The connection between military purges and military behaviour during endgame scenarios

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Research question

When the Egyptian leader Hosni Mubarak in response to mass protests ordered the army to crush the demonstrations, the army disobeyed the order and declared its disloyalty to the autocrat, as a result, the autocrat was overthrown. Under similar circumstances in Tunisia, the army also refused to suppress mass protests, thereby, the government was overthrown and Ben Ali fled. On the contrary, in Libya, Syria, and Yemen, where the main part of the military remained loyal, the mass protests were suppressed, and that led to civil wars and interventions. This pattern was repeated throughout the world. Moreover, Hosni Mubarak's regime in Egypt (2011), Zine Abidine Ben Ali's regime in Tunisia (2011), Ferdinand Marcos' regime in the Philippines (1986) were ceased to exist after the refusal of the military to obey the order of the autocrat and suppress protests.

Thus, there is a consensus about possible outcomes of different military behaviour during protests, resulting in regime survival and further different development trajectories, however, causes of these military strategies are still unknown. Why do some military defect and join protesters and others defend the regime? Understanding these conditions is essential for predicting the regime's stability in the face of popular protests.

Literature review

Military strategies during endgame scenarios

According to existing literature, there is a spectrum of military strategies during unrests. Albrecht and Ohl divided them into the following categories: exit, resistance and loyalty, where the first two are strategies for disobeying autocratic orders to suppress the protest and the last one for obeying them [1]. For example, loyalty strategy was chosen during a mass protest in Burma in 1988, exit or "remaining in barracks" strategy – partly during protests in Syria in 2011, resistance strategy – in East Germany in 1989 to defect and join the protesters and in Sudan in 1985 to overthrow a dictator and seize the power [6]. However, as I am interested in the active manifestation of disobedience and due to the lack of data, I will consider only resistance and loyalty strategies in this essay. I expect that this will not lead to a significant bias in the sample, since these strategies are quite rare. It is also should be noted that I will not differentiate among disobedience strategies due to the lack of data.

Main approaches to explaining the causes of military defection

Military behaviour during protests can be considered from three general perspectives. The first approach is based on the perception of the military as a community with a shared identity and inner connections. As a result of such close continuous interactions, as regular training and shared combat experience, horizontal soldier-to-soldier ties are formed within military organizations. These connections, combined with emotional closeness, special interests, habits form an exclusive community with strong in-group solidarity that can

influence the behaviour of the military. Verticals ties across the chain of command may influence the degree of inner cohesion and increase costs of disobeying orders [1]. So, soldiers with strong personal ties to their comrades-in-arms and superiors will be less likely to defect during unrest. Professional identity and responsibility for different agents have also influence on military behaviour.

As Huntington mentioned, all military personnel have a professional responsibility to provide security for clients, however, they can respond directly to society or to society's political agent, the state[7]. Bellin argued that this also depends on the type of military recruitment. She divided types of military structures into "praetorian militaries", which recruited soldiers due t political, family or personal connections (for example, as members of a family clan) and "institutionalized militaries", which recruited personnel due to professional skills and qualities and, hence, respect rules and aim to protect the public interest[3]. According to Bellin, it determines the degree of personal involvement in the regime, responsibility to him and, therefore, the decision to defect or defend the regime. Applying this argument to previous events, it explains coup-d'etat in Egypt in 2011 and refuses to defend Ben Ali's regime in Tunisia. These militaries, according to Barany were the most professional forces in the Arab world and had "republican ethos". On the contrary, for praetorian armies, in such countries, as Syria and Bahrain (religious type of recruitment), Yemen, Saudi Arabia and Libya (tribal type), Iran (ideological ties), loyalty is common[2].

The second approach is based on a study of the relationship between military and protesters, "the greater society", and, therefore, examines strategies of civil resistance. For instance, some scholars argue that how a military will react to popular protests depends on the internal characteristics of the protest movement. According to Stephan and Chenoweth, protesters should raise the political and moral costs of loyalty to the regime through agitation and non-violent activities. Following this reasoning, a large, socially, religious and ethnically diverse campaign can increase costs of repressions, especially when soldiers and protesters share an identity, because suppression of these campaigns can lead to the destruction of military hierarchy and inner-group cohesion. Indeed, the existence of similarities between troops and the protesters will raise the probability that military leaders and protesters will form common network. On the contrary, if the protesters represent a small group of the people, for example, students or members of particular political movement or party, the costs of repression are low, and the regime can describe protesters as radicals[12].

The third approach study this phenomenon from the perspective of autocrat's survival and, hence, analyze how autocrat's strategies can influence the decision of military to defect. It will be discussed in the next section.

Military disobedience and autocrat's survival

Military decision to defect or defend the regime should be studied, taking into account the established model of interaction between an autocrat and security forces. According to researchers of autocrat's survival, autocrat has two potential threats. The first threat

comes from members of the "ruling coalition", who try to increase their positions in the power hierarchy, and, therefore, have intentions to overthrow the autocrat through a coup [16]. The second threat comes from the civilian population that can express its complaints through mass protests against the incumbent. These threats are connected, the military plays a crucial role in these scenarios, and an autocrat's goal is to prevent military disobedience in both of them.

From a rationalist perspective, a military organisation could disobey autocrat's orders whenever the payoffs associated with this strategy exceed benefits of remaining loyal, so autocrat's intention is to reach military loyalty, increase the costs of disobedience and coordination [14]. There are several strategies to prevent military disobedience: (1) creation of parallel security institutions; (2) distribution of economic benefits; (3) manipulation of social ties; (4) preventing information asymmetries from different military organisations; (5) depoliticizing of the military through supporting experts in the regular army [8; 10].

One of the most popular autocrat's strategies is a repression strategy that aimed at the emergence of the fear of punishment and increases the costs of deviation from the order. It can be expressed in different tactics, ranging from dismissing and transferring to the insignificant positions, as did General Pinochet, to the public execution of soldiers in modern Syria. According to Bellin, soldiers more likely to obey to autocrat's orders if they expect high risk of punishment [3].

However, the effectiveness of this tactic is questionable. As the military try to preserve their corporate interests and inner connections, this strategy could lead to more possible disobedience. Moreover, regular rotation and dismissing top officers reduce the efficiency of commanders and decrease their ability to exercise control over military organizations, consequently, the likelihood of defection increase. However, Braithwaite and Sudduth argued that the problem is in the distinction between the purges of ordinary soldiers and the purges among the generals. Testing this hypothesis on original data on military purges in non-democracies from 1969-2003, they find that top military purges prevent disobedience by showing the regime's strength[4].

So, I assume that military purges in general will increase the probability of military defection, as repression reduces the connection between the military and the regime, reduces the connection between generals and military units and increases the hostility to the regime. However, repression of military generals should be also taking into account. Higher ranking officers are tended to take a more crucial role in organizing military defection, as they lead military units, have access to key facilities and more weight in cooperation with protesters. Therefore, purges of higher ranked officers would have more damaging effect to future defection coordination and will be negatively connected with disobedience during endgame scenarios.

Hypothesis 1: when moving from the category of absence of military purges to the category of presence of military purges the probability of military defection during mass nonviolent protest increases;

Hypothesis 2: with the increase of ranks of eliminated military personnel, the proba-

bility of military defection during mass nonviolent protest decreases.

Data

To examine these hypotheses, I construct panel data covering 49 countries over 1984-1994 (10 years) period. Since some of the data are not available for all country-years, the dataset is unbalanced. I also exclude some countries due to the lack of data. Since I considered cases that took places in nondemocratic regimes, I filtered data using the Polity IV index with a threshold of 6, which indicates nondemocratic regimes.

Dependent variable

I used Nonviolent and Violent Campaigns and Outcomes data version 2.0, which includes 139 campaign-year observations crossing 45 authoritarian countries from 1945 to 2006, to define cases of non-violent protests in authoritarian regimes [5]. In this dataset, each observation corresponds to its characteristic (e.g., protester's goals, demands, use of violence), which simplifies the selection of events that necessary for the study. As the variable of interest, I use included in NAVCO 2.0 security defection variable, which coded "1" if "the regime lost support from the military or security forces through major defections or loyalty shifts" and "0" otherwise.

Independent variables

To identify military purges, I used Jun Sudduth's dataset [13]. She constructed this dataset using information from such news sources, as Record of World Events, LexisNexis news searches, and additional information about countries. Overall, data include observations on 438 political leaders in 111 authoritarian countries from 1969 to 2003. It should be noted that Afghanistan, North Korea, Mongolia, Lebanon, Comoros, Lesotho, Belarus, Cyprus, Bosnia and Herzegovina, and East Germany are omitted in the data due to lack information for proper coding these countries.

Military elites are identified as elites that "have access to physical forces—officers in the military or other security apparatus and civilian elites that are at the top of the security apparatus" [13]. Moreover, as we interested in politically motivated actions, it is needed to distinguish events where autocrats purge officers to prevent disobedience from where autocrat dismiss military personnel because of nonpolitical reasons, such as incompetence. For that reason, J. Sudduth examined whether eliminated elite member fell into following categories: (1) popularity among other elites, thus suspected to be threat to autocrat's political survival; (2) different political preferences and criticism of autocrat's policy; (3) conspirator, who planned or suspected to plan to overthrown the autocrat. Event that meets one of criteria, discussed below, is coded as a military purge. Thus, "Any military purge" in my dataset represents a binary variable that indicated whether there were a politically motivated military purge in the given year in the given country.

Moreover, I added a an ordered variable "Purge level" into analysis to capture the ranks of eliminated officers. A score of "0" indicates that no purge occurred that year; "2" – the autocrat purges soldiers and mid-level officers; "3" – the autocrat purges military officers, including the highest ranked officers [13].

Control variables

The type of campaign's resistance method

The perception of violent and non-violent protests by the military may vary. Armed protesters will be more perceived by the military as dangerous criminals, which should be stopped, and the military will not enter into negotiations with the protesters[12]. Therefore, I added binary variable from NAVCO 2.0 dataset that indicates the type of campaign's resistance method. It is a binary variable that coded "0" for primarily violent campaign and "1" for primarily nonviolent campaign.

Military regimes

I include a dichotomous indicator for whether a country is a military regime or not to control possible institutional factors that can influence a military defection. To measure this variable I use Wahman, Teorell, Hadenius dataset (2013), which includes observations for 192 states recognized as members of the UN and covers the period of time from 1972 to 2010 [17]. The military regime, according to this classification, is a regime, where the security forces can directly or indirectly exercise political power.

Military expenditures

According to previously conducted researches, with the increase of financial support of the military, the probability of military defection during mass protests decrease [9]. I also used a logarithm of this variable due to its skewed distribution. This variable is drawn from Correlates of War dataset [15].

Military personnel

As the number of military personnel can be related to military structure, and, therefore, influence the probability of military disobedience during protests, I include this in the model. I also used a logarithm of this variable due to its skewed distribution. This variable is drawn from Correlates of War dataset [15].

GPD per capita

I included GDP per capita variable to control economic indicators. I assume that economic situation can influence the perception of military organizations of the regime's stability and, consequently, military decision to defend the regime. I use data from the International Macroeconomic Data Set, which provides observations for 190 countries from 1969 [11]. I also used a logarithm of this variable due to its skewed distribution.

Method and model

The fixed effects logit model is a rather popular specification for panel data analysis of binary variables, as it accounts for unobserved differences in individual characteristics that do not change over time, causing different starting conditions. While the technical implementation of the fixed effects estimator is simple in the linear case, the within transformation can not be carried over to nonlinear models like the logit model. Parameters of fixed effects models with a small number of observations per fixed effect T suffer from the incidental parameters problem, the estimators are inconsistent as N increases and T is held constant. As an alternative, the conditional logit estimator is often proposed. Despite the fact that partial or marginal effects can not be easily and consistently estimated, and the conditional logit estimator is computationally costly, it is often used in similar tasks. Moreover, conditional logit model shows as good as better than a logit analysis which simply includes group-specific intercepts.

Therefore, as the outcome variable is binary and as to test these hypotheses, it seems necessary to consider temporal variability in each country, I use the conditional logistic model as a method. It will allow me to take into account differences in individual characteristics that do not change over time, causing different starting conditions.

The results of testing the first hypothesis can be found in Table 3. Model 1 estimates the effect of any military purges on a military defection. Model 2 includes the GDP per capita as a control variable, military expenditures and military personnel, Model 3 additionally includes a military regime variable, and Model 4 includes the type of resistance. According to this table, military purges, the type of resistance, GDP are positively connected with military defection, while military expenditures and the military regime are negatively connected with military defection. However, all coefficients are statistically insignificant. As estimates of the logistic model can be presented in terms of odds ratios, the exponential values in the degree of coefficients can be found in Table 4 and Table 5. It should be noted that with the addition of control variables, the significance and direction of the estimates does not change. I compared nested models using AIC and Likelihood Ratio Test and chose a full, less economical model. Additionally, I estimated the model adjusted for heteroskedasticity. As can be seen from the results presented in Table 7, the direction and strength of the relationship between the main predictor and the target variable have not changed.

The results of testing the second hypothesis can be found in Table 5. As seen from this table, both purges of soldiers and mid-level officers, and purges of highest ranked officers are positively connected with military defection, however, all coefficients are statistically insignificant. With the addition of control variables, the significance and direction of the estimates do not change. I compared nested models using AIC and Likelihood Ratio Test and chose a full, less economical model. Additionally, I estimated the model adjusted for heteroskedasticity. As can be seen from the results presented in Table 7, the direction the relationship between the main predictor and the target variable has not changed but the strength of this connection changed for rankofficer2.

These models were estimated using "survival" package in R, and the most functions of diagnostic tests do not work with this type of objects.

Robustness check

Robustness checks are needed to estimate how results change when data changes. So, I re-estimated these models on the subset of campaigns, in which participated less than 100.000 protestors. As can be seen from the results presented in Table 8, the direction of the relationship between the military purge and military defection and the strength of this relationship does not change. The direction of the relationship between the rank of repressed military personnel and military defection also does not change, but the coefficient of "rankofficer2" variable became statistically significant. Hence, it could be said, that results of this model change when data changes.

Limitation of models and discussion

The main limitation of this research is the lack of data. The data is available only for cases of military loyalty and defection, and there is no data on a military exit strategy. The time period of protest campaigns that analyzed in this essay is also a limitation, as well as the small number of time periods. So, only Model 4 passed the robustness check, while Model 8 did not. According to the results of these models, neither of my initial hypotheses confirm. This is maybe due to limitations, which were discussed previously. It is also possible that military purges and ranks of eliminated officers do not associate with military defection.

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Table 1: Description of Variables

Variable name	Definition	Variable type	Source of data
Military defection	Defection of security apparatus	Binary variable	NAVCO 2.0
Any military purge	Politically motivated elimination of military personnel	Binary variable	Jun Sudduth's dataset (2017)
Purge level	Rank of eliminated officers	Ordered variable, ranging from 0 (no purges) to 2 (purges amon the highest ranked officers)	Jun Sudduth's dataset (2017)
Military expenditures	Financial support of the military, logged	Continuous	Correlates of War dataset (Stinnett et al, 2002)
Military personnel	The number of military personnel, logged	Continuous	Correlates of War dataset (Stinnett et al, 2002)
Military regime	Military regime	Binary	Wahman, Teorell, Hadenius dataset (2013)
Resistance type	The type of resistance method designated for the campaign	Binary	NAVCO 2.0
GDP per capita	GDP per capita, logged	Continuous	Interna-tional Macroeconomic Data Set

Table 2: Descriptive statistics

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
log_gdp	196	22.720	1.626	18.700	21.578	24.006	26.575
log_milex	267	12.926	1.735	9.393	11.599	14.221	16.819
log_milper	272	4.385	1.403	0.693	3.519	5.521	8.269

Table 3: Conditional logit; H1

	Dependent variable:			
	sec_defect_logic			
	(1)	(2)	(3)	(4)
purge41	0.343	0.563	0.689	0.632
	(0.480)	(0.521)	(0.585)	(0.588)
log_milper		−0.755	−0.484	−0.473
		(0.762)	(0.849)	(0.859)
log_milex		0.034	0.170	0.337
		(0.545)	(0.556)	(0.581)
log_gdp		0.702	0.658	0.737
		(0.988)	(1.015)	(1.017)
gwf_military1			−0.707	−0.699
			(1.362)	(1.356)
navco1designation1				1.769
				(1.182)
Observations	278	187	176	176
R^2	0.002	0.014	0.014	0.030
Max. Possible R^2	0.353	0.394	0.385	0.385
Log Likelihood	−60.286	−45.579	−41.478	−40.089
Wald Test	0.510 (df = 1)	2.460 (df = 4)	2.440 (df = 5)	4.720 (df = 6)
LR Test	0.507 (df = 1)	2.575 (df = 4)	2.535 (df = 5)	5.313 (df = 6)
Score (Logrank) Test	0.511 (df = 1)	2.560 (df = 4)	2.542 (df = 5)	5.134 (df = 6)
Note:				*p<0.1; **p<0.05; ***p<0.01

Table 4: Exp(Coefficients) of Model 4

purge41	log_milper	log_milex	log_gdp	gwf_military1	navco1designation1
1.881	0.623	1.401	2.090	0.497	5.867

Table 5: Conditional logit, H2

	Dependent variable:			
	sec_defect_logic			
	(5)	(6)	(7)	(8)
rankofficer2	0.485	0.985	1.390	1.353
	(0.612)	(0.695)	(0.846)	(0.845)
rankofficer3	0.398	0.458	0.579	0.468
	(0.476)	(0.576)	(0.601)	(0.604)
log_milper		−0.904	−0.655	−0.623
		(0.765)	(0.836)	(0.843)
log_milex		0.128	0.288	0.460
		(0.554)	(0.568)	(0.596)
log_gdp		0.689	0.608	0.653
		(1.031)	(1.077)	(1.075)
gwf_military1			−0.705	−0.680
			(1.341)	(1.335)
navco1designation1				1.754
				(1.187)
Observations	276	186	175	175
R^2	0.004	0.020	0.025	0.039
Max. Possible R^2	0.355	0.396	0.386	0.386
Log Likelihood	−59.998	−44.992	−40.566	−39.225
Wald Test	1.080 (df = 2)	3.580 (df = 5)	4.070 (df = 6)	6.270 (df = 7)
LR Test	1.082 (df = 2)	3.748 (df = 5)	4.360 (df = 6)	7.042 (df = 7)
Score (Logrank) Test	1.089 (df = 2)	3.749 (df = 5)	4.369 (df = 6)	6.880 (df = 7)
Note:				*p<0.1; **p<0.05; ***p<0.01

Table 6: exp(Coefficients) of Model 8

rankofficer2	rankofficer3	log_milper	log_milex	log_gdp	gwf_military1	navco1
3.868	1.596	0.536	1.584	1.922	0.507	5.779

Table 7: Models adjusted for heteroskedasticity

	Dependent variable:	
	sec_defect_logic	
	(1)	(2)
purge41	0.374	
	(0.399)	
rankofficer2		0.716*
		(0.535)
rankofficer3		0.283
		(0.383)
log_milper	−0.272	−0.394
	(0.640)	(0.650)
log_milex	0.211	0.268
	(0.397)	(0.405)
log_gdp	0.563	0.529
	(0.776)	(0.783)
gwf_military1	−0.181	−0.244
	(0.650)	(0.728)
navco1designation1	1.346*	1.335*
	(0.839)	(0.840)
Observations	176	175
R^2	0.027	0.033
Max. Possible R^2	0.630	0.630
Log Likelihood	−85.197	−83.993
Wald Test	6.140 (df = 6)	7.870 (df = 7)
LR Test	4.770 (df = 6)	5.791 (df = 7)
Score (Logrank) Test	4.699 (df = 6)	5.815 (df = 7)
Note:	*p<0.1; **p<0.05; ***p<0.01	

Table 8: Robustness checks on subset of campaigns with less than 100.000 participants

	Dependent variable:	
	sec_defect_logic	
	(1)	(2)
purge41	1.096	
	(0.734)	
rankofficer2		2.063*
		(1.080)
rankofficer3		0.897
		(0.796)
log_milper	−0.691	−0.851
	(0.991)	(0.974)
log_milex	−0.030	0.026
	(0.932)	(0.968)
log_gdp	1.856	2.265
	(1.374)	(1.607)
gwf_military1	0.788	0.770
	(1.637)	(1.630)
navco1designation1	19.166	19.169
	(10,188.830)	(10,188.770)
Observations	115	114
R^2	0.060	0.080
Max. Possible R^2	0.406	0.409
Log Likelihood	−26.400	−25.187
Wald Test	4.070 (df = 6)	5.330 (df = 7)
LR Test	7.124 (df = 6)	9.549 (df = 7)
Score (Logrank) Test	6.797 (df = 6)	8.834 (df = 7)
Note:	*p<0.1; **p<0.05; ***p<0.01	

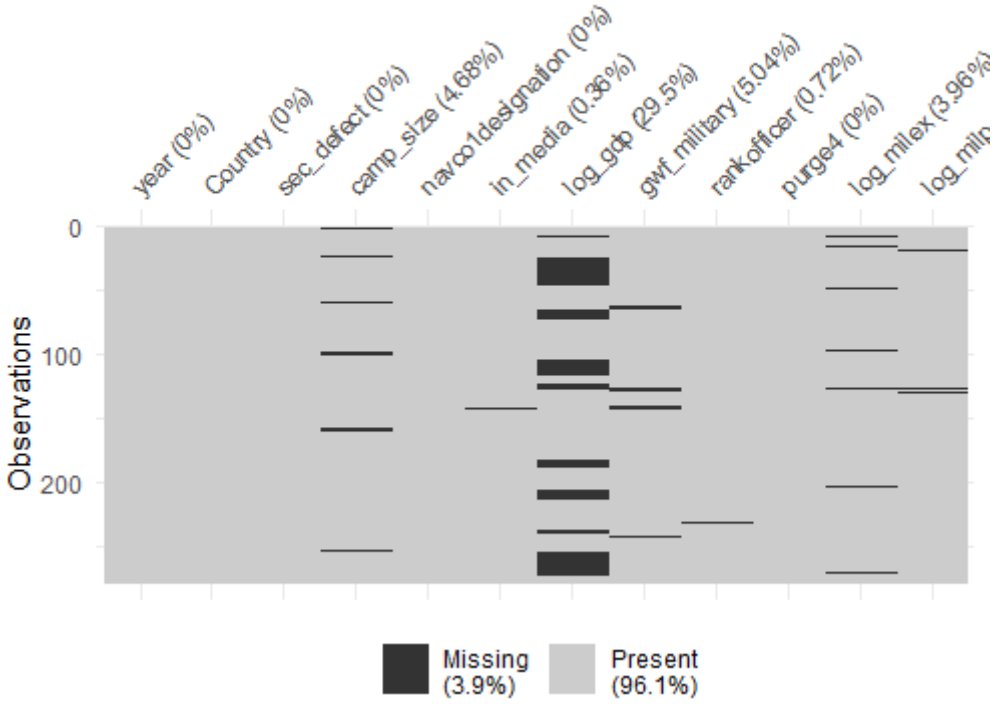

Figure 1: Plot of missing values

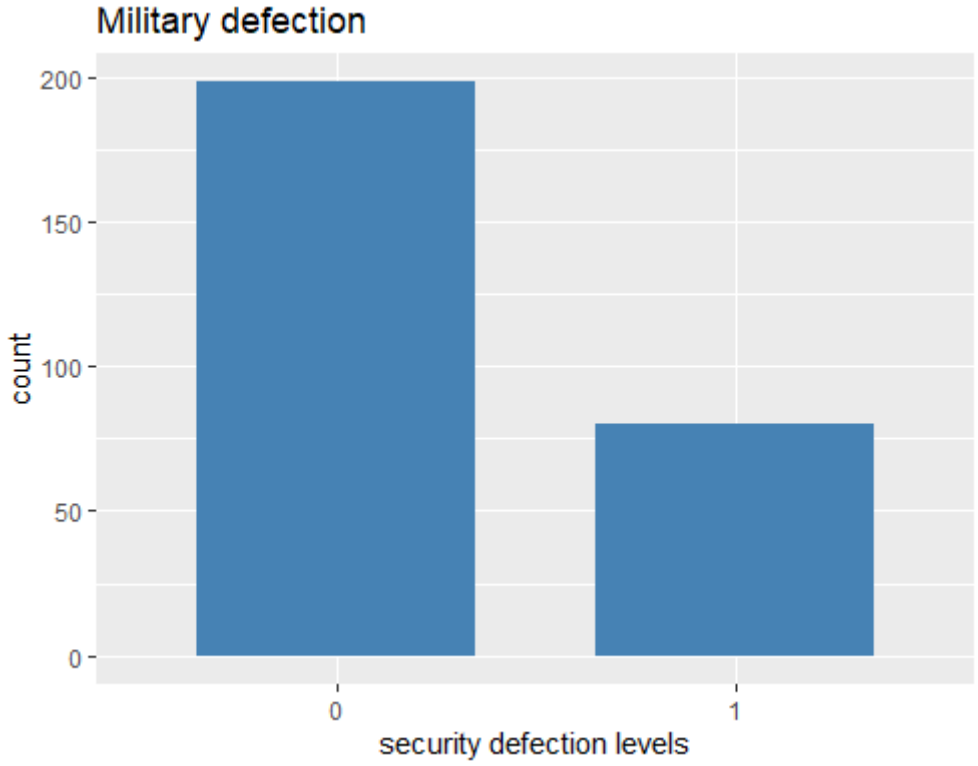

Figure 2: Histogram

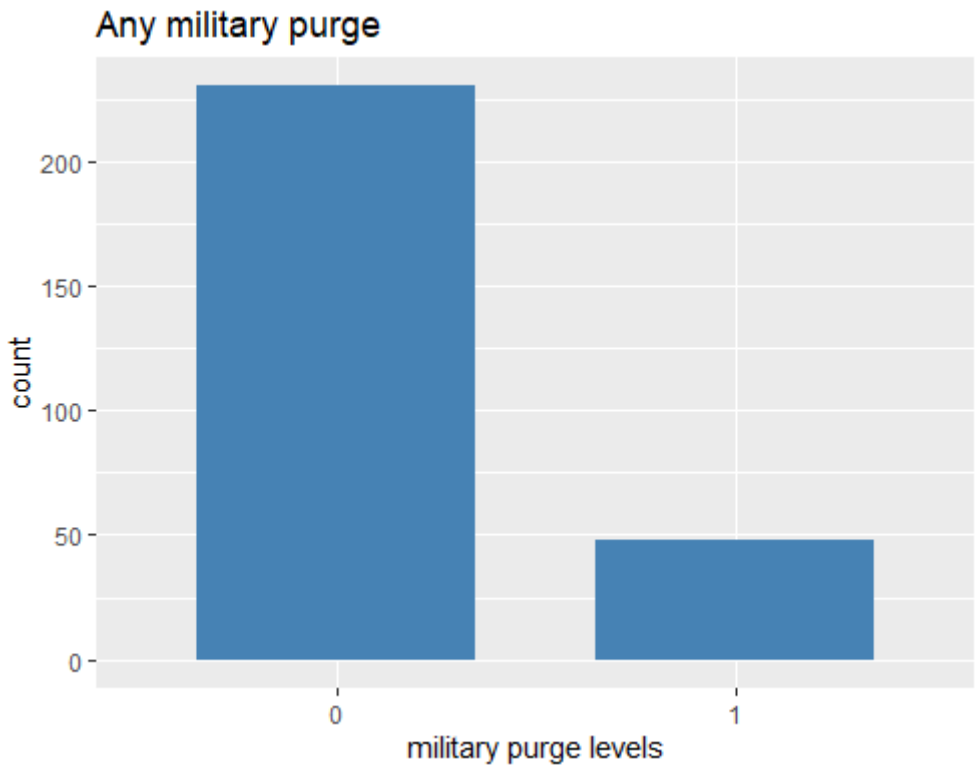

Figure 3: Histogram

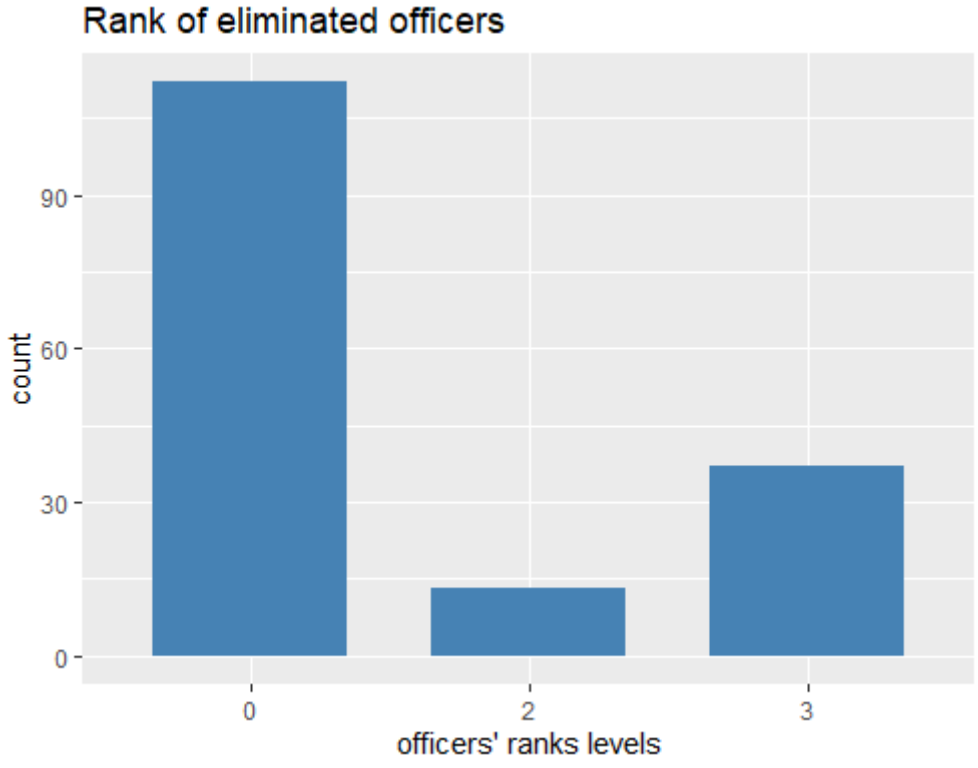

Figure 4: Histogram

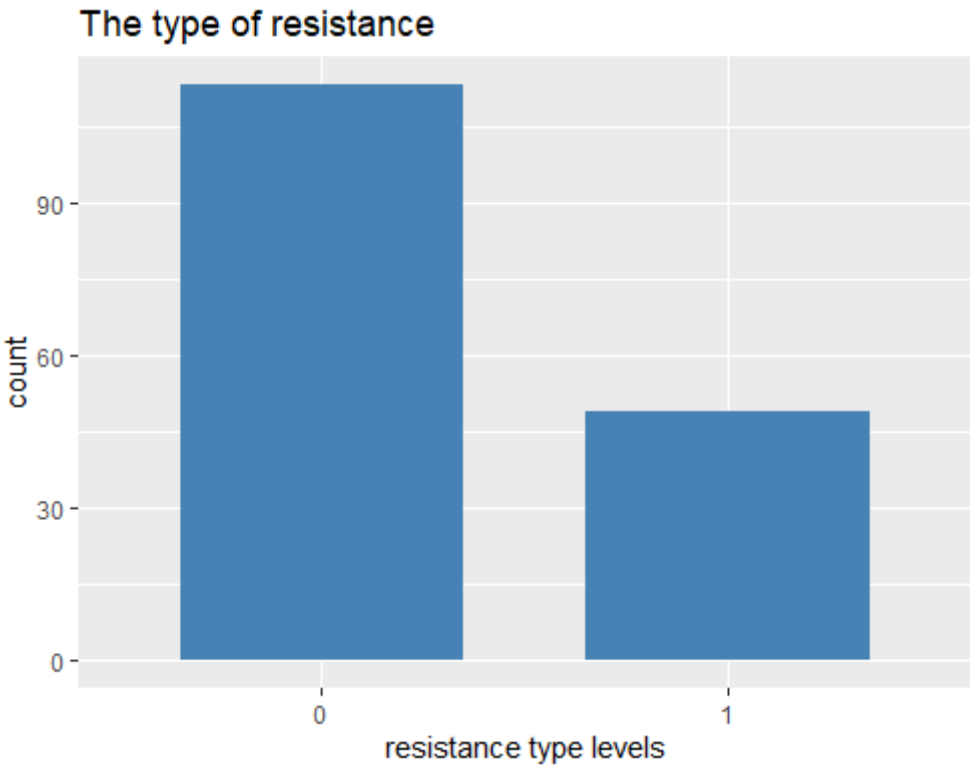

Figure 5: Histogram