Online Appendix: (When) Do Democracies Repress Less?

Martin Roessler*

Jonathan D. Old^{\dagger}

Patrick Zwerschke[‡]

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This online appendix presents robustness checks of the empirical results shown in the paper. The following analyses mainly focus on the measurement of democracy. In addition, the robustness of our results against the use of alternative indicators of state repression and income is assessed.

Section S1 presents the results of time-series cross-sectional regressions using alternative democracy indicators. For the democratizing countries identified by the use of these indicators, event studies are conducted in section S2. In another event study analysis, presented in section S3, we investigate different threshold conditions with respect to the minimum increase in the X-Polity score required for a sufficiently large-scaled democratization. Section S4 shows the results of generalized synthetic control estimations based on alternative democracy indicators. Section S5 assesses the stability of the results of generalized synthetic control estimations against the exclusion of trade openness as a covariate. Section S6 shows the results of event studies and generalized synthetic control estimations using an indicator of state repression generated by Cingranelli and Filippov (2018). Section S7 presents results using an event-based repression indicator from the Social, Political and Economic Event Database Project (SPEED) (Nardulli, Althaus, and Hayes, 2015). Finally, section S8 assesses the robustness of our results against the use of alternative GDP data sources.

^{*}Corresponding author. TU Dresden, Faculty of Business and Economics, 01062 Dresden, Germany. e-mail: martin.roessler@tu-dresden.de.

[†]TU Dresden, Faculty of Business and Economics, 01062 Dresden, Germany. e-mail: jonathan_david.old@tu-dresden.de

[†]TU Dresden, Faculty of Business and Economics, 01062 Dresden, Germany. e-mail: patrick.zwerschke@tu-dresden.de

S1 Time-series cross-sectional regressions using alternative democracy indicators

This section presents the results of time-series cross-sectional regressions where the X-Polity-based democracy measure is replaced by democracy indicators from Cheibub, Gandhi, and Vreeland (2010) (CGV) and Acemoglu et al. (2019) (ANRR), respectively. Both indicators are binary and only distinguish between autocracies (coded as 0) and democracies (coded as 1). The results obtained by using the CGV democracy indicator are shown in Table S1 whereas the results obtained by using the ANRR democracy indicator are presented in Table S2. For both indicators, we find significant negative interactions with logged GDP per capita when using the reversed PIR index, the Amnesty scores, and the State Department scores as dependent variables. We do not find interaction effects when using the reversed human rights scores of Fariss (2014). The estimated marginal effects of democracy are depicted by Figures S1 and S2, respectively. On the whole, these results are broadly in line with the hypothesis that democracy is associated with lower levels of repression in relatively rich countries whereas it may have no or even adverse effects in poorer countries.



Figure S1: Average marginal effects (AME) of democracy as measured by CGV by income level

Note: The subfigures depict the estimated average marginal effects (AME) of democracy on each repression indicator for different levels of income with 95% confidence intervals. Income is measured by the logarithm of GDP per capita and is normalized between 0 (lowest sample income) and 1 (highest sample income). For the reversed Fariss scores, the solid line represents the estimated AME. For the reversed PIR, the Amnesty scores, and the State Department scores the long-dashed lines represent the AME on the lowest level of repression (i.e. the lowest score of the repression indicator) whereas the short-dashed lines represent the AME on the highest level of repression (i.e. the highest score of the repression (i.e. the highest score (i.e. the highest scor



Figure S2: Average marginal effects (AME) of democracy as measured by ANNR by income level

Note: The subfigures depict the estimated average marginal effects (AME) of democracy on each repression indicator for different levels of income with 95% confidence intervals. Income is measured by the logarithm of GDP per capita and is normalized between 0 (lowest sample income) and 1 (highest sample income). For the reversed Fariss scores, the solid line represents the estimated AME. For the reversed PIR, the Amnesty scores, and the State Department scores the long-dashed lines represent the AME on the lowest level of repression (i.e. the lowest score of the repression indicator) whereas the short-dashed lines represent the AME on the highest level of repression (i.e. the highest score of the repression (i.e. the highest score (i.e. the highest scor

Dependent variable	Reversed F ⁱ	ariss scores	Reverse	ed PIR	$\operatorname{Amnest}_{}$	y scores	State Depar	tment scores
Model	line	ar	ordered	d logit	ordere	d logit	ordere	ad logit
Regression No.	(1)	(2)	(3)	(4)	(5)	(9)	(2)	(8)
CGV	-0.357^{***}	-0.370	-0.557***	0.552^{*}	-0.421^{***}	0.884^{***}	-0.708***	0.312
	(0.096)	(0.304)	(0.103)	(0.319)	(0.102)	(0.337)	(0.109)	(0.310)
og(GDP/capita)	-0.249	-0.259	-0.971^{*}	0.170	-0.521	0.750	-1.846^{***}	-0.951^{*}
	(0.360)	(0.413)	(0.524)	(0.567)	(0.507)	(0.527)	(0.487)	(0.510)
$3GV \times$		0.031		-2.876^{***}		-3.387***		-2.645^{***}
$\log(GDP/capita)$		(0.714)		(0.804)		(0.834)		(0.761)
og(Population)	0.096^{***}	0.096^{***}	0.257^{***}	0.255^{***}	0.168^{***}	0.165^{***}	0.244^{***}	0.243^{***}
	(0.027)	(0.027)	(0.033)	(0.031)	(0.037)	(0.038)	(0.031)	(0.032)
ntrastate conflict	0.849^{***}	0.849^{***}	1.352^{***}	1.389^{***}	1.335^{***}	1.369^{***}	1.715^{***}	1.727^{***}
	(0.125)	(0.126)	(0.155)	(0.158)	(0.147)	(0.150)	(0.170)	(0.172)
touth bulges	2.691^{***}	2.705^{***}	4.862^{***}	3.557^{***}	4.804^{***}	3.633^{***}	4.149^{***}	2.958^{**}
I	(0.857)	(0.923)	(1.163)	(1.182)	(1.079)	(1.068)	(1.166)	(1.201)
lrade	-0.001	-0.001	-0.000	-0.002	-0.000	-0.002	-0.000	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
agged DV	0.973^{***}	0.973^{***}	1.063^{***}	1.049^{***}	2.102^{***}	2.061^{***}	2.530^{***}	2.501^{***}
	(0.003)	(0.004)	(0.043)	(0.042)	(0.085)	(0.084)	(0.087)	(0.087)
Observations	6218	6218	3659	3659	3425	3425	4417	4417

Table S1: Linear and ordered logistic regressions for indicators of state repression using the CGV democracy indicator

Note: All regression include year dummies. Standard error estimators are clustered by country. Estimated standard errors are shown in parentheses. Significance levels: *10%, **5%, ***1%. Estimated intercepts and threshold parameters for ordinal logistic regressions are not shown in the table.

Model	Ineverseu r line	ariss scores ear	ordered	ed PIK d logit	Amnest ordere	y scores d logit	State Depai ordere	tment scor ed logit
Regression No.	(1)	(2)	(3)	(4)	(5)	(9)	(2)	(8)
ANRR	-0.385***	-0.616^{**}	-0.553***	0.509^{*}	-0.438^{***}	0.590^{*}	-0.721***	0.127
	(0.094)	(0.284)	(0.099)	(0.302)	(0.101)	(0.317)	(0.105)	(0.299)
$\log(\text{GDP}/\text{capita})$	-0.315	-0.530	-1.162^{**}	0.125	-0.634	0.530	-1.998^{***}	-1.097^{**}
	(0.349)	(0.413)	(0.512)	(0.606)	(0.493)	(0.547)	(0.481)	(0.532)
ANRR \times		0.602		-2.760^{***}		-2.693^{***}		-2.212^{***}
$\log(\text{GDP}/\text{capita})$		(0.663)		(0.777)		(0.765)		(0.726)
log(Population)	0.093^{***}	0.092^{***}	0.254^{***}	0.254^{***}	0.173^{***}	0.172^{***}	0.239^{***}	0.239^{***}
	(0.026)	(0.026)	(0.033)	(0.032)	(0.035)	(0.036)	(0.031)	(0.032)
Intrastate conflict	0.808^{***}	0.796^{***}	1.287^{***}	1.338^{***}	1.305^{***}	1.341^{***}	1.654^{***}	1.672^{***}
	(0.121)	(0.122)	(0.155)	(0.154)	(0.144)	(0.146)	(0.163)	(0.164)
Youth bulges	2.525^{***}	2.785^{***}	4.471^{***}	3.373 * * *	4.635^{***}	3.727^{***}	3.988^{***}	3.094^{***}
	(0.824)	(0.884)	(1.080)	(1.083)	(1.020)	(1.018)	(1.089)	(1.106)
Trade	-0.001	-0.001	-0.000	-0.001	-0.000	-0.001	-0.000	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
lagged DV	0.973^{***}	0.974^{***}	1.103^{***}	1.088^{***}	2.144^{***}	2.114^{***}	2.529^{***}	2.507^{***}
	(0.003)	(0.003)	(0.043)	(0.042)	(0.086)	(0.085)	(0.083)	(0.083)
Observations	6218	6218	3659	3659	3425	3425	4417	4417

Table S2: Linear and ordered logistic regressions for indicators of state repression using the ANRR democracy indicator

S2 Event studies using alternative democracy indicators

In the following, we present the results of events studies based on democratizations identified using the CGV and the ANRR democracy indicator, respectively. Since both indicators are binary, a democratization is defined as a change in the respective indicator from 0 (autocracy) to 1 (democracy). The countries and years of democratization are shown in Tables S3 (CGV) and S4 (ANRR). Note that we excluded countries with multiple democratizations from our analyses to avoid that our results are distorted by adverse regime changes and time overlaps.

Figure S3 and Figure S4 depict the results based on the CGV and the ANRR indicator, respectively. For the reversed Fariss scores and the reversed PIR index, we find significant reductions of repression after democratization at the highest GDP per capita in the event sample, whereas there are no significant effects at the lowest sample value of per capita income. With respect to the Amnesty and the State Department scores, results are qualitatively similar, although the estimated negative effects at the highest value of GDP per capita are insignificant for some of the event years after democratization. On the whole, these results are in line with those shown in the paper.



Figure S3: Results of event studies with and without interactions between event years and logged GDP per capita using the CGV democracy indicator

Note: The subfigures on the left hand side show the estimated level of repression relative to the baseline year ($\tau = -2$) without interactions with logged GDP per capita. The subfigures on the right hand side are based on models including interaction terms between the event years and logged GDP per capita. For these models, the estimated event-year effects are evaluated at the lowest and the highest income of the democratizing countries included in the sample. All figures show 90% confidence intervals.



Figure S4: Results of event studies with and without interactions between event years and logged GDP per capita using the ANRR democracy indicator

Note: The subfigures on the left hand side show the estimated level of repression relative to the baseline year ($\tau = -2$) without interactions with logged GDP per capita. The subfigures on the right hand side are based on models including interaction terms between the event years and logged GDP per capita. For these models, the estimated event-year effects are evaluated at the lowest and the highest income of the democratizing countries included in the sample. All figures show 90% confidence intervals.

Country	Year	Country	Year	Country	Year
Albania	1991	Ghana	1993	Panama	1989
Bangladesh	1986	Honduras	1982	Paraguay	1989
Benin	1991	Hungary	1990	Philippines	1986
Brazil	1985	Indonesia	1999	Poland	1989
Bulgaria	1990	Kenya	1998	Portugal	1976
Cape Verde	1990	Korea, South	1988	Romania	1990
Central African Republic	1993	Madagascar	1993	Sao Tome and Principe	1991
Chile	1990	Malawi	1994	Senegal	2000
Comoros	1990	Mali	1992	Spain	1977
Congo, Republic of	1992	Mexico	2000	Sri Lanka	1989
Dominican Republic	1966	Mongolia	1990	Taiwan	1996
Ecuador	1979	Nepal	1990	Turkey	1961
El Salvador	1984	Nicaragua	1984	Uganda	1980
Fiji	1992	Nigeria	1999	Uruguay	1985
Georgia	2004	Pakistan	1988	Venezuela	1959

Table S3: Democratization events identified based on the CGV democracy indicator

Table S4: Democratization events identified based on the ANRR democracy indicator

Country	Year	Country	Year	Country	Year
Bangladesh	1991	Honduras	1982	Panama	1994
Benin	1991	Hungary	1990	Paraguay	1993
Bolivia	1982	Indonesia	1999	Peru	1980
Brazil	1985	Kenya	2002	Philippines	1987
Bulgaria	1991	Korea, South	1988	Poland	1990
Burundi	2003	Lebanon	2005	Portugal	1976
Cape Verde	1991	Lesotho	1993	Romania	1990
Central African Republic	1993	Liberia	2004	Sao Tome and Principe	1991
Chile	1990	Madagascar	1993	Senegal	2000
Comoros	1990	Malawi	1994	South Africa	1994
Congo, Republic of	1992	Mali	1992	Spain	1978
Djibouti	1999	Mexico	1997	Taiwan	1992
Dominican Republic	1978	Mongolia	1993	Uganda	1980
Ecuador	1979	Mozambique	1994	Uruguay	1985
El Salvador	1982	Nepal	1991	Zambia	1991
Ghana	1996	Nicaragua	1990	Zimbabwe	1978
Guatemala	1986	Niger	1991		
Guyana	1992	Pakistan	1988		

S3 Event studies based on different regime change threshold values for the identification of democratizations

In the paper, we defined a country to have experienced a democratization if:

- 1. The country reached an X-Polity score ≥ 6 (full democracy).
- 2. There was either an associated three-point increase in the X-Polity scores within three years or less, or a four-point increase within four years or less, and so on.
- 3. There was no negative change in the X-Polity scores during the transition period. In this respect, the Polity codes -66 (interruption), -77 (interregnum), and -88 (transition) are ignored.
- 4. The country had been non-democratic for at least 10 years before the regime change.
- 5. The country remained democratic for at least 5 years after the regime change.

Condition 2. was imposed to ensure that the regime change is sufficiently rapid and largescaled to be reflected in changes in the level of state repression. In the following, we present results of event studies obtained by replacing condition 2. by:

- 2a. *More restrictive condition*: There was either an associated four-point increase in the X-Polity scores within three years or less, or a five-point increase within four years or less, and so on.
- 2b. Less restrictive condition: There was either an associated two-point increase in the X-Polity scores within three years or less, or a three-point increase within four years or less, and so on.

The results based on the more restrictive condition 2a. are shown in Figure S5. Compared to the results presented in the paper, the negative effects of democratization for relatively rich countries become more pronounced when the required magnitude of the change in the X-Polity scores is increased. This finding is in line with the notion that larger changes in the institutional structure of a country are reflected in stronger changes in state repression. Figure S6 depicts the results of the event studies based on the less restrictive condition 2b. The inclusion of countries which experienced less sizable changes in the political regime yields (in absolute terms) smaller point estimates and larger confidence intervals. These findings provide some evidence that imposing more restrictive conditions on the significance of the regime change promotes the identification of effects of democratization. On the whole, the event studies shown in this section provide further evidence for different patterns of state repression in the course of democratizations in countries with different income levels.



Figure S5: Results of event studies with and without interactions between event years and logged GDP per capita based on the more restrictive condition 2a.

Note: The subfigures on the left hand side show the estimated level of repression relative to the baseline year ($\tau = -2$) without interactions with logged GDP per capita. The subfigures on the right hand side are based on models including interaction terms between the event years and logged GDP per capita. For these models, the estimated event-year effects are evaluated at the lowest and the highest income of the democratizing countries included in the sample. All figures show 90% confidence intervals.



Figure S6: Results of event studies with and without interactions between event years and logged GDP per capita based on the less restrictive condition 2b.

Note: The subfigures on the left hand side show the estimated level of repression relative to the baseline year ($\tau = -2$) without interactions with logged GDP per capita. The subfigures on the right hand side are based on models including interaction terms between the event years and logged GDP per capita. For these models, the estimated event-year effects are evaluated at the lowest and the highest income of the democratizing countries included in the sample. All figures show 90% confidence intervals.

S4 Generalized synthetic control estimations using alternative democracy indicators

This section presents generalized synthetic control estimations (Xu, 2017) using the CGV and the ANRR democracy indicator, respectively. While Figure S7 shows the results obtained with the CGV democracy indicator, Figure S8 presents the results obtained with the ANRR democracy indicator. According to the point estimates, we find evidence for positive or only slightly negative effects of democratization on state repression in relatively poor countries. In contrast, we find more pronounced reductions of repression after democratization in relatively rich countries. These results support the implications of the theoretical model. The confidence intervals indicate a relatively high degree of uncertainty of the point estimates, which may likely reflect the fact that we cannot impose conditions ensuring that only countries with substantial changes in the political regime enter our analyses when using the CGV and the ANRR democracy (see section S3 for the relevance of related threshold conditions).



Figure S7: Generalized synthetic control estimates for different income groups using the CGV democracy indicator

Note: The subfigures show generalized synthetic control estimates for different groups of countries which are defined via their income level at the year of completed democratization. All subfigures show 90% bootstrap confidence intervals.



Figure S8: Generalized synthetic control estimates for different income groups using the ANRR democracy indicator

Note: The subfigures show generalized synthetic control estimates for different groups of countries which are defined via their income level at the year of completed democratization. All subfigures show 90% bootstrap confidence intervals.

S5 Generalized synthetic control estimations without trade openness as covariate

The results of the generalized synthetic control estimations presented in the paper are based on data for only 21 of the 27 identified democratizing countries. This reduction in the number of countries was particularly due to a low pre-democratization coverage of the variable *trade openness*. In this section, we present results of generalized synthetic control estimations excluding *trade openness* from the econometric model, which increases the number of included countries to 26. As shown by Figure S9, our results remain robust against these changes. While we find significant negative effects of democratization on repression in groups of relatively rich countries, we do not find significant decreases in government violations of human rights in groups of relatively poor countries.



Figure S9: Generalized synthetic control estimates without trade openness as covariate

Note: The subfigures show generalized synthetic control estimates for different groups of countries which are defined via their income level at the year of completed democratization. All subfigures show 90% bootstrap confidence intervals.

S6 Event study and generalized synthetic control estimations based on human rights data from Cingranelli and Filippov (2018)

The latent human rights scores provided by Fariss (2014) have been criticized, particularly due to the underlying assumption of a changing standard of accountability (see Cingranelli and Filippov, 2018). In this section, we use data from Cingranelli and Filippov (2018) who use an alternative measurement model that was used to challenge Fariss' diagnosis of improving human rights practices over time. We conduct event studies and generalized synthetic control estimations to provide evidence that our results are robust against the use of this alternative indicator. Analogous to Fariss' scores, the human rights scores generated by Cingranelli and Filippov (2018) are reversed to measure repression and normalized between 0 and 100.

While the results of the event studies are shown by Figure S10, the results of the generalized synthetic control estimations are shown by Figure S11. In line with the evidence obtained from the latent human rights scores of Fariss (2014), both analyses indicate that democratization is followed by reductions of state repression in relatively rich countries whereas we find no or even adverse effects in poor countries.

Figure S10: Results of event studies with and without interactions between event years and logged GDP per capita based on human rights data from Cingranelli and Filippov (2018).



Note: The subfigure on the left hand side shows the estimated level of repression relative to the baseline year ($\tau = -2$) without interactions with logged GDP per capita. The subfigure on the right hand side is based on models including interaction terms between the event years and logged GDP per capita. For this model, the estimated event-year effects are evaluated at the lowest and the highest income of the democratizing countries included in the sample. All figures show 90% confidence intervals.



Figure S11: Generalized synthetic control estimates with the reversed latent human rights scores as estimated in Cingranelli and Filippov (2018) as dependent variable

Note: The subfigures show generalized synthetic control estimates for different groups of countries which are defined via their income level at the year of completed democratization. All subfigures show 90% bootstrap confidence intervals.

S7 Event-based repression data

The analyses presented in the paper rely on "standards-based" repression indicators generated by human coders or a mixture of standards-based and event-based data (Fariss, 2014). This section uses data from the Social, Political and Economic Event Database Project (SPEED) (Nardulli, Althaus, and Hayes, 2015) to test whether our results are robust to the use of a fully event-based repression indicator.

The SPEED dataset contains social, political, and economic events related to societal (in)stability. These events are extracted from around 40 million news reports that are sorted and classified by a human coders and a machine learning algorithm. The publicly available data contains events from 1949 through 2005. In our analysis, we only consider events of government repression. We classify such an event by several conditions:

- The initiator of the event must be a government or quasi-government.
- The event must be either belonging to the category of *Political Attacks* or *Disruptive State Acts*.
- The target must not be a geo-political identity.
- The state act must qualify as an event of repression, including events of censorship, banning of civil society groups, imposing martial law, threat to use violence, abuse of police powers, abuse of legal discretion, forced relocations, exile, confiscation pf property, riots, assassinations, other coercive state acts.

Applying these conditions yields a dataset of 15,085 events in 187 countries in the period 1949-2005. For our analysis, we use a dichotomous variable indicating whether a relevant repression event occurred in a specific country-year.

The average marginal effects of democracy on the probability of repressive events obtained from the time-series cross-sectional regressions are shown in Figure S12. In line with the results from the other repression indicators, we find evidence that democracy is positively related to the probability of repressive events at low income levels whereas there is a negative relationship at higher income levels.

The event study results using the SPEED data are illustrated in Figure S13. While we find significant decreased probabilities of repressive events after establishment of democracy at the highest income level, there is no evidence for significant changes at the lowest income level.

Figure S12: Average marginal effects (AME) of democracy on the occurrence of repression events based on data from SPEED (Nardulli, Althaus, and Hayes, 2015)



Note: The figure depicts the estimated average marginal effect (AME) of democracy for different levels of income with 95% confidence intervals. Income is measured by the logarithm of GDP per capita and is normalized between 0 (lowest sample income) and 1 (highest sample income).

Figure S13: Results of event studies with and without interactions between event years and logged GDP per capita based on repression event data from SPEED (Nardulli, Althaus, and Hayes, 2015).



Note: The subfigure on the left hand side shows the estimated level of repression relative to the baseline year ($\tau = -2$) without interactions with logged GDP per capita. The subfigure on the right hand side is based on models including interaction terms between the event years and logged GDP per capita. For this model, the estimated event-year effects are evaluated at the lowest and the highest income of the democratizing countries included in the sample. All figures show 90% confidence intervals.

S8 Event study and generalized synthetic control estimations using alternative GDP indicators

To investigate whether our results are robust to alternative sources of income data, we use data on GDP per capita from the Maddison Project database (Bolt et al., 2018) and the Penn World Table (Feenstra, Inklaar, and Timmer, 2015), respectively. GDP data from the Maddison Project database are in 2011 US\$. The Penn World Table provides expenditure-side real GDP at chained PPPs (in mil. 2011 US\$).

The results of the event study and generalized synthetic control estimates based on Maddison Project data are shown in Figures S14 and S15, respectively. In both analyses, our results remain robust against the use of this alternative GDP indicator.

Similar evidence is obtained from the Penn World Table GDP indicator. The results of the event study (Figure S16) and the generalized synthetic control estimations (Figure S17) do not deviate qualitatively from those presented in the paper.



Figure S14: Results of event studies with and without interactions between event years and logged GDP per capita from the Maddison Project Database (Bolt et al., 2018).

Note: The subfigures on the left hand side show the estimated level of repression relative to the baseline year ($\tau = -2$) without interactions with logged GDP per capita. The subfigures on the right hand side are based on models including interaction terms between the event years and logged GDP per capita. For these models, the estimated event-year effects are evaluated at the lowest and the highest income of the democratizing countries included in the sample. All figures show 90% confidence intervals.



Figure S15: Generalized synthetic control estimates using GDP data from the Maddison project database (Bolt et al., 2018)

Note: The subfigures show generalized synthetic control estimates for different groups of countries which are defined via their income level at the year of completed democratization. All subfigures show 90% bootstrap confidence intervals.





Note: The subfigures on the left hand side show the estimated level of repression relative to the baseline year ($\tau = -2$) without interactions with logged GDP per capita. The subfigures on the right hand side are based on models including interaction terms between the event years and logged GDP per capita. For these models, the estimated event-year effects are evaluated at the lowest and the highest income of the democratizing countries included in the sample. All figures show 90% confidence intervals.



Figure S17: Generalized synthetic control estimates using GDP data from the Penn World Table (Feenstra, Inklaar, and Timmer, 2015)

Note: The subfigures show generalized synthetic control estimates for different groups of countries which are defined via their income level at the year of completed democratization. All subfigures show 90% bootstrap confidence intervals.

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