

Institutional Constraints and Fiscal Policy Stability *

Hao Wang *Arizona State University*

Veto player theory (Tsebelis, 2002) predicts that the number of veto players influencing policy stabilities. While studies in OECD countries have shown supportive evidence (Tsebelis and Chang, 2004), there is few work on policy stability in nondemocracies. This project uses a new dataset from GSRE (Global State Revenues and Expenditures dataset) and perform an empirical test on veto player and budget stability in authoritarian countries. Preliminary analysis show that even in authoritarian countries, institutional constraints (veto players) lead to incremental budget changes.

Keywords: veto player, public policy

Introduction

Veto player theory (Tsebelis, 2002) defines ‘veto players’ as individuals or institutions whose agreement is required for a change of the status quo. This theory predicts that: when the number of veto players increase, the winning set that can defeat status quo will shrink, which in turn leads to higher policy stability. Since veto player is ultimately related to the level of institutional constraints, a collary is that institutional checks leads to more stable, incremental policy outcomes. With many checks and balances in the government, it will be harder to move policies from status quo equilibrium.

Tsebelis and Chang (2004) apply veto player theory in the budget changes of the 19 OECD countries. In their analysis, parties with more polarized positions are modeled as potential veto players who could have blocked the policy proposals. Their results show that countries with more veto players have more stable budget policies.

On the other hand, veto player theory also implies that more veto players make politicians harder to adjust current policies. This is particularly salient in countries with multiple veto players (e.g. the United States). During some time periods with exogenous shocks, the policy stability can be harmful and politicians may react to the long-time stability with rapid changes of policies, which forms a policy punctuation.

This theoretical expectation leads to another potential hypothesis: the amount of veto power may leads to larger policy punctuations. Punctuated Equilibrium Theory (PET) (John and Bevan, 2012, Jones and Baumgartner (2014)) argues that government budget shifts over due to the over-attention and under-attention to certain policy areas. Consequently it features with long periods of stability and short periods of radical changes. Considering the institutional constraints, we also want to test the effect of veto player on policy punctuations.

Our study contributes to the existing literature in two parts: First, with the newly

*Replication files are available on the author’s Github account (<http://github.com/haowang666>). **Current version:** April 13, 2017

released GSRE data, we extend the coverage to a much broader sample size. Till now most empirical studies on budget changes are drawn from OECD countries, although a few studies have started looking at nondemocratic cases, they are mostly cases studies ([Baumgartner et al., 2017](#), [Lam and Chan \(2015\)](#)). Second, we systematically evaluate the two theories. Our results show that institutional constraints lead to more stable policy changes. However, there is little evidence that institutional constraints lead to policy punctuation.

Argument

Institutional Constraints

Policy Punctuations

Veto player \Rightarrow unable to change policy rapidly \Rightarrow long term incremental changes and short-term rapid changes \Rightarrow punctual equilibrium ([Epp and Baumgartner, 2016](#); [Keefer and Stasavage, 2003](#)).

Data

Data in this project comes from various sources. The dependent variable comes from the GSRE project (Global State Revenues and Expenditures dataset). GSRE is a comprehensive budget dataset based on the previous released historical documents from the International Monetary Fund (IMF). Comparing with the IMF COFOG dataset, GSRE increases coverage and accuracy of budgeting data for most authoritarian regimes and some democratic regimes. Since GSRE is built on IMF historical documents, it covers all independent states that have been or are the members of the IMF and are being coded as an authoritarian regime in the ([Geddes, Wright and Frantz, 2014](#)) dataset.

Data on deliberative democracies and other regime-related variables come from the Varieties of Democracy (Vdem) project ([Coppedge et al., 2016](#)). Unlike the widely used democracy index like Polity ([Marshall, Gurr and Jaggers, 2015](#)), Vdem provides multidimensional measurements of regimes, including both democracies and autocracies.

Data on institutional constraints come from the political constraints index (POLCON) ([Henisz, 2000](#)). Political constraint index measures the risk of policy changes. Henisz uses a quantitative model to capture the competitiveness portion of the definition of democracy (competitiveness and participation) with a proxy of number of independent veto points over policy outcomes and distribution of preferences of those actors. POLCON is based on strong assumptions about each actors veto power. In the newest version, measure is also modified to take into account the extent of alignment across branches of government using data on the party composition of the executive and legislative branches.

Data on decentralization draws from the Political Institution Index ([Beck et al., 2001](#)).

Measuring Dependent Variables

To evaluate the budget-stability hypothesis and punctual equilibrium hypothesis, we create two different dependent variables. The volatility index measures the budget shifts of a certain country at a single time point. We use L-Kurtosis score to measure the degree of punctuations (peakness).

Volatility Index

I measure the budget stability as the simple euclidean distance of the between-year percentage differences. It can be written in the following equation: S_{jt} is the volatility index of the j th country at a certain year t . Since government budget has various categories: p_{jit} denotes the percentage of i th category out of total expenditure of the country j at year t . S_{jt} will increase as the difference between p_{it} and p_{it-1} increases.

$$S_{jt} = \sqrt{\sum_{i=1}^i (p_{jit} - p_{jit-1})^2} \quad (1)$$

For the percentage of each expenditure term p_{it} , $p_{it} \in [0, 1]$, S_{jt} has the same boundary as $[0, 1]$. Larger score means more volatile budget policies.

L-Kurtosis Score

To evaluate the distribution of budget shifts, we calculated the L-Kurtosis score of policy changes of each country across the available time spans. Specifically, we calculate the between-year difference of budget percentages, and then using L-Kurtosis statistics to find the L-Kurtosis (LK) score. L-Kurtosis (LK) is the 4th L-moment of the momemnt statistics. It is used to summarize the peakness of the variable distributions. An L-Kurtosis score of 0.123 approximates a Gaussian distribution (also see ([Baumgartner et al., 2017](#); [Breunig and Jones, 2011](#))). Higher LK score means heavy tails and high peaks. Figure 1 shows an example of LK score and distributions. In this figure, the red line has a LK score of 0.84, makes it more ‘punctuated’ than the blue line: it features long-time incremental changes and short-term radical shifts (for detailed calculation, check ([Hosking, 1990](#))).

Independent Variables

Veto Player (Institutional Constraints)

We use two measurements of institutional constraints: POLCON index and

Decentralization

modeled by regional power index

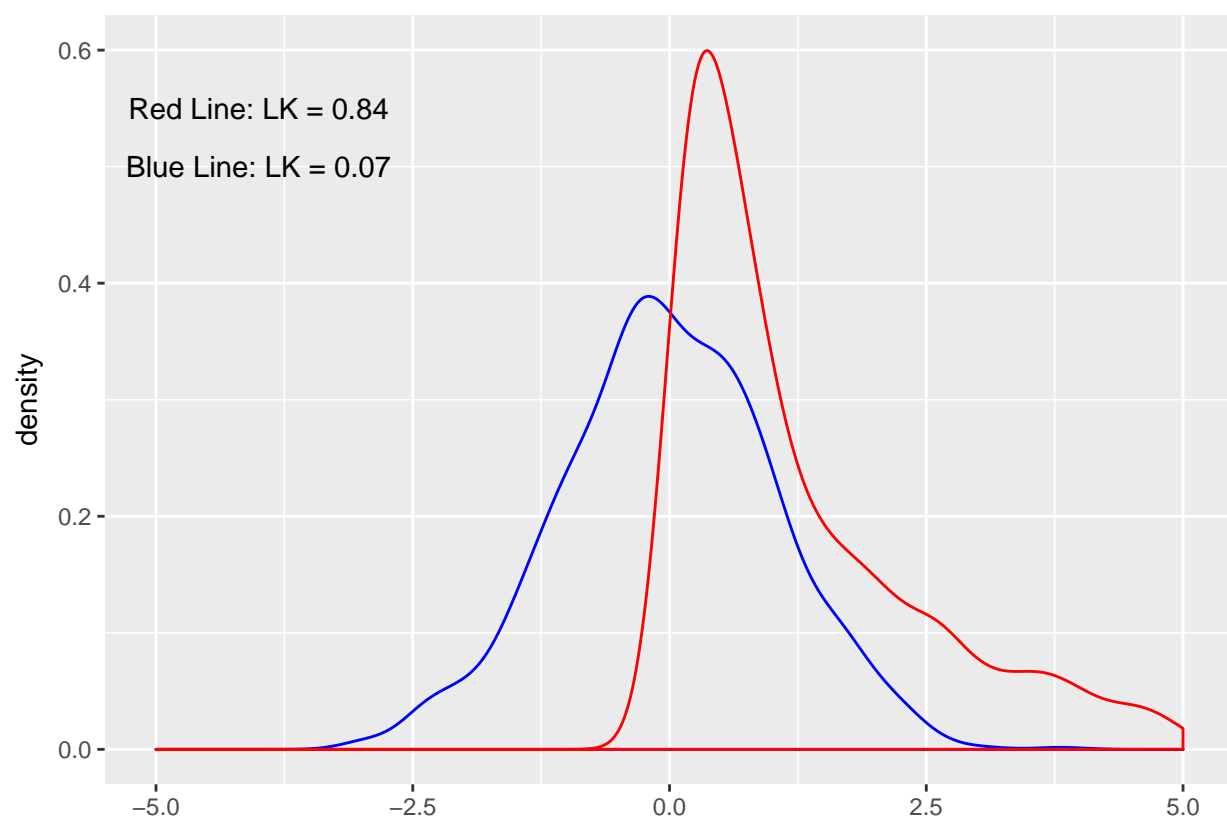


Figure 1: LK Score Example

Information Processing

modeled by levels of consultation and engagement

Corruption and Election Irregularity

Other Controls

Education, GDP, GDP grow rate,

Method and Results

GSRE dataset contain lots of missing data, we did 5 multiple imputations and report results of the original dependent variable as well as the 5 imputed ones.

Table 1 reports pooled OLS result. Table 2 reports fixed effect result. Table 3 reports L-Kurtosis score result. Table 4 reports twoway fixed effect result, as a robustness check. (Beck and Katz, 1995), (Beck and Katz, 2011)

Pooled OLS with Lagged DV and Panel Corrected Standard Errors

Fixed Effect Panel Data

Fixed Effect with Two Way Effects

OLS with L-Kurtosis

Table 1: Lagged DV with PCSE

	<i>Dependent variable:</i>					
	(1)	(2)	(3)	(4)	(5)	(6)
Constraints	−0.006 (0.015)	−0.018 (0.017)	−0.023 (0.017)	−0.016 (0.018)	−0.023 (0.017)	−0.035** (0.017)
Party	−0.026* (0.014)	−0.011 (0.015)	−0.008 (0.015)	−0.017 (0.016)	−0.008 (0.015)	0.004 (0.015)
Consult	0.007** (0.003)	−0.003 (0.004)	−0.004 (0.004)	−0.002 (0.004)	−0.003 (0.004)	−0.002 (0.004)
Federalism	−0.004 (0.010)	0.011 (0.011)	0.004 (0.011)	0.014 (0.012)	0.007 (0.011)	0.017 (0.011)
Corruption	0.020 (0.013)	0.020 (0.015)	0.023 (0.014)	0.020 (0.015)	0.024* (0.014)	0.023 (0.014)
Polity	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.0004 (0.001)	0.001 (0.001)	0.001 (0.001)
Censorship	−0.005* (0.003)	0.007** (0.003)	0.011*** (0.003)	0.008** (0.003)	0.009*** (0.003)	0.009*** (0.003)
Education	0.002 (0.001)	−0.003 (0.002)	−0.002 (0.002)	−0.002 (0.002)	−0.001 (0.002)	−0.001 (0.002)
GDP pc	0.003 (0.004)	0.022*** (0.005)	0.023*** (0.005)	0.025*** (0.005)	0.023*** (0.005)	0.021*** (0.005)
GINI	0.0004 (0.0003)	−0.0005 (0.0003)	−0.0002 (0.0003)	−0.0001 (0.0003)	−0.0003 (0.0003)	−0.0002 (0.0003)
Constant	0.031 (0.035)	−0.020 (0.040)	−0.029 (0.039)	−0.050 (0.040)	−0.032 (0.039)	−0.027 (0.039)
Observations	2,605	2,605	2,605	2,605	2,605	2,605
R ²	0.029	0.260	0.242	0.219	0.243	0.238

Note:

*p<0.1; **p<0.05; ***p<0.01

Table 2: Fixed Effect Regression Results

	<i>Dependent variable:</i>					
	(1)	(2)	(3)	(4)	(5)	(6)
Constraints	−0.033 (0.020)	−0.035 (0.024)	−0.038 (0.023)	−0.015 (0.024)	−0.030 (0.023)	−0.069*** (0.024)
Party	0.027 (0.027)	−0.029 (0.032)	−0.058* (0.031)	−0.035 (0.033)	−0.055* (0.031)	−0.038 (0.032)
Consult	−0.011* (0.006)	0.006 (0.007)	0.002 (0.007)	0.008 (0.007)	0.004 (0.007)	0.010 (0.007)
Federalism	0.006 (0.022)	0.007 (0.026)	0.013 (0.025)	0.010 (0.026)	−0.007 (0.025)	0.005 (0.026)
Corruption	−0.005 (0.034)	−0.108*** (0.040)	−0.064* (0.039)	−0.086** (0.041)	−0.059 (0.039)	−0.050 (0.040)
Polity	0.002* (0.001)	0.003** (0.001)	0.001 (0.001)	0.001 (0.001)	0.002 (0.001)	0.002* (0.001)
Censorship	0.017*** (0.006)	−0.003 (0.007)	0.013** (0.006)	0.002 (0.007)	0.005 (0.006)	0.004 (0.006)
Education	−0.006 (0.004)	−0.006 (0.005)	−0.003 (0.005)	−0.006 (0.005)	−0.004 (0.005)	−0.006 (0.005)
GDP pc	0.037*** (0.013)	0.041*** (0.016)	0.025* (0.015)	0.044*** (0.016)	0.028* (0.015)	0.034** (0.015)
GINI	0.0005 (0.001)	−0.00002 (0.001)	0.0001 (0.001)	0.0004 (0.001)	0.001 (0.001)	0.001 (0.001)
Observations	2,666	2,666	2,666	2,666	2,666	2,666
R ²	0.013	0.011	0.012	0.009	0.008	0.011

Note:

*p<0.1; **p<0.05; ***p<0.01

Table 3: OLS Regression with L-Kurtosis as Dependent Variable

	<i>Dependent variable:</i>					
	(1)	(2)	(3)	(4)	(5)	(6)
Constraints	0.004 (0.007)	−0.004 (0.004)	0.001 (0.004)	0.0003 (0.004)	0.002 (0.003)	0.003 (0.003)
Party	−0.003 (0.005)	0.001 (0.002)	−0.002 (0.003)	0.0001 (0.002)	0.0004 (0.002)	0.001 (0.002)
Consult	−0.0005 (0.001)	0.0004 (0.001)	−0.00004 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)
Federalism	0.002 (0.004)	0.0003 (0.002)	−0.001 (0.002)	0.002 (0.002)	−0.0003 (0.002)	0.002 (0.002)
Corruption	0.003 (0.004)	0.003 (0.002)	0.004* (0.003)	0.006*** (0.002)	0.006*** (0.002)	0.004** (0.002)
Polity	−0.00002 (0.0004)	0.0002 (0.0002)	0.0001 (0.0002)	0.00004 (0.0002)	−0.0001 (0.0002)	−0.0002 (0.0002)
Censorship	0.001 (0.001)	0.0002 (0.001)	0.0003 (0.001)	−0.001 (0.001)	0.0004 (0.001)	0.001 (0.001)
Education	0.001* (0.0005)	−0.001** (0.0002)	0.0001 (0.0003)	−0.0004* (0.0002)	−0.0002 (0.0002)	−0.0003 (0.0002)
GDP pc	0.001 (0.002)	0.001 (0.001)	0.0002 (0.001)	0.002* (0.001)	0.001 (0.001)	0.001 (0.001)
GINI	0.00005 (0.0001)	−0.0001 (0.00005)	−0.00004 (0.0001)	−0.0001 (0.00005)	−0.0001** (0.00004)	−0.00005 (0.00004)
Constant	−0.011 (0.012)	0.008 (0.006)	0.012* (0.007)	0.002 (0.006)	0.005 (0.006)	0.004 (0.005)
Observations	108	108	108	108	108	108
R ²	0.195	0.124	0.080	0.163	0.160	0.180
Adjusted R ²	0.093	0.013	−0.036	0.057	0.054	0.076

Note:

*p<0.1; **p<0.05; ***p<0.01

Table 4: Two Way Fixed Effect Regression Results

	<i>Dependent variable:</i>					
	(1)	(2)	(3)	(4)	(5)	(6)
Constraints	−0.034* (0.020)	−0.034 (0.024)	−0.033 (0.023)	−0.011 (0.024)	−0.027 (0.023)	−0.067*** (0.024)
Party	0.020 (0.027)	−0.029 (0.032)	−0.062** (0.031)	−0.036 (0.032)	−0.061** (0.031)	−0.042 (0.032)
Consult	−0.008 (0.006)	0.008 (0.007)	0.004 (0.007)	0.012* (0.007)	0.008 (0.007)	0.012* (0.007)
Federalism	−0.007 (0.022)	−0.013 (0.026)	0.001 (0.025)	0.002 (0.026)	−0.023 (0.025)	−0.011 (0.026)
Corruption	−0.023 (0.036)	−0.122*** (0.042)	−0.069* (0.040)	−0.072* (0.042)	−0.067* (0.040)	−0.057 (0.041)
Polity	0.001 (0.001)	0.002 (0.001)	0.0005 (0.001)	−0.0001 (0.001)	0.001 (0.001)	0.002 (0.001)
Censorship	0.018*** (0.006)	−0.002 (0.007)	0.014** (0.006)	0.003 (0.007)	0.006 (0.006)	0.006 (0.006)
Education	−0.002 (0.006)	−0.001 (0.008)	0.006 (0.007)	0.009 (0.008)	0.004 (0.007)	0.001 (0.007)
GDP pc	0.028** (0.014)	0.043*** (0.016)	0.019 (0.015)	0.041** (0.016)	0.021 (0.015)	0.028* (0.016)
GINI	0.0004 (0.001)	−0.0001 (0.001)	0.0001 (0.001)	0.0004 (0.001)	0.0005 (0.001)	0.0005 (0.001)
Observations	2,666	2,666	2,666	2,666	2,666	2,666
R ²	0.011	0.011	0.014	0.013	0.011	0.012

Note:

*p<0.1; **p<0.05; ***p<0.01

Appendix

Descriptive Statistics

Here I provide summary statistics of the variables I used in this study

summary statistics of deliberative democracy

Table 5: Deliberative Democracy Statistics

Statistic	N	Mean	St. Dev.	Min	Max
Deliberative Democracy	6,373	0.201	0.225	0.001	0.881
Justification on Public Policy	6,382	−0.067	1.226	−3.125	3.415
Justification on Common Goods	6,382	0.083	1.153	−3.394	2.868
Respect for Counterarguments	6,382	−0.526	1.297	−3.257	2.726
Range of Consultation	6,382	−0.194	1.267	−3.211	3.713
Range of Engagement	6,382	−0.266	1.311	−3.244	3.159

summary statistics on institutional constraints

Table 6: Institutional Constraints

Statistic	N	Mean	St. Dev.	Min	Max
Judicial Constraints	6,382	0.450	0.269	0.006	0.979
Legislative Constraints	6,354	0.385	0.282	0.024	0.959
Institutionalization of Party	6,381	0.492	0.273	0.006	0.986
Institutionalized Democracy	5,904	2.874	3.609	0	10
Institutionalized Autocracy	5,904	4.403	3.517	0	10
Political Constraints Index-5	5,296	0.222	0.290	0.000	0.890
Political Constraints Index-3	6,079	0.147	0.196	0.000	0.688

summary statistics on federalism

summary statistics on corruption and election irregularities

summary statistics on other control variables

dependent variable components

In the following table I report the components of dependent variables. It is measured as the percentage expenditure of total expenditure. Two indicators are dropped out in

Table 7: Division of Power (centrl-regional) Index

Statistic	N	Mean	St. Dev.	Min	Max
Division of Power	5,774	0.304	0.330	0.000	0.991
Regional Government Power	5,782	−0.325	1.286	−2.664	2.775
Local Government Power	5,852	0.013	1.249	−2.733	2.326

Table 8: Corruption and Election Irregularities

Statistic	N	Mean	St. Dev.	Min	Max
Corruption Index	6,382	0.552	0.232	0.028	0.946
Executive Corruption Index	6,382	0.564	0.264	0.018	0.979
Vote Buying	1,531	−0.090	1.328	−3.033	3.228
Election Irregularities	1,531	−0.175	1.348	−3.095	3.290

Table 9: Other Control Variables

Statistic	N	Mean	St. Dev.	Min	Max
Media Censorship	6,382	−0.311	1.434	−3.036	3.316
Education	6,184	4.470	2.691	0.004	13.285
GDP pp(logged)	5,839	7.629	0.886	5.315	10.667
GDP growth	5,807	1.763	6.388	−61.493	86.946
Income Inequality	4,137	42.720	10.359	15.000	73.900
Civial War	6,200	0.090	0.286	0	1
Oil Production Per Capita	6,164	347.425	2,506.486	0.000	78,588.800

the further analysis due to technical concerns. The variable `subpentrans` contains too few points, and the variable `pensions` must be dropped due to the convergence issue in multiple imputation.

Table 10: Components of Budget Stability Measurements

Statistic	N	Mean	St. Dev.	Min	Max
<code>expend_security_EXP</code>	3,034	0.166	0.123	0.000	0.712
<code>expenddefence_EXP</code>	2,418	0.143	0.119	0.00001	0.712
<code>exp_public_order_EXP</code>	1,300	0.059	0.034	0.000	0.248
<code>wagessalaries_EXP</code>	3,981	0.293	0.128	0.00000	0.859
<code>pensions_EXP</code>	1,131	0.058	0.065	0.000	0.392
<code>total_welfare_EXP</code>	2,927	0.238	0.127	0.00003	0.920
<code>education_EXP</code>	2,624	0.133	0.061	0.00002	0.388
<code>health_EXP</code>	2,337	0.058	0.032	0.00001	0.212
<code>social_protection_EXP</code>	1,451	0.055	0.073	0.000	0.599
<code>housing_EXP</code>	1,084	0.035	0.036	0.000	0.420
<code>owelfarespend_EXP</code>	1,334	0.067	0.077	0.00000	0.510

dependent variable statistics

Table 11: Volatility Index Table

Statistic	N	Mean	St. Dev.	Min	Max
Original	5,299	0.103	0.144	0.00000	1.110
Imputation 1	5,299	0.249	0.176	0.00001	1.318
Imputation 2	5,299	0.256	0.172	0.00001	1.085
Imputation 3	5,299	0.245	0.171	0.00001	1.810
Imputation 4	5,299	0.253	0.173	0.00001	1.121
Imputation 5	5,299	0.249	0.169	0.00001	1.064

Missing Cases

GSRE contains lots of missing cases. To avoid losing statistical powers and potential bias due to listwise deletion, this article employs multiple imputation of the GSRE part data. Results reported in the paper are from the first imputation. Appendix includes the rest 4 imputations.

The total missing map is showing in the corresponding figure. In this table, the components represent the percentage expenditure of each sector in terms of total expenditure.

I also calculated results without multiple imputation: points that are missing in the GSRE dataset is set to be 0. Theoretically in this situation missing cases will contribute

Table 12: LK Score Table

Statistic	N	Mean	St. Dev.	Min	Max
Original	158	0.003	0.007	−0.015	0.053
Imputation 1	158	0.013	0.004	0.001	0.026
Imputation 2	158	0.013	0.004	−0.008	0.034
Imputation 3	158	0.013	0.004	0.001	0.030
Imputation 4	158	0.013	0.004	0.001	0.025
Imputation 5	158	0.013	0.004	0.001	0.022

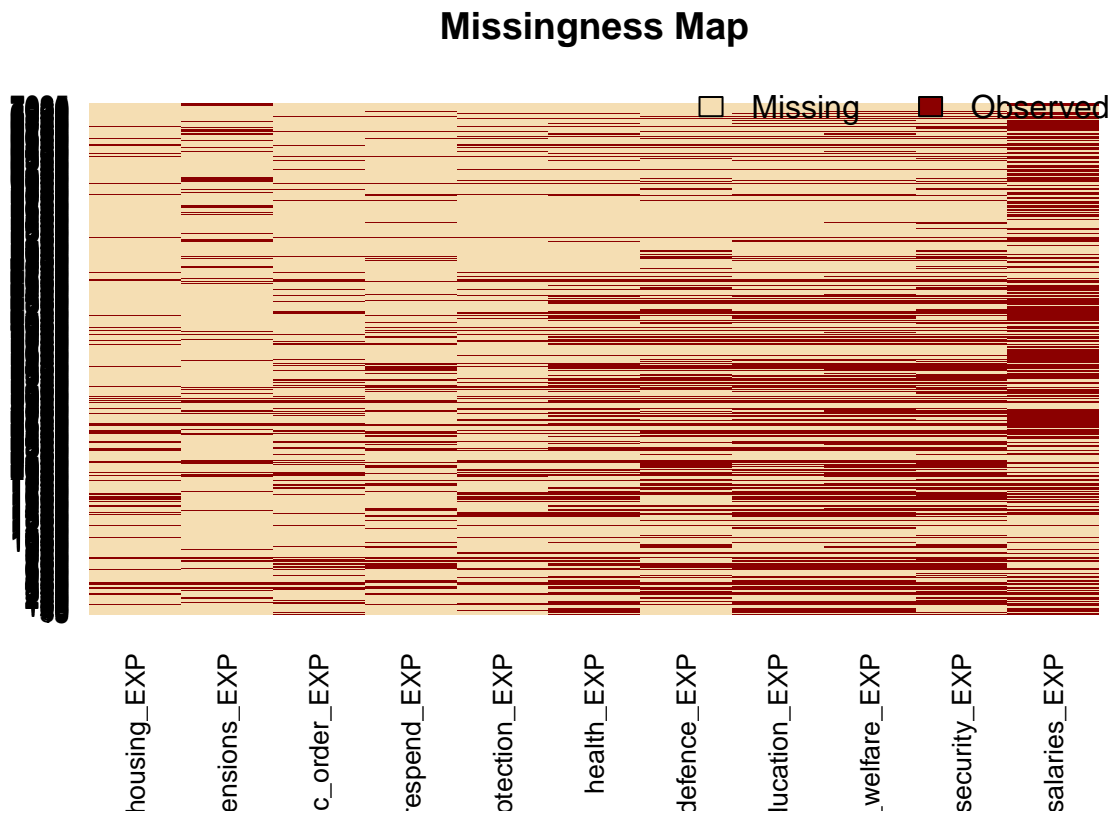


Figure 2: Missing Map

zero effects to the policy stability indicator. I calculate dependent variable while filling missing cases as 0. After the DV is imputed, I recoded observations with 0 values as missing (This is because a completely missing case will yield 0 as the outcome).

The density plot of stability index without imputation is shown in the following figure

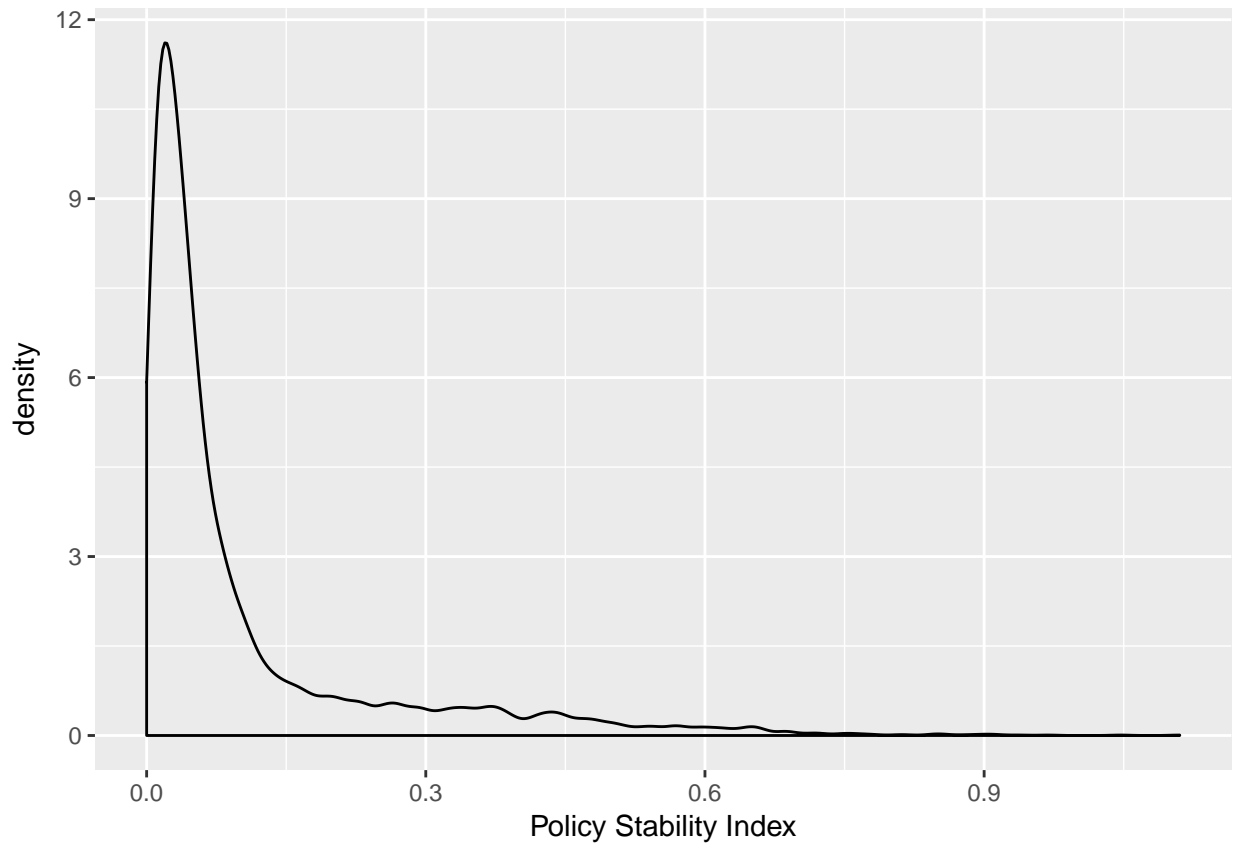


Figure 3: Policy Stability Index Density

The relationship between the raw DV and the imputed DV is shown in the following graph. Due to the page limits only the relationships between the original dependent variable and the first two imputed dependent variables are displayed here.

References

- Baumgartner, Frank B., Marcello Carammia, Derek A. Epp, Ben Noble, Beatriz Ray and Tevfik Murat Yildirim. 2017. "Budget change in authoritarian and democratic regimes." *Journal of European Public Policy* .
- Beck, Nathaniel and Jonathan Katz. 1995. "What to do (and not to do) with Time-Series-Cross-Section Data." *American Political Science Review* 89(3):634 – 647.
- Beck, Nathaniel and Jonathan Katz. 2011. "Modeling Dynamics in Time-Series-Cross-Section Political Economy Data." *Annual Review of Political Science* 14(1):331 – 352.
- Beck, Thorsten, George Clarke, Alberto Groff, Philip Keefer and Patrick Walsh. 2001. "New tools in comparative political economy: The Database of Political Institutions." *World Bank Economic Review* 15(1):165 – 176.
- Breunig, Christian and Bryan D. Jones. 2011. "Stochastic Process Methods with Budget Data." *Political Analysis* 19(1):103 – 117.
- Coppedge, Michael, John Gerring, Staffan I. Lindberg, Svend-Erik Skaaning, Jan Teorell, David Altman, Frida Andersson, Michael Bernhard, M. Steven Fish, Adam Glynn, Allen Hicken, Carl Henrik Knutsen, Kelly McMann, Valeriya Mechkova, Farhad Miri, Pamela Paxton, Daniel Pemstein, Rachel Sigman, Jeffrey Staton and Brigitte Zimmerman. 2016. V-Dem Codebook v6. Technical report Varieties of Democracy (V-Dem) Project.
- Epp, Derek A. and Frank B. Baumgartner. 2016. "Complexity, Capacity and Budget Punctuations." *Policy Studies Journal* 00(00):1–16.
- Geddes, Barbara, Joseph Wright and Erica Frantz. 2014. "Autocratic Breakdown and Regime Transitions: A New Data Set." *Perspectives on Politics* 12(2):313 – 331.
- Henisz, Witold. 2000. "The Institutional Environment for Economic Growth." *Economics and Politics* 12(1):1 – 31.
- Hosking, J. R. M. 1990. "L-Moments: Analysis and Estimation of Distributions Using Linear Combinations of Order Statistics." *Journal of the Royal Statistical Society* 52(1):105 – 124.
- John, Peter and Shaun Bevan. 2012. "What Are Policy Punctuations? Large Changes in the Legislative Agenda of the UK Government, 1911-2008." *Policy Studies Journal* 40(1):89–106.
- Jones, Bryan D. and Frank B. Baumgartner. 2014. "From There to Here: Punctuated Equilibrium to the General Punctuation Thesis to a Theory of Government Information Processing." *Policy Studies Journal* 40(1):1 – 19.

- Keefer, Philip and David Stasavage. 2003. "The Limits of Delegation: Veto Players, Central Bank Independence, and the Credibility of Monetary Policy." *American Political Science Review* 97(3):407 – 423.
- Lam, Wai Fung and Kwan Nok Chan. 2015. "How Authoritarianism Intensifies Punctuated Equilibrium: The Dynamics of Policy Attention in Hong Kong." *Governance* 28(4):549–570.
- Marshall, Monty G., Ted Robert Gurr and Keith Jagers. 2015. "Polity IV Project: Dataset Users' Manual." Center for Systemic Peace.
- Tsebelis, George. 2002. *Veto Players: How political institutions work*. Princeton: Princeton University Press.
- Tsebelis, George and Eric Chang. 2004. "Veto players and the structure of budgets in advanced industrialized countries." *European Journal of Political Research* 43(3):449 – 479.