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Electoral Mandate and Voting Behavior:

Evidence from Russian State Duma

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The goal of this paper is to study differences in voting behavior between single-mandate and party list deputies in the Russian Duma. We apply a latent factor model to roll call data from the 2nd and 3rd convocations (1995-2003). We find that deputies elected in different ways exhibit systematic differences in voting behavior along two dimensions, which we interpret as the party line and regional interests. A simulation study shows that the type of a mandate very well explains observed intrafaction cleavages. The two remarkable exceptions include `Unity' and OVR, suggesting that regional interests were not well represented by these factions' deputies. We conclude by discussing the likely effect of recent changes in electoral legislation proposed by president Putin on the representation of regional interests in the Duma.

Key words: mixed electoral system, Russia, single-mandate districts, party lists, roll calls

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Цель данной статьи – изучение различий в поведении депутатов при голосовании между депутатами, выбранными в Думу по одномандатным округам и партийным спискам. Мы применяем модель с ненаблюдаемыми переменными к данным поименных голосований в Государственной Думе второго и третьего созывов. Показано, что поведение депутатов, выбранных различными способами, систематически различаются по двум измерениям, которые интерпретируются как «партийная линия» и региональные интересы. Дополнительный симуляционный анализ свидетельствует о том, что тип мандата является важным фактором, объясняющим внутрифракционное размежевание. Исключениями из этого правила являются только фракции «Единство» и «Отечество»; это подтверждает, что региональные интересы депутатами этих фракций представлены слабо. В заключение обсуждаются вероятные последствия изменений в электоральном законодательстве, предложенных президентом В.В.Путиным.

Ключевые слова: смешанная система выборов, Россия, одномандатные округа, партийные списки, поименные голосования

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1 Introduction

Since the time of Perestroika, there has been a general agreement that introduction of democratic institutions in Russia is both a necessary and inevitable process. There has been much less consensus, however, how exactly these institutions should be shaped in this particular country. The general idea of checks and balances resulted in 1993 Constitution, which introduced a two-chamber parliament, with the lower House (the State Duma) and the upper (the Council of Federation). The election laws defined procedures to compose these two houses. The idea of the Council of Federation was close to that of the US Senate, with each region sending two representatives. In Russia, the law precisely defined these two representatives as the heads of the executive and legislative powers of the region.[1]

One half of the 450 members of the State Duma was elected through party lists, the other half from single-mandate districts (SMD). Technically, each party or bloc presented a federal list and several regional lists; each list was to be comprised from candidates from several adjacent regions[2] (the division of the country into groups of regions was the party's own decision). The number of candidates elected from each of the lists depended on the share of votes received by the party in each of the region groups and on the federal level. However, only parties that passed 5% threshold were represented to the Duma. As for SMDs, candidates there could be nominated by some party, or be supported by some party or parties, or could be independent. Typically, the candidate who got a more votes than her rivals automatically passed to the Duma, however, in some districts a second round was possible.

A peculiar feature of the party lists system was that if a person was elected, and later refused to become a deputy, he was automatically replaced by candidates who were lower on that party's list. As a result, many party lists were headed by well-known politicians, for instance, governors, mayors, or ministers, who had no intention to go to Duma, but whose role was to attract voters to the party list. For instance, on 1999 elections, of the three people heading the OVR list (Primakov, Luzhkov, Shaimiev) only one went to the Duma. Another related phenomenon was that many politicians both were on a regional list and run in a single-mandate district.[3] This was especially common for popular politicians who wanted to be in the Duma: on the one hand, their participation in SMD election increased party's chances to get a loyal deputy from that district, on the other, their presence in the first few places of the federal or regional party list guaranteed (for large parties) that he/she will still be able to become a deputy even after losing the election in SMD district.

Political scientists have long agreed that PR system is likely to result in a few strong parties,

[1] Clearly, these representatives had to be in their regions most of the time, so the upper House held meetings only about once in a month.

[2] With the exception of Kaliningradskaya oblast'.

[3] The law precludes a candidate from running on more than one list, either of the same or of different parties.

while SMDs are more suited when the country is diverse and discrepancies between different regions' interests are significant. Undoubtedly, the 'Founding Fathers' of the Russian 1993 Constitution made an attempt to achieve both goals with one shot. The first goal, creation of a strong party system, was a complete failure: as early as in 1995, Moser [1995] observed this in the first Duma (where there were as many as seven parties), and the situation hardly improved later. Later on, he stated [Moser, 1999] that development of party system in Russia was 'more dependent on institutions and elite actions than on social cleavages'. Actually, a party improving its representation in the Duma over time was an exception rather than a trend, meaning that it is not the case that some small parties grew into large ones, but rather that parties were eventually created and then gradually deteriorated. Similar conclusion is made by Kunov et al. [2005]: using the analysis of election results they argue that the electoral bases of major political parties are changing dramatically between consecutive elections, and hence existing political parties can not be viewed as strong political forces.

In this paper, we try to analyze whether single-mandate districts succeeded in solving the other goal, representation of local interests.

The connection between electoral system and the resulting proportionality of representation of society's interests in the parliament was empirically observed by Rae [1971] in his cross-country comparison of some Western democracies in 1945-1985. Not surprisingly, the increase of the size of an average district (i.e. the number of deputies elected from it) reduces disproportionality. In the case of Russia this means that having just one federal district with 450 deputies, instead of one with 225 and 225 single-mandate districts would make representation more proportional. In a later work, Lijphart [1990] analyzes a larger sample of elections and uses different techniques to refute a number of Rae's findings, still, he also finds strong support for this one. In particular, he finds that there is very little connection between the election structure and the number of parties (using the effective number of parties index). One remarkable exception is that in single-mandate systems, the difference in ballot structure does have an influence on the number of parties, however, this is even less relevant to Russia now than it was until the recent changes.

Even with Russia departing from mixed to PR system, mixed system are still a common phenomenon. Massicotte and Blais [1999] provide a detailed classification of them, however, they abstain from making any normative judgments. In different studies one can find polar views on this issue: for instance, Dunleavy and Margetts [1995] argue that mixed systems are likely to benefit both from proportionality of PR and accountability of SMD system; still, Sartori [1994] supports a radically different view by claiming that such systems are likely to confuse voters and thus may be an instrument of manipulation by the elite.

In this paper, we attempt to evaluate one of these claims, namely, that SMDs behave substantially

different from other deputies, which we interpret as local interest representation. We use roll call data to find out whether SMD deputies demonstrated a different voting behavior compared to deputies elected from party lists. We believe that roll call data is more informative than simple comparison of personal characteristics between different groups of legislators.

Various methods of roll-call analysis of intergroup and intragroup cohesion have been used by political scientists for at least several decades. Most of these studies were devoted to US Congress, or US states' legislature bodies. For instance, Swenson [1982] investigates how congressmen were recruited by the two parties in 1870–1940 and finds that before 1910, their ability to commit to party loyalty (rather than merit) was the major factor. In the same year, Kau et al. [1982] use roll-call data to test their general equilibrium model involving congressmen, constituents, and campaign contributors. In a more recent study, McCarty et al. [2001] analyze the issue of party discipline; this study is remarkable for special attention paid to congressmen that switched parties.

The roll-call studies dealing with other countries, and especially Russia, are much rarer. Kunicova and Remington [2005] study roll-call data from the Duma in 1993-2003. Using a binary choice model they find that for major factions SMDs are more likely to dissent from the rest of the faction on budget votings than party list deputies. While their results seem plausible, the focus on dissent from the rest of the faction as a measure of intergroup differences may be misleading. For example, if most of deputies in a faction are SMDs representing 'common' regional interests, such as agricultural subsidies or shifting the balance of power from the federal center to the regions, we will observe that party list minority exhibit higher dissent than SMDs.[4] Even with the majority of party list deputies in a faction the statistical significance of mandate effect depends on the share of SMDs in the faction. To avoid such problems we employ a technique which describes the behavior of a deputy without directly referring to the behavior of the rest of her faction; instead we model intrafaction interaction of deputies via unobservable factors.

We observe significant difference in voting behavior across deputies elected in three different ways (as SMDs and via federal or regional party lists). We argue that the difference we observe cannot be explained by self-selection (it might be, for instance, that SMDs are more likely to exhibit oratorical or leadership qualities, however, we do not find significant difference between SMDs and party list deputies with respect to exogenous factors we are aware about, namely, gender, age and previous occupation); additional simulation tests provide further support for this conclusion. We attribute the differences to SMDs' regional interests. Remarkably, we find evidence that SMDs' behavior differs from behavior of those elected on regional party lists, on both ideological and regional interest dimensions. We believe that this divergence in behavior is best explained by faction discipline which affects regional

[4]The same critique applies to SMDs representing 'narrow' interests in the presence of logrolling.

list deputies more than SMDs affiliated with a faction.

The rest of the paper is organized as follows. In Section 2 we analyze the possible issue of self-selection of SMD deputies. Section 3 describes the econometric technique. In Section 4 we proceed with comparing different groups positions. Section 5 checks validity of the results by comparing the actual split of deputies into groups with a random split (not based on the way they were elected). Section 6 concludes.

2 Data and preliminary analysis

2.1 Data

Our analysis is based on roll call data from INDEM-Statistics database. The database contains positions ('Yea', 'Nay', 'Abstain' or 'Did Not Vote') of all deputies on all open roll calls in the Russian State Duma since 1994. It also provides brief description of each roll call, in particular, its date and time, title, theme, etc., and information on the deputies (faction affiliation, education, gender, age, etc.).

In this research we focus on the 2nd and 3rd Russian Dumas (1996-1999 and 2000-2003, respectively). There are 15676 roll calls voted in the 2nd Duma and 15068[5] roll calls voted in the 3rd Duma. We excluded all procedural issues as well as some other 'non-legislative' roll calls[6] from the sample. In addition we remove all roll calls that are characterized by low interfactional cleavage[7], which in most cases correspond to insignificant legislative issues. The final sample contains 5866 and 5384 roll calls for the 2nd and 3rd Duma, respectively.

Four parties were represented in the 2nd Duma: CPRF (Communist Party of Russian Federation), LDPR (Liberal Democratic Party of Russia) headed by Vladimir Zhirinovsky, pro-government NDR ('Our Home is Russia') and liberal 'Yabloko' headed by Grigory Yavlinsky. Three of them – CPRF, LDPR, and 'Yabloko' – had factions in the 3rd Duma. Besides, three new parties passed the electoral threshold in 1999 election: OVR – 'Fatherland – All Russia' created by the most influential regional governors, pro-presidential party 'Unity' and liberal SPS ('Union of Right Forces') led by Sergey Kirienko, Boris Nemtsov, and Irina Khakamada.[8]

[5]Data for the October and November 2003 were unavailable while doing the analysis.

[6]Declarations, addresses, etc.

[7]We say that interfactional cleavage was low if it were less than 20 percent of the deputies on the minority side.

[8]Besides factions there were three so called 'deputy groups' in the 2nd Duma (Agrarian group, closely connected to CPRF faction, 'Regions of Russia', and 'People's Power') and three deputy groups in the 3rd Duma (Agrarian group, 'Regions of Russia', and 'People's Deputy'). In our analysis we focus on factions since only factions initially contain party lists deputies. However, it is possible that a party list deputy leaves its faction and become independent of become a member of a different group or faction (see Kunicova and Remington [2005] for a detailed analysis). We include such

Since differences between 'Nay', 'Abstain', and 'Did Not Vote' do not influence roll call outcomes, in this study we recoded deputy positions with binary variable which is equal to 1 if the deputy voted 'Yea' and 0 otherwise.

2.2 Testing for sample selection in groups

One may hypothesize that differences in deputies' voting behavior (on selected issues at least) are explained by parameters such as sex, age, education, previous occupation etc. If we find that different groups have different composition with respect to these parameters, then the resulting differences in voting behavior can be attributed to sample selection (e.g., if SMD deputies are on average younger and voting patterns of deputies of different age is different).

In order to account for possible biases we estimated a number of binary choice models. As dependent variables we took the SMD dummy (in which case the sample included all deputies) and the FL dummy (in which case the sample included only deputies elected via party lists). Explanatory variables variables included sex, age and two dummies reflecting previous occupation (equal to 1 if the deputy was reelected from the precious Duma and if she was involved in business, respectively).

The results of logit[9] estimations are presented in Table 1. Sex, age and previous business position are all insignificant (on 5% significance level) in affecting being elected as an SMD or via a party list. In contrast, previous Duma experience has significant positive effect on both FL and SMD dummies. This last finding may, in principle, raise a selection bias problem (for example long-term connections with special interest groups may facilitate reelection and also affect the voting pattern of a deputy). However, there is a different interpretation: deputies are reelected as SMDs or included in the federal list precisely because they do a good job representing regional interests and party line respectively. Hence, significant effect of previous Duma experience can not be unambiguously interpreted as sample selection. In section 5 we provide further evidence that type of a mandate in itself explains intrafactional cleavages remarkably well.

3 Econometric model

The model we employ in this research belongs to the class of Generalized Linear Latent and Mixed Models (GLLAMM, see, for example, Skrondal and Rabe-Hesketh [2004]). Specifically, we use two-level GLLAMM with probit link function and binary dependent variable.

We consider the following simple model:

$$u_{it} = \alpha_i + x_t'\beta_i + \varepsilon_{it}, \tag{1}$$

deputies into our analysis as a special category.

[9]Probit models yield similar results.

where x_t is a vector of bill parameters, β_i is a vector of legislator preference parameters, ε_{it} is a preference shock (we assume that $\mathrm{E}[\varepsilon_{it}|x_t] = 0$ and ε_{it} are i.i.d. across i) and u_{it} is legislator utility associated with 'Yea' outcome ('Nay' outcome is associated with zero utility). Hence legislator i votes 'Yea' in roll call t if and only if $u_{it} \geq 0$. Note that x_t and ε_{it} are never observed and α_i, β_i are unknown.

Suppose that we have a matrix $Z = \{z_{it}\}$, $t = 1, \ldots, T$, $i = 1, \ldots, n$ of roll call outcomes, that is

$$z_{it} = \begin{cases} 1, & \text{if } u_{it} \geq 0, \\ 0, & \text{otherwise.} \end{cases}$$

Further we assume that observations are i.i.d. across t and that n is small and T is large, so we will consider asymptotics as T goes to infinity and N is fixed.

Since y_{it} is not observed, the model is not identified – multiplication of equation (1) by positive constant does not change observable outcomes z_{it}. So as in probit/logit models we assume that $\mathrm{Var}[\varepsilon_{it}] = 1$. However the model is still unidentified since x_t is unobservable. To identify β_i we assume that $\mathrm{E}[x_t] = 0$ and $\mathrm{Var}[x_t] = I_k$, where $k = \dim x_i$. If $k = 1$, β_i is identified up to sign. If $k > 1$, then β_i is identified up to an orthogonal transformation. For the case $k = 2$ we have to assume that one of the coordinates of β_i is zero for some i.

To estimate the model we impose some distributional assumptions. Let $\varepsilon_t = (\varepsilon_{1t}, \ldots, \varepsilon_{nt})'$. We assume that

$$\begin{pmatrix} x_t \\ \varepsilon_t \end{pmatrix} \sim \mathcal{N}(0, I_{k+n}).$$

Let $z_t = (z_{1t}, \ldots, z_{nt})'$ and z is a random variable with realizations z_t, $t = 1, \ldots, T$. Under our assumptions we have

$$\Pr\{z = z_t\} = \mathrm{E}[\Pr\{z = z_t|x_t\}] = \int_{-\infty}^{+\infty} \ldots \int_{-\infty}^{+\infty} \Pr\{z = z_t|x_t\} \prod_{l=1}^{k} \varphi(x_{lt})\, dx_{1t} \ldots dx_{kt},$$

where $x_t = (x_{1t}, \ldots, x_{kt})'$ and φ is the standard Gaussian density function. Since ε_t and x_t are independent, we have

$$u_t|x_t \sim \mathcal{N}(\alpha + \Gamma x_t, I_n),$$

where $\alpha = (\alpha_1, \ldots, \alpha_n)'$ and $\Gamma = (\beta_1, \ldots, \beta_n)'$. It follows that

$$\Pr\{z = z_t|x_t\} = \prod_{i=1}^{n} \Phi(\alpha_i + x_t'\beta_i)^{z_{it}} (1 - \Phi(\alpha_i + x_t'\beta_i))^{1-z_{it}},$$

where Φ is the standard Gaussian distribution function. Maximizing the log-likelihood function

$$l(Z|\alpha, \Gamma) = \sum_{i=1}^{T} \ln\left(\Pr\{z = z_t\}\right)$$

one can find parameter estimates and make inference using standard asymptotic theory for ML[10]. Since the multidimensional integrals in the expression for the log-likelihood function can not be computed analytically, the maximization requires numerical integration which makes computation very time consuming, so in this paper we consider only a two-factor model.

The above model is parallel to the linear factor model in Heckman and Snyder [1997]: it imposes similar orthogonality conditions on latent variables in order to solve identification problems[11]. However, there are three major advantages of our model. First, it is non-linear in the sense that it captures directly the binary nature of roll call outcomes. Second, it is simple to include additional (observable) covariates in the model and impose restrictions on the parameters. Finally, as mentioned above, standard errors and confidence intervals for coefficients can be easily constructed. This last point is crucial for us since we are interested in finding systematic differences in the deputies' behavior.

4 Detailed comparison of group positions

In this section we employ the technique described above to compare not only positions of federal list, regional list and single mandate deputies, but also those of finer groups. Specifically, for each party faction and each voting we consider the following deputy groups:

F-FL: Deputies elected via the federal party list (or both via the federal party list and as an SMD) who by the time of the voting were members of the corresponding faction;

F-RL: Deputies elected via the regional party list who by the time of the voting were members of the corresponding faction;

F-SMD: Deputies elected as SMDs nominated by the party (or both via the regional party list and as an SMD) who by the time of the voting were members of the corresponding faction;

F-ESMD: Deputies elected as SMDs nominated by parties who did not pass the 5% electoral threshold or as independent SMDs who by the time of the voting were members of the corresponding faction;

NF-PL: Deputies elected via the (federal or regional) party list (or both as an SMD and via the federal party list) who by the time of the voting were not members of any *party* faction (i.e., were either independent or members of agrarian group, 'Regions of Russia', 'People's Deputy' or 'People's Power');

[10]The procedure can easily be modified using different (i.e. non-normal) distributions for x and ε. However we do not explore these options here.

[11]See Kunov et al. [2003] for an application of Heckman-Snyder method to Russian roll-call data.

NF-SMD: Deputies elected as SMDs nominated by the party (or both as an SMD and via the regional party list) who by the time of the voting were not members of any *party* faction (i.e., were either independent or members of agrarian group, 'Regions of Russia', 'People's Deputy' or 'People's Power').

We pool NF-RL and NF-FL in one NF-PL group, as they both are very small for each party. Time average numbers of deputies in different groups can be found in Tables 2 and 3. Only groups that have on average at least two deputies are included in our analysis.

The integrals are computed using Monte-Carlo approach with 5000 points[12]. To compare behavior of groups rather than individual deputies we impose some restrictions on the model parameters, namely, Equation (1) is modified to

$$u_{it} = \sum_{j=1}^{m} d_{jit}(\alpha_j + x_t\beta_{1,j} + y_t\beta_{2,j}) + \varepsilon_{it},$$

where x_t and y_t are two unobserved bill parameters, d_{jit} is a dummy which equals 1 if legislator i was a member of group j at the time of roll call t and 0 otherwise. In other words, compared to the initial we impose additional restrictions on model (1) that all legislators of group j have the same parameters α and β.

We fix the direction of x-axis in such a way that point F-FL is on the axis. Under this specification of axes we can assume that all the ideology – or 'party line' – load of a draft bill is identified with x direction (under the assumption that the federal part of the list is associated solely with party line with no interference of other, such as regional, interests). It is natural to presume that the federal part of the party list is the most sensitive to this parameter of drafts, i.e., the x coordinate of F-FL should be the highest.

Draft parameters associated with regional interests (if any) should be associated with the y component (by construction the F-FL deputies have zero sensitivity to the y component). Therefore, if we assume that SMDs and regional list deputies take into account regional interests in their voting, these groups will show statistically significant y components. Besides, if we assume that different groups represent these interests in the same way, all y components should have the same signs.

Empirical results for the 2nd and 3rd Dumas are presented in Tables 4-6 and Figures 1-8.

4.1 CPRF

Results for CPRF are presented on Figures 1 and 2 (see also Tables 4-6).

[12]Integration based on Gauss-Legendre quadrature yields almost identical results.

4.1.1 The 2nd Duma

It is straightforward to see that nonfaction deputies (NF-PL and NF-SMD) are significantly[13] different from faction deputies on the x coordinate, which signals that they are less sensitive to the communist ideology (this may explain why they are not in the faction). On the other hand, groups most sensitive to the party line are F-RL and F-SMD rather than F-FL (and this difference is significant). The reason may be that F-RL and F-SMD were trying to demonstrate their allegiance to communist values to their communist electorate, having in mind future reelection.[14] In contrast, the F-FL group had clear communist reputation and they did not need to keep proving their allegiance.

As for the second component, which we associate with regional interests, the picture is not clear. On one hand, F-RL and F-SMD groups find themselves directly on x-axis which signals lack of any systematic interests other than ideological. This finding supports the conclusion that predominant motivation of CPRF voting behavior at that time was populism rather than working on specific problems. On the other hand, groups NF-SMD, NF-PL and F-ESMD exert systematic deviations from F-FL, F-RL F-SMD on y dimension. This is intuitive, since all these groups have weaker ties with the party, are not directly associated with communists and ideological stands alone would not suffice for their reelection (although F-ESMD apparently consider this possibility more seriously). What is not clear why the coefficients have different signs. One possibility is that differences between regions play a role; another is that the y coordinate is irrelevant to the regional component altogether.

4.1.2 The 3rd Duma

On the x-axis the picture is similar to that for the 2nd Duma: F-RL and F-SMD are once again more sensitive to party line than F-FL (even though the difference is statistically insignificant[15]). Besides, the difference between faction and nonfaction deputies is still visible and has even grown larger.

On the second dimension the picture is totally different. All y coefficients are significant on 1% level and have the same sign. In the 3rd Duma it became clear that communist ideology alone was no longer a solid base for voting behavior; besides, potential for populism decreased after unification of 'Unity' and 'Fatherland – All Russia' as communists found themselves in isolation (this is indirectly supported by the fact that there are no significant differences across faction groups on x-axis). Therefore, in order to improve reelection perspectives a deputy would turn to working in the interests of her region. Taking into account that RL and SMD deputies represent mainly the 'red belt' it is understandable

[13] In this section we always check significance at 1% level.

[14] In the second Duma communists mostly voted in a populist manner, and they had enough seats to successfully block reforms.

[15] Table 6 shows that there are no significant pairwise differences between F-ESMD and F-FL, F-FL and F-SMD, and F-SMD and F-RL on x-axis.

why nonfaction deputies (mostly members of the agrarian group) are the most sensitive to the regional (particularly, agrarian) interests. In contrast with the 2nd Duma, where communists mostly voted on raising salaries and pensions (i.e., nation wide policies) now they have to focus on the regional dimension, which has chances on support from other factions in the Duma. However, all three 'regional' faction groups (F-RL, F-SMD and F-ESMD) are significantly different on the y-axis, with RL deputies being the most sensitive.

4.2 'Our Home is Russia' (NDR)

Results for NDR are on Figure 3 (see also Tables 4 and 6). Results along x-axis reveal a strong 'ideological' hierarchy: F-FL are the most sensitive, than, in the order of decreasing sensitivity, F-RL, F-SMD, F-ESMD, NF-PL (all differences are significant). This configuration is intuitive: federal list deputies are the most sensitive to the interests of the executive power while regional list and SMD deputies are reluctant to tie their reputation to the of the government party (remember that president Yeltsin is not particularly popular at the time) with unclear perspectives.

Another implication of the same considerations is that SMDs and regional list deputies, as well as those who left the faction, agree on the second dimension – the picture is similar to that for CPRF in the third Duma. However, there are no significant differences in y coordinate between F-RL, F-SMD and F-ESMD (see Table 6), so it can be concluded that these groups represent regional interests equally. This strategy paid off to some extent – a few NDR members ended up as SMDs in the third Duma even though by then the party lost support from the government and did not pass the electoral threshold.

4.3 'Fatherland – All Russia' (OVR)

Results for OVR are on Figure 4 (see also Tables 5 and 6). Along x-axis results are similar to those for CPRF, even the order of groups F-RL, F-SMD, F-FL F-ESMD is the same.

In contrast, there is significant difference between OVR and CPRF along the second dimension. Restricted on faction groups only (F-RL, F-SMD, F-FL and F-ESMD) results are rather similar to those for 'Unity': y coordinate is insignificant (p-value 0.155) for F-ESMD, while for F-SMD and F-RL y coordinates have p-values in the order of 1% (0.005 and 0.003, respectively). The lack of significant differences from the federal list can be explained by that OVR party line in itself contains regional component since OVR positioned itself as the party of regional leaders. This effect should fade away with the creation of 'United Russia'. Besides, y coordinates for F-SMD and F-RL have the opposite sign to that of NF-SMD and NF-PL, which is another evidence that SMDs and regional list deputies in OVR (just like in 'Unity') did not consistently represent regional interests but rather pursued other

(their own) interests.

4.4 'Unity'

Results for 'Unity' are on Figure 7 (see also Tables 5 and 6). The allocation of the groups along x-axis fully meets expectations: the most sensitive groups are federal and regional lists (federal list is slightly more sensitive but the difference is not significant), the least sensitive – those SMDs that joined the faction already in Duma, while SMDs nominated by the 'Unity' are in between. Speaking in terms of party 'ideology' (i.e., interests of the Kremlin) party list deputies are more sensitive to them since their reelection perspectives are determined solely by their party leaders, while SMDs may count own their personal reelection chances (for the 2003 elections).

As for the other dimension, it is quite similar to that of OVR: for the F-ESMD group y coefficient is not significant (p-value 0.61), coefficients for F-RL, F-SMD and NF-PL (for 'Unity' NF-PL group consists of regional list deputies) are significant, but F-RL and F-SMD do not differ at 1% level. Moreover, the coefficient for NF-PL is negative, while it is positive for F-RL and F-SMD. So, the same conclusion as for OVR can be made: SMDs and regional lists in 'Unity' represent specific interests, unrelated to regional interests.

Therefore one can conclude that although SMDs in 'Unity' enjoy higher level of independence than their party list colleagues, (along x-axis), their independence does not bring any systematic results (low significance and different directions of the second dimension).

4.5 'Yabloko'

Results for 'Yabloko' are presented on Figures 5 and 6 (see also Tables 4-6).

Results for the 3rd Duma fit expectations better than those for any other party. First, there is strict (and statistically significant) ordering of groups along the party line dimension: the federal list deputies are the most sensitive to this parameter, SMDs are are the least sensitive. Second, differences along the y-axis (where we assume regional interests are also present) are also strongly significant and have the same sign for the regional list, SMDs and non-faction deputies. Finally, SMDs are more sensitive to this second dimension than regional list deputies.

Yabloko results for the 2nd Duma are counterintuitive and we have no explanation for them.

4.6 Union of Right Forces (SPS)

SPS results are on Figure 8 (see also Tables 5 and 6). While interpreting these results one should remember that F-SMD and F-ESMD are very small in this case (on average each had just above two deputies). In general, the results are similar to those for 'Yabloko': there is a strong significant

ordering along the x-axis with federal list deputies the most sensitive to party line and SMDs the least sensitive. Besides, regional list and SMD deputies have the same sign of their y coefficients (though insignificant for F-SMD with p-value of 0.221).

There are some peculiarities though. First, F-SMD deputies appear to be less sensitive to the party line than their F-ESMD colleagues. A possible explanation is that F-SMD were in fact SMDs nominated by other liberal parties, sharing the same liberal values, while all F-SMD leave the faction by the end of 2003. Second, in contrast with 'Yabloko', regional list deputies are the most sensitive to regional interests.

4.7 LDPR

In the 2nd Duma LDPR had only three groups: F-FL, F-RL and NF-PL (see Figure 9 and Tables 4-6). They are significantly different on both dimensions and F-RL is more sensitive to party line than F-FL. Probably this can be explained by the populist flavor of the party (see Table 4). Since on y-axis we observe coefficients of different signs for F-RL and NF-PL, it can be concluded that in LDPR these deputies do not represent common regional interests.

In the 3rd Duma LDPR only has only two groups (F-FL and NF-PL) so the analysis makes little sense.

5 Comparisons based on group splitting

Systematic differences in voting behavior found above may in principle be explained not by the group identity of a deputy per se, but by other deputy attributes, if the distribution of these other deputy attributes is not uniform across groups.

On the one hand, analysis of Section 2.2 suggests that sex, age and previous occupation in private sector have no influence on deputy positions. On the other hand, the influence of many other potentially relevant factors is not accounted for in the analysis of Section 2.2. We now present another approach to testing for voting differences across groups.

Consider any two groups. We want to test the hypothesis that the voting differences between the two groups are best explained by group affiliation itself. To do this we split the union of these two groups into any two groups of the size of the initial groups and calculate the share of such splits that show lower congruence than the original split. We measure congruence with CI index described in Blagoveschensky [2004] and extensively used for the Russian Duma data in Aleskerov et al. [2003]. The ideal result would be if the original split is found to have the lowest congruence. However, since all votings are modeled as random variables, other splits may exist that show lower intergroup

congruence even though the original split is on average the least congruent. In view of that, we take that the original split explains cleavages within the joint group if only a small fraction of other splits (for example, 5%) has lower congruence. In other words, we say that the original split well explains cleavages within the joint group if the probability that a random split of the joint group shows lower congruence is small. We denote this probability by PI.

In practice it is impossible to check all possible splits (the number of them is too large). Instead we take 10000 splits at random and estimate PI as the share of these splits that shows lower congruence than the original split. Besides, in order to keep the sizes of groups constant we restrict attention to deputies who had seats throughout the four years and did not change their faction affiliations over that time.

Simulation results are presented in Tables 7 and 8. It is immediately obvious that SMD, FL and RL groups split for 'Unity' and OVR have little explanatory power. This finding supports the hypothesis that regional interests are not a priority for regional deputies in these factions.

As for the other factions, in most cases estimated probability PI is small. This finding suggests that systematic differences in voting behavior for these groups are indeed attributable to the way deputies were elected.

6 Conclusion

In this paper we demonstrate strong empirical support for the claim that SMD deputies demonstrated significantly different patterns of behavior, as compared to other groups of deputies. These patterns, however, vary dramatically between factions and Duma convocations.

The differences along the axis that we interpret as the party line fully meet our expectations for NDR, Unity, SPS and 'Yabloko' (in the 3rd Duma only): federal list deputies are the most sensitive SMDs are least sensitive to the party line. In contrast, in CPRF and LDPR in the 2rd Duma regional list deputies and SMDs are more sensitive to the party line than federal list deputies; this phenomenon may be attributed to largely populist behavior of these factions at that period.

As for the second dimension, which includes regional interests, all factions fall in two categories. The first category includes factions with coefficients which either are insignificant or alter in signs; such are CPRF, LDPR and 'Yabloko' in the 2nd Duma and 'Unity' and OVR in the 3rd Duma. In the factions of the remaining category (NDR in the 2nd Duma and CPRF, SPS and 'Yabloko' in the 3rd Duma) coefficients at this dimension are significant and have the same sign. We interpret these as factions in which regional deputies (regional list deputies and SMDs) represented common regional interests and were allowed by their faction to vote accordingly. Although we can not conclude that regional list deputies are more sensitive to that second dimension than SMDs, in most cases SMDs

are less sensitive to the party line, that is, enjoy more freedom within their faction.

In addition we analyzed how powerful is the split based on electoral mandate in explaining intrafaction cleavages. Simulation study shows that for all factions except two the mandate type split explains variation in voting outcomes remarkably well. The two exceptions (OVR and 'Unity' in the 3rd Duma) are readily understood: they both were characterized by relatively little freedom of deputies inside factions; they later merged into a highly centralized 'United Russia' in the 4th Duma.

To check that this observation is not accidental, we tried numerous other ways of splitting deputies into random groups, and found very few separations that exhibit stronger intrafaction cleavages than those based on the deputies' mandate. We conclude, therefore, that whether the deputy was elected through a party list or in a single-mandate district is, along with the faction that she belongs to, one of the major determinants of her behavior behavior.

An alternative story would be that difference of behavior between SMDs and party list deputies is explained by self-selection (or some third factor). Indeed, one could imagine that people that exhibit strong oratorical abilities are both more likely to become SMD deputies, and for some reason tend to exhibit a substantially different behavior, as compared to other deputies. In that case, disposing with SMDs might simply lead to these people joining party lists without changing their voting behavior in the Duma. We find that characteristics of deputies that are available to us, including gender, age, education level, and whether or not the deputy was a business person immediately before the elections do not generally affect chances to be elected in a single-mandate district. Even though we find that SMD deputies from the previous Duma are more likely to stay in the next Duma, this can hardly be considered as an exogenous factor that shapes deputies' behavior. Consequently, we believe that the reform will have a significant impact on votings in the Duma. In particular, the voting behavior that has been so far demonstrated by SMD deputies will disappear (or at least decrease), which, in our view, would lead to underrepresentation of regional interests in Russian politics on the federal level.

A recent change in legislature New law (#7 51-FZ, passed May 18, 2005, effective December 7, 2006) repeals SMDs and also cuts the maximum number of deputies elected via federal lists to 3 (from current 15); it also raises the electoral threshold to 7% (from current 5%) of the popular vote. Our findings do not offer a definite prediction about the impact of these changes on representativeness of the new Duma and likely voting behavior of its deputies. The most likely outcome is that deputies capable of winning elections as independent, since they will have to join one of the party lists, will enjoy less freedom in the Duma. Regional interests, somewhat represented in the past Dumas (as our analysis suggests), will be further suppressed. This means that neither of two goals proclaimed in early nineties – building strong nation wide political parties and ensuring representation of diverse regional interests – is likely to be accomplished.

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Appendix: Tables and Figures

Table 1: Logit model estimates for the influence of different factors.

	SMD95	FL95	SMD99	FL99
sex	-0.620^{*}	-0.743	-0.553	-0.422
	(0.321)	(0.647)	(0.378)	(0.603)
year of birth	-0.012	-0.025	-0.014	0.009
	(0.010)	(0.016)	(0.010)	(0.017)
previous duma	0.552^{***}	1.604^{***}	0.456^{**}	1.130^{***}
	(0.196)	(0.359)	(0.207)	(0.321)
business			0.293	-0.607
			(0.260)	(0.487)
constant	0.999	-0.252	0.959	-1.350
	(0.567)	(1.047)	(0.646)	(1.104)
Observations	490	240	479	249
Pseudo R^2	0.020	0.103	0.016	0.064

Notes: Robust standard errors are in parentheses. ***, **, and * denote significance at 1, 5, and 10% level, respectively. 'sex' is a dummy for sex (1 = male), 'previous duma' is a dummy for being a deputy in the previous Duma (1, if the candidate was a member of the previous Duma), 'business' is a dummy for being a businessman (1, if the candidate was a businessman), SMD95 is a dummy for being elected in 1995 as SMD (except for the cases, when the candidate was also elected from a federal list), FL95 is a dummy for being elected in 1995 from a federal list (including the cases, when the candidate was also elected as SMD), and similarly for SMD99 and FL99.

Table 2: Average number of deputies in different groups (2nd Duma).

Group	CPRF	LDPR	NDR	Yabloko
F-FL	9.2	9.9	6.8	11.5
F-RL	80.2	38.2	33.9	18.8
F-SMD	38.3	1.0	8.9	12.8
F-ESMD	6.4	0.0	13.6	1.6
NF-PL	14.6	3.9	9.8	2.7
NF-SMD	18.7	0.0	1.1	0.6

Table 3: Average number of deputies in different groups (3rd Duma).

Group	CPRF	Unity	OVR	SPS	LDPR	Yabloko
F-FL	9.8	2.0	9.5	8.0	12.7	10.2
F-RL	38.5	58.0	19.2	16.8	0.3	4.3
F-SMD	29.4	7.3	11.5	2.1	0.0	3.0
F-ESMD	6.6	9.5	6.9	2.5	0.2	0.4
NF-PL	20.8	5.8	13.6	4.6	3.1	2.0
NF-SMD	14.6	0.7	17.0	0.9	0.0	0.0

Table 4: Two dimensional model estimates (2nd Duma).

	CPRF	LDPR	NDR	Yabloko
$\alpha_{\text{f-fl}}$	0.855	0.405	*-0.004*	-0.480
	(0.013)	(0.020)	(0.021)	(0.021)
$\alpha_{\text{f-rl}}$	1.022	0.429	*-0.013*	-0.149
	(0.013)	(0.022)	(0.016)	(0.025)
$\alpha_{\text{f-smd}}$	0.974		0.049	-0.312
	(0.014)		(0.016)	(0.021)
$\alpha_{\text{f-esmd}}$	0.887		-0.351	
	(0.015)		(0.012)	
$\alpha_{\text{nf-pl}}$	0.049	-1.467	-1.036	-1.457
	(0.008)	(0.025)	(0.010)	(0.014)
$\alpha_{\text{nf-smd}}$	0.244			
	(0.010)			
$\beta_{1,\text{f-fl}}$	0.697	1.185	1.333	1.218
	(0.017)	(0.019)	(0.032)	(0.015)
$\beta_{1,\text{f-rl}}$	0.836	1.343	1.036	1.621
	(0.016)	(0.021)	(0.019)	(0.018)
$\beta_{1,\text{f-smd}}$	0.844		0.869	1.268
	(0.016)		(0.020)	(0.017)
$\beta_{1,\text{f-esmd}}$	0.699		0.585	
	(0.020)		(0.013)	
$\beta_{1,\text{nf-pl}}$	0.418	0.323	0.105	0.106
	(0.011)	(0.016)	(0.010)	(0.014)
$\beta_{1,\text{nf-smd}}$	0.489			
	(0.012)			
$\beta_{2,\text{f-rl}}$	*0.005*	0.323	0.481	-0.107
	(0.019)	(0.014)	(0.032)	(0.023)
$\beta_{2,\text{f-smd}}$	*0.003*		0.428	0.452
	(0.017)		(0.035)	(0.017)
$\beta_{2,\text{f-esmd}}$	0.377		0.505	
	(0.018)		(0.013)	
$\beta_{2,\text{nf-pl}}$	0.084	-0.564	0.275	*0.036*
	(0.009)	(0.018)	(0.018)	(0.018)
$\beta_{2,\text{nf-smd}}$	-0.246			
	(0.013)			
Mean LL	-68.8944	-21.5314	-37.0720	-19.8412

Notes: Robust standard errors are in parentheses. Coefficients insignificant at 1% level are in italics.

Table 5: Two dimensional model estimates (3rd Duma).

	CPRF	Unity	OVR	SPS	LDPR	Yabloko
$\alpha_{\text{f}-\text{fl}}$	-0.097	0.156	0.194	-0.597	-1.238	-0.351
	(0.032)	(0.052)	(0.034)	(0.036)	(0.058)	(0.039)
$\alpha_{\text{f}-\text{rl}}$	*-0.013*	0.122	0.258	-0.391		-0.419
	(0.033)	(0.047)	(0.037)	(0.034)		(0.031)
$\alpha_{\text{f}-\text{smd}}$	-0.097	0.247	0.222	*0.030*		-0.413
	(0.032)	(0.044)	(0.036)	(0.021)		(0.031)
$\alpha_{\text{f}-\text{esmd}}$	*-0.077*	0.132	0.164	-0.420		
	(0.032)	(0.038)	(0.033)	(0.030)		
$\alpha_{\text{nf}-\text{pl}}$	-0.122	-1.508	-0.406	-2.194	-1.084	-2.748
	(0.020)	(0.015)	(0.013)	(0.027)	(0.011)	(0.097)
$\alpha_{\text{nf}-\text{smd}}$	-0.260		-0.116			
	(0.022)		(0.011)			
$\beta_{1,\text{f}-\text{fl}}$	1.632	2.868	1.887	2.196	3.844	2.503
	(0.021)	(0.074)	(0.027)	(0.034)	(0.080)	(0.040)
$\beta_{1,\text{f}-\text{rl}}$	1.692	2.802	2.056	2.104		1.848
	(0.020)	(0.033)	(0.028)	(0.030)		(0.032)
$\beta_{1,\text{f}-\text{smd}}$	1.660	2.553	2.004	1.080		1.656
	(0.019)	(0.038)	(0.029)	(0.024)		(0.034)
$\beta_{1,\text{f}-\text{esmd}}$	1.586	2.225	1.784	1.575		
	(0.023)	(0.030)	(0.027)	(0.033)		
$\beta_{1,\text{nf}-\text{pl}}$	1.013	0.429	0.560	0.231	0.256	0.275
	(0.012)	(0.014)	(0.011)	(0.033)	(0.010)	(0.0360
$\beta_{1,\text{nf}-\text{smd}}$	1.047		0.452			
	(0.014)		(0.009)			
$\beta_{2,\text{f}-\text{rl}}$	0.230	0.189	-0.041	0.653		0.148
	(0.019)	(0.046)	(0.014)	(0.018)		(0.017)
$\beta_{2,\text{f}-\text{smd}}$	0.183	0.269	-0.038	*0.039*		0.449
	(0.015)	(0.036)	(0.014)	(0.032)		(0.031)
$\beta_{2,\text{f}-\text{esmd}}$	0.092	*0.027*	*0.025*	0.448		
	(0.021)	(0.053)	(0.018)	(0.027)		
$\beta_{2,\text{nf}-\text{pl}}$	0.366	-0.184	0.446	*0.032*	*0.000*	0.450
	(0.011)	(0.030)	(0.009)	(0.107)	(0.001)	(0.076)
$\beta_{2,\text{nf}-\text{smd}}$	0.306		0.447			
	(0.013)		(0.008)			
Mean LL	-47.0060	-16.0838	-31.9724	-10.8780	-4.5463	-6.5425

Notes: Robust standard errors are in parentheses. Coefficients insignificant at 1% level are in italics.

Table 6: Insignificant differences in sensitivity parameters (Wald statistic p-values).

2nd Duma			3rd Duma		
Party	H_0	p-value	Party	H_0	p-value
CPRF	$\beta_{1,\text{f-rl}} = \beta_{1,\text{f-smd}}$	0.141	CPRF	$\beta_{1,\text{f-rl}} = \beta_{1,\text{f-smd}}$	0.010
CPRF	$\beta_{1,\text{f-fl}} = \beta_{1,\text{f-esmd}}$	0.879	CPRF	$\beta_{1,\text{f-fl}} = \beta_{1,\text{f-smd}}$	0.118
CPRF	$\beta_{2,\text{f-rl}} = \beta_{2,\text{f-smd}}$	0.911	CPRF	$\beta_{1,\text{f-fl}} = \beta_{1,\text{f-esmd}}$	0.038
CPRF	$\beta_{2,\text{f-fl}} = \beta_{2,\text{f-rl}}$	0.802	OVR	$\beta_{1,\text{f-rl}} = \beta_{1,\text{f-smd}}$	0.017
CPRF	$\beta_{2,\text{f-fl}} = \beta_{2,\text{f-smd}}$	0.841	OVR	$\beta_{2,\text{f-rl}} = \beta_{2,\text{f-smd}}$	0.820
OHR	$\beta_{2,\text{f-rl}} = \beta_{2,\text{f-smd}}$	0.322	OVR	$\beta_{2,\text{nf-pl}} = \beta_{2,\text{nf-smd}}$	0.814
OHR	$\beta_{2,\text{f-rl}} = \beta_{2,\text{f-esmd}}$	0.542	OVR	$\beta_{2,\text{f-fl}} = \beta_{2,\text{f-esmd}}$	0.155
OHR	$\beta_{2,\text{f-smd}} = \beta_{2,\text{f-esmd}}$	0.025	Unity	$\beta_{1,\text{f-fl}} = \beta_{1,\text{f-rl}}$	0.303
Yabloko	$\beta_{2,\text{f-fl}} = \beta_{2,\text{nf-pl}}$	0.043	Unity	$\beta_{2,\text{f-rl}} = \beta_{2,\text{f-smd}}$	0.041
			Unity	$\beta_{2,\text{f-fl}} = \beta_{2,\text{f-esmd}}$	0.610
			SPS	$\beta_{2,\text{f-fl}} = \beta_{2,\text{f-smd}}$	0.221
			SPS	$\beta_{2,\text{f-smd}} = \beta_{2,\text{nf-pl}}$	0.943
			SPS	$\beta_{2,\text{f-fl}} = \beta_{2,\text{nf-pl}}$	0.765
			Yabloko	$\beta_{2,\text{f-smd}} = \beta_{2,\text{nf-pl}}$	0.996

Notes: Robust covariance matrices are used to calculate Wald statistics. All other differences are significant at 1% level.

Table 7: CI and PI indices for different groups (2nd Duma).

	CPRF		NDR		LDPR		Yabloko	
Groups	CI	PI	CI	PI	CI	PI	CI	PI
F-FL, F-RL	0.863	0.051	0.765	0.007	0.867	0.049	0.831	0.001
F-FL, F-SMD	0.861	0.077	0.745	0.039			0.815	0.007
F-RL, F-SMD	0.934	0.017	0.793	0.002			0.823	0.000
F-FL, F-ESMD	0.813	0.526	0.681	0.000				
F-RL, F-ESMD	0.841	0.065	0.725	0.000				
F-SMD, F-ESMD	0.841	0.041	0.715	0.000				

Notes: 'CI' is cohesion index, 'PI' is probability that two different groups are less cohesive than considered ones (see text for definitions).

Table 8: CI and PI indices for different groups (3rd Duma).

	CPRF		Unity		OVR		Yabloko		SPS	
Groups	CI	PI	CI	PI	CI	PI	CI	PI	CI	PI
F-FL, F-RL	0.901	0.045	0.930	0.309	0.915	0.094	0.863	0.153	0.857	0.008
F-FL, F-SMD	0.899	0.278	0.925	0.634	0.911	0.191	0.828	0.008		
F-RL, F-SMD	0.921	0.006	0.950	0.282	0.919	0.127	0.821	0.101		
F-FL, F-ESMD	0.862	0.062	0.920	0.559						
F-RL, F-ESMD	0.866	0.011	0.949	0.238						
F-SMD, F-ESMD	0.864	0.107	0.938	0.711						

Notes: see notes below Table 7.

Figure 1: Estimates of β_1 and β_2 (sensitivity parameters) for CPRF (2nd Duma).

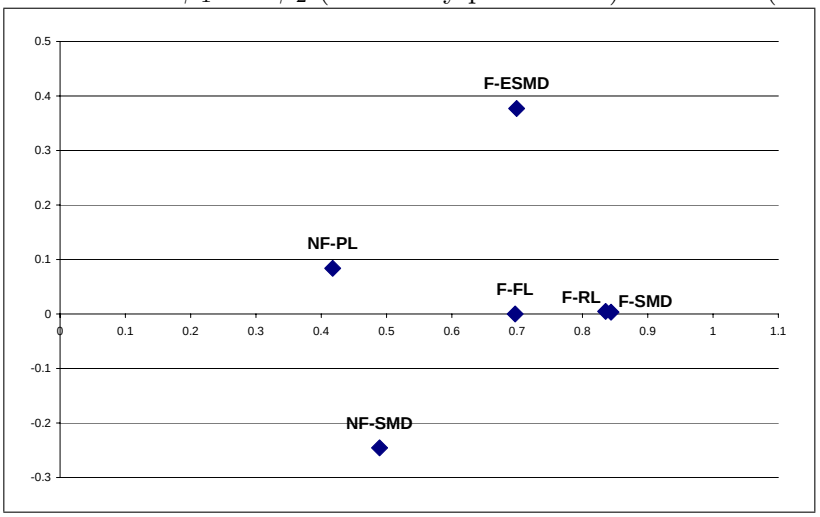

Figure 2: Estimates of β_1 and β_2 (sensitivity parameters) for CPRF (3rd Duma).

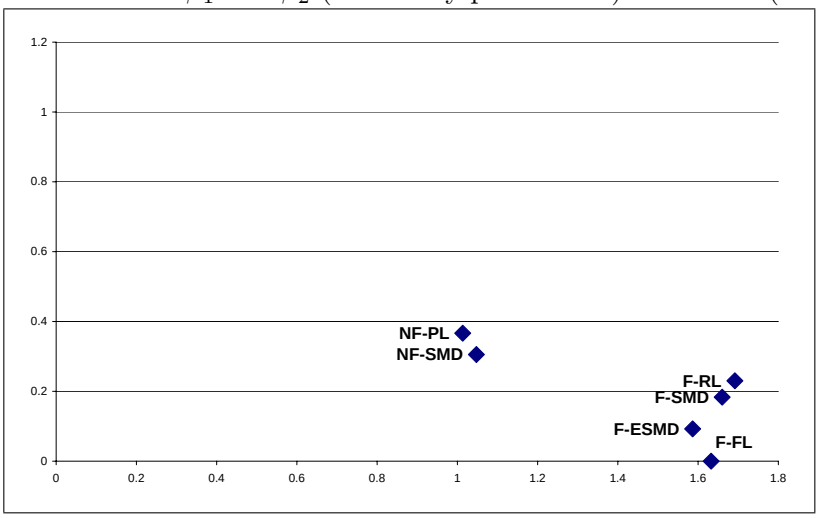

Figure 3: Estimates of β_1 and β_2 (sensitivity parameters) for NDR (2nd Duma).

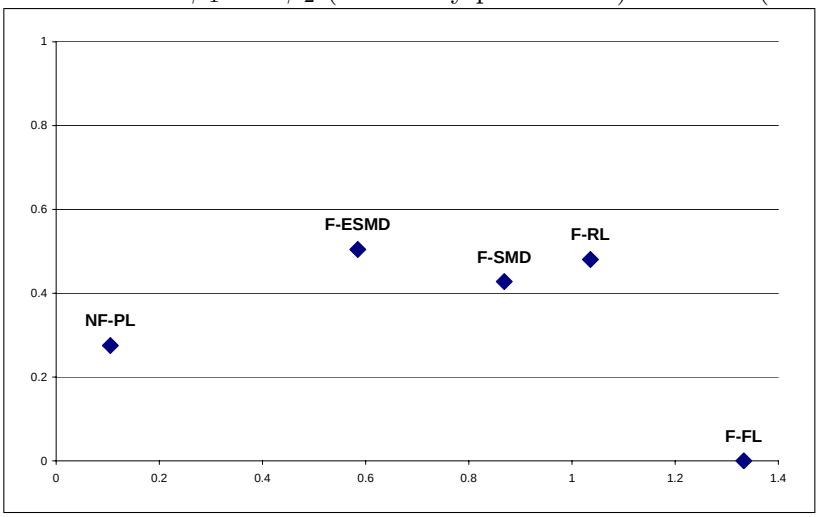

Figure 4: Estimates of β_1 and β_2 (sensitivity parameters) for OVR (3rd Duma).

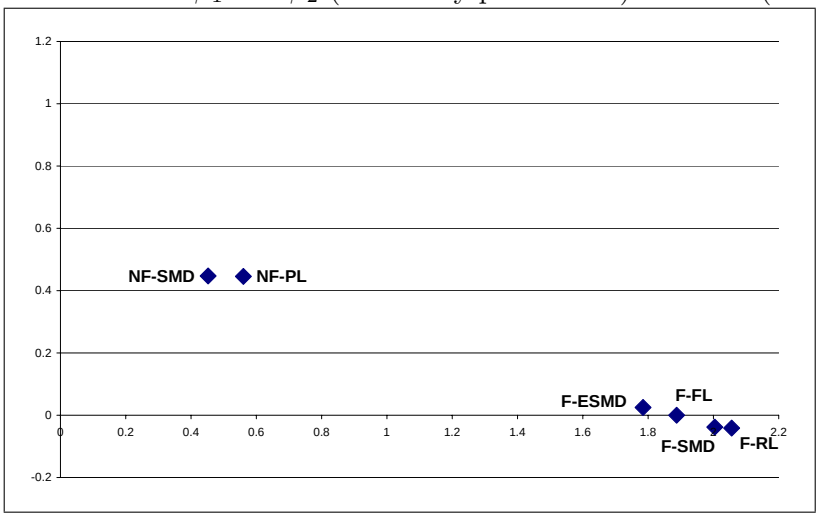

Figure 5: Estimates of β_1 and β_2 (sensitivity parameters) for Yabloko (2nd Duma).

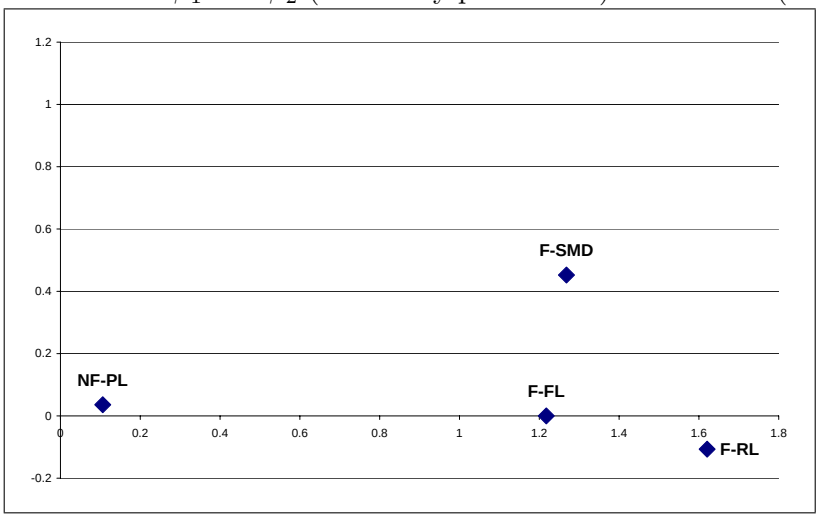

Figure 6: Estimates of β_1 and β_2 (sensitivity parameters) for Yabloko (3rd Duma).

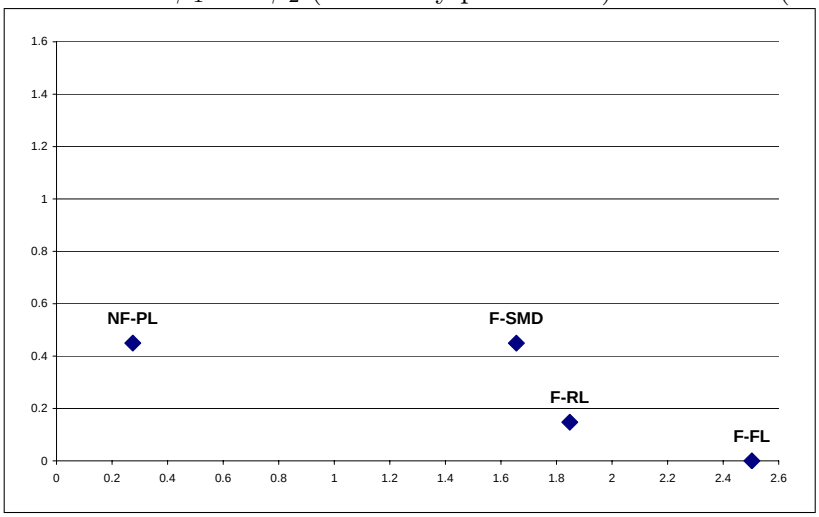

Figure 7: Estimates of β_1 and β_2 (sensitivity parameters) for Unity (3rd Duma).

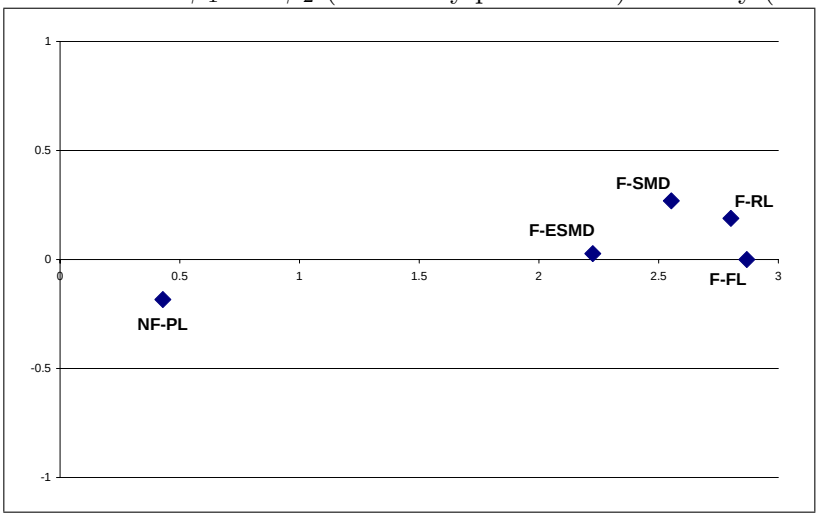

Figure 8: Estimates of β_1 and β_2 (sensitivity parameters) for SPS (3rd Duma).

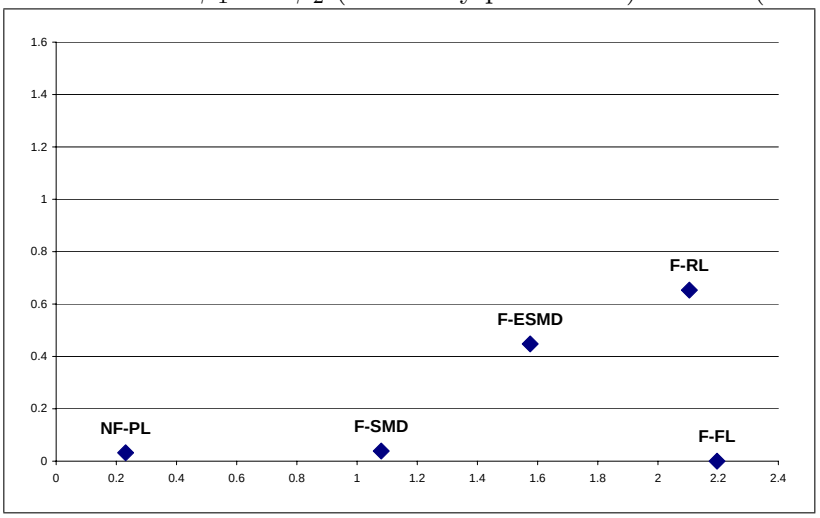

Figure 9: Estimates of β_1 and β_2 (sensitivity parameters) for LDPR (2nd Duma).