)
LPOP	2.823***	2.845***	3.718***	1.507***	0.706**
	(1.034)	(1.043)	(1.140)	(0.533)	(0.313)
PROP65	0.698***	0.713***	0.621**	0.692***	0.011
	(0.261)	(0.259)	(0.313)	(0.357)	(0.031)
OPEN-1	-0.017*	-0.017*	-0.021*	-0.012	-0.013***
	(0.009)	(0.009)	(0.009)	(0.123)	(0.005)
MAJ	-0.424**	-0.421**	-0.797***	-0.251***	-1.035***
	(0.194)	(0.199)	(0.377)	(0.079)	(0.143)
PRES	-0.104*	-0.104*	-0.657	-0.229***	0.699**
	(0.054)	(0.054)	(0.208)	(0.083)	(0.401)
YGAP	-0.072***	-0.059***	-0.047**		-0.018
	(0.027)	(0.019)	(0.021)		(0.016)
ELEX		0.001			
		(0.065)			
TL*LAM			-0.745		
			(0.644)		
N	983	982	934	985	911
Adj-R^2	0.956	0.957	0.959	0.955	0.469
Wald	147.0	117.4	126.5 [0.000]	15.31	68.01
	[0.000]	[0.000]		[0.018]	[0.000]

Numbers in parentheses are robust standard errors. Numbers in brackets are p-values. *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively. Estimation (5) is in double-log form.

Table 10 - GMM Estimates

Dependent variable	CGEXP	CGREV	SPL	SSW
TL	0.017	0.145	0.074	0.075
	(0.154)	(0.184)	(0.145)	(0.048)
MAJ	-0.234***	-0.130	0.155*	-0.027
	(0.089)	(0.095)	(0.087)	(0.039)
PRES	-0.339***	-0.405***	0.075	-0.112***
	(0.101)	(0.174)	(0.144)	(0.035)
N	1076	1022	1024	766
Wald	79.07 [0.000]	71.38 [0.000]	108.7 [0.000]	96.25 [0.000]
Sargan	48.6 [0.165]	39.8 [0.479]	47.0 [0.207]	42.2 [0.384]
m_2	-1.451 [0.147]	-0.816 [0.415]	-1.624 [0.104]	-0.735 [0.462]

Numbers in parentheses are robust standard errors. Numbers in brackets are p-values. *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively. Specifications are in first-differences and include *LYP*, *LPOP*, *PROP65*, and *OPEN*-1. Degrees of freedom for the Wald test are equal to 17. Degrees of freedom for the Sargan test are equal to 55.