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Material Deprivation and the Outcomes of Elections

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Abstract

This study shows that the district level outcomes in the 2012 parliamentary elections in Georgia are significantly associated with the mean household deprivation levels. This effect is statistically significant after controlling for the regional dummies, urbanisation level, current district's population size, the proportion of orthodox population, local ideological preferences, and the rate of turnout on the election day. The OLS models of the share of received votes in the proportional system and the logit models of the odds of victory of a party candidate in the majoritarian contest both reveal that the districts with the lowest and highest material deprivation levels were more likely to vote for the oppositional coalition. The results are robust even after excluding from the analysis two fraud-prone regions of Samtskhe-Javakheti and Kvemo Kartli.

Keywords: Parliamentary elections, Georgia, material deprivation, multivariate analysis

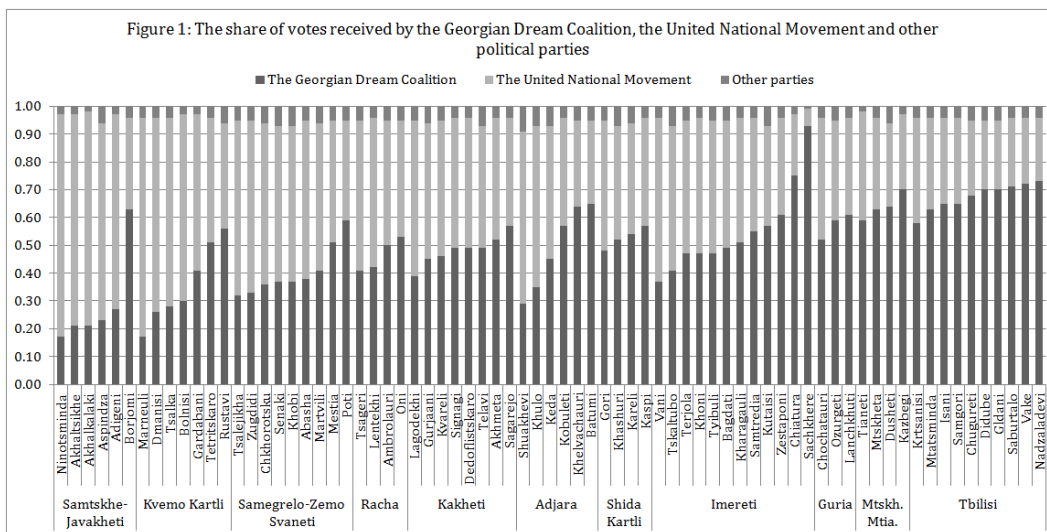
Research Question

The 2012 parliamentary elections in Georgia has been already hailed as a political milestone in the democratic development of Georgia. For the first time after the 1990 elections, the authorities declared an oppositional political force as the winner of the electoral contest. In addition to the expected political, economic and social consequences, the recent developments might also reinvigorate applied social research of the electoral politics and voter behaviour in Georgia. All previous election results were classified as either partly free or the ruling political force achieved a landslide victory. Both of these characteristics prevented researchers from making empirical investigation of the covariates of electoral outcomes. In the case of election falsification, the official results could not be reliably matched with contextual variables, while in the case of a landslide victory, the low variation in the election results restricted the explanatory power of statistical models. On both of these accounts the 2012 parliamentary elections differed from the previous ones. On the one hand, the domestic and international observers largely agree that the degree of freedom and transparency was reasonably high. On the other hand, although the gap between the winning Georgian Dream Coalition (GDC) with 55.0 percent of votes and the incumbent United National Movement (UNM) party with 40.3 percent is small, the variation in votes among the various districts is substantial.

Figure 1 demonstrates the distribution of votes among political parties across 73 electoral districts. The standard deviations of the shares of votes received by the winning and incumbent sides among districts are 15.4 and 15.2 percent, respectively, which gives us an opportunity to engage scientifically with the possible explanations in the observed results.¹ It is obvious that a large share of variation can be explained by the regional differences. The districts in Guria, Mtskheta-Mtianeti and Tbilisi predominantly voted for the GDC; the districts in Samtskhe-Javakheti,

¹ Other political parties received 4.7 percent of votes with 1.3 standard deviation among the districts.

Khvemo-Kartli and Samegrelo-Zemo Svaneti preferred the UNM; while the mixed result were observed in Racha-Lechkhumi, Kakheti, Adjara and Shida Kartli. However, the regional difference cannot explain the variation observed among districts within 10 different regions and in Tbilisi. It has been speculated that the defeat of the incumbent UNM was conditioned by the various political, economic and social shortcomings, but in this study I am particularly interested how social welfare is related with the district level election outcomes. Although data availability on the district level contextual variables is severely restricted, I manage to generate a households' material deprivation measure from the large representative social survey, and controlling for some basic covariates such as population size, urbanization, the religious, educational and ideological composition, test its association with the election outcomes.



Research Design, Data and Methods

A unit of analysis in this study is an electoral district. The Central Election Commission also provides election results for separate election precincts within the election districts. A higher number of observations would improve the explanatory

power of statistical models but other contextual variables on the same level are not available. I use two complementary dependent variables. The first is the share of votes received by the GDC in the proportional electoral contest across districts. This is a continuous variable which takes value from .17 to .93. The second dependent variable is the victory of the GDC candidate in the majoritarian contest in various districts, which is a binary variable with a value of 1 if the coalition candidate wins a district. The results would vary only marginally if the share of the UNM and its candidates' victories were used as the dependent variables. This is because less than 5 percent of votes went to third political parties which means that the lower share of votes for the Georgian Dream Coalition means almost proportionally higher share of votes for the UNM. For the robustness check of the findings I also use the combined share of votes received by other political parties. It is not possible to use majoritarian results for other political parties because none of their candidates won any election district.

The main independent variable and other controls are generated from the Generations and Gender Survey (GGS) by the United Nations Economic Commission for Europe (UNECE, 2012). The data was collected by the Georgian Centre of Population Research (GCPR) in 2006 from the entire territory of Georgia except of the areas that were not covered by the population census of 2002 (Badurashvili, 2012). The GGS is a national representative survey and includes 10,000 observations. The large sample of the GGS allows to derive the aggregate measures of local context which can serve as independent variables in the current study. This is done in the following way: I allocate all observations available in the GGS into 64 election districts. Because GGS data is not segregated according to the districts in the capital city, I have to drop 10 districts of Tbilisi and transform Tbilisi districts into a single observation.² The GGS also misses observations for Signagi electoral district and therefore the former is excluded from the analysis. The values for our independent variables are the mean values of the selected variables derived

² This should not be a problematic step because results in Tbilisi did not vary significantly across districts.

separately for all 64 electoral districts. As the number of individual level observations varies across districts the level of representativeness of aggregated variables might vary from district to district.

The main independent variable of the study is the households' material deprivation levels in the electoral districts. This variable is generated by aggregating answers on the following GGS question: *'For each item, please indicate whether or not your household possesses it. It does not matter whether the item is owned, rented, or otherwise provided for your use. If you do not have an item, please indicate whether you would like to have it but cannot afford it, or do not have it for other reasons, e.g. you don't want or need it.'* Eleven separate dummy variables take value of 1 if the respondents indicate that their households would like but cannot afford to have the following items: (1) a refrigerator, (2) colour TV, (3) video recorder or DVD player, (4) washing machine, (5) microwave, (6) home computer, (7) dishwasher, (8) telephone (whether fixed or mobile), (9) a car or a van available for private use, (10) a second car, (11) a second home (e.g. for vacation). The dummy variables then are summed and the average value for each electoral district is calculated. It has to be stressed that, along with other variables, the survey measures material deprivation in 2006 and some changes have probably taken place after this date. However it is reasonable to hypothesise that levels of deprivation in 2012 are closely related to those in 2006. In addition, if the overall situation improved in the recent years, which is unlikely considering the persistently high poverty levels (Gugushvili, 2011), then yet it is not expected that the rise in material conditions significantly varied across regions and districts.

I also employ five control variables. Rural-urban divide has been one of the important vectors of voting preference in electoral studies. Therefore, I create a variable which shows the share of GGS respondents who lived in urban settlements across electoral districts in 2006. This variable cannot be a true measure of urbanisation but it can serve as a good proxy of rural-urban divide in the electoral districts. The same approach is applied to the level of education among the districts' population. The mean values of individual level educational attainment, which itself

varies from 1=pre-primary education to 7=second stage of tertiary education, are used as proxies for the average level of education in districts. Based on the previous elections in Georgia, it is important to control for ethnic composition of districts. The GGS does not ask respondents about their ethnicity but enquires about their religious affiliation. According to the Caucasus Barometer (Caucasus Research Resource Centers, 2010), being an orthodox is strongly correlated with being a Georgian in the country and therefore the level of orthodox population can be used as the proxy of ethnic composition of the electoral districts. In other normal conditions, electoral outcomes can be also related to the ideological preferences, hence I calculate the district mean values of answers on the following question from the GGS: *'There are widely varying views on how we should care for people in our society. Please indicate whether you think financial support for younger people with children below subsistence level it is mainly the task for society, the family or for both.'* The answer options vary from 1=mainly a task for society, to 5=mainly task for family. The lower/higher values of this indicator must indicate that left/right-wing ideology dominates in the district. Two additional control variables – the size of population in electoral districts and the rate of turnout in the election day – derives from the National Statistics Office of Georgia (Geostat, 2012) and the Central Election Commission (2012). The full descriptive statistics can be viewed in Table 1 of the appendix.

Based on two different forms of the dependent variable, I consecutively use ordinary least squares (OLS) and logistic (logit) regressions. OLS models are applied when the dependent variable is the share of votes received by the GDC, while logit regression are used when the dependent variable is the victory of party candidate in the majoritarian contest. To account for heteroskedasticity in models, robust standard errors are estimated in both types of regressions (Cameron and Trivedi, 2009). In order to make regression output easily comparable across models, I standardize all variables which do not have binary form. The limited number of observations and the related degrees of freedom restrictions, does not permit to test material deprivation's association with the dependent variables controlling for all

outlined control variables. The independent variables are still introduced in the models at the verge of models' degrees of freedom and by comparing different regression specifications, it is possible to derive statistically meaningful conclusions. Since historically concerns have been raised about the quality of electoral process in two regions with the large share of ethnic minorities, after the main part of the analysis I conduct robustness checks by excluding the electoral districts belonging to these regions and repeating the same analysis to check the validity of derived results with more rigorous sample.

Results

I start with the description of the bivariate relationship between households' mean deprivation rates and the share of votes received by the opposition. Horizontal axis in Figure 2 plots material deprivation across districts which varies from 3.29 to 9.79 in Gardabani and Tianeti districts, respectively. The distribution of votes is in line with the regional differences, Sachkhere district being a clear outlier. It is noticeable that the scatterplot of deprivation and election outcomes does not depict any linear association. If anything, there appear to be a U-shaped curvilinear relationship between the two. As we can see, many of districts are located in the middle of deprivation distribution and their voting preferences seem to be neutral, or more skewed toward the UNM. On the other hand, a high number of districts are positioned in the lower as well as the higher parts of household deprivation levels and both of these groups tend to have the stronger preferences for the GDC. It has to be stressed that the observed curvilinear relationship might be driven by the inclusion in the analysis some of the problematic districts or even whole regions. To test the association between the household deprivation levels and voting behavior more convincingly, the next step will be multivariate analysis which can isolate other contextual effects in the considered relationship. At the same time, to account for possible U-shaped curvilinear association, I include in the regression models households' material deprivation variable together with its squared term. If both of

these regression coefficients are statistically significant and have the opposite signs (- and +), it will be the evidence on curvilinear association between the dependent and independent variables.

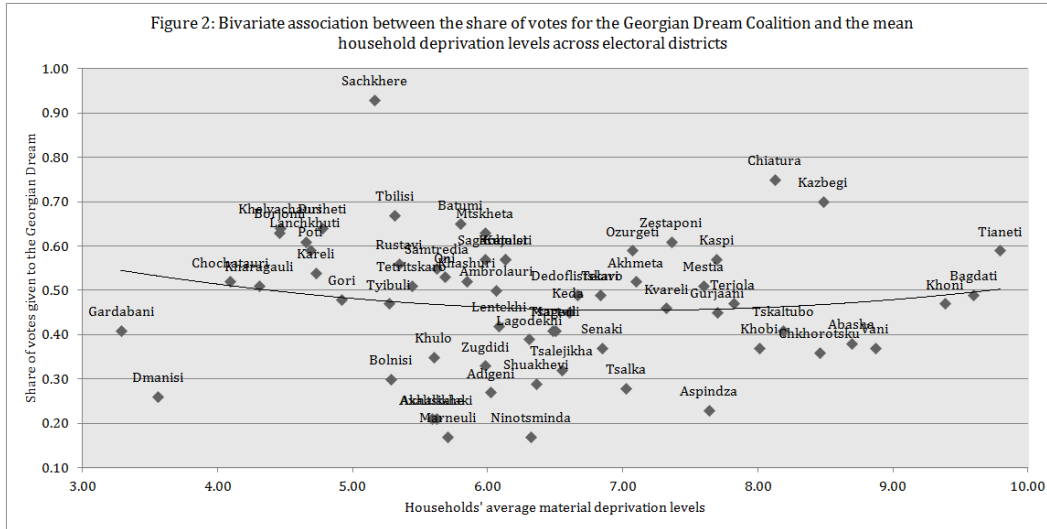


Table 1 depicts regression coefficients from OLS models. Different independent variables are consecutively introduced into the models, while the final regression includes most of the covariates. Model 1 shows that mean material deprivation as such does not associate significantly with the dependent variable. On the other hand, Models 2, 3, 4, 5, 6 and 7 indicate that districts' population size, urbanization share of orthodox population, mean educational level and the rate of turnout correlate positively and significantly with the variation in the votes' distribution, while mean ideological preferences does not have any effect. However, when the listed covariates are introduced simultaneously in Model 8, the households material deprivation and its squared term become statistically significant with the negative and positive signs, respectively. What this means is that material deprivation, as it was the case in Figure 2, maintains U-shaped curvilinear relationship on the electoral outcomes at the 0.05 significance level. It seems that as the deprivation intensifies districts are less likely to prefer the opposition, but after a certain

threshold the higher deprivation levels are significantly related to stronger support for the oppositional coalition.

The regional dummies, as expected, strongly associate with the electoral preferences. The populations of Samtskhe-Javakheti, Kvemo Kartli and Samegrelo districts are much more likely to cast their votes for the UNM. The effect is maintained when their preferences are compared to Tbilisi in Model 9 or when they are compared to all other regions, including Tbilisi, in Model 10. The latter model also includes all other contextual covariates, except material deprivation, and its purpose is to show how much variation is explained by material deprivation which is introduced in Model 11. I am not able to include all regions in the final model because of the limited degrees of freedom in the sample with only 63 observations. The results confirm that share of the orthodox population and rural status of the region both have statistically significant association with casting the votes for the GDC. Most importantly, I find that material deprivation still maintains U-shaped curvilinear relationship with the dependent variable. If Model 10 explained 54 percent of variation in the dependent variable then the introduction of material deprivation in Model 11 increases the explained share of the votes' distribution, Adjusted R², in by 3 percent.

Table 1: Covariates of the share of votes received by the GDC across electoral districts in the 2012 Georgian Parliamentary elections
Coefficients from OLS models

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11
Intercept	-0.18	-0.15	-0.18	-0.18	-0.18	-0.18	-0.16	-0.16*	1.10***	0.13	0.15*
Socio-economic variables											
Material deprivation	-0.82	-	-	-	-	-	-	-1.21*	-	-	-1.19**
Material deprivation ²	0.78	-	-	-	-	-	-	1.09*	-	-	1.04*
Demographic variables											
Population size	-	0.18***	-	-	-	-	-	-0.01	-	-0.03	-0.05
Index of urbanisation	-	-	0.39***	-	-	-	-	0.35**	-	0.38***	0.36***
Share of orthodox population	-	-	-	0.44***	-	-	-	0.26*	-	0.19	0.21*
Education and ideology											
Mean level of education	-	-	-	-	0.41***	-	-	0.05	-	-0.01	0.03
Financial support for children	-	-	-	-	-	-0.01	-	0.15	-	0.16	0.16
Election characteristic											
Rate of turnout	-	-	-	-	-	-	0.37***	0.30**	-	0.26*	0.20
Region											
Adjara	-	-	-	-	-	-	-	-	-1.15***	-	-
Guria	-	-	-	-	-	-	-	-	-0.62***	-	-
Imereti	-	-	-	-	-	-	-	-	-0.77**	-	-
Kakheti	-	-	-	-	-	-	-	-	-1.21***	-	-
Kvemo Kartli	-	-	-	-	-	-	-	-	-2.03***	-0.44	-0.73**
Mtskheta-Mtianeti	-	-	-	-	-	-	-	-	-0.19	-	-
Racha-Lechkhumi	-	-	-	-	-	-	-	-	-1.32***	-	-
Samegrelo-Zemo Svaneti	-	-	-	-	-	-	-	-	-1.72***	-0.82***	-0.81***
Samtskhe-Javakheti	-	-	-	-	-	-	-	-	-2.47***	-1.34***	-1.32***
Shida kartli	-	-	-	-	-	-	-	-	-0.82***	-	-
Observations	63	64	63	63	63	63	64	63	64	63	63
Adjusted R ²	-0.02	0.02	0.15	0.19	0.17	-0.02	0.14	0.36	0.35	0.54	0.57

Notes: ***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels. All dependent and independent variables, except regional dummies are standardised. Reference category is Tbilisi in Model 9 and all other regions except Kvemo Kartli, Samegrelo, and Samtskhe-Javakheti in Model 10 and 11. Robust standard errors are calculated, not shown. Source: Author's calculation based on the data from the Central Elections Commission (2012), Generations and Gender Survey (UNECE, 2012), Geostat (2012)

Table 2: Covariates of the victory of the GDC across electoral districts in the 2012 Georgian Parliamentary elections

Coefficients from bivariate logistic regressions

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11
Intercept	0.04	0.35	0.07	-0.00	0.03	0.03	0.08	0.45	14.28***	1.22*	1.16*
Socio-economic variables											
Material deprivation	-2.33	-	-	-	-	-	-	-4.00	-	-	-6.61**
Material deprivation ²	2.03	-	-	-	-	-	-	3.53	-	-	5.78**
Demographic variables											
Population size	-	1.31	-	-	-	-	-	1.70	-	2.18	1.29
Index of urbanisation	-	-	0.76***	-	-	-	-	0.74*	-	0.98**	0.93*
Share of orthodox population	-	-	-	0.71**	-	-	-	0.77*	-	0.63	0.73*
Education and ideology											
Mean level of education	-	-	-	-	0.62**	-	-	0.04	-	-0.59	-0.01
Financial support for children	-	-	-	-	-	0.11	-	0.41	-	0.48	0.39
Election characteristic											
Rate of turnout	-	-	-	-	-	-	0.48*	0.67	-	0.45	0.21
Region											
Adjara	-	-	-	-	-	-	-	-	14.28***	-	-
Imereti	-	-	-	-	-	-	-	-	-3.59***	-	-
Kakheti	-	-	-	-	-	-	-	-	-4.28***	-	-
Kvemo Kartli	-	-	-	-	-	-	-	-	-6.08***	-2.84**	-4.62**
Racha-Lechkhumi	-	-	-	-	-	-	-	-	-5.38***	-	-
Samegrelo-Zemo Svaneti	-	-	-	-	-	-	-	-	-4.98***	-1.49	-1.51
Samtskhe-Javakheti	-	-	-	-	-	-	-	-	-5.89***	-2.30**	-2.71***
Observations	63	64	63	63	63	63	64	63	53	63	63
Pseudo R ²	0.03	0.03	0.08	0.07	0.06	0.00	0.04	0.25	0.14	0.29	0.38

Notes: ***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels. All dependent and independent variables are standardised. Reference categories is Tbilisi in Model 9 which also excludes districts in Guria, Mtskheta-Mtianeti, and Shida Kartli (perfectly predict success). In Model 10 and 11 and all other regions except Kvemo Kartli, Samegrelo, and Samtskhe-Javakheti serve as the reference category. Robust standard errors are calculated, not shown. Source: Author's calculation based on the data from the Central Elections Commission (2012), Generations and Gender Survey (UNECE, 2012), Geostat (2012)

The same independent and control variables are tested in Table 2 but in this case the dependent variable is the victory of the GDC candidate in the majoritarian contest across the electoral districts. The higher urbanization levels, share of orthodox population and levels of education are associated with the higher odds of oppositional candidate winning a district. In Model 8, when all covariates are tested together, only urbanisation rate and the share of orthodox population maintain positive association at .1 significance level. In Model 9 the oppositional candidates have the lowest odds of victory in the same regions as in the proportional contest. Model 11 shows that the introduction of material deprivation variable and its squared term increases Pseudo-R² by 9 percentage points which is rather high improvement of the fit of the model. In addition, considering the sample size, both material deprivation variables maintain strong statistical significance. For robustness check of these findings, I conduct an additional test. In Table 2a and 3a in the Appendix, I exclude from the analysis observations from the electorally problematic regions of Samtskhe-Javakheti and Kvemo Kartli. Similarly to the main analysis with all districts, the households' material deprivation still upholds U-shaped curvilinear statistically significant association with both dependent variables – the votes' allocation in the proportional and majoritarian electoral contests. Furthermore, the size of coefficients seem to be even stronger when the regions with ethnic minorities are excluded from the calculations. Last but not least, I also test the links between material deprivation and the votes for other political parties. The results, reported in the Appendix's Table 4a, show that material deprivation has the strong and significant inverse U-shaped relationship with the dependent variable, which is similar to the association expected for the UNM. In other words, electoral outcomes for other political parties were shaped similarly as for the UNM, which indicates on the proximity of voter profiles of these two political forces.

Discussion

The years of partly free political regime, as defined by the Freedom House (2012), did not allow free and transparent democratic elections to take place in Georgia, which in turn restricted the applied social research of electoral preferences and behaviour. The freer and fairer elections can open new opportunities for the investigation of electoral consequences, its covariates, and, possibly, its causal factors. This study might be one of the first steps of understanding electoral preferences in more democratic and unconstrained Georgian political environment. As my primary research interests concentrate on social welfare, I tested the links between material deprivation and district

level election outcomes. I show that the regions with the highest and the lowest deprivation levels were likely to prefer the GDC, while those regions with medium deprivation level tended to vote for the United National Movement. However, the fact that the higher levels of deprivation, until certain threshold, negatively associates with the share of oppositional votes in the districts as well as with the probability of victory of their majoritarian candidate does not necessarily mean that there is a direct causal link between the deprivation and election outcomes. The districts where the material deprivation levels are high, but not the highest, are less likely to be those which have the better access to free media and are more likely to be dependent on the state benefits such as Targeted Social Assistance. Both of these characteristics could make voters less informed and critical about the state of affairs and more dependent on the incumbent public officials. On the other hand, when the deprivation levels reach a certain threshold the voters' frustration might be the dominant cause of electoral outcomes. To conduct a more convincing investigation of the electoral preferences, individual level data on voting preferences and other socio-economic variables are required, which then can be combined with district level characteristics in a multilevel statistical framework.

References

- BADURASHVILI, I. 2012. Generations and Gender Survey Georgia Wave 1. Tbilisi: The Georgian Centre of Population Research (GCPR).
- CAMERON, A. C. & TRIVEDI, P. K. 2009. *Microeconometrics using Stata*, College Station, Texas, Stata Press.
- CAUCASUS RESEARCH RESOURCE CENTERS 2010. Caucasus Barometer. Tbilisi: Caucasus Research Resource Center.
- CENTRAL ELECTION COMMISSION 2012. Elections 2012: Preliminary results. Tbilisi: Election Administration of Georgia.
- FREEDOM HOUSE 2012. *Nations in Transit 2012: Democratization from Central Europe to Eurasia*, Rowman & Littlefield Publishers.
- GEOSTAT 2012. Statistical information. Tbilisi: National Statistics Office of Georgia.
- GUGUSHVILI, A. 2011. Understanding poverty in Georgia. *Caucasus Analytical Digest* 34, 15-18.
- UNECE 2012. Generations and Gender Survey: 1st Wave. Geneva: United Nations Economic Commission for Europe.

Appendix

Table 1a: Descriptive statistics of the dependent and independent variables used in the analysis

Location of districts		Dependent variables		Ind. variable	Control variables				
District	Region	Proportional	Majoritarian	Mean	Population in	Urbanisation	Share of	Mean level of	Perception of
		Share of the	Victory of a	households	thousands	index	orthodox	education	the financial
		Georgian	Georgian	deprivation			population		support
		Dream	Dream	levels					younger
		Coalition	Coalition						people with
		votes	candidate						children
Tbilisi	Tbilisi	0.67	1	5.31	1172.70	0.96	88.94	4.02	2.22
Sagarejo	Kakheti	0.57	0	5.98	60.00	0.12	74.22	3.25	2.48
Gurjaani	Kakheti	0.45	1	7.70	69.70	0.14	96.00	3.18	1.97
Signagi	Kakheti	0.49	0	n/a	43.80	n/a	n/a	n/a	n/a
Dedoflistskaro	Kakheti	0.49	0	6.67	30.60	0.32	97.44	3.72	2.47
Lagodekhi	Kakheti	0.39	0	6.30	52.10	0.20	78.69	3.22	2.20
Kvareli	Kakheti	0.46	1	7.32	37.30	0.33	97.33	3.52	1.87
Telavi	Kakheti	0.49	1	6.83	71.20	0.33	79.33	3.51	2.78
Akhmeta	Kakheti	0.52	1	7.10	42.40	0.24	73.00	3.34	2.44
Tianeti	Mtskheta	0.59	1	9.79	13.10	0.00	100.00	3.21	3.04
Rustavi	Kvemo Kartli	0.56	0	5.34	122.50	1.00	96.00	3.83	2.51
Gardabani	Kvemo Kartli	0.41	0	3.29	99.70	0.11	41.52	2.78	3.12
Marneuli	Kvemo Kartli	0.17	0	5.70	129.60	0.22	13.27	2.70	3.16
Bolnisi	Kvemo Kartli	0.29	0	5.28	78.70	0.20	60.16	3.02	1.98
Dmanisi	Kvemo Kartli	0.26	0	3.56	28.90	0.00	50.00	2.68	1.52
Tsalka	Kvemo Kartli	0.28	0	7.02	23.50	0.00	44.00	2.18	3.18
Tetritskaro	Kvemo Kartli	0.51	1	5.44	28.40	0.42	83.05	3.31	1.81
Mtskheta	Mtskheta	0.63	1	5.98	57.60	0.31	97.15	3.43	2.18
Dusheti	Mtskheta	0.64	1	4.77	34.10	0.25	98.04	3.42	2.08
Kazbegi	Mtskheta	0.70	1	8.48	4.90	1.00	88.89	3.52	1.67
Kaspi	Shida Kartli	0.57	1	7.69	53.00	0.29	97.03	3.35	1.66
Gori	Shida Kartli	0.48	1	4.92	146.10	0.22	96.80	3.60	2.03
Kareli	Shida Kartli	0.54	1	4.73	52.90	0.22	79.37	3.10	2.31
Khashuri	Shida Kartli	0.58	1	5.84	62.60	0.51	99.03	3.51	2.20
Borjomi	Samtskhe	0.63	0	4.46	31.80	0.50	98.00	2.96	2.24
Axaltsikhe	Samtskhe	0.21	0	5.59	48.60	0.50	47.00	3.54	3.13
Adigeni	Samtskhe	0.27	0	6.02	20.90	0.00	80.00	3.02	2.70
Aspindza	Samtskhe	0.23	0	7.64	13.10	0.00	96.00	3.12	3.00
Akhalkalaki	Samtskhe	0.21	0	5.62	65.00	0.20	4.00	3.18	2.56
Ninotsminda	Samtskhe	0.17	1	6.32	34.80	0.00	4.00	2.84	2.67
Oni	Racha-Lechkhumi	0.53	0	5.68	8.30	0.50	98.00	2.92	2.76
Ambrolauri	Racha-Lechkhumi	0.50	1	6.06	14.10	0.50	98.00	3.40	2.44

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District	Region	Proportional Share of the Georgian Dream Coalition votes	Majoritarian Victory of a Georgian Dream Coalition candidate	Mean households deprivation levels	Population in thousands	Urbanisation index	Share of orthodox population	Mean level of education	Perception of the financial support younger people with children
Tsageri	Racha-Lechkhumi	0.41	0	6.48	15.60	0.00	96.00	3.28	2.92
Lentekhi	Racha-Lechkhumi	0.42	0	6.08	9.00	0.00	100.00	3.24	2.68
Mestia	Samegrelo	0.51	1	7.60	14.60	0.00	100.00	3.32	3.12
Kharagauli	Imereti	0.51	1	4.31	27.40	0.03	98.67	3.35	2.72
Terjola	Imereti	0.47	0	7.82	45.10	0.28	100.00	3.46	1.17
Sachkhere	Imereti	0.93	1	5.16	48.10	0.20	100.00	3.31	3.62
Zestaponi	Imereti	0.61	1	7.36	75.70	0.36	98.86	3.72	3.27
Bagdati	Imereti	0.49	1	9.59	28.80	0.00	98.68	3.29	2.30
Vani	Imereti	0.37	0	8.87	33.80	0.00	97.33	3.15	2.93
Samtredia	Imereti	0.55	1	5.62	60.80	0.50	99.00	3.41	2.59
Khoni	Imereti	0.47	0	9.38	31.50	0.34	100.00	3.38	2.96
Chiatura	Imereti	0.75	1	8.13	55.30	0.33	98.68	3.48	2.54
Tyibuli	Imereti	0.47	1	5.27	30.10	0.33	100.00	2.92	2.33
Tskaltubo	Imereti	0.41	0	8.19	74.10	0.17	99.32	3.38	2.95
Kutaisi	Imereti	0.57	1	6.13	196.80	1.00	99.58	4.02	2.70
Ozurgeti	Guria	0.59	1	7.07	78.50	0.26	97.06	3.61	2.18
Lanchkhuti	Guria	0.61	1	4.65	39.00	0.25	96.00	3.33	1.90
Chochatauri	Guria	0.52	1	4.09	22.80	0.00	74.67	3.15	2.47
Abasha	Samegrelo	0.38	0	8.69	27.70	0.33	98.67	3.76	1.28
Senaki	Samegrelo	0.37	0	6.85	52.60	0.50	100.00	3.44	2.00
Martvili	Samegrelo	0.40	0	6.50	45.00	0.25	100.00	3.68	2.71
Khobi	Samegrelo	0.37	1	8.01	41.80	0.00	96.05	3.22	2.50
Zugdidi	Samegrelo	0.33	0	5.98	178.20	0.57	99.43	3.54	2.79
Tsalejikha	Samegrelo	0.32	0	6.55	40.90	0.35	97.33	3.61	2.16
Chkhorotsku	Samegrelo	0.36	0	8.46	30.80	0.02	100.00	3.86	2.80
Poti	Samegrelo	0.59	1	4.69	47.90	1.00	100.00	3.67	2.69
Batumi	Adjara	0.65	1	5.80	125.80	1.00	72.43	3.89	2.20
Keda	Adjara	0.45	0	6.60	20.50	0.00	8.00	2.96	2.44
Kobuleti	Adjara	0.57	1	6.13	93.00	0.34	44.44	3.27	4.11
Shuakhevi	Adjara	0.29	0	6.36	22.90	0.00	18.00	3.00	2.16
Khelvachauri	Adjara	0.64	1	4.46	95.60	0.00	21.95	3.37	3.43
Khulo	Adjara	0.35	0	5.60	35.90	0.10	16.00	2.96	3.12

Source: Central Election Commission (2012), UNECE (2012), Geostat (2012)

Table 2a. Covariates of the share of votes received by the GDC across electoral districts
Coefficients from OLS regressions, excluding districts in Kvemo Kartli and Samtskhe-Javakheti

	Model 1	Model 2	Model 3	Model 4
Intercept	0.01	1.10***	0.10	0.19*
Socio-economic variables				
Material deprivation	-1.39*	-	-	-1.23*
Material deprivation ²	1.25*	-	-	1.09
Demographic variables				
Population size	-0.05	-	-0.06	-0.08
Index of urbanization	0.39***	-	0.34***	0.32***
Share of orthodox population	0.02	-	0.09	0.09
Education and ideology				
Mean level of education	0.07	-	0.17	0.21*
Financial support for children	0.20*	-	0.22*	0.20*
Election characteristic				
Rate of turnout	0.38**		0.31*	0.27
Region				
Adjara	-	-1.15***	-	-
Guria	-	-0.62***	-	-
Imereti	-	-0.77**	-	-
Kakheti	-	-1.21***	-	-
Mtskheta-Mtianeti	-	-0.19	-	-
Racha-Lechkhumi	-	-1.32***	-	-
Samegrelo-Zemo Svaneti	-	-1.72***	-0.84***	-0.81***
Shida Kartli	-	-0.82***	-	-
Observations	50	51	50	50
Adjusted R ²	0.27	0.21	0.39	0.41

Notes: ***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels. All dependent and independent variables, except dummies for regions are standardised. Reference category is Tbilisi in Model 2 and all other regions except Samegrelo in Models 3 and 4. For other specifications and sources refer to Table 2 in the main text

Table 3a. Covariates of the victory of the GDC candidate across electoral districts in the 2012 Georgia Parliamentary elections, coefficients from bivariate logistic regressions, excluding districts in Kvemo Kartli and Samtskhe-Javakheti

	Model 1	Model 2	Model 3	Model 4
Intercept	1.21	15.97***	1.11*	1.22*
Socio-economic variables				
Material deprivation	-9.11***	-	-	-8.64***
Material deprivation ²	8.11***	-	-	7.64**
Demographic variables				
Population size	1.54	-	1.77	1.01
Index of urbanization	0.73	-	0.69*	0.57
Share of orthodox population	0.44	-	0.48	0.54
Education and ideology				
Mean level of education	-0.38	-	-0.47	-0.07
Financial support for children	0.32	-	0.48	0.31
Election characteristic				
Rate of turnout			0.24	-0.07
Region				
Adjara	-	-15.97***	-	-
Imereti	-	-15.28***	-	-
Kakheti	-	-15.97***	-	-
Racha-Lechkhumi	-	-17.07***	-	-
Samegrelo-Zemo Svaneti	-	-16.67***	-1.46	-1.39
Observations	50	40	50	50
Adjusted R ²	0.26	0.09	0.16	0.28

Notes: ***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels. Guria, Mtskheta-Mtianeti and Shida kartli are dropped from model 6 because they perfectly predict outcome variable. All independent variables, except dummies for regions are standardised. Reference category is Tbilisi in Model 2 and all other regions except Samegrelo in Models 3 and 4. For other specifications and sources refer to Table 2 in the main text

Table 4a: Covariates of the share of votes received by the GDC across electoral districts in the 2012 Georgian Parliamentary elections

	Coefficients from OLS models										
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11
Intercept	0.03	0.02	0.03	0.03	0.03	0.03	0.02	0.02	-0.53	0.13	0.11
Socio-economic variables											
Material deprivation	2.07***	-	-	-	-	-	-	1.82**	-	-	1.53**
Material deprivation ²	-1.97***	-	-	-	-	-	-	-1.76**	-	-	-1.52**
Demographic variables											
Population size	-	-0.04	-	-	-	-	-	-0.09	-	-0.07	-0.07
Index of rurality	-	-	0.08	-	-	-	-	-0.10	-	0.11	0.08
Share of orthodox population	-	-	-	0.02	-	-	-	-0.10	-	-0.31	-0.28
Education and ideology											
Mean level of education	-	-	-	-	0.17	-	-	0.25	-	-0.05	-0.07
Financial support for children	-	-	-	-	-	-0.19	-	-0.21	-	-0.21	-0.21
Election characteristic											
Rate of turnout	-	-	-	-	-	-	-0.08	-0.12	-	-0.09	-0.04
Region											
Adjara	-	-	-	-	-	-	-	-	1.72**	-	-
Guria	-	-	-	-	-	-	-	-	-0.25	-	-
Imereti	-	-	-	-	-	-	-	-	0.37	-	-
Kakheti	-	-	-	-	-	-	-	-	0.55*	-	-
Kvemo Kartli	-	-	-	-	-	-	-	-	0.00	-1.15**	-0.92
Mtskheta-Mtianeti	-	-	-	-	-	-	-	-	0.00	-	-
Racha-Lechkhumi	-	-	-	-	-	-	-	-	0.55***	-	-
Samegrelo-Zemo Svaneti	-	-	-	-	-	-	-	-	1.47***	0.96***	0.95***
Samtskhe-Javakheti	-	-	-	-	-	-	-	-	-0.37	-1.22*	-1.27**
Shida kartli	-	-	-	-	-	-	-	-	0.92***	-	-
Observations	63	64	63	63	63	63	64	63	64	63	63
Adjusted R ²	0.04	-0.01	-0.01	-0.02	0.01	0.02	-0.01	0.01	0.27	0.19	0.20

Notes: ***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels. All dependent and independent variables are standardised. Reference category is Tbilisi in Model 9 and all other regions, except Kvemo Kartli, Samegrelo, and Samtskhe-Javakheti in Models 10 and 11. Robust standard errors are calculated, not shown. Source: Author's calculation based on the data from the Central Elections Commission (2012), Generations and Gender Survey (UNECE, 2012), Geostat (2012)