**Appendix A**

Below are the estimates for equations (4a) and (4b) using aggregate loss likelihood estimates and limiting the sample to those from Kayser-Lindstadt (2015). The results suggest that there could be some merit in working with narrower samples from aggregate data. Effectively this means that elections, where there are very small chances of a swing taking place according to district level densities, produce swings even more rarely than predicted by these densities.

Within Country Determinants of Central Government Balances (limited sample)

(Fixed effects with cluster robust standard errors in parenthesis)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Variables** | Aggregate Sample (a) | | Aggregate Sample (b) | |
|  | *Linear* | *quadratic* | *linear* | *quadratic* |
|  | (1) | (2) | (3) | (4) |
| Central Government Surplus/Deficit (t-1)  (%GDP) | 0.78\*\*\*  (0.03) | 0.78\*\*\*  (0.03) | 0.77\*\*\*  (0.03) | 0.77\*\*\*  (0.03) |
| Central Government Surplus/Deficit (t-1)  \*Parties in Government | 0.02  (0.02) | 0.02  (0.02) | 0.02  (0.02) | 0.02  (0.02) |
| GDP growth | 0.36\*\*\*  (0.08) | 0.36\*\*\*  (0.08) | 0.36\*\*\*  (0.08) | 0.36\*\*\*  (0.08) |
| Inflation (ln) | -0.10  (0.14) | -0.09  (0.15) | -0.09  (0.14) | -0.09  (0.15) |
| Unemployment | -0.04  (0.07) | -0.05  (0.07) | -0.04  (0.07) | -0.04  (0.07) |
| Real Interest Rate | -0.08  (0.11) | -0.08  (0.11) | -0.08  (0.11) | -0.08  (0.11) |
| Parties in Government | -0.04  (0.12) | -0.03  (0.13) | -0.04  (0.13) | -0.03  (0.13) |
| KL Loss Probability | -0.50  (0.32) | -2.62  (1.28) | -0.76\*  (0.28) | -0.65  (1.08) |
| KL Loss Probability Sq. |  | 3.11  (1.72) |  | -0.15  (1.44) |
| Balanced Budget Rule | 0.66  (0.45) | 0.65  (0.46) | 0.64  (0.46) | 0.64  (0.46) |
| Debt Rule | -0.36  (0.51) | -0.31  (0.51) | -0.35  (0.51) | -0.35  (0.51) |
| Right Executive | 0.38  (0.35) | 0.44  (0.35) | 0.45  (0.34) | 0.45  (0.34) |
| Left Executive | 0.40  (0.53) | 0.46  (0.52) | 0.42  (0.51) | 0.41  (0.51) |
| Executive/Opposition Ideology | 0.01  (0.13) | 0.01  (0.13) | 0.03  (0.13) | 0.03  (0.13) |
| Constant | -1.13  (0.84) | -1.17  (0.84) | -1.15  (0.83) | -1.15  (0.83) |
| Countries | 21 | 21 | 21 | 21 |
| Observations | 425 | 425 | 425 | 425 |
| R2 (within) | 0.69 | 0.69 | 0.69 | 0.69 |
| R2 (between) | 0.94 | 0.94 | 0.93 | 0.93 |
| R2 (overall) | 0.82 | 0.82 | 0.82 | 0.82 |

\*- p<0.10; \*\* - p<.05; \*\*\*p<0.01

**Appendix B**

Summary Statistics

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Variable** | **Mean**  **(s.d.)** | **Min.** | **Max.** | **Source** |
| *Consolidated Central Government Surplus/Deficit (%GDP) \** | -1.30  (4.70) | -33.9 | 48.7 | *IMF GFSY a & IMF IFS b* |
| *GDP Growth* | 3.75  (4.03) | -14.8 | 34.0 | *IMF IFS* |
| *ln Inflation (CPI)* | 1.57  (1.17) | -4.1 | 8.9 | *WB-WDI c* |
| *Unemployment (annual rate)* | 8.30  (5.63) | 0.19 | 38.6 | *IMF-IFS* |
| *Real Interest Rate* | 6.29  (12.20) | -87.9 | 130.8 | *WB-WDI* |
| *Political Polarization \** | 0.61  (0.94) | 0 | 3 | *DPI d* |
| *Parties in Government \** | 1.89  (1.77) | 1 | 15 | *DPI* |
| *Executive Election e* | 0.25  (0.44) | 0 | 1 | *DPI* |
| *Right Executive* | 0.34  (0.47) | 0 | 1 | *DPI* |
| *Left Executive* | 0.34  (0.47) | 0 | 1 | *DPI* |
| *Executive-opposition ideological distance \** | -0.12  (1.80) | -3 | 3 | *DPI* |
| *KL Loss Probability (from KL paper) f* | 0.06  (0.15) | 0 | 0.75 | *Kayser-Lindstadt (2015)* |
| *Modified KL Loss Probability (a)\** | 0.06  (0.18) | 0 | 0.96 | *Coded by author* |
| *Modified KL Loss Probability (b)\** | 0.08  (0.21) | 0 | 0.96 | *Coded by author* |
| *Debt Rule* | 0.29  (0.45) | 0 | 1 | *IMF* |
| *Balanced Budget Rule* | 0.37  (0.48) | 0 | 1 | *IMF* |
|  |  |  |  |  |
|  |  |  |  |  |

\* - Computed from source by author

a - International Monetary Fund *Government Finance Statistics Yearbook*

b - International Monetary Fund *International Finance Statistics*

c - World Bank *World Development Indicators*

d - World Bank *Database of Political Institutions*

e – Coded as 1 where: i) there is a parliamentary election in a parliamentary system, or, ii) there is a presidential election in a presidential

system.

*f –* Based on a sample of 21 countries (450 observations)