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der Christian-Albrechts-Universität zu Kiel

**Wählen und politische Performanz in
Transformationsländern:
Theorie, Methoden und empirische Anwendung
der Latent-Class-Modelle**

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Inhaltsverzeichnis

1	Einleitung und Zusammenfassung	1
2	Testing micropolitical foundation of agricultural protection	19
3	Networks as determinants of voter behavior for the farm and non-farm population	69
4	Social organization of voting and government performance	105
5	Capture in the Russian Parliamentary Elections 2003–2011	143
6	Satisfaction and Media as Determinants of Voting Behavior	173
7	Erläuterung der Methoden	213
8	Schlussbetrachtung	231
9	Summary	239

1. Kapitel

Einleitung und Zusammenfassung

1.1. Einleitung

Das Zusammenspiel von Wahlsystem und Wählerverhalten bestimmter sozialer Gruppen wird in neueren Ansätzen der *Political Economy* als zentrale Erklärung einer ineffizienten Wirtschaftspolitik angesehen (Baron, 1994; Grossman und Helpman, 1996; Persson und Tabellini, 2000). Während die Betrachtung des Wahlsystems für die Analyse des Einflusses formaler politischer Institutionen auf das politische Ergebnis unvermeidlich ist, ist die Berücksichtigung informeller gesellschaftlicher Sozialstrukturen (Organisation der Wähler in sozialen Netzwerken, Wähler*beliefs* und Informationsstand) für eine Untersuchung des Wählerverhaltens ausschlaggebend. Allerdings gibt es bislang keine fundierten empirischen Untersuchungen, die explizit die theoretisch unterstellten Zusammenhänge zwischen Wählerverhalten und Implementierung (in-)effizienter Wirtschaftspolitiken, d.h. *Government Performance*, quantitativ untersuchen.

Damit eine ökonomisch und sozial fundierte Wählerforschung zu einer Erhöhung der gesellschaftlichen Wohlfahrt beitragen kann, muss vor allem gezeigt werden, welche Faktoren *Government Performance* determinieren und die politischen Entscheidungen beeinflussen. Die Ergebnisse des politischen Handelns sind im großen Teil von den gesellschaftlichen Sozialstrukturen abhängig. Theoretisch hängt die Leistungsfähigkeit einer Regierung von ihren politischen Anreizstrukturen ab. Diese spiegeln sich zumindest in demokratischen Systemen insbesondere in ihren Wiederwahlchancen wider. Damit wird das Wählerverhalten zu einem zentralen Bestimmungsfaktor der *Government Performance*. Konkret werden in relevanten Studien (Bardhan und Mookherjee, 2002, 2006; Persson und Tabellini, 2000) zwei der Leistungskontrolle zugrunde liegende Mechanismen, *Government Capture* und *Government Accountability*, als Phänomene einer geringen *Government Performance* und als Folge von nicht-politikorientierten Wahlmotiven, wie Parteiloyalität, diskutiert. Die Faktoren, die eine Fähigkeit widerspiegeln, die lokalen Regierungen zur Verantwortung zu ziehen, bilden *Government Accountability*. Unter dem Begriff *Government Capture* wird ein formales Konzept des Staatsversagens verstanden, wonach an ihrer Wiederwahl interessierte Politiker einen Anreiz haben, ineffiziente Politiken auszuwählen, die eine Minderheit

gut informierter (reicher) Wähler auf Kosten der Mehrheit von armen, nicht informierten Wählern besser stellen. Die aktuellen theoretischen Ansätze (Baron, 1994; Grossman und Helpman, 1996; Bardhan und Mookherjee, 2002), die versuchen, die Implementierung ineffizienter Wirtschaftspolitiken, d. h. eine geringe Regierungsperformanz, als Folge einer Anreizproblematik demokratisch gewählter Politiker zu verstehen, stellen die theoretische Grundlage für die empirischen Analysen zu nicht-politikorientierten Wahlmotiven in dieser Arbeit dar.

Methodisch-theoretisch gehen alle Ansätze im Kern auf das Baron-Grossmann-Helpman-(BGH)-Modell (Baron, 1994; Grossman und Helpman, 1996) zurück. Das BGH-Modell geht von einem probabilistischen Wählermodell aus, welches zwischen informierten und nicht informierten Wählern unterscheidet. Informierte Wähler wählen auf der Grundlage der Politikplattformen der Parteien bzw. der Kandidaten. Dabei nimmt die Wahrscheinlichkeit, eine bestimmte Partei zu wählen, monoton mit der Relation zwischen der gewichteten euklidischen Distanz der eigenen Politikposition eines Wählers und der politischen Position einer Partei ab. Dieser Ansatz entspricht der räumlichen Wählertheorie von Downs (1957) bzw. der Formalisierung durch Enelow und Hinich (1984). Da uninformierte Wähler keine hinreichenden Informationen bzgl. der Auswirkungen von Politiken auf ihre Wohlfahrt haben, können uninformierte Wähler im Gegensatz zu informierten Wählern unterschiedliche Parteien auch nicht aufgrund ihrer Parteipositionen bewerten. Stattdessen verwenden uninformierte Wähler unterschiedliche Nicht-Politik-Faktoren als Proxies für ihren individuellen Nutzen, den sie mit der Wahl einer Partei verbinden. Relevante Nicht-Politik-Faktoren sind z. B. wahrgenommene Persönlichkeitsmerkmale der Kandidaten als Proxies für politische Kompetenz, die grundlegende Affinität einer Partei zu einer speziellen sozialen Klasse (z. B. Arbeiter- oder Bauernparteien) oder einer ethnischen Gruppe oder uninformierte Wähler wählen anhand einer langfristig gebildeten Parteiloyalität (Stammwähler). Entsprechend sind uninformierte Wähler im Gegensatz zu informierten Wählern in ihrer Einschätzung der Parteien durch Wahlkampfaktivitäten beeinflussbar.

Während die auf einem Rational-Choice-Ansatz basierenden probabilistischen Wählermodelle davon ausgehen, dass ein Wähler sich als rationaler Nutzenmaximierer verhält und aufgrund dessen diejenige Alternative wählt, die ihm den größten Nutzen bringt, gibt es einen zweiten interessanten Bereich von Forschungsansätzen. Laut diesen können Wähler als wirtschaftspolitische Laien die komplexen Zusammenhänge zwischen wirtschaftspoli-

tischen Maßnahmen und dadurch implizierten Wohlfahrtseffekten nicht erfassen (Caplan, 2007). Wähler bilden naive mentale Modelle, mit denen sie den Zusammenhang zwischen Politik und implizierten Wohlfahrtseffekten vereinfacht abbilden. Diese einfachen mentalen Modelle bezeichnet Caplan als *Policy Beliefs*. Wähler beurteilen somit Politiken bzw. politische Positionen von Parteien auf der Grundlage ihrer *Policy Beliefs*. Insofern ist die Beurteilung von Politiken wie auch die politikorientierte Bewertung von Parteien verzerrt, solange diese Wählerbeliefs verzerrt sind. Caplan belegt mit einer Reihe von empirischen Studien überzeugend, dass die Wählerbeliefs hinsichtlich der Wirkung von wirtschaftspolitischen Maßnahmen im Vergleich zu entsprechenden Wirtschaftsexpertenmeinungen sehr stark und systematisch verzerrt sind. Auf der Grundlage seiner empirischen Ergebnisse zieht Caplan (2007) die pessimistische Schlussfolgerung, dass „democratic mechanisms of preference aggregation naturally lead to the choice of inefficient policies“. Die Arbeiten von Caplan wurden unter anderem von Beilhartz und Gersbach (2004) sowie Bischoff und Siemers (2011) aufgegriffen und vertieft. Interessanterweise führen verzerrte Wählerbeliefs nicht nur zu pareto-ineffizienten Politiken, sondern diese bedingen zudem, dass *Government Capture* wie auch eine geringe *Government Accountability* weder eine notwendige noch eine hinreichende Bedingung für Politikversagen darstellen.

Die neueren Studien der empirischen Wahlforschung in Industrieländern fokussieren sich neben der Erklärung des Wahlverhaltens und der Wahlbeteiligung (Geys, 2006; Bhatti et al., 2012) auf die Untersuchung der Wahlstrategien der Kandidaten z. B. in politischen Wahlen in den USA (Ansolabehere et al., 2001; Graefe, 2013; Simas, 2013; Scotto et al., 2010). Weiterhin wird in europäischen Wahlstudien die grundsätzliche Bedeutung unterschiedlicher Wählermotive untersucht (Lewis-Beck und Nadeau, 2000; Kousser, 2004; Wagner und Kritzinger, 2012; Fraile und Lewis-Beck, 2013; Costa Lobo, 2013) bzw. die spezielle für Deutschland (Konzelmann et al., 2012; Clarke und Whitten, 2013; Schmitt-Beck und Mackenrodt, 2010). In Entwicklungsländern gibt es ebenfalls eine Vielzahl von empirischen Wahlstudien, die sich im Gegensatz zu Industrieländern allerdings primär auf die deskriptive Analyse des Wählerverhaltens konzentrieren. Hingegen steht die Ableitung von Wahlkampfstrategien wie auch die Analyse grundlegender theoretischer Modellierungsfragen weniger im Vordergrund der Analysen. Beispielsweise ist die Mehrzahl der empirischen Wahlstudien in afrikanischen Ländern auf die deskriptive Analyse des afrikanischen Wählers fokussiert (siehe Literaturüberblick Bates 1973, 1974; Hoffman und Long 2013; Ferree und Horowitz 2007, 2010; Bratton et al. 2011). Obwohl in neueren Studien

u. a. von Hoffman und Long (2013) die Bedeutung von konkreten Politikfragen (policy position issues) für afrikanische Wähler erwähnt wird, steht die Analyse unterschiedlicher nicht-politikorientierter Faktoren im Vordergrund. Insbesondere wird die Bedeutung ethnischer und regionaler Zugehörigkeit als Determinante der Wahlentscheidung hervorgehoben (Ferree und Horowitz, 2010; Bratton et al., 2011; Hoffman und Long, 2013). Die meisten Studien, die einer Analyse des politischen Verhaltens der Wähler in Transformationsländern gewidmet sind, beschäftigen sich überwiegend mit den ökonomischen Motiven der Wähler (Tucker et al., 2002; Boerner und Hainz, 2009; Hayo, 2004; Fidrmuc, 2000a,b; Kim und Pirttilae, 2006), während die individuellen ideologischen und politikorientierten Motive vernachlässigt werden.

Angesichts der Existenz der oben erwähnten Studien mit unterschiedlichen Ansichten auf das Wählerverhalten sowie der Problematik der Länder im Transformationsprozess zielt diese Arbeit darauf ab, die entsprechenden theoretischen und empirischen Effekte zwischen Wählerverhalten, *Government Performance* und *Capture* am Beispiel dreier Transformationsländer, Slowakei, Polen und Russland, herauszuarbeiten. Weiter sind die auf Mikro- und Makroebene entstehenden Determinanten des Wählerverhaltens und deren Implikationen auf die *Government Performance* unter unterschiedlichen politischen, sozialen und ökonomischen Rahmenbedingungen zu identifizieren. Während die ersten beiden EU-Länder die wesentlichen Transformationsschritte in die Richtung Demokratie geleistet haben, herrscht in Russland unter der Maske der „gelenkten Demokratie“ das autoritäre Regime, das häufig zu sozialen, politischen und ökonomischen Spannungen im Inland sowie in internationalen Beziehungen führt. Obwohl die politischen Wahlen in Russland heutzutage nicht als ein vernünftig funktionierendes Instrument für eine Kontrolle über die Regierung angesehen werden können, spielen die Wahlen in Russland die Rolle eines Indikators der Verteilung politischer und ideologischer Präferenzen unter verschiedenen sozioökonomischen Gruppen. Darüber hinaus spiegeln sie eine ungleiche politische Konkurrenz zugunsten der Machtpartei wider. Gerade in dieser Situation, wo die Informationsressourcen für Parteien ungleichmäßig verteilt sind, ist es wichtig zu verstehen, wie die Wähler auf die laufenden politischen Prozesse reagieren. Werden die Wahlmotive der Wähler im Laufe der Zeit *ideologischer* oder lassen sie sich dagegen durch einseitige Information nicht permanent beeinflussen?

Konkret wird in dieser Arbeit auf der Grundlage von eigenen und vorhandenen Wählersurveys für die drei Länder die quantitative Bedeutung von 'politikorientiertem' und 'nicht-

politikorientiertem' sowie 'retrospektivem' Wählen mit Hilfe von innovativer Anwendung der Latent-Class-Schätzungen für probabilistische Wählermodelle analysiert. Konkret werden dabei die auf logistischen Schätzungen basierten Discrete-Choice-Modelle für Latent-Class-Analysen in der empirischen Wahlforschung eingesetzt. Die Latent-Class-Analysen liefern ein tieferes Verständnis der Determinanten von ideologischem und politikorientiertem Wählen, weil die Wähler nach der Heterogenität in ihren sozioökonomischen Charakteristika und politischen Präferenzen differenziert werden. Dadurch wird besser erklärt, wie sich die zu einer sozioökonomischen Gruppe gehörenden Wähler verhalten und ihre politische Wahlentscheidung treffen. Durch die ermittelte probabilistische Zugehörigkeit der Wähler zu dieser oder jener latenten Klasse und aufgrund der postlogistischen Evaluierung des Latent-Class-Modells wird analysiert, wie sich die endogen bedingten Wählerklassen bilden und welche Wählerklassen ideologischer, d. h. weniger politikorientiert, wählen. Im Gegensatz zu multinomialen logistischen Modellen (MNL), die seit vielen Jahren eine fundamentale Basis für die Discrete-Choice-Modelle darstellen und eine große Einschränkung hinsichtlich der IIA-Annahme aufweisen (Interdependence of Irrelevant Alternatives)¹, lassen sich Mixed-Logit-(MLM)- und Latent-Class-Modelle (LCM) in der empirischen Forschung auch dann verwenden, wenn eine Verletzung dieser Annahme vorliegt und/oder eine unbeobachtete Heterogenität zwischen den Entscheidungsträgern existiert (Temme, 2007). Beim Vergleich der beiden Arten von Modellen miteinander ist vor allem zu erwähnen, dass die LCMs etwas weniger flexibler als MLMs sind, weil durch die Klassengenerierung die mit MLMs assoziierten kontinuierlichen Kovariaten eine diskrete Form in LCMs annehmen. Die großen Vorteile der Latent-Class-Modelle sind eine höhere Handhabbarkeit, Plausibilität und statistische Prüfbarkeit, weil die Annahme über die Verteilung der Parameter, die eine Heterogenität determinieren, nicht spezifiziert werden muss.

Neben der empirischen Ermittlung der relativen Bedeutung 'politikorientierter' und 'nicht-politikorientierter' sowie 'retrospektiver' Wahlmotive für das Wahlverhalten unterschiedlicher Wählergruppen liegt ein weiterer Schwerpunkt der Analysen auf der Identifikation relevanter Determinanten des individuellen Wählerverhaltens. Hier werden neben den klassischen sozioökonomischen Variablen (Einkommen, Bildung, Alter) insbesondere die Rolle von sozialen Netzwerkstrukturen sowie von der Zugehörigkeit der Wähler zur Gruppe der Landwirte herausgearbeitet und empirisch analysiert. Insgesamt trägt die Arbeit somit

¹Gemäß IIA-Annahme ist der relative Nutzen einer Alternative im Vergleich zu einer anderen unabhängig gegenüber der Existenz einer dritten Alternative

nicht nur zu einer besseren Erklärung der *Government Accountability* und *Government Capture* auf Makroebene, sondern auch zu einem besseren mikropolitisch fundierten Verständnis der Wählermotive bei.

Diese Arbeit besteht aus insgesamt fünf Beiträgen, die inhaltlich in drei Gruppen einzuordnen sind. Die Gruppen spiegeln die drei untersuchten Determinanten des (nicht-)politikorientierten Wählerverhaltens wider: (I) Zugehörigkeit zu Interessengruppen; (II) Soziale Netzwerke und Massenmedien; (III) Wählerzufriedenheit mit *Government Performance*. Neben der inhaltlichen Ausrichtung werden in den Beiträgen auch unterschiedliche theoretische und empirische Schwerpunkte gesetzt. In Tabelle 1.1 ist die Zuordnung der Beiträge zu den entsprechenden inhaltlichen Schwerpunkten veranschaulicht. Im Folgenden wird eine Zusammenfassung der einzelnen Beiträge gegeben.

Table 1.1.: Einordnung der Artikel

Beitrag	<i>Interessengruppen</i>	<i>Netzwerke und Massenmedien</i>	<i>Zufriedenheit</i>	THEORIE	EMPIRISCHE METHODE
1	✓			✓	✓
2	✓	✓		✓	✓
3	✓	✓		✓	✓
4					✓
5		✓	✓		✓

1.2. Zusammenfassung

1.2.1. Testing micropolitical foundation of agricultural protection: Latent Class approach to Slovakia

Die Interessenvermittlung findet in repräsentativen Demokratien über zwei unterschiedliche Kanäle statt: politische Wahlen und *Lobbying*. Während bei *Lobbying* die Interessengruppen die relevanten Träger der Interessenvermittlung sind, stellen bei politischen Wahlen die politischen Parteien die dominanten Strukturen dar. Im Gegensatz zur Beeinflussung des politischen Prozesses durch Interessengruppen, die eine indirekte Auswirkung auf politische Entscheidungen hat, haben die Wähler die Möglichkeit, die Gestaltung des politischen Raums, d. h. letztendlich das politische *Outcome*, direkt zu beeinflussen. Während die Entstehung der politischen Entscheidungen durch das Agieren der Interessengruppen sowohl erleichtert als auch erschwert werden kann, weil die unterschiedlichen Interessen zu einer Einigung oder zu einem Konflikt führen können, geht es bei direkter

Beeinflussung des politischen Systems durch die Wahlen vor allem darum, inwieweit die Wähler informiert sind und wie stark politikorientiert sie wählen. Die Menschen, die sowohl formal als auch informell aufgrund ihrer sozioökonomischen Charakteristika zu einer Interessengruppe gehören, haben ein größeres Interesse an bestimmten politischen *Issues*. Sie beobachten genauer die relevanten politischen Felder und wählen daher mehr politikorientiert. Wählen dagegen die Menschen nicht aufgrund ihrer politischen Präferenzen, sondern aufgrund ideologischer Komponenten, z. B. Loyalität zu einer Partei, Charisma oder Überzeugungskraft eines Kandidaten, dann kommt es zu *Ideologischen Wahlen* (d. h. 'nicht-politikorientierte' Wahlen).

Die Analyse der ideologischen versus politikorientierten Wahlen setzt aber voraus, dass vor allem ein handhabungsfähiges Instrumentarium fundiert und erarbeitet wird, das die Schätzungen ermöglicht. Ausgehend von den theoretischen Arbeiten (Keefer und Khemani, 2005; Grossman und Helpman, 1996; Bardhan und Mookherjee, 2002) und der Diskussion der Komponenten der *ideologischen* versus politikorientierten Wahlmotive leitet der Beitrag, zum einen, eine theoretische Erklärung für „development paradox“ ab, und zum anderen, einen individuellen *Ideologischen Indikator* aufgrund der postlogistischen Evaluierung der Modelle aus der Latent-Class-Analyse. Von besonderem Interesse für die Implementierung der Agrarpolitik ist die Betrachtung des politischen Verhaltens der Wähler, die im Interessenvermittlungsprozess als Landwirte auftreten. Vor diesem Hintergrund wird in diesem Beitrag das politische Verhalten zweier Interessengruppen (Landwirte gegen Nicht-Landwirte) am Beispiel der slowakischen Daten für 391 Wähler aus ländlichen Regionen mithilfe des berechneten *Ideologischen Indikators* auf Mikroebene analysiert.

Vor dem Hintergrund, dass die Betrachtung des politischen Verhaltens der Wähler, die im Interessenvermittlungsprozess als Landwirte auftreten, ist für die Implementierung der Agrarpolitik von besonderem Interesse, wird in diesem Beitrag das politische Verhalten zweier Interessengruppe (Landwirte gegen Nicht-Landwirte) am Beispiel der slowakischen Daten für 391 Wähler aus ländlichen Regionen mithilfe des berechneten *Ideologischen Indikators* auf Mikroebene analysiert. Des Weiteren stellen die theoretischen Arbeiten (Grossman und Helpman, 1996; Bardhan und Mookherjee, 2002; Persson und Tabellini, 2000; Hinich und Munger, 1997; Becker, 1983; Lohmann, 1998) eine Grundlage für die theoretische und empirische Analyse eines Zusammenhanges zwischen nicht-politikorientierten Wahlen und *Capture* sowie für die Ermittlung der Bedeutsamkeit der Agrarlobby in politischen Wahlen mithilfe der berechneten Gewichte dar.

1.2.2. Networks as determinants of voter behavior for the farm and non-farm population: An estimation of spatial voting models using Latent Class Analysis

Die Theorie der sozialen Netzwerke und deren Einfluss auf das ökonomische und politische Verhalten der Individuen auf Mikroebene sowie auf das korrespondierende wirtschaftspolitische Ergebnis auf Makroebene wurde durch Studien in unterschiedlichen Forschungsbereichen belegt, z. B. in Ökonomie (Jackson, 2008; Goyal, 2005; Alesina und La Ferrara, 2000; Knack und Keefer, 1997; Dasgupta, 1999), Soziologie (Burt, 1982, 1990; Coleman, 1988; Granovetter, 1985; Fukuyama, 1995) und Politikwissenschaften (Putnam et al., 1993; Hardin, 1999). In Bezug auf die Auswirkung sozialer Netzwerke, in denen Aufnahme, Verarbeitung und weitere Verbreitung der politischen Information stattfindet, auf die Einstellung und das Verhalten der Wähler zeigen die überraschenden Ergebnisse der Columbia-Schule (Lazarsfeld, 1950; Lazarsfeld und Henry, 1968; Berelson et al., 1954; Katz und Lazarsfeld, 1955), dass die Informationen aus den Massenmedien die Wähler meistens nicht direkt erreichen und ihre Meinung nicht umdrehen, sondern nur verstärken können. Stattdessen erfolgt die Kommunikation im Zwei-Stufen-Fluss, in dem die Informationen zunächst vom Meinungsführer aufgenommen, bearbeitet und an weitere Wähler in Netzwerken vermittelt werden (Pappi und Shikano, 2007). Dass die Wähler die Informationen *indirekt* aus Netzwerken erhalten, deren strukturelle Eigenschaften basierend auf den theoretischen Arbeiten in großem Maße mit zwei Netzwerkparametern (Netzwerkdicke und Netzwerkgröße) abgebildet werden können, erweist sich als problematisch. Angesichts dessen stellt dieser Beitrag eine empirische Überprüfung dar, ob ein Zusammenhang zwischen individual- sowie gruppenspezifischen nicht-politikorientierten Motiven und Netzwerkparametern nachweisbar ist.

Ausgehend von den theoretischen Erarbeitungen des ersten Beitrages werden im zweiten Beitrag zwei Interessengruppen mithilfe der Netzwerkparameter (Netzwerkdicke und Netzwerkgröße) verstärkt untersucht. Die theoretischen Arbeiten gehen davon aus, dass die Wahrscheinlichkeit der Verbreitung der objektiven und unabhängigen Informationen in den größeren und undichten Netzwerken höher als in den kleineren und dichteren Netzwerken ist. Angesichts der Arbeiten zum Einfluss sozialer Netzwerke auf soziale Strukturen (Granovetter, 2005; Lake und Huckfeldt, 1998) werden in diesem Beitrag die Hypothesen über den Einfluss der größeren und dichteren Netzwerke auf die ideologischen Präferenzen der Wähler aufgestellt. Vor dem Hintergrund der Unterscheidung zweier Interessengruppen in ihrer Motivation und ihren verschiedenen Strukturen wird die Analyse der slowakischen

Daten unter Berücksichtigung sozialer Netzwerke vertieft. Damit wird der Einfluss sozialer Netzwerke auf das ideologische Wählen von Landwirten und Nicht-Landwirten explizit ermittelt. Um die Bedeutung der politischen *Issues* für Wähler sowie deren Auswirkung auf die marginale Wahrscheinlichkeit zu ermitteln, werden die politischen Gewichte der Wähler anhand der marginalen Effekte berechnet und auf deren Zusammenhang mit den sozioökonomischen Charakteristika auf der Mikroebene untersucht. Im Sinne der theoretischen Arbeiten (Bardhan und Mookherjee, 2002) wird der *Capture*-Index als relativer Grad, zu dem die Anteile der Bevölkerungsgruppen von den normierten politischen Gewichten dieser Gruppen divergieren, definiert und auf der Makroebene analysiert.

1.2.3. Social organization of voting and government performance: Theory and empirical application in Poland and Slovakia

Eingeführt von Lazarsfeld et al. (1968) und später formuliert von Berelson et al. (1954) und Campbell et al. (1960) stellt das Konzept von „cross-pressure“ eine wichtige Erklärung des politischen Verhaltens von Wählern im Rahmen der Netzwerktheorie dar. Eine Cross-Pressure-Situation liegt in den modernen Gesellschaften ganz häufig vor, da die sozialen Kreise, zu denen ein Individuum gehört, nicht homogen sind. So kann es dazu kommen, dass es einem Individuum mit widersprüchlichen Wahlpräferenzen aus unterschiedlichen sozialen Kräftefeldern schwerer fällt, eine politische Entscheidung zu treffen. Während das interne „cross-pressure“ aufgrund der unterschiedlichen Einstellungen des Individuums hervorgerufen wird, wird das externe „cross-pressure“ unmittelbar in sozialen Netzwerken determiniert, wenn z. B. große politische Differenzen im Freundeskreis eines Individuums vorliegen. In diesem Fall kann das Individuum nicht entscheiden, welche konkrete Meinung es zu den anderen konfrontierenden Meinungen präferiert.

Angesichts dieser Problematik, dass es schon bei einem Individuum zu einem inneren Interessenkonflikt kommen kann, der das ganze Interesse an Politik negativ beeinflusst, so dass das Individuum eher nicht-politikorientiert wählt oder im äußersten Fall die politischen Wahlen ganz ignoriert, zielt dieser Beitrag darauf ab, einen Zusammenhang zwischen nicht-politikorientierten Wahlmotiven und sozialer Organisation der Wähler zu untersuchen. Aus diesem Grund werden im Sinne der theoretischen (Baron, 1994; Grossman und Helpman, 1996; Bardhan und Mookherjee, 2002; Lohmann, 1998) und empirischen Arbeiten (Huckfeldt et al., 2005, 2004; Nir, 2005) nicht nur die individuellen sozioöko-

nomischen Charakteristika der Wähler, sondern auch die Parameter ihrer *formalen* und *informellen* sozialen Organisation einbezogen. Eine formale Organisation der Wähler in einer Interessengruppe wird mithilfe ihrer Zugehörigkeit zu der Gruppe der Landwirte kontrolliert. Ihre informelle Organisation wird mithilfe der quantitativen (Netzwerkgröße und Netzwerkdichte) und qualitativen (Netzwerkambivalenz) Netzwerkparameter berücksichtigt, wobei *Netzwerkambivalenz* nach Nir (2005) als Maß für die externe „cross-pressure“ benutzt wird. Insbesondere liegt der Schwerpunkt dieser Arbeit auf der Untersuchung eines Zusammenhangs zwischen ideologischen Wahlmotiven und der qualitativen Netzwerkcharakteristik (Netzwerkambivalenz) in zwei formalen Wählergruppen (Landwirte versus Nicht-Landwirte), wobei die Analysen durch die Aufnahme nicht nur slowakischer, sondern auch polnischer Daten erweitert werden.

1.2.4. Capture in Russian Parliamentary Elections 2003–2011: Panel Analysis of Voting Motives using Latent Class Approach

Während in Polen und der Slowakei erhebliche Schritte der postsozialistischen Transformation unternommen werden, die auf die konsolidierte Demokratie und funktionierende Marktwirtschaft zielen, lassen sich die Ursachen der Wiederkehr eines autoritären Regimes in Russland nicht genau erklären. Zum einen kann die Entstehung des autoritären Regimes in Russland durch die historischen Besonderheiten des Landes (z. B. starke Ausprägung der Mentalität durch das sozialistische System) und durch die starke Zuneigung der Menschen zu eingebildeter wirtschaftlicher *Stabilität* nach der Systemkrise der 90er Jahre erklärt werden. Zum anderen begünstigt die negative Entwicklung der Informationsfreiheit in den letzten Jahren die Beibehaltung eines autoritären Regimes. Angesichts dieser Problematik ist es auch nicht zu unterschätzen, dass die zahlreichen Demonstrationen in Russland 2011–2012 als Zeichen der latent verlaufenden Änderungsprozesse, die sich trotz des aktuellen Informationsniveaus in das Verständnis der Menschen über das richtige Funktionieren eines demokratischen Systems einschleichen und dadurch ihr politisches Verhalten beeinflussen, interpretiert werden können.

Ausgehend von diesem Hintergrund hat der Beitrag das Ziel, die politik versus nicht-politikorientierten Motive der russischen Wähler aufgrund der Paneldaten des *European Social Survey* aus den Jahren 2006–2012 bezogen auf die parlamentarischen Wahlen 2003–2011 zu untersuchen. Im Kern der Analyse stehen die Latent-Class-Modelle, die eine De-

terminierung der latenten heterogenen Klassen der Wähler anhand ihrer sozioökonomischen Charakteristika ermöglichen. Von besonderem Interesse ist die Frage, ob das politische Verhalten der russischen Wähler über die Zeit stabil bleibt, d. h. ob die nicht-politikorientierten Motive durch die über die Zeit gleichen sozioökonomischen Charakteristika der Wähler erklärt werden können. Des Weiteren werden die politischen Gewichte berechnet, wobei diejenigen Menschen hohe politische Gewichte aufweisen, die stark politikorientiert wählen und eine starke Indifferenz zu der Machtpartei aufzeigen. Aufgrund der politischen Gewichte wird untersucht, ob die russischen Wähler in ihren politischen Präferenzen heterogen sind und ob die Heterogenität sich über die Zeit verändert. Außerdem liefert der Beitrag empirische Ergebnisse dafür, ob sich Capture über unterschiedliche sozioökonomische Bevölkerungsgruppen identifizieren lässt.

1.2.5. Satisfaction and Media as Determinants of Voting Behavior in Russian Elections 2003–2011

Wird unterstellt, dass Wähler retrospektiv wählen, d. h. die Wähler messen die Regierungsleistung direkt an der beobachteten eigenen oder regionalen wirtschaftlichen Entwicklung, so hat eine Regierung selbst in autoritären Regimen einen Anreiz effiziente Politiken auszuwählen. Retrospektives Wählen ist also eine spezielle Form des nicht-politikorientierten Wählens (Fiorina, 1981), wobei Daten über die Bürgerzufriedenheit mit öffentlichen Gütern sowie mit ihrer ökonomischen Situation die *Government Performance* reflektieren und daher eine Grundlage für die Schätzung des retrospektiven Wählens darstellen. Offensichtlich hängt das retrospektive Wählen mit dem politikorientierten Wählen zusammen, denn die dem retrospektiven Wählen zugrunde liegende Zufriedenheit wird in großem Maße von den (in-)korrekten individuellen *Policy Beliefs* über die effizienten Politiken beeinflusst. Diese können wiederum durch unterschiedliche Medienkanäle generiert werden.

Die komplexen Zusammenhänge zwischen Wählerverhalten, d. h. die relative Bedeutung von politikorientiertem versus nicht-politikorientiertem sowie retrospektivem Wählen, bzw. den Wähler*beliefs* und den Anreizen von gewählten politischen Agenten, effiziente Politiken zu implementieren, wurden bislang kaum systematisch empirisch analysiert. Daher hat dieser Beitrag das Ziel, die bisherigen Analysen aufgrund der Paneldaten für die russischen Wahlen durch die Aufnahme der zusätzlichen Daten über die Medienkanäle und die individuelle Zufriedenheit mit öffentlichen Gütern zu vertiefen. Angesichts der Problematik, dass Zufriedenheit sowohl das ideologische als auch das politikorientierte Wählen

beeinflussen kann, wird in diesem Beitrag ermittelt, welche Tendenzen im Zusammenhang mit der Zufriedenheit und dem politischen Verhalten zu beobachten sind. Des Weiteren wird untersucht, wie Medienkanäle das Verhalten der Wähler beeinflussen sowie inwieweit Differenzen im Verhalten zwischen den Machtparteiwählern und anderen Wählern vorliegen.

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2. Kapitel

Testing micropolitical foundation of agricultural protection: Latent Class approach to Slovakia

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2. Testing micropolitical foundation of agricultural protection

Abstract

This paper analyzes, empirically and theoretically, a discrepancy of the policy and non-policy voting motives between farm and non-farm population groups as well as the influence of lobbying on a specific policy outcome, agricultural protection. In this paper, we propose a micropolitically-founded theoretical model to link the well-known theoretical studies on voter behavior and special interest groups (Baron, 1994a; Grossman and Helpman, 1996; Bardhan and Mookherjee, 2002) with empirical methodology. Considering rural and urban populations, we focus on rural groups' use of campaign contributions as a vehicle for influencing agricultural protection. Based on this theory, we are able to explain the development paradox, i.e., with economic development, some countries switch from agricultural taxation to protection (Anderson, 2008); we can also empirically and theoretically identify the determinants of agricultural protection. Further, we derived a practical measure, ideological indicator, based on the post-logit-estimation evaluation of discrete choice models. Ideological indicator illustrates how to appropriate the relative importance of policy preferences compared to ideological preferences. To confirm our theory, we estimated a latent class model based on the probability of making a specific choice among a set of political parties as a function of choice attributes (individual distances in political space) and other individual characteristics. According to discrete choice models, a voter supports the candidate or the party who maximizes his combination of measured policy-related utilities and his unmeasured utilities. Based on logit estimation, we calculated the political weights of voters as well as relative political weights of groups, which depend on the relative importance of policy versus non-policy voter motives, and show that Slovakian farmers' votes are really more policy-oriented than Slovakian non-farmers. Moreover, the non-farm urban population is less captured by farmers than the non-farm rural population. Therefore, the existence of the agricultural lobby is evident; however, the considerably biased voter beliefs of non-farmers induce only small relative weight of lobbying vis-a-vis the voters.

2.1. Introduction

The political theory interprets electoral competition as a fundamental democratic mechanism for guaranteeing that governmental policies reflect society's interests. However, electoral competition takes place at two levels: first, providing different policies, the politi-

cal parties fight for the votes of informed voters; second, the parties want to be supported by lobby contributions to gain more of the votes of uninformed voters. Reviewing the literature about the impact of voters' and lobbies' behavior on the policy outcome, we can identify two strands of studies contributing to the understanding of agricultural protection.

The first strand of literature is devoted to classical political economy models, which understand final policy outcomes as the result of political bargaining among various social groups for income distribution. Inefficient (biased) agricultural policies can be explained by the fact that political decision makers often favor special interest groups at the expense of the general public to increase their re-election prospects, because the special interest groups monitor the political decision maker better. The basic explanation of why the policy bias is toward special interests is information asymmetry, which arises endogenously because of the free-rider problem (Lohmann, 1998). The well-known recent works of Beghin and Kherallah (1994), Beghin et al. (1996), Swinnen et al. (2000), Thies and Porche (2007), Olper and Raimondi (2009) provide a comprehensive econometric analysis of the political determinants of agricultural protection, including socio-economic factors as control variables. While many models explain observed differences in agricultural protection, comparing industrialized and developing countries (Zusman, 1976; Becker, 1983; Gardner, 1987; Tyers and Anderson, 1992; Swinnen, 1994), and understand agricultural policies as the results of political bargaining competition between the organized voter groups, these approaches ignore the role of ordinary voters. A theoretical justification for neglecting electoral competition and the role of the voter can be found for example in Becker (1983), which focuses on interest group competition based on the assumption that voters' electoral choices are completely controlled by interest groups, e.g., via campaign spending. According to Becker (1983), even in democratic countries, the electoral output is not influenced by policy-oriented voting and is completely generated by non-policy oriented voting. This fact goes against to the fundamental democratic mechanism of electoral competition; moreover, this is contrary to the theoretical and empirical works which postulate a relationship between Democracy, Good Governance, and positive economic development (Judson and Owen, 1999; Sen, 1987; Acemoglu and Johnson, 2005, 2007; Knack and Keefer, 1997; Mauro, 1995), and confirms an impact of democratic political institutions on political decisions and economic development (Milesi-Ferretti et al., 2002; Rogowski and Kayser, 2002; Persson and Tabellini, 2003; Grossman and Helpman, 2005). Another micro-political foundation for the neglect of voters can be derived from socio-

structural theories of voting, i.e., following Lazarsfeld et al. (1968) or Lipset and Rokkan (1967): voters' electoral choices are completely determined by their social classes so that electoral competition does not imply much incentive for elected politicians to perform.

A second strand of studies corresponds to theoretical and empirical probabilistic models analyzing not only the impact of special interest groups on policy outcome, but also the influence of non-organized voters on policy outcome (Persson and Tabellini, 2000; Baron, 1994a; Grossman and Helpman, 1996; Bardhan and Mookherjee, 2002). A central theoretical work using a probabilistic approach is Bardhan and Mookherjee (2002), developed in the framework of an extended version of the Baron-Grossman-Helpman model of electoral competition (Baron, 1994a; Grossman and Helpman, 1996). All these models show that biased policy outcome, in terms of low government performance and government capture, results if voters are modeled to apply different mechanisms to make a choice between political parties or candidates based on their level of information on politics. Thus, the share of informed and uninformed voters across social groups has a dominant impact on a biased policy in favor of informed voters. Policy positions of candidates or parties depend, first of all, on the proportion of uninformed voters: if there are relatively few uninformed voters, then the productivity of campaign expenditures is low. The higher the proportion of uninformed voters, the more the candidates cater to interest groups and the more biased the policies. Although a key result of these works is that a necessary condition for government capture is that voters base their judgment of different parties at least partly on the non-policy factors, these non-policy factors are not analyzed. Further, these studies focus only on informed and uninformed voters; however, an identification of such voters in reality is very restricted, since a policy space is multidimensional: the same voter can be informed in one policy issue and uninformed in another policy issue. Therefore, in the framework of empirical works, it makes more sense to use another terminology, policy and non-policy voting (Adams et al., 2005), whereby the latter are often linked to ideological preferences (Persson and Tabellini, 2000). We note that absolute and relative levels of policy and non-policy oriented voting components are relevant for policy outcomes.

While many studies (Beghin and Kherallah, 1994; Beghin et al., 1996; Swinnen et al., 2000; Thies and Porche, 2007; Hee Park and Jensen, 2007; Olper and Raimondi, 2013, 2011; Henning, 2008; Henning et al., 2012, 2013) show an indirect impact of the political system, first of all the election system, on the policy outcome (agricultural protection), a direct relative importance of policy and non-policy voting motives of farmers versus non-

farmers for agricultural protection at the micro level was not yet provided. In this context, the paper tries to make the following contributions:

First, to link theoretical studies (Baron, 1994a; Grossman and Helpman, 1996; Bardhan and Mookherjee, 2002) with empirical methodology, this paper develops a micropolitically-founded theory of voter behavior. Considering rural and urban populations, we focused on rural groups' use of campaign contributions as a vehicle for influencing agricultural protection. Assuming that voters expect a pro-agrarian policy, rural districts are pivotal in determining policy-oriented voting. Introducing one lobby for agricultural groups, we developed a model of campaign finance in which political parties wanted to maximize the votes of both policy and non-policy oriented voters' motives. In the framework of this theory, based on maximization of social welfare function, formulation of the relative importance of policy versus non-policy motives, as well as their discrepancy among the heterogeneous population groups, we were able to identify the determinants of agricultural subventions in industrial countries.

Second, we developed a measure to verify the theoretical models empirically. Hence, using the frame of probabilistic discrete choice models, we derived the ideological indicator, based on the post-logit-estimation evaluation. Ideological indicator illustrates how to practically appropriate the weight of the policy vs. ideological preferences. This hypothetical measure provides the extent to which the non-policy (ideological) term is higher than the policy-term, i.e., to which extent the policy voting term must be increased to compensate for non-policy voting advantages.

Third, the theoretical hypotheses were tested empirically. We estimated latent class models based on individual distances between voter and parties in political space, since, according to discrete choice models, a voter supports the candidate or the party who maximizes his combination of measured policy-related utilities and his unmeasured utilities. In the case of latent class choice models, we obtained different population segments (latent classes), endogenously determined by non-policy variables. By calculating the ideological indicator, we were able to confirm our theory, i.e., the suggested greater importance of the relative policy component for farmers than for non-farmers. Therefore, using propensity score matching, we could identify potential urban voters to have a representative sample. We then calculated the relative political weights for voters; these political weights reflect to what extent the voters vote indifferently in the policy space, i.e., to what extent they are important for politicians. Moreover, to uncover agricultural lobby and capture, we

approached a theoretical policy outcome in PNE, maximizing the votes over all considered population groups, and computed the relative political weights for these groups. Our results reveal a capture towards the farmers and strongly biased voter beliefs in favor of EU agricultural protection.

2.2. The Model

2.2.1. The population and economy

The population and economy

We consider a society comprising of two groups, the agrarian and the non-agrarian population. Each group has a fixed share in total population which is denoted by α_J , $J = R, M$. Society's economy is subdivided into two sectors, agriculture and manufacture. Agricultural policy is considered as a redistribution between the agricultural and non-agricultural sector. For simplicity we assume that income redistribution occurs via subsidization and taxation, where two different policy regimes are considered. In particular, let s_R and s_M denote the per capita subsidy paid to agrarian and non-agrarian population, respectively, while t_R and t_M denote corresponding per capita tax. Accordingly, $s_R - t_R$ is the net-subsidization of rural population, where a positive net subsidy, i.e. $s_R - t_R > 0$ indicates a *subsidy regime* and vice-versa a negative net-subsidy, $s_R - t_R < 0$ indicates a *tax regime*.

Any feasible agricultural policy, (s_R, t_R) must satisfy the following budget constraint:

$$\Gamma^T(t_M) = \frac{\alpha^R}{\alpha^M} \Gamma^S(s_R) \Leftrightarrow t_M = \Gamma^S(s_R) \quad (2.1)$$

$$\Gamma^S(s_M) = \frac{\alpha^R}{\alpha^M} \Gamma^T(t_R) \Leftrightarrow s_M = \Gamma^T(t_R) \quad (2.2)$$

The functions Γ^S and Γ^T include deadweight costs (Becker, 1983). In particular, it holds: $\Gamma^S(s_R) > s_R, s_R > 0$ and $\Gamma^T(t_R) < t_R, t_R > 0$. Moreover, we assume increasing deadweight costs, i.e. Γ^S is strictly convex and increasing in the level of subsidization, while Γ^T is strictly concave and increasing in the level of taxation. Deadweight costs significantly vary across various agricultural policy instruments. However, we do not focus on the choice of economically efficient redistribution instruments, although discussion on agricultural policy is to a large extent concerned about this issue (de Gorter and Swinnen,

2002; Becker, 1983; Lohmann, 1998).

Assuming identical individuals for both groups implies the following welfare function of each member given agricultural policy (s_R, t_R) :

$$W^R(s_R, t_R) = Y_R^0 + s_R - t_R; \quad W^M(s_R, t_R) = Y_M^0 + \Gamma^T(t_R) - \Gamma^S(s_R)$$

$Y_J^0, J = R, M$ denotes the income of rural and urban population, respectively, without any agricultural policy intervention.

Not further, that due to deadweight costs efficient agricultural policy implies: $t_R * s_R = 0$. That is efficient net-subsidization of agriculture implies that agricultural taxation is zero and vice versa efficient net-taxation of agriculture implies that agricultural subsidy is zero.

2.2.2. Political system

Following Grossman and Helpman (1996) and Bardhan and Mookherjee (2002), we assumed that agricultural policy is set by a legislative majority. Seats in legislature are determined by election outcomes, where parties compete for votes in a democratic election. The parties vary their agricultural policy positions to attract votes and campaign contributions from organized interest groups. In particular, we examined a jurisdiction with two political parties, one interest group that represented the special interests of a specific group, and a finite number of voters.

Voters

The total number of voters is divided into the agrarian and non-agrarian group $J = R, M$, where we assume that the share of agrarian voters in total voters just equals the agrarian population share α_R . The total number of voters in each group is sufficiently large that we can apply the law of large numbers.

There are two parties, denoted A and B . In the Downsian tradition, parties announce their agricultural policies prior to the election, and are assumed to credibly commit to these once elected. Voters engage in probabilistic voting, i.e. a voter $j \in J$ of group J will vote for party A as long as:

$$W^J(X^A) - W^J(X^B) + K^J(\mu_{jJ} + \delta + h(C^A - C^B)) > 0 \quad (2.3)$$

$W^J(X^k)$ denote voter j 's welfare derived from the agricultural policy platform X^k ,

announced by party $k = A, B$. Beyond utility directly derived from policies, voters have non-policy preferences. Non-policy party preferences of voters may arise from personal characteristics of candidates nominated by different parties, e.g. their affiliation with a social, regional or ethnic group, or incumbency, i.e. voters may be unwilling to experiment and hence have a tendency to vote for the party currently in power, or random events that cause voters to evaluate past policy positions differently. These events occur between the time that parties formulate their electoral platforms, and the time elections take place. Hence the outcome of elections are uncertain for parties when they have to formulate their electoral strategies. Moreover, a second component of non-policy voting corresponds to campaign spending, i.e. voters evaluation of parties might be influenced by election advertisement, or election rallies or door-door visits by campaign workers. At this stage we do not further analyze non-policy preferences of voters; we only assume that these include a stochastic component that cannot credibly be modified by parties and a deterministic component that can be influenced by campaign spending.

The first stochastic non-policy component is captured by the parameters μ_{jJ} , and δ , which can take negative and positive values and measure the preference bias of voters from group J . Thus, a positive value implies that voter has a bias in favor of party A . These non-policy preferences are uncertain at the time political agents have to make their policy decision. In detail, we assume that μ_{jJ} has a uniform distributions on

$$[\bar{\mu}_J - \frac{1}{2\chi}, \bar{\mu}_J + \frac{1}{2\chi}]$$

We assume the same density, χ , for both groups, while the relative ideological bias in favor of a specific party, which is captured by the group specific mean $\bar{\mu}_J$, can vary across groups.¹

Furthermore, the parameter δ captures a common national popularity shock, where we assume that G is the distribution function of δ . In contrast, to μ_{jJ} G is a more general distribution function different to an uniform distribution. Following Grossman and Helpman (1996) as well as Bardhan and Mookherjee (2002) we assume further that the popularity of a party can also be influenced by campaign spending, where $h > 0$ is a parameter reflecting the marginal effectiveness of campaign spending in increasing a party popularity.

¹Please note that Persson and Tabellini (2002) introduced the term ideological preferences for the stochastic component of the non-policy preference. Please note further, that Persson and Tabellini (2002) use the term ideology differently to how ideology is generally used in political science see for example Enelow and Hinich (1984)

Non-policy party preferences of voters may arise from the personal characteristics of candidates nominated by different parties, e.g., their affiliation with social, regional, or ethnic groups, incumbency, i.e., voters may be unwilling to experiment and hence have a tendency to vote for the party currently in power, or random events that cause voters to evaluate past policy positions differently. These events occur between the time that parties formulate their electoral platforms and when elections take place; thus the outcome of elections is uncertain for parties when they have to formulate their electoral strategies. Moreover, a second component of non-policy voting corresponds to campaign spending, i.e., voters' evaluation of parties might be influenced by election advertisements, election rallies, or door-to-door visits by campaign workers. At this stage, we did not further analyze the non-policy preferences of voters; we only assumed that these included a stochastic component that cannot credibly be modified by parties and a deterministic component that can be influenced by campaign spending.

Following Grossman and Helpman (1996) and Bardhan and Mookherjee (2002), we further assumed that the popularity of a party can also be influenced by campaign spending, where $h > 0$ is a parameter reflecting the marginal effectiveness of campaign spending in increasing party popularity.

Finally, we assumed that the relative importance of voters' non-policy preferences, when compared to policy preferences, differs across groups, which is captured in the group specific parameter, K^J . Baron (1994b) as well as Grossman and Helpman (1996) provide an informational rationality of the relative importance of voters' non-policy preferences compared to their policy preferences; in particular, Bardhan and Mookherjee (2002) refer to the empirical studies of Delli Carpini and Keeter (1996), which point out that political awareness, i.e., the importance of policy voting versus non-policy voting, crucially depends on voters' political knowledge. Furthermore, in another paper, we provided a theoretical model from which we derived that the relative importance of policy preferences vis-a-vis non-policy issues increases with the level of political knowledge (Henning and Petri, 2013).

Conditional on the national shock, the vote share which party A receives from group J results as:

$$\pi_A^J = \phi^J [W^J(X^A) - W^J(X^B)] + \chi(\delta + \bar{\mu}_J + h(C^A - C^B)) + \frac{1}{2} \quad (2.4)$$

where it holds: $\phi^J = \frac{\chi}{K^J}$.

Accordingly, the total vote share of party A results as:

$$\begin{aligned} \Pi^A &= \sum_J \alpha^J \pi_A^J = \frac{1}{2} + \chi(\delta + \bar{\mu}) + w^A(X^A, C^A) - w^B(X^B, C^B) \\ , \text{ where } w^k &= \sum_J \alpha^J \left(\phi^J W^J(X^k) + \chi h C^k \right) \quad \text{and} \quad \bar{\mu} = \sum_J \alpha^J \bar{\mu}_J \end{aligned} \quad (2.5)$$

Given the electoral strategy (X^{k*}, C^{k*}) of the two parties, the ex ante probability that party A wins a majority results:

$$\begin{aligned} P^A &= \text{Prob}[\Pi^A > \frac{1}{2}] = \text{Prob} \left[\chi(\bar{\mu} + \delta) + w^A(X^A, C^A) - w^B(X^B, C^B) \geq 0 \right] \\ &= G^A \left(\bar{\mu} + \frac{1}{\chi} \left[w^A(X^A, C^A) - w^B(X^B, C^B) \right] \right) \end{aligned} \quad (2.6)$$

, where G^A is the distribution function of the national popularity shock δ and is a strictly increasing function of the difference in the effectiveness of the respective electoral strategies of the two parties and of voters' average ideological preference in favor of party A .

Electoral competition and lobbying in election

For simplicity, we focused our analysis of electoral competition by assuming electoral rules corresponded to proportional representation, i.e., elections take place in a single national voting district.

Each party is assumed to maximize the probability of winning the national election. Parties are thus presumed to be purely opportunistic, and the rents from office are exogenously given. Equation 2.6 implies that each party has a dominant strategy: party k will select an electoral strategy (X^k, C^k) to maximize its own electoral effectiveness $w^k(X^k, C^k)$, no matter what the other party does. Accordingly, party k 's behavior can be represented simply by maximizing the weighted welfare of agricultural and non-agricultural groups, respectively, and campaign spending:

$$\begin{aligned} &W(X^k) + \frac{h\chi}{\theta} C^k \\ &\text{with} \\ &W(X^k) = \sum_J g^J W^J(X^k) \end{aligned} \quad (2.7)$$

where relative weight of group J , g^J , just correspond to the following term:

$$g^J = \frac{\alpha^J \phi^J}{\sum_K \alpha^K \phi^K} \quad (2.8)$$

and

$$\theta = \sum_K \alpha^K \phi^K \quad (2.9)$$

In the absence of any lobbying, the political equilibrium results as a unique pure Nash equilibrium (PNE), $X^* = X^{A*} = X^{B*}$, of a Downsian Party competition set-up: each party will choose the policy platform that maximizes a Bentham's welfare function of voters. Please note that as long as non-policy voting plays a different role for the agrarian and the non-agrarian group, i.e., $K^A \neq K^M$, the unique PNE corresponds to the maximization of a weighted additive welfare functions, where the average weight of an agrarian voter differs from the corresponding weight of a non-agrarian voter. In contrast to our model, non-policy-voting is neglected in the original Downsian set-up, i.e., all voters cast their vote based on the parties' policy platforms only, which implies the same weight for all voters. Which party wins the election depends entirely on the unpredictable swing factor δ . If it holds $G = Prob(\delta + \bar{\mu} > 0) > 0.5$, party A is favored to win elections. Here we assume that the national popularity shock is unbiased, i.e., $G(0) = Prob(\delta \geq 0) = 0.5$, while average voters might be ideologically biased in favor of a party. Hence, if we assume $\bar{\mu} > 0$, the average ideological bias is in favor of party A , i.e., $\bar{\mu} > 0$ and hence $G = Prob(\delta + \bar{\mu} > 0) > 0.5$. In the following, we used \bar{G}^A and $\bar{G}^B = 1 - \bar{G}^A$ to denote the probability of party A and party B , respectively, to win the elections without any lobbying.

Lobbying

The final assumption of our model is that there exists one organized interest group representing the economic interests of the agrarian sector and one representing the non-agrarian sector, respectively. The set of lobby groups is exogenous in the Grossman-Helpman framework; in their model, more than one lobby can be incorporated. As has been nicely shown by Grossman and Helpman (1996) as well as Bardhan and Mookherjee (2002), however, the relevant policy impact of lobbying depends on the relative strength of the lobbying group. Therefore, we focused our analysis on an exogenous lobbying group to capture the essential effects in the asymmetry of lobbying strength of agrarian versus non-agrarian interest groups.

In particular, let D_J denote a dummy variable that indicates if the economic interests of a group J are represented by the lobby, where $D_J = 1$ indicates representation, while $D_J = 0$ indicates no representation. Further, we assume that only an exogenous fraction l of the total represented population is an active member of the interest group and hence financially contributes to the lobby.

Following the path-breaking work of Grossman and Helpman (1996), we assume that the lobby contributes to the campaign finances of two parties, where these contributions are conditioned on the policy platforms of the parties: $\tilde{C}^A(X^A), \tilde{C}^B(X^B)$, or unconditioned \hat{c}_A, \hat{c}_B , i.e., total contribution result as: $C^k = \tilde{C}^k(X^k) + \hat{c}_k$.

Following Grossman and Helpman (1996), we first focused on conditional lobbying. The corresponding lobbying game is as follows: at the first stage, the lobby offers non-negative contribution schedules, $C^A(X^A), C^B(X^B)$. At the second stage, each party selects its policy platform, maximizing its vote share Π^k , i.e., party $k = A, B$ maximizes $W(X^k) + \frac{h\chi}{\theta} C^k$. Hence, at the first stage, if the lobby wants to influence a party's policy choice, it must make sure that the party prefers to adopt the policy position X^k and get the contribution C^A from the lobby, compared to getting no contributions and realizing its equilibrium support without lobby \bar{G}^k . Thus, formally, the minimum contribution the lobby has to pay to a party, k , for taking policy position X^k results in the following participation constraints:

$$\tilde{C}^k(X^k) = \frac{\theta}{h\chi} [W(X^*) - W(X^k)] \quad (2.10)$$

The lobby maximizes the sum of the welfare of its members. Thus, let $W^L = \sum_J D_J \alpha^J W^J(X^k)$ denote the welfare of the total population represented by the lobby. Then the problem of the lobby corresponds to the following maximization problem:

$$\underset{X^k}{\operatorname{argmax}} \sum_k G^k(X^k, C^k) l W^L(X^k) - \tilde{C}^k(X^k),$$

If the lobby only wants to influence parties' policy choices, but not the relative probabilities of either party winning, that implies that the lobby gives the parties exactly the minimum contribution. Hence, party A continues to win the election with probability \bar{G}^A , independent of the actual policy chosen, while party B wins the election with the constant probability \bar{G}^B . Accordingly, assuming the lobby has only an influence motive, the lobby problem becomes choosing one of the two party platforms to maximize the expected utility.

Overall, the following proposition describes the equilibrium policy choices:

Proposition 1: If the contributions from a sole lobby satisfy both participation constraints in eq. 2.10, it follows that, in equilibrium, the policy choice X^k of party $k = A, B$ maximizes the following additive welfare function:

$$\begin{aligned} & W(X^k) + \left(\frac{\bar{G}^k h l \chi}{\theta}\right) W^L(X^k) \\ & = \left(g^R + D_R \alpha^R \frac{\bar{G}^k h l \chi}{\theta}\right) W^R(X^k) + \left(g^M + D_M \alpha^M \frac{\bar{G}^k h l \chi}{\theta}\right) W^M(X^k) \end{aligned} \quad (2.11)$$

Next, we analyze the electoral motive of the lobby, i.e., the lobby contributes to a party without expecting that the party adopts its policy platform in exchange. The rationality of unconditional campaign spending follows from the fact that campaign spending induces a change in the reelection probabilities of the parties. Hence, taking party platforms as given, the lobby might want to donate to a party to increase the reelection probability of this party. Let \hat{c}_k denote the level of unconditional campaign spending to the party k . It then follows that the lobby selects the level of unconditional campaign spending to maximize the expected welfare of its members, i.e., the following first-order condition results:

$$\begin{aligned} \frac{\partial G^A}{\partial \hat{c}_A} l \left[W^L(X^A) - W^L(X^B) \right] - 1 &\leq 0 \quad \perp \quad \hat{c}_A \geq 0 \\ \frac{\partial G^A}{\partial \hat{c}_B} l \left[W^L(X^B) - W^L(X^A) \right] - 1 &\leq 0 \quad \perp \quad \hat{c}_B \geq 0 \end{aligned} \quad (2.12)$$

Obviously, it follows directly from the equilibrium conditions in eq. 2.12 that the lobby never wants to support both parties simultaneously, since both conditions cannot hold simultaneously. Moreover, unconditional lobbying makes only sense for the lobby if the parties have different policy platforms, where the agrarian lobby never contributes to the party with the lower protection level. Furthermore, we note that sole unconditional lobbying does not induce parties to select a different optimal policy platform, since the reelection probability of a party is additively separable in unconditional campaign contributions and party platforms. Thus, excluding a conditional lobby for the moment, it follows that, for any level of unconditional lobby, the best response of both parties is to choose the PNE position X^* .

Proposition 2: Including both conditional (\hat{c}_k) and unconditional (\tilde{C}^k) campaign spending, the equilibrium policy, campaign spending choices, and the probabilities of the parties

to win (P^k) are characterized by the following conditions:

$$\begin{aligned}
 X^{k*} &= \underset{X^k}{\operatorname{argmax}} W(X^k) + \left(\frac{P^k h l \chi}{\theta} \right) W^L(X^k) \\
 P^A &= G(C^{k*}, X^{k*}), P^B = 1 - P^A \\
 \frac{\partial G^k(C^{k*}, X^{k*})}{\partial \hat{c}_k} l \left[W^L(X^{A*}) - W^L(X^{B*}) \right] - 1 &\leq 0 \quad \perp \quad c_k^* \geq 0 \\
 \tilde{C}^k(X^{k*}) &= \frac{\theta}{h \chi} \left[W(X^*) - W(X^{k*}) \right] \\
 C^{k*} &= \tilde{C}^{k*}(X^{k*}) + \hat{c}_k^*
 \end{aligned} \tag{2.13}$$

Given our exhibitions above, the proof of *proposition 2* is straightforward and therefore is omitted here ².

Furthermore, denote $\beta_J^k = \left(g^J + D_J \alpha^J \frac{\bar{G}^k h l \chi}{\theta} \right)$. Then, the optimal agricultural policy platform $X^{k*} = (s_R^{k*}, t_R^{k*})$ chosen by party $k = A, B$ to maximize reelection chances can be derived from the following first-order conditions:

$$\begin{aligned}
 \frac{\partial \Pi_k}{\partial s_R} &= \beta_k^R - \beta_k^M \frac{\partial \Gamma^S}{\partial s_k} \leq 0 \quad \perp \quad s_R^{k*} \geq 0 \\
 \frac{\partial \Pi_k}{\partial t_R} &= -\beta_k^R + \beta_k^M \frac{\partial \Gamma^T}{\partial t_k} \leq 0 \quad \perp \quad t_R^{k*} \geq 0
 \end{aligned} \tag{2.14}$$

Based on the conditions characterizing the political equilibrium, we can derive a set of hypotheses regarding the impact of voter behavior on agricultural protection levels. We summarize these results in *proposition 3*.

Proposition 3: The impact of voter behavior on agricultural policy resulting from electoral competition is characterized by the following properties:

- (i) In political equilibrium, optimal party platforms correspond either to taxation or subsidization of agriculture, but never to both simultaneously, i.e., it holds $t_R^{k*} s_R^{k*} = 0 \quad \forall k = A, B$.
- (ii) A necessary condition that a party k prefers a subsidy regime ($s_R^{k*} - t_R^{k*} > 0$) is : $\frac{\beta_R^k \alpha^M}{\beta_M^k \alpha^R} > 1$, while $\frac{\beta_R^k \alpha^M}{\beta_M^k \alpha^R} < 1$ is a necessary condition that a party k prefers a tax regime ($s_R^{k*} - t_R^{k*} < 0$).
- (iii) The PNE X^* corresponds to a subsidy (tax) regime if non-policy preferences have a lower (higher) importance vis-a-vis the policy preferences for the agrarian, compared to the non-agrarian, voters, i.e., it holds $K^R < K^M$ ($K^R > K^M$). Moreover, in a subsidy regime, the subsidy level decreases with the ratio $\kappa = \frac{K^R}{K^M}$ and vice versa in a tax regime, where the tax level increases with κ , where κ measures the relative

²The proof is available from the authors upon request.

importance of non-policy voting for the agrarian voters in comparison to the relative importance of non-policy voting for the non-agrarian voters.

(iv) The impact of lobbying on agricultural policy is crucially dependent on the average relative importance of policy versus non-policy voting; in particular, the agricultural policy position held by a party k in equilibrium can be derived from an additive welfare function that includes the welfare of agrarian and non-agrarian voters, respectively, and the welfare of the members of the lobby group. $g^L = \frac{G^k h l \chi}{\theta}$ is the relative political weight of the lobby vis-a-vis the common weight of the voters, $g^R + g^M = 1$. Hence, the relative political weight of the lobby, g^L , is monotonically decreasing in θ and monotonically increasing in l and h . θ measures the average relative importance of policy versus non-policy voting of agrarian and non-agrarian voters, while l measures the interest group cohesiveness and h the effectiveness of campaign spending. In particular, if non-policy voting becomes irrelevant, i.e., $K^J = 0$, with $J = R, M$, lobbying has no impact on agricultural policy.

(v) In equilibrium, lobbying shifts agricultural policy away from the corresponding PNE in favor of the represented group. Hence, if the PNE corresponds to a subsidy regime and the lobby represents agrarian interest, the agricultural subsidy level is higher in the political equilibrium when compared to the PNE, while it is lower or agriculture might even be taxed in equilibrium if the lobby represents non-agrarian interests. Analogously, if the PNE corresponds to a tax regime and the lobby represents non-agrarian interests, the agricultural tax level is higher in political equilibrium when compared to the PNE, while the agricultural tax is lower or agriculture might even be subsidized in equilibrium if the lobby represents agrarian interests.

(vi) A subsidization of agriculture can only be observed in equilibrium, if one of the following conditions holds:

$\theta^R > \theta^M$ or $h > 0$ and $\sum_J K^J > 0$ Moreover, assuming that the generic district is perfectly representative for the total society, i.e., $\alpha_n^J = \alpha^J$, it follows that the relative ideological bias of rural and urban population determines candidates' preferred policy regime. In particular, in a perfect representative district, candidates only prefer subsidization (taxation) of agriculture if rural population is less (more) ideologically biased than the urban population. However, assuming heterogeneous districts, subsidization (taxation) of agriculture might be preferred, although the rural population

is more (less) biased than the urban population, as long as the share of agricultural population is sufficiently higher (lower) in the generic district when compared to the average national share. The latter replicates the well-known result of Weingast et al. (1981), indicating that the geographical distribution of costs and gains from political redistribution determines the politically-preferred level of redistribution. The higher (lower) the share of rural population in a generic district in comparison to the corresponding national share, the higher (the lower) is the share in political gains and the lower (higher) is c.p., the share of political costs resulting from agricultural subsidization and thus, more (less) politicians being re-elected that prefer agricultural subsidization.

(vii) Assuming a subsidy regime, i.e., $s_R^* > 0$, then subsidization of agriculture increases the higher the ideological bias of urban and rural population, i.e., the higher $\frac{\theta^R}{\theta^M}$, the higher the rural population's share in the generic district in comparison to the total society, i.e., the higher $\frac{\alpha^R}{\alpha^M}$, while subsidization of agriculture decreases the higher the relative national share of rural and urban population, i.e. the higher $\frac{\alpha^R}{\alpha^M}$. Note that the latter replicates the result of Becker (1983), who nicely demonstrated that assuming increasing deadweight costs of taxation implies that subsidization is higher when the subsidized group is smaller than the taxed group.

(viii) Defining a family $r = 1, \dots, y$ of redistribution schemes characterized by different deadweight costs, where the difference in deadweight costs can be expressed with a factor λ_r , such that:

$$\lambda_r \Gamma_r^S(s_R) = \Gamma_1^S(s_R), \quad \lambda_r \geq 1 \quad \forall r = 1, \dots, y$$

$$\lambda_r \Gamma_r^T(t_R) = \Gamma_1^T(t_R), \quad \lambda_r \leq 1 \quad \forall r = 1, \dots, y$$

It then follows that, in equilibrium, subsidization of agriculture decreases with deadweight costs.

The proof of proposition 3 is straightforward given from the first-order condition 2.14. Overall, *proposition 3* implies the well-known development paradox, i.e., the higher costs of collective action by the large group of farmers opposed to the relatively smaller and politically better-organized urban manufacturing sector result in taxation of agriculture in developing countries. In contrast, in highly-developed economies, a declining farm population is better organized and, thus, votes less ideologically, but more in response to

politically-distributed welfare, while higher wages and smaller expenditure shares on food decrease urban resistance to higher agricultural prices.

Therefore, the political costs of subsidizing agriculture are significantly lower in industrialized countries when compared to developing countries and, vice-versa, the political costs of taxing agriculture are significantly lower in developing countries than in industrialized ones. However, it also follows directly from *proposition 3* that, beyond relative political responses of urban and rural populations, the preferred direction and level of redistribution are also determined by deadweight costs.

Altogether, our theoretical model identifies a number of determinants of agricultural protection:

- (i) *High relative importance of policy versus non-policy voting*: The expected agricultural protection level increases c.p. with the relative importance of non-policy voting versus policy voting.
- (ii) *Lack of effective electoral competition*: Expected agricultural subsidization increases with higher loyalty bias in favor of one party.
- (iii) *Average level of political awareness*: Expected agricultural protection decreases with the greater average relative importance of policy versus non-policy voting.
- (iv) *Disparity in the level of political awareness across agrarian and non-agrarian population*: The greater disparity in the level of political awareness across the groups in favor of farmers, the higher the expected agricultural protection.
- (v) : *Organizational strength of farm interests*: The higher organizational strength of farm interests, the higher agricultural protection.

Although the electoral competition of our theoretical model implies a policy choice in PNE based on a linear form of social welfare function, we can test our theory by estimating the conditional logit model, since the empirical estimation of the logit model does not substitute a problem of maximization of social welfare function but mainly changes the generated political weights. The theoretical conclusions from linear maximization will also apply for the conditional logit models and multi-party system, since the relative political weights that dominate policy choice in PNE can be empirically specified from the conditional logit models and thus our theoretical hypotheses can be tested. As a whole, we dealt with two different kinds of relative weights. First, the ordinary voters had special

weights vis-a-vis a lobby group. Second, the farmers, as a voter group, had special political weights vis-a-vis the non-farmers (see Appendix). These political weights are different for both groups and depend on the relative importance of non-policy voting versus policy voting. To find a relative importance of non-policy voting versus policy voting, we derived a practical measure from a post logit evaluation, *ideological indicator*. Therefore, we provide a short insight into formulation of spatial models and then approach this indicator.

2.3. Ideology Indicator

Spatial models

The spatial modelers posit that voters prefer parties whose positions are close to their own positions along a salient policy dimension. In other words, the voters support the candidates who reflect their policy beliefs in the best way. Therefore, the modelers used a utility function based on the metric (Euclidean) distances in one- or multi-dimensional space. A utility function $V_i(j)$ of voter i for candidate j is specified as the negative of the squared distance between the voter i at location x_i and a candidate j at location s_j in one-dimensional space in the following way:

$$V_i(j) = -(x_i - s_j)^2. \quad (2.15)$$

In multi-dimensional space, voters have preferences on different issues. Suppose that there are N issues, then x_{i_n} is the voter's position on the n th issue, and s_{j_n} is the candidate's position on the n th issue. A multi-dimensional utility function is obtained by summing the one-dimensional utilities over the various issue dimensions. With the policy-salience parameter for the n th issue, β_n , the voter's utility for the candidate's policies is given by

$$V_i(j) = - \sum_n \beta_n (x_{i_n} - s_{j_n})^2. \quad (2.16)$$

It is not possible to describe the voters' behavior only through their political beliefs, because voters can support a preferred candidate even if some rival candidate better reflects the voter's political beliefs (Alvarez, 1997). Since there are many unobservable factors which cannot be measured from voter's evaluations of the candidates in voter's surveys, these factors were modeled by a stochastic component. The probabilistic *policy-only* model (Adams et al., 2005) can be extended with measured non-policy variables (such as age,

education, and income) so that we obtain two kinds of variables. In this case, the most suitable model for this estimation is the extended conditional logit model, which combines the multinomial logit model with the pure conditional logit model. The extended conditional logit model in the framework of a discrete choice model was established and developed by McFadden (1974, 1982). This kind of model allows one to examine how the characteristics of an individual i (case-specific data) and the characteristics of some choice j (alternative-specific data) affect the probabilities. In this case, the independent variables of choice- or alternative-specific variables (in our analysis, *policy* variables) don't provide information about the decision maker, but rather information relative to each alternative: the effect of these variables on the utility doesn't differ across alternatives. In contrast, the socio-demographic variables (here non-policy variables) do not vary over the alternatives: the effect of these variables on the utility of alternatives differs across alternatives.

Thus the extended conditional logit model becomes the form:

$$V_i(j) = \alpha_j + \sum_l \gamma_{lj} t_{li} - \sum_n \beta_n (x_{in} - s_{jn})^2, \quad (2.17)$$

or in the condensed form

$$V_i(j) = \alpha_j + \sum_l \gamma_{lj} t_{li} - \sum_n \beta_n d_{ij}^n, \quad (2.18)$$

, where d_{ij}^n are corresponding Euclidean distances. $\sum_l \gamma_{lj} t_{li}$ is the sum of non-policy measured factors: the vector t_{li} is a vector of non-policy variables specifying a individual characteristic of voter i for the l th non-policy variable and the vector γ_{lj} is a vector of a salience parameter of party j for the l th non-policy variable. α_j is an alternative-specific constant, which captures the average effect on utility of all factors that are not included in the model. When alternative-specific constants are included in the model, the stochastic component ϵ_{ij} has zero mean by construction.

The logit probability that voter i chooses party j has the following form:

$$P_{ij} = \frac{e^{V_i(j)}}{\sum_J e^{V_i(j')}} = \frac{e^{\alpha_j + \sum_l \gamma_{lj} t_{li} - \sum_n \beta_n d_{ij}^n}}{\sum_J e^{\alpha_{j'} + \sum_l \gamma_{lj'} t_{li} - \sum_n \beta_n d_{ij'}^n}}. \quad (2.19)$$

Ideology indicator

We derived an ideology indicator based on the post-logit-estimation evaluation. Since only differences in utility matter in logit estimation, we set the differences pairwise across all utilities equal to zero to find the point in which all pairs of parties' probabilities to become elected were identical to each other; this means that we found the hypothetical point in which a voter is indifferent between two parties, since the utilities of these parties are identical. However, this doesn't mean that a weight of a non-voting utility's component was equal to a weight of voting utility's component; these components can be definitely diverse. Assume J is a set of parties with $1, 2, \dots, j \in J$. Thus, the ideology indicator is derived in the following way:

$$V_i(j) - V_i(j') = (\alpha_j - \alpha_{j'}) + \sum_l (\gamma_{lj} - \gamma_{lj'}) t_{li} - \sum_n \beta_n (d_{ij}^n - d_{ij'}^n) = 0. \quad (2.20)$$

This equation needs to be rewritten:

$$\sum_n \beta_n (d_{ij}^n - d_{ij'}^n) = (\alpha_j - \alpha_{j'}) + \sum_l (\gamma_{lj} - \gamma_{lj'}) t_{li}. \quad (2.21)$$

Further we divide by the sum of betas on both sides:

$$\sum_n \frac{\beta_n (d_{ij}^n - d_{ij'}^n)}{\sum_n \beta_n} = \frac{(\alpha_j - \alpha_{j'}) + \sum_l (\gamma_{lj} - \gamma_{lj'}) t_{li}}{\sum_n \beta_n}. \quad (2.22)$$

Assume, that $\widetilde{\beta}_n = \frac{\beta_n}{\sum_n \beta_n}$ is the relative weight of distances' difference for a policy issue n . Thus we obtain:

$$\sum_n \widetilde{\beta}_n (d_{ij}^n - d_{ij'}^n) = \frac{(\alpha_j - \alpha_{j'}) + \sum_l (\gamma_{lj} - \gamma_{lj'}) t_{li}}{\sum_n \beta_n}. \quad (2.23)$$

$\sum_n \widetilde{\beta}_n (d_{ij}^n - d_{ij'}^n)$ is the weighted sum of distances' differences over all issues n for a voter i . We denote it $D_{jj'}^i$ and name it the weighted policy voting component. We wanted to answer the following question: how great must a weighted policy voting component be to compensate for non-policy voting advantages?

$$C_{jj'}^i = \frac{(\alpha_j - \alpha_{j'}) + \sum_l (\gamma_{lj} - \gamma_{lj'}) t_{li}}{\sum_n \beta_n}. \quad (2.24)$$

Finally, it is interesting to know the weighted policy voting component not only for one-party constellation but the mean of all party pairs for a voter.

To derive a non-policy indicator, we shaped the mean over all party constellations in the following way:

Table 2.1.: Evaluation of Non-policy Indicator

Parties	1	...	j	...	J	
1	0	...	C_{1j}^i	...	C_{1J}^i	$\frac{1}{J-1} \sum_{h=1}^J C_{1h}^i$
...	...	0	...	...	...	...
j	C_{j1}^i	...	0	...	C_{jJ}^i	$\frac{1}{J-1} \sum_{h=1}^J C_{jh}^i$
...	...	...	...	0	...	...
J	C_{J1}^i	...	C_{Jj}^i	...	0	$\frac{1}{J-1} \sum_{h=1}^J C_{Jh}^i$

Therefore, a non-policy indicator for individual i for party j results in:

$$|Id_j^i| = \left| \frac{\sum_{h=1}^J C_{jh}^i}{J-1} \right| \quad (2.25)$$

By the last step, we find the only one weighed sum of all party means, so that we get only one non-policy indicator for a voter i of the following form:

$$Id^i = \sum_{j=1}^J S_j * |Id_j^i| \quad (2.26)$$

where S_j is the share of party j .

An ideological indicator derived from a non-policy voting term is a hypothetical measure. If the ideological indicator of voter i is quite high, the policy voting term of the voter must be increased very much to compensate for non-policy voting advantages. ideological indicator corresponds to the relative marginal effects, presented in the Appendix, so that a correlation between both is 0.64***.

Voter behavior, lobby and government accountability

To analyze voter behavior after logit estimation of latent class analysis (LCA) , we used indices describing the implications of voter behavior for government performance, presented by Henning et al. (2014). Given our theory above, the more c.p. voters rely on non-policy

voting, i.e., the more relative importance of non-policy versus policy voting, the less a political support-maximizing government considers voters' preferred policy position. Formally, the larger the α -parameter in relation to the β -parameter, the more voters base their vote choice on non-policy factors; thus, more electoral competition implies that the government orients its policy towards organized interest groups (lobby) and ignores voters. Accordingly, we defined an index of governmental accountability (GA) vis-a-vis the voters as the following relation (see Appendix):

$$GA = \frac{\beta_G}{\alpha_G + \beta_G}$$

with

$$\beta_G = \sum_{i \in V} PME_{iG}$$

$$\alpha_G = \sum_{i \in V} NME_{iG}$$

While GA measures the relative accountability of the government vis-a-vis the voters, a low value for GA does not necessarily imply that the government is not accountable to society, because a high α -value only implies that the electoral outcome is significantly driven by campaign spending. Thus, as long as campaign funds are generated primarily by national interest groups, elected politicians might still have strong incentives to represent society's interests, as organized interest groups are constituted by members of society. Only if campaign spending is derived primarily from other organizations (e.g., international donors) does a high α -value imply low GA; this effect occurs because international donor organizations do not represent society members. In many cases, donor organizations act in the interest of a specific society, but from a society perspective, donor-driven policies are, at best, derived from imposed welfare functions.

While ideological indicator and relative marginal effects correspond to the rate of substitution (i.e., by what percentage the probability of non-policy changes when 1% increasing probability of policy voting), the further index assesses the relative importance of different voting motives to the sum of all marginal effects:

$$RI_i^{NP} = \frac{NME_i}{NME_i + PME_i}$$

$$RI_i^P = \frac{PME_i}{NME_i + PME_i}$$

2.4. Empirical Model

2.4.1. Discrete Choice Models

Discrete choice models derived in a random utility model (RUM) framework are used in a variety of areas of applied econometrics. This kind of model assumes that decision makers choose between two or more discrete alternatives and behave as expected utility maximizers; in the case of spatial models, the voter supports the candidate or the party who maximizes his combination of measured policy-related utilities and his unmeasured utilities (Adams et al., 2005). Assume there are J alternatives for a decision maker. Thus the decision maker i chooses the party j if and only if

$$U_i(j) > U_i(j'), \forall j \neq j'. \quad (2.27)$$

In random utility models, one presumes that the utility $U_i(j)$ provided to individual i by party j is composed of a deterministic component $V_i(j)$, which can be calculated based on observed characteristics, and a stochastic error component ϵ_{ij} , which is unobserved, so that the formula for a random utility model determining only policy factors is given by

$$U_i(j) = V_i(j) + \epsilon_{ij} = - \sum_n \beta_n (x_{ni} - s_{nj})^2 + \epsilon_{ij}, \quad (2.28)$$

where ϵ_{ij} is a voter-specific random utility term which represents the unmeasured components of the voter i 's utility for a party j . The assumption used in the (conditional) logit is that the unobserved portion of utility ϵ_{ij} follows, independently and identically, an extreme value distribution.

Note that in all discrete choice models, the absolute level of utility is irrelevant. The choice probability is $P_{ij} = Prob(U_i(j) > U_i(j')) = Prob(U_i(j) - U_i(j') > 0)$, which depends only on the difference in utility and not its absolute level. This fact has implications for the identification of discrete choice models. Thus the conditional logit model is used as the regression model in Latent Class Models (see below) and specifies that the probability that voter i chooses a party j is proportional to the exponential of the deterministic component

of utility and the sum of these probabilities over candidates is one

$$P_{ij} = \frac{e^{V_i(j)}}{\sum_J e^{V_i(j')}}, \quad (2.29)$$

where $V_i(j)$ is the systematic component in the utility of alternative j . Further, it is possible to interpret the estimation results as the ratios of logit probabilities (Odds):

$$Odds_{ijm} = \frac{P_{ij}}{P_{im}} = \frac{\frac{e^{V_i(j)}}{\sum_J e^{V_i(j')}}}{\frac{e^{V_i(m)}}{\sum_J e^{V_i(j')}}} = \frac{e^{V_i(j)}}{e^{V_i(m)}} = e^{V_i(j)-V_i(m)}. \quad (2.30)$$

An odds ratio greater than 1 indicates that an individual i is more likely to vote the party j ; conversely, if an odds ratio is less than 1, an individual i is more likely to vote the party m . If an odds ratio is equal to 1, then both parties have the same probability of winning the election.

The conditional logit model developed by McFadden (1974) is the regression model used for estimation of latent class models in Latent GOLD Choice 4.0 software (Vermunt and Magidson, 2005). In the following, we specify our estimated model of latent classes and describe the used database.

2.4.2. Latent Class Analysis

LCA uncovers unobserved heterogeneity in a population and aims to find meaningful groups of people that are similar in their responses to measured variables. LC analysis was introduced in 1950 by Lazarsfeld (1950), who coined the term *latent structure analysis* and included factor analysis as the latent structure method for characterizing continuous latent variables (factors) based on continuous observed variables (McCutcheon, 1987). The traditional LC model was introduced by Lazarsfeld and Henry (1968) for dichotomous variables (Magidson and Vermunt, 2001). The further formalization and extension of LCA are based on, amongst other works, Goodman (1972, 1974), Clogg (1988), McCutcheon (1987), Vermunt (1997), Hageaars (1990).

Latent Class Estimation of this paper was realized in Latent GOLD Choice 4.0, developed by Vermunt and Magidson (2005). From the three possible methods in Latent GOLD Choice 4.0, based on different response formats (*first choice*, *ranking task*, *rating task*), *first choice* format was selected as most suitable method concerning the assumption that

each choice set has the same number of alternatives.

In this specific case, the conditional logit model doesn't include predictor effects (*only-policy* model), so the term $V_i(j)$ is a linear function of an alternative-specific constant α_j and attribute effects β_n , where i is used for a particular individual, j for a particular alternative, and n for a particular attribute. Let y_{it} denote the value of the dependent variable for a case i at replication t , which can take on values $1 \leq j \leq J$. Note that each individual was observed only once; therefore, we have one-to-one correspondence between replications and choice sets. So that we can denote it in simplified terms y_i .

That is,

$$V_i(j) = \alpha_j + \sum_n \beta_n d_{ij}^n, \quad (2.31)$$

where $\sum_{j=1}^J \alpha_j = 0$ is presumed. The detailed form of the estimated model is given, then, by

$$V_i(j) = \alpha_j + \beta_{EU} d_{ij}^{EU} + \beta_{Eco} d_{ij}^{Eco} + \beta_{Soc} d_{ij}^{Soc}, \quad (2.32)$$

where β_{EU} , β_{Eco} , β_{Soc} are attribute effects accordingly for attributes d_{ij}^{EU} , d_{ij}^{Eco} , and d_{ij}^{Soc} , calculated Euclidean distances in three dimensions (see below database), which characterize the policy choices of voters.

In a latent class variant of the conditional model, it is assumed that individuals belong to different latent classes that differ with respect to β_n . To indicate that the choice probabilities depend on class membership x , the logistic model is of the form (cf. Vermunt and Magidson, 2005, p.12):

$$P(y_{it} = j|x) = \frac{\exp(V_{i|x}(j))}{\sum_J \exp(V_{i|x}(j'))}, \quad (2.33)$$

Here, $V_{i|x}(j)$ is the systematic component in the utility of alternative j , given that individual i belongs to the latent class x . As can be seen, the logit regression coefficients are class-specific and the linear model for $V_{i|x}(j)$ in this specific case is:

$$V_{i|x}(j) = \alpha_{xj} + \sum_n \beta_{xn} d_{ij}^n. \quad (2.34)$$

In addition to the attributes, we included in our latent class analysis another type of explanatory variable - covariates - in the LC model. While attributes enter in the regression model for choices, covariates are used to predict class membership. When covariates are included in the model, the probability density occupies the following form (cf. Vermunt and Magidson, 2005):

$$P(\mathbf{y}_i) = \sum_{x=1}^X P(x|\mathbf{z}_i^{\text{cov}}) \prod_{t=1}^{T_i} P(y_{it}|x), \quad (2.35)$$

where $\mathbf{z}_i^{\text{cov}}$ is a set of covariates of individual i and \mathbf{y}_i is a vector of all responses.

2.4.3. Data Base

(I) Own Sample³

The data used for the empirical analysis were derived from a household questionnaire of non-farm and farm households, which included 391 households in four different rural communities in Slovakia: Trnava, Galanta, Michalovce, and Trebisov. The communities were selected following a two-dimensional design, covering economically high- and low-performing rural regions and communities located close or distant to a major city. Personal interviews were undertaken by locally-trained professional interviewers in 2007.

Table 2.2.: Communities

Community	Economic Performance/Closeness to City	Farm	Non-farm
Trnava	High/close	27	53
Galanta	High/distant	14	55
Michalovce	Low/close	49	90
Trebisov	Low/distant	32	71
Total		122	269

For our analysis, we used the further socioeconomic characteristics as explanatory and

³EU-Project ADVANCED-EVAL FP6: Development and application of advanced quantitative methods to ex-ante and ex-post evaluations of rural development programmes in the EU, http://cordis.europa.eu/result/rcn/47026_en.html

class-membership determining variables:

- Subjective Characteristics:
 - Age (Age)
 - Education (Education): 1=basic, 2=vocational, 3=secondary, 4=high school, 5=university
 - Total monthly income in Euro (Income)
 - Farmer Affiliation (Farmer): 1=farmer, 0 otherwise
- Regional Differences:
 - Economic Performance of community (High-Performance): 1=high, 0=low
 - Distance to city (Distance-to-city): 1=close, 0=distant

In addition to standard socioeconomic, network, and migration issues, interviewees were asked about the perceived positions of the parties and their self-placement concerning the three issues, using the following questionnaires:

- *EU – Subsidies* (EU): Some people say that the Slovak government should lobby in Bruxelles to obtain more subventions for agricultural sector in Slovakia. Others say that the government should lobby for other issues
- *Socio – economic trade – off* (Eco): Some people say that tax should be increased in favor of better public services and social security. Others say that public services and social security should be cut down to reduce tax
- *Social – cultural dimension* (Soc): Some people agree with liberal policies like legalizing abortion, homosexual marriage etc. Others disagree with such liberal policies

The questions were referred to the latest national parliamentary election that took place on the 17th of June 2006. The relevant parties and their results at the latest election are summarized in Table 2.3. Note that the latent class analysis included only voters of the parties for whom the seats in the National Council (Narodna rada Slovenskej republiky) were allocated; in other words, the parties with at least 5 % of the nationwide votes. Although Slovakia was governed by a coalition of three parties (SMER, SNS, and HZDS) spanning the whole political spectrum, the coalition was dominated by the left-leaning SMER. The shares of parties in our sample can be seen in Figure 2.1.

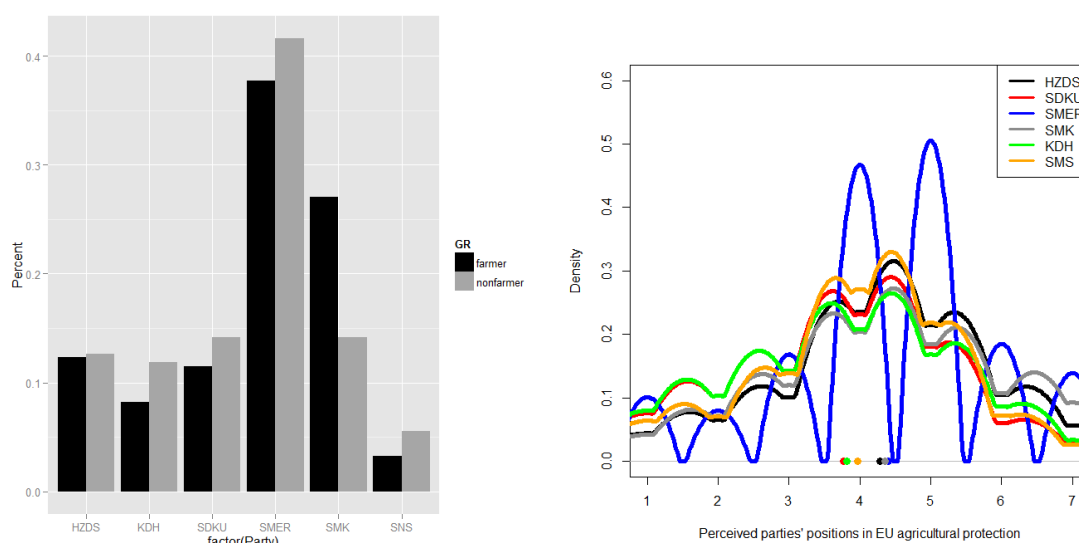
Using a one-to-seven scale, respondents placed the parties and themselves concerning the issues above. Based on these voters' policy preferences and their beliefs about all parties' positions in three dimensions, the squared (Euclidean) distances were calculated for each

Table 2.3.: Party System in Slovakia after Election 2006

Party	Abbr.	Ideology	Votes,%	Seats
Direction - Social Democracy (Smer)	SMER	Center left	29.14	50
Slovak Democratic and Christian Union	SDKU	Christian Democrat	18.35	31
Slovak National Party	SNS	Nationalist	11.73	20
Party of the Hungarian Coalition	SMK	Minority	11.68	20
People's Party - Movement for a Democratic Slovakia	HZDS	Center right	8.79	15
Christian Democratic Movement	KDH	Conservative	8.31	14
Communist Party of Slovakia	KSS		3.88	
Free Forum	SF		3.47	
Alliance of the New Citizen	ANO		1.42	
other Parties under 1 %			3.23	

of three dimensions and for each of six parties, so that these eighteen distances were taken as attributes (*policy* variables) in LCA. The perceived voters' positions for EU agricultural protection, based on which an outcome policy (w_P) was calculated, are presented in Figure 2.1.

Figure 2.1.: Votes of parties and perceived parties' position



(II) Eurobarometer Sample⁴

Since our own sample is predominantly based on data from rural areas (farmers share in our sample 31% versus 8% nation-wide), we take also the Eurobarometer data for 250 Slovakian voters⁵ to identify with the help of *propensity score matching* potential urban

⁴ZA4235: Candidate Countries Eurobarometer 2002.3 (New Europeans, Science and Technology, and the Agriculture), <https://dbk.gesis.org/dbksearch/sdesc2.asp?no=4235&db=e&doi=10.4232/1.4235>

⁵A share of urban voters in the sample, based on Eurobarometer data, is 58%

2. Testing micropolitical foundation of agricultural protection

voters among the non-farmers in our sample and hence to ensure a ideal position of urban voters in EU-Dimension for the further calculation of lobby influence.

In addition to *age*, *education*, *income*, *farmer status* (1=farmer, 0=non-farmer), *urban* variable (1=village, 2=small town and 3=city), and political party choice, the following questions regarding agricultural protection in the EU, used in further factor analysis, were available:

- (QA1) In your opinion, should the European Union use its agricultural policy to:
- (QA1_a) Ensure stable and adequate incomes for farmers? yes=1, no=0
- (QA1_b) Make European agriculture more competitive on world markets? yes=1, no=0
- (QA1_c) Protect the taste and the specificity of European agricultural products? yes=1, no=0
- (QA1_d) Protect medium or small sized farms? yes=1, no=0

Based on these questions, the following factor loadings were determined, so that a factor *EU agricultural protection* was generated for our further *propensity score matching*, making it possible to identify a potential urban group in our sample, to deal with the representative sample, and to calculate the political weights for all population groups.

Table 2.4.: Factor analysis for Eurobarometer data

Variable	Factor loadings
QA1_a	0.66
QA1_b	0.65
QA1_c	0.71
QA1_d	0.73
Variance	0.47%

2.4.4. Results

First, we present the results of LCA, based on which the individual ideological indicator was calculated. Second, based on our theory, we demonstrated, by ideological indicator, the relative greater importance of policy-oriented voting for the agricultural population versus the non-agricultural population. Third, we computed the political weights reflecting the relative importance of one group's policy voting versus another group's policy voting for politicians to test our theory. Moreover, we calculated the capture indices (see Appendix), as well as the indices *GA* and *RI*s, to see whether the agricultural group is really more important for politicians than the non-agricultural group, i.e., whether the farmers capture the non-farmers and that the agricultural lobby exists.

Ideological indicator

We estimated the latent class models to find out to what extent the voters have policy and non-policy motives. Table 2.6 shows the results of the latent class analysis with the estimated parameters, i.e., the relationship between the dependent (choosing a political party) and independent variables (distances in three political dimensions) and the significance levels for each class, which are determined by the socioeconomic variables. A two-class model was the best fit for the data set, based on the Bayesian Information Criterion (BIC) proposed by Nylund et al. (2007), where it was concluded that BIC is superior to AIC (2.5).

Table 2.5.: Fit for different number of latent classes

	BIC	AIC	CAIC
2 classes model	1191.692	1100.411	1214.692
3 classes model	1235.387	1084.577	1273.387
4 classes model	1289.144	1078.803	1342.144

From Table 2.6, the class membership probabilities show 53.13% of the interviewees being a member of class 1 and 46.8% of class 2. The results indicate heterogeneity of party preferences across the two latent classes. The estimation results also imply that policy-oriented choice is different in both latent classes. For instance, while class 1 strongly votes according to the economic dimension (Eco), the policy voting of class 2 is dominantly generated by preferences in the two other dimensions (EU and Soc). The negative sign for attribute means indicates less Euclidean distance between a voter and party in this or that dimension, and thus greater likelihood for the party to be elected. Two classes are marked by different constants; class 1 has the greater significant constants for two parties (SMER and SNS) compared to the significant constants for these parties in class 2. Also from Table 2.6, class membership is determined by the socioeconomic variables *age*, *education*, *income*, and *farmer status* as well as community indices (High-Performance and Distance-to-city). Only two variables have a significant influence in the class determination: farmer-belonging and community performance. The first group is likely to be overrepresented by non-farmers, mainly from low-performing communities.

2. Testing micropolitical foundation of agricultural protection

Table 2.6.: Results of the Latent Class Analysis with the Estimated Parameters by z-values

		Class1	z-value	Class2	z-value
Class Size		53.13%		46.87%	
Constants	HZDS	-0.689	-1.608	0.261	0.703
	SDKU	-0.003	-0.013	0.200	0.624
	SMER	1.447***	8.033	0.684*	1.803
	SMK	0.367*	1.660	0.437	1.313
	KDH	-0.446	-1.479	0.085	0.220
	SNS	-0.676*	-1.796	-1.666*	-1.960
Attributes	EU	-0.009	-0.439	-0.736***	-3.415
	Eco	-0.065***	-2.649	-0.087	-1.167
	Soc	0.004	0.245	-0.704***	-3.591
<i>Class-Membership</i>					
Intercept		1.020*	1.653	-1.020*	-1.653
Covariates	Age	-0.010	-1.319	0.010	1.319
	Education	-0.052	-0.648	0.052	0.648
	Income	-0.004	-0.223	0.004	0.223
	Farmer	-0.454*	-1.710	0.454*	1.710
	High-Performance	-0.488***	-2.387	0.488***	2.387
	Distance-to-city	0.184	0.934	-0.184	-0.934

Log likelihood function: -527.206;

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$

Further, we calculated an *ideology indicator*, developed in formula 2.23. First, using the estimated coefficients of latent classes, we evaluated *ideology indicator* for each voter and class. Since we didn't have the predictors in our model, the *ideology indicator* for class x was the same for each voter within a latent class x and took the form:

$$IdeoIn^i_x = \sum_{k' \in J} (s_{k'} \frac{1}{J-1} \sum_{k \in J} D^i_{xk'k}) \quad (2.36)$$

with

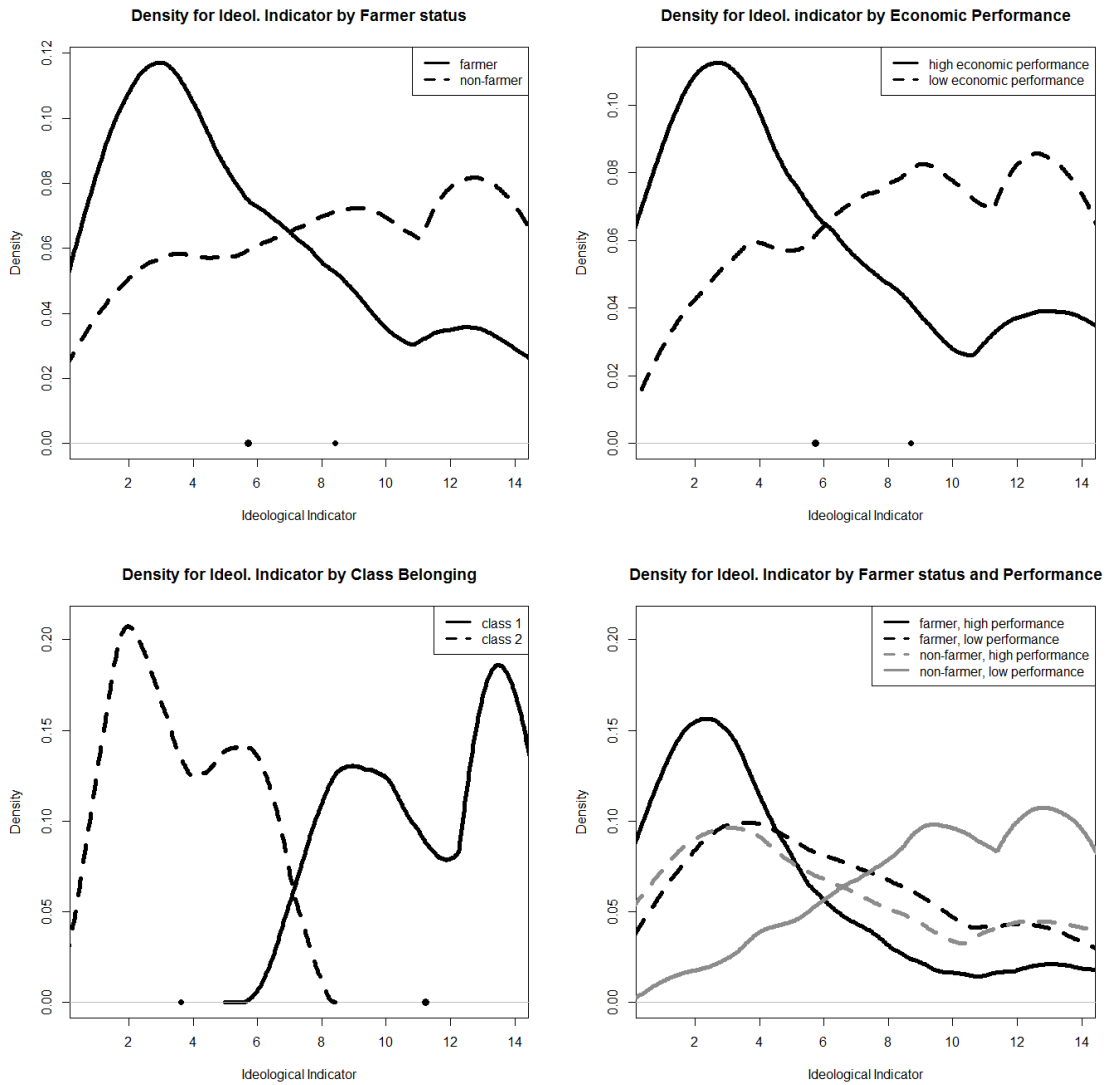
$$D^i_{xk'k} = \frac{(\alpha_{xk'} - \alpha_{xk})}{\sum_n \beta_{xn}}. \quad (2.37)$$

Second, we calculated an individual *ideology indicator* for voter i based on the posterior class membership probabilities $\hat{P}(x|y_i)$ of voter i :

$$IdeoIn^i = \sum_{x \in X} IdeoIn^i_x \hat{P}(x|y_i) \quad (2.38)$$

Third, we computed kernel density plots of individual *ideological indicator*, separated for three cases: farmers and non-farmers, for inhabitants of low- and high-performance communities, and for class 1 and class 2. To obtain a better explanation, we also provide the fourth plot with more detailed distributions: for farmers with high and low performance as well as for non-farmers with the same characteristics.

Figure 2.2.: Estimated kernel density of ideological Indicator



The plots of Figure 2.2 provide evidence of heterogeneous election within the classes and socioeconomic groups, whereas the main heterogeneity occurs between the classes. Moreover, we performed a *t – test* for Equality of Means and *Levene's test* for Equality of Variances for all cases. For distribution of kernel density by farmer affiliation, the tests resulted in an insignificant inequality of variances and highly significant difference of means

(with means 5.71 and 8.41, respectively). For distribution by performance characteristics, these tests also confirmed an insignificant inequality of variances and highly significant difference of means: 5.72 and 8.70 for high- and low-performance communities, respectively. The tests for distribution by latent classes indicate that variances are significantly different in both classes with significantly unequal means (11.21 for class 1 and 3.63 for class 2). Finally, the last plot shows that the farmer group with a high performance votes less ideologically than one with a low performance. The same is true for the non-farmers. It is also interesting that the distribution of farmers with low performance is very close to one of non-farmers with a high performance.

Thus, LCA indicates significant heterogeneity in voter behavior between farmers and non-farmers. While endogenously determined that class 2, which overrepresented farmers from high-performing communities, votes in a more policy-oriented fashion than class 1; a separation of groups by exogenous factor (farmer status) demonstrates the significant differences in means for ideological indicator. Therefore, the results confirmed a central idea of this paper: special interest groups vote in a more policy-oriented fashion.

Political weights

To calculate the political weights for all society groups, we first identified urban voters with the aid of *propensity score matching* (PSM). Linear transformed factor values from the factor analysis, i.e., individual voter positions to EU agricultural protection, were used, among other variables, as independent variables in logit estimation (Table 2.10), based on which the propensity scores were calculated and a matching was realized. Using the results of previous studies (Plesivcak, 2012), confirming a great attachment of Slovakian urban voters for the right-wing SDKU, we used a dummy for SDKU as a treatment indicator to match potential urban voters in our sample. Based on the logit estimation, a function *Match* of software *R* identified 57 urban voters, so that we are now able to deal with three population groups: farmer, non-farmer rural, and non-farmer urban.

Individual voter positions to EU agricultural protection from the Eurobarometer sample and our data are presented as a kernel density estimation in Figure 2.3. A small difference between urban and non-urban opinion about agricultural protection exists, whereby the correlation between *urban* variable and *agricultural protection* for the Eurobarometer sample is only -0.19***, while the correlation for our data is -0.34***. Obviously, we consider a great bias in the ideal position of voters toward EU agricultural protection: the most

urban voters have nothing against the EU supporting the farmers.

Figure 2.3.: Individual position to EU agricultural protection between urban and non-urban voters for both samples

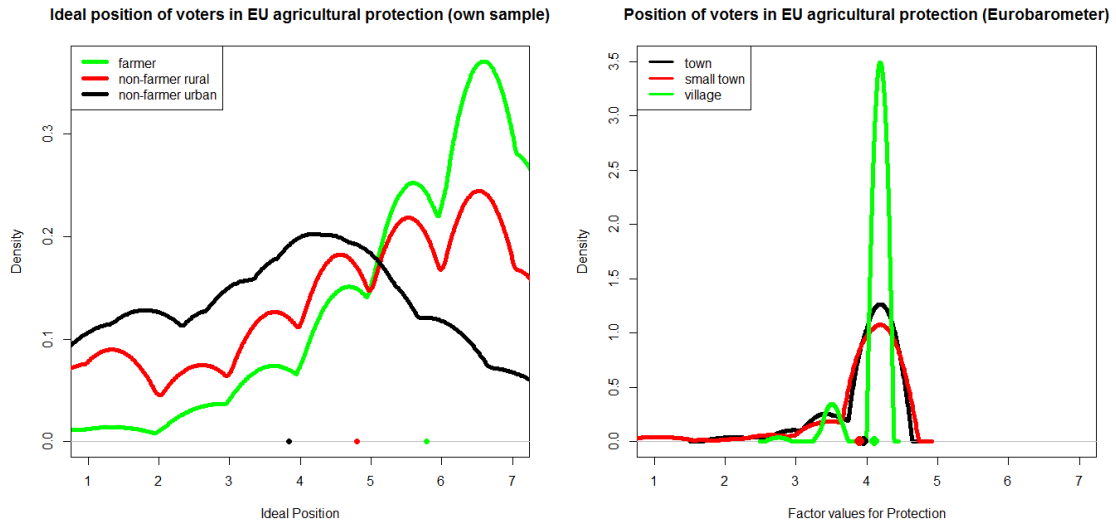
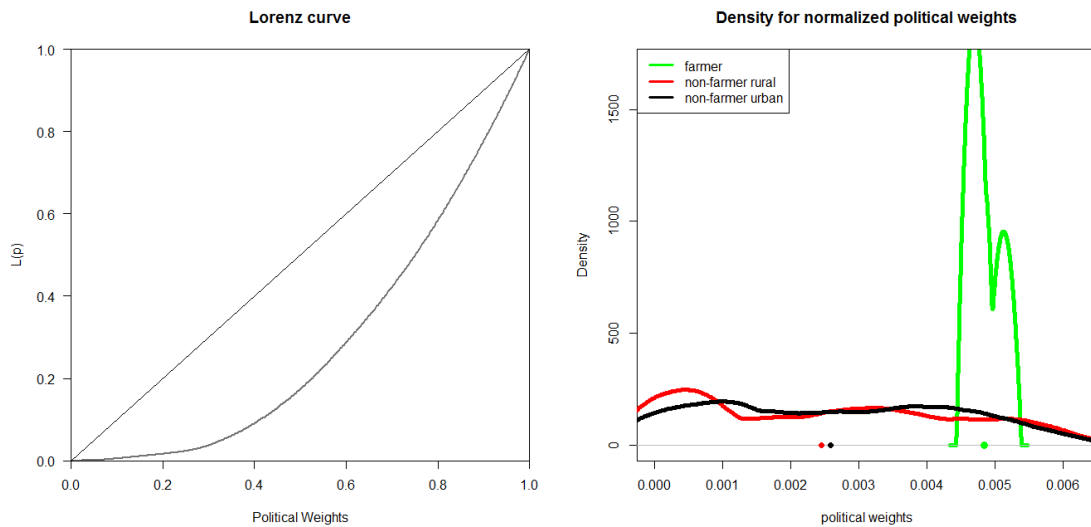


Figure 2.4.: Political weights and Lorenz curve



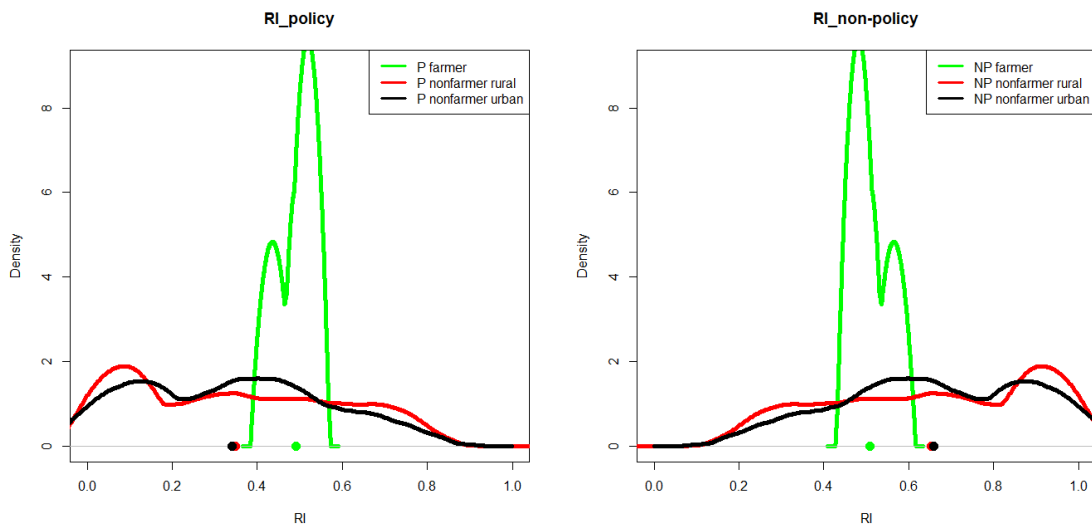
Knowing the ideal positions of urban voters from our own data sample, we calculated the political weights and other indices (see Appendix) with the following results. From the Lorenz curve below (2.4), we first saw a great discrepancy in political weights (with Gini coefficient 0.425), while the large gap between the political weights of farmer and non-farmer groups is evident from the next kernel density plot by the *urban* variable. Thus, the great importance of the farmer group for politicians is obvious. The correlation between the ideological indicator and political weights was -0.42^{***} , so that the political weights of

2. Testing micropolitical foundation of agricultural protection

groups really depend on the relative importance of policy voting, i.e., the more ideologically one group votes, the less it will be taken into account when choosing the equilibrium policy. Moreover, by computing the relative political weights between two different groups, we found that the capture index of the farmers versus non-farm rural group was 1.40, while the capture of the farmers versus urban group is 1.21, i.e., the urban group was less captured by the farmers than the rural non-farmers, since the urban group votes are more policy-oriented than the rural non-farmers (see plot 2.6 in Appendix).

Next, we computed the density plots for indices RI_i^{NP} and RI_i^P by society groups. Naturally, the sum of all relative marginal effects is one. From Figure 2.5, we see that also relative importance of policy voting is greater for the farmer group; the non-farmer groups place greater importance on non-policy motives. Moreover, the *government accountability* index, GA , is 0.428.

Figure 2.5.: Political weights and Lorenz curve



Thus, we considered a relatively large GA towards the voters, first of all towards the farmers. On the other side, the GA towards organized interest groups (0.572) points to the existence of the lobby canal, which we tried to determine. According to the estimated ideal party position in equilibrium (see Appendix), w_j^{n*} , which maximizes all votes and is calculated over three considered groups ⁶, farmer, rural, and urban, we assumed the

⁶Our calculation of ideal party position w_j^{n*} is based on the assumption of the following exogenous Slovakian weights: 7% for farmers and 93% for non-farmers (with 57% urban and 43% rural population of non-farmers).

following equation:

$$G^W w_j^{n*} + G^L w_L = w_P \quad (2.39)$$

where w_L is a preferred position of the lobby, calculated as a mean over the ideal positions of all farmers, w_P is the outcome position (average perceived position of parties), and relative voters' weight is $G^W = 1$. We found a small relative weight of lobby, G^L , equal to 0.0082, referring to the existence of only a minimal agricultural lobby canal.

In this line of thought, we can conclude the following. We showed a strong indirect influence of the agricultural lobby on policy choice because of the relatively high political weights of the farm group. On the one side, we found out the relative greater importance of policy voting for the farm group (the calculated ideological indicator for the farmers is significantly smaller) and the capture towards the farmers, whereby the relative weight of the farmers versus the non-farm rural population was appreciably larger than the relative weight of the farmers versus the urban group (1.40 versus 1.21), i.e., the urban group is less captured by the farmers. These results explain an attachment for agricultural protection in the EU. On the other side, despite the significantly greater relative importance of policy voting for the farmer group, meaning a potential existence of a lobby canal, we found only a very small relative weight of agricultural lobby when observing the empirically-perceived voters' positions in EU agricultural protection. This fact is explained, first of all, by the great affection of the urban voters for EU agricultural protection, confirmed by the two different samples. Obviously, urban and non-farm rural populations have special voter beliefs which influence their opinion about EU agricultural protection that, for example, the protection of farmers positively affects their own welfare. It means, in addition to the two known factors, i.e., the importance of policy-oriented voting on the part of voters as well as the strong organization and concernment on the part of agricultural lobby, there also exists a third factor determining the policy choices in democratic countries: biased voter beliefs. Although there is no consensus among scholars of rational choice theory (Downs, 1957; Coleman, 1990) and the theory of *Policy Beliefs* (Caplan, 2007), we could confirm both tendencies: first, the better-organized farm group votes more rationally than the non-farm group; second, in reality, the agricultural lobby must not be necessarily strong to be able to push through their own interests because of biased voter beliefs. Note that biased voter beliefs may also be a consequence of a successful lobby bargaining from

discussing relevant issues in the public. For example, well-knowing organizations acting as defenders of consumer rights (among others, *foodwatch.org*) have a large impact on voter beliefs and thus on policy choices, but not via campaign spending.

2.5. Conclusions

We provide a systematic analysis of policy- and non-policy-oriented voting motives at both the theoretical and empirical levels. This paper tries to integrate existing theoretical studies on voter behavior and special interest groups (Baron, 1994a; Grossman and Helpman, 1996; Bardhan and Mookherjee, 2002) and advanced empirical probabilistic studies focusing on voter behavior to derive theoretical hypotheses that will be empirically tested by the latent class approach. In particular, we provide a theory that relates the relative importance of different voting motives for urban and rural populations to the induced electoral incentives of politicians in agricultural protection.

We started with a theoretical model applied to the economic and ideological framework conditions for a population with different heterogeneous groups. The voting model was based on a probabilistic environment in which the rural districts of industrialized countries are less ideologically committed than urban districts. As a consequence, a level of agricultural protection increases with the falling relative importance of non-policy voting for the agrarian voters, in comparison to the relative importance of non-policy voting for the non-agrarian voters. Moreover, the impact of lobbying on agricultural policy is crucially dependent on the average relative importance of policy versus non-policy voting, i.e., the more the average relative importance of policy versus non-policy voting of agrarian and non-agrarian voters, the less lobby impact on agricultural protection. Moreover, the theoretical propositions of our model imply the well-known development paradox (Anderson, 2008), : the higher costs of collective action by the large group of farmers opposed to the relatively smaller and politically better-organized urban manufacturing sector imply a taxation of agriculture in developing countries; in contrast, in highly developed economies, a declining farm population is better organized and, thus, votes less ideologically, but more in response to politically-distributed welfare, while higher wages and smaller expenditure shares on food decrease urban resistance to higher agricultural prices. Therefore, the political costs of subsidizing agriculture are significantly lower in industrialized countries than in developing countries and, vice-versa, the political costs of taxing agriculture are significantly lower in developing, when compared to industrialized, countries.

To verify the theoretical models empirically, show how the demographic and economic framework conditions influence the election, and to show whether farmers vote less ideologically, we needed a practical measure. Hence, as the next step, using the frame of discrete choice models, we derived an ideological indicator based on the post-logit-estimation evaluation. The ideological indicator illustrates how to practically appropriate the weight of policy preferences compared to ideological preferences. This hypothetical measure provides the extent to which the non-policy (ideological) term is higher than the policy term, i.e., to which extent the policy voting term must be increased to compensate for non-policy voting advantages.

Further, we implemented a probabilistic voter model in the framework of LCA in Latent GOLD Choice 4.0 software (Vermunt and Magidson, 2005). In the two-class model, only two variables significantly influence the class determination, namely farmer-belonging and community performance. To investigate which latent class is more pronounced in ideological elections, we estimated the *ideological indicator* for each voter. We found that the farmers, as well as the better-performing communities, vote in a more policy-oriented way, confirming our theoretical hypothesis. Then, using *propensity score matching*, we identified the urban voters so that we are able to deal with three population groups: farmers, rural non-farmers, and urban voters. For each voter and the groups, we calculated the relative political weights, which are significantly dependent on the relative importance of non-policy versus policy voter motives. Computing the relative weights for the groups, we found that the capture index of the farmers versus urban voters (1.21) was smaller than versus rural non-farmers (1.40) and both indices were greater than one. Our theoretical hypothesis of proposition 3 was confirmed by these results, pointing to the strong policy incentives of the organized farmers and implicating, indirectly, the existence of an agricultural lobby, because of the great discrepancy in the relative political weights between the farm and non-farm populations. However, our empirical results implicate only a minimal lobby canal in the sense of our theoretical model, as well as in the sense of other works (Baron, 1994a; Grossman and Helpman, 1996; Bardhan and Mookherjee, 2002); we found only a very small relative weight of the agricultural lobby vis-a-vis all voters, obviously because of the strongly biased beliefs of the non-farm population, i.e., they have the great attachment for EU agricultural protection. It seems that the non-farm voters have special beliefs that, for example, agricultural protection positively impacts their own welfare. Such beliefs can obviously arise from the lobby bargaining in public debate. Thus, we provide

two important results: first, there exists the potential lobby canal and that the better-organized farm group votes more rationally than the non-farm group; second, in reality, the agricultural lobby has impacts policy outcomes not only by campaign contributions but also by biased voter beliefs.

ANNEX

2.A. Proof

Beweis. (i) If $s_R^{k*} > 0$, it follows from the equilibrium conditions eq.2.14:

$$\frac{\partial \Gamma^S}{\partial s_k} = \frac{\beta_k^R}{\beta_k^M}$$

From the properties of Γ^S we know: $\frac{\partial \Gamma^S}{\partial s_k} \geq \frac{\alpha^R}{\alpha^M}$

Accordingly, $s_R^{k*} > 0$ implies: $\frac{\beta_k^R \alpha^M}{\beta_k^M \alpha^R} > 1$.

Analogously, it follows from the equilibrium conditions eq. 2.14 that $t_R^{k*} > 0$ implies: $\frac{\beta_k^R \alpha^M}{\beta_k^M \alpha^R} < 1$.

Therefore, it follows directly that in the political equilibrium none of the parties can choose a party platform corresponding simultaneously to a subsidization and a taxation of agriculture.

(ii) If $\frac{\beta_k^R \alpha^M}{\beta_k^M \alpha^R} < 1$ it follows directly $\frac{\beta_k^R}{\beta_k^M} < \frac{\alpha^R}{\alpha^M}$. Hence, given the property of Γ^S : $\frac{\partial \Gamma^S}{\partial s_k} \geq \frac{\alpha^R}{\alpha^M}$ it directly follows: $\frac{\partial \Gamma^S}{\partial s_k} > \frac{\beta_k^R}{\beta_k^M}$ and hence $s_R^{k*} = 0$. The proof for second part of (ii) is analogously and therefore omitted here.

(iii) The equilibrium conditions in eq. 2.14 correspond to the PNE if $g^L = 0$. Accordingly, it follows : $\beta^J = g^J$, and therefore:

$$\frac{\beta_k^R \alpha^M}{\beta_k^M \alpha^R} = \frac{1}{\frac{\alpha^R + \kappa \alpha^M}{\kappa}} = \frac{1}{\kappa} = \frac{K^M}{K^R}$$

□

2.B. Data

Table 2.7.: Description of own data

Statistic	N	Mean	St. Dev.	Min	Max
age	391	51.978	13.376	20	99
education	391	2.959	1.256	1	5
position to EU protection	391	4.967	1.866	1	7
farmer	391	0.312	0.464	0	1

Table 2.8.: Description of Eurobarometer data

Statistic	N	Mean	St. Dev.	Min	Max
age	250	45.544	17.057	16	82
education	250	2.596	1.209	1	5
income	250	3.864	2.133	1	10
position to agric. protection	250	4.000	0.510	1.000	4.190
farmer	250	0.008	0.089	0	1

Table 2.9.: Description of data putted into logit estimation

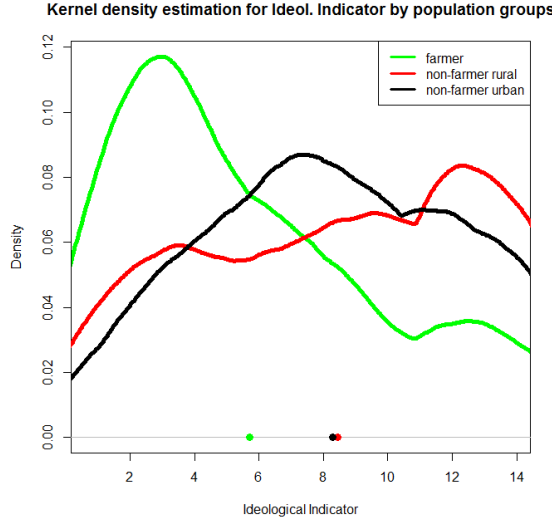
Statistic	N	Mean	St. Dev.	Min	Max
age	641	49.468	15.234	16.000	99.000
education	641	2.817	1.250	1	5
income	641	3.836	2.095	1	10
position to agric. protection	641	4.590	1.564	1.000	7.000
farmer	641	0.193	0.395	0	1

Table 2.10.: Logit Results

	Dependent variable: Dummy SDKU coeff. (Std. Error)
age	-0.013* (0.007)
education	0.211** (0.083)
income	0.064 (0.048)
position to agric. protection	-0.218*** (0.070)
farmer status	-0.394 (0.323)
Constant	-0.651 (0.544)
Observations	641
Log Likelihood	-299.672
Akaike Inf. Crit.	611.345

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Figure 2.6.: Ideological Indicator for three population groups



2.C. Relative marginal effects

The marginal effects of an independent policy alternative-specific variable d_{ij}^n in a policy dimension n for individual i and party j on the choice probabilities is

$$\frac{\partial P_{ij}}{\partial d_{ij}^n} = P_{ij}(1 - P_{ij})\beta_n$$

For whole policy space with N variables, the total differential of the probability can be gained accordingly:

$$dP_{ij} = \sum_{n=1}^N \frac{\partial P_{ij}}{\partial d_{ij}^n} dd_{ij}^n = P_{ij}(1 - P_{ij}) \sum_{n=1}^N \beta_n$$

so that the absolute marginal effect in policy dimension for individual i , party j and class x is

$$PME_{ijx} = P_{ijx}(1 - P_{ijx}) \left| \sum_{n=1}^N \beta_{nx} \right|$$

that means how sensitive a voter reacts on the changing distance between one party and him. Further, we calculate the marginal effects for non-policy dimension (NME) reflected in constants. Concerning the constants being party specific we obtain for non-policy preferences t_i for individual i and party j the following NME:

$$\frac{\partial P_{ij}}{\partial t_i} = P_{ij} (1 - P_{ij}) (\alpha_j - \bar{\alpha}_k)$$

with

$$\bar{\alpha}_k = \sum_{k \neq j}^J \left[\frac{P_{ik}}{\sum_{k \neq j}^J P_{ik}} \alpha_k \right]$$

so that the absolute marginal effect in non-policy dimension for individual i , party j and class x is

$$NME_{ijx} = P_{ijx} (1 - P_{ijx}) |\alpha_{jx} - \bar{\alpha}_{kx}|$$

Further we find individual relative marginal effects for each class and party:

$$RME_{ijx} = \frac{NME_{ijx}}{PME_{ijx}}$$

Weighting with average party share we obtain RME over all parties:

$$RME_{ix} = \sum_{j=1}^J s_j RME_{ijx}$$

2.D. Political Weights and Capture

Probability that a voter i belonging to class x with posterior class membership probability \hat{P}_x votes for party j is F_{ij} :

$$F_{ij} = \sum_x \hat{P}_x F_{ijx} = \sum_x \hat{P}_x \frac{e^{U_{ijx}}}{\sum_J e^{U_{ijx}}}$$

If utility function of voter i for party j is:

$$U_{ij} = \alpha_j - \sum_n \beta^n D_{ij}^n$$

with

$$D_{ij}^n = b_i^n |\varphi_i^n - w_j^n|^2$$

and

$$d_{ij}^n = |\varphi_i^n - w_j^n|$$

then derivation is

$$\frac{\partial F_{ij}}{\partial d_{ij}^n} = \sum_x^X \hat{P}_x \frac{\partial F_{ijx}}{\partial U_{ijx}} \frac{\partial U_{ijx}}{\partial D_{ijx}} \frac{\partial D_{ijx}}{\partial d_{ij}^n} = 2 \sum_x^X \hat{P}_x P_{ij}^x (1 - P_{ij}^x) \left| \sum_n^N \beta_x^n |b_i^n| \varphi_i^n - w_j^n \right| = g_i |\varphi_i^n - w_j^n| = 0$$

with political weight

$$g_i = \sum_x^X \hat{P}_x P_{ij}^x (1 - P_{ij}^x) \left| \sum_n^N \beta_x^n |b_i^n| \right|$$

for individual i over two classes ($X = 2$). The weight is maximized, when electoral competition is strong, i.e. the more the political weight of one group, the more individuals of this group are indifferent between the two parties, i.e. the more importance this group has for politicians which are motivated to gain the votes of this group. b_i^n is a relative importance of individual preferences in dimension n .

For all voters it applies:

$$\sum_i^I g_i |\varphi_i^n - w_j^n| = 0$$

$$w_j^n = \sum_i^I \frac{g_i}{\sum_i g_i} \varphi_i^n$$

For two difference groups R and M , the ideal position of party j in equilibrium, w_j^{n*} , to maximize all votes over the groups is⁷:

$$w_j^{n*} = \frac{\sum_{i \in R} g_i \varphi_i^n}{\sum_{i \in R} g_i} \frac{\sum_{i \in R} g_i}{\sum_i g_i} + \frac{\sum_{i \in M} g_i \varphi_i^n}{\sum_{i \in M} g_i} \frac{\sum_{i \in M} g_i}{\sum_i g_i}$$

$$w_j^{n*} = \left(\sum_{i \in R} \bar{g}_i \varphi_i^n \right) g_{ex}^K + \left(\sum_{i \in M} \bar{g}_i \varphi_i^n \right) g_{ex}^M$$

where $g_{ex}^K = \frac{\sum_{i \in K} g_i}{\sum_i g_i}$ is exogenous weight of the group K and $\sum_{i \in K} \bar{g}_i = \sum_{i \in K} \frac{g_i}{\sum_{i \in K} g_i}$ is a sum of normalized political weights of the voters of a group K . An ideal position over all parties is calculated as a mean weighted with party shares.

Straightforward definition of government capture corresponds to the degree to what political weights of social groups diverge from their corresponding population shares. The higher the weight of a social group, when compared to its population shares, S_K , the more

⁷Analogously, one calculates an ideal position of party j for three or more different society groups

this group is able to capture the government. Hence, we estimate the following capture index for two voter groups R and M :

$$CAP_{R_M} = \frac{\frac{\sum_{i \in R} \bar{g}_i}{S_R}}{\frac{\sum_{i \in M} \bar{g}_i}{S_M}}$$

$CAP_{R_M} > 1$ means that group R captures the group M . Thus, capture results from the lobbying activities of interest groups and particularly appears when not all members of society are equally organized into interest groups (Grossman and Helpman, 1996) or when the relative political weight of different interest groups deviated from the corresponding population shares of the society members organized in these interest groups (Bardhan and Mookherjee, 2002). This capture coefficient corresponds to the $\frac{\beta_R^k \alpha^M}{\beta_M^k \alpha^R}$ from our theory but we take the calculated normalized political weights from non-linear logit estimation, \bar{g} , instead of political weights from a linear model, β_j^k .

Table 2.11.: Correlation table

	Ideol Indic.	RI^{NP}	RI^P	pol. weights	age	education	income	farmer	economic	position EU protec.
RI^{NP}	0.77***									
RI^P	-0.77***	-1.00***								
pol.weights	-0.42***	-0.78***	0.78***							
age	-0.18***	-0.09*	0.09*	-0.02						
education	-0.03	0.01	-0.01	-0.03	-0.23***					
income	-0.14***	-0.22***	0.22***	0.20***	-0.16***	0.07				
farmer	-0.29***	-0.25***	0.25***	0.20***	0.06	-0.08	0.42***			
economic	-0.33***	-0.34***	0.34***	0.16***	0.02	0.04	-0.03	-0.06		
position EU prot.	-0.10*	-0.04	0.04	0.00	0.17***	-0.04	0.05	0.30***	-0.20***	
urban	0.24***	0.19***	-0.19***	-0.14***	-0.15***	0.10**	-0.34***	-0.86***	0.05	-0.34***

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$

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3. Kapitel

**Networks as determinants of voter behavior
for the farm and non-farm population:
An estimation of spatial voting models using Latent Class
Analysis**

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3. Networks as determinants of voter behavior for the farm and non-farm population

Abstract

The micropolitical foundation of government capture is inherent in voter behavior, i.e. the more the relative importance of non-policy- versus policy-oriented voting varies across socio-economic groups, the more biased are governmental policies in favor of special interest groups. This paper considers two socio-economic groups: farmers and non-farmers. First, we derive a theoretical model, where the voter's relative weight for non-policy voting depends on his informational level. Moreover, the informational level depends on the voters' ego-centric network structure, i.e. density and network size. Second, we derive a *non-policy indicator*, i.e. individual-specific relative weights of the policy- and non-policy-oriented voting motives, based on the post-logit evaluation of discrete choice models. Third, we test our theory estimating a probabilistic voting model for Slovakia using own election survey data. In particular, to be able to deal with potential heterogeneity, we estimate a latent class model. Based on the estimation results, we are able to calculate a non-policy indicator. In this way, we identify the relative importance of the policy and non-policy preferences for observed voting behavior. Estimating kernel density on this indicator we show, first, that the farmer class votes less ideologically than the non-farmer class. Further, the non-policy indicator for non-farmers rises with increasing network density and decreases with increasing network size. In contrast, the non-policy voting of farmers is nearly constant with increasing network density and network size. At the end, we analyze the capture between the different socio-economic groups and show that this capture relates to the peer network structure.

3.1. Introduction

Although the idea that social network relations have a significant impact on the economic and political behavior of individual agents at the micro level and corresponding social outcomes at the macro level has been realized for a long time (Sweezy, 1946; Arrow, 1974; Williamson, 1975), only recently has the importance of social networks as determinants of behavior and performance been systematically examined on the theoretical and empirical levels. Nowadays, however, social network theory has become a new and promising paradigm in economics (Jackson, 2008; Goyal, 2005; Alesina and La Ferrara, 2000; Knack and Keefer, 1997; Dasgupta, 1999), sociology (Burt, 1982, 1990; Coleman, 1988; Granovetter, 1985; Fukuyama, 1995), and political science (Putnam et al., 1993; Hardin, 1999; Van Deth

et al., 1999).

In particular, within the political science literature, the early political sociology studies of policy networks focused on social network structure among governmental and non-governmental organizations to explain political decision-making ((Parsons, 1963) and (Coleman, 1963)). Further, Laumann and Knoke (1987) and Knoke et al. (1996) developed social influence models to explain opinion formation within a political communication process, where governmental actors partly adopt their policy positions to the positions communicated by other non-governmental organizations. Moreover, political science scholars study the impact of social networks on voter behavior (e.g. Huckfeldt and Sprague (1995); Fowler (2005)).

However, most political science scholars studying social networks focused on the explanation of political phenomena, e.g. the impact of social network structure on a voter's party loyalty or policy preferences but have not yet studied how voting behavior affects political performance at the macro level.

In contrast, political economists, e.g. Bardhan and Mookherjee (2002), study how voting behavior has an impact on governmental performance theoretically in the framework of an extended version of the Baron-Grossman-Helpman model of electoral competition. But they consider voting behavior to be exogenous and neither theoretically nor empirically analyze the determinants of assumed voting behavior. A key result of their very interesting work is that a necessary condition for government capture is that voters base their judgment of different parties, at least partly, on the non-policy factors. Non-policy voting results from voters being uninformed or politically unaware, i.e. they do not vote for different parties based on the levels of welfare they expect to achieve under their respective policies, but use other non-policy-related indicators to judge different parties. Analogously, even Lohmann (1998) explains inefficient (biased) policies by stating that special interest groups are more informed about the party platforms and, hence, vote in a more policy-oriented manner.

However, neither Lohmann (1998) nor Bardhan and Mookherjee (2002) provide empirical testing of their theories. In particular, to make theoretical analyses traceable, Bardhan and Mookherjee (2002) apply a restricted version of the probabilistic voter model, assuming a uniform distribution of the stochastic utility component, while advanced empirical voter studies apply a more general version of the probabilistic voter model, i.e. assuming a Type I extreme value distribution. However, this more advanced probabilistic voter model

comes at a high cost, as the analyses become more complex. For example, a main advantage of the assumption of the uniformly distributed stochastic utility component corresponds to the electoral competition always being pure strategy as the Nash equilibrium (PNE) exists (also assuming higher policy dimensions). This can be easily computed from a separate maximization of an additive social welfare function (SWF) for each party (Bardhan and Mookherjee, 2002).

This paper integrates existing political science approaches explaining the impact of social networks on voter behavior and political economy approaches explaining government performance. It then derives hypotheses that are empirically tested, estimating a probabilistic voter model including explicitly social network indicators as explanatory variables. In particular, the contributions of this paper are as follows:

1. We show theoretically that the relative importance of a non-policy when compared to policy-oriented voting *ceteris paribus* increases with higher uncertainty.
2. We derive a *non-policy indicator*, i.e. individual and group-specific relation of non-policy and policy voting motives, respectively, based on the post-logit evaluation of discrete choice models. In this way we identify the relative importance of non-policy voting for observed voter behavior.
3. We test our theory estimating a probabilistic voting model for Slovakia using own election survey data. In particular, to deal with potential heterogeneity, we estimate a latent class model. Based on the estimation results of the latent class model, we are able to identify the relative importance of ego-centric network parameters as well as personal characteristics, e.g. age, education, income, for policy and non-policy voting motives calculating individual-specific as well as group-specific *non-policy indicators*, which have direct implications for government performance. We show, first, with kernel density estimation, that the farmer class votes less ideologically than the non-farmer class. Second, the importance of the non-policy factors increases with network density and decreases with network size for the non-farmer class, while the importance of non-policy voting is not significantly determined by network structure for the farmer-class.
4. According to the network theory, we show empirically that the information level of each individual voter depends on the ego-centric network structure, where *ceteris*

paribus information on the politics is higher the larger the network size and the lower the density (clustering) of the ego's network.

5. We derive a *capture coefficient* on the macro level, implying political weights of social groups diverging from their corresponding population shares, and show empirically that government performance, measured as government accountability and capture, decreases *ceteris paribus* with the relative importance of the non-policy voting. Moreover, the capture is related to the social network structure, i.e. network size and density have a significant impact on political weights.

3.2. Networks and voter behavior

3.2.1. Voter Behavior and Networks

Following existing literature, e.g. Huckfeldt and Sprague (1987, 1992); Zuckerman et al. (1994); Pattie and Johnston (1998, 1999); Beck et al. (2002), the voters' information level on politics goes beyond personal characteristics like education, age, and income, and is significantly determined by the voters' personal networks. For example, by undertaking laboratory experiments to identify the effect of information on voting behavior and electoral outcomes, Lupia showed that social network interactions allow one to raise the information level of voters (Lupia, 1994). Several other empirical studies highlight the impact of network structure on the information level of voters and their political choice (Huckfeldt and Sprague, 1987, 1992; Zuckerman et al., 1994; Pattie and Johnston, 1998, 1999; Beck et al., 2002). Beck et al. (2002) states that the primary sources of information and party cues are personal networks and groups, not the modern mass media, and that these partisan cues have a direct influence on voting behavior.

In the empirical studies focusing on voters' participation, researchers investigate how far the socio-economic characteristics of individuals and their social environment as well as the social structure of organizational membership have an impact on political engagement and, hence, on voting behavior (Kenny, 1992; Leighley, 1990; Lake and Huckfeldt, 1998; Cox et al., 1998; McClurg, 2003; Mutz, 2002; Ikeda and Richey, 2005; Verba et al., 1995; Jang, 2009). The influence of individuals on each other in social networks is articulated best in terms of a social learning process. Since the control over information is incomplete, the bias of information that the voters receive is a "complex product of their own preferences intersecting with the content of the incoming stream of information to which they are expo-

sed" (Huckfeldt and Sprague, 1995, P. 20). "When citizens encounter political information that disagrees with their own viewpoints, they may rationally reassess their positions, and herein lies the potential for influence." Political conversations generate a distinct context within which people evaluate the parties and form their individual decision. Conversations with the supporters of a particular party encourage respondents to vote for it too (Pattie and Johnston, 1999). Hence, there are two processes running in both directions: determination of the information supply through political preferences and determination of political preferences through information supply. Following Huckfeldt and Sprague (1995, P. 125), "people choose information sources subject to their own preferences, but they also take what is available. They consume what social structure and social situations supply, albeit guided in acceptance by individual perceptual mechanisms." Further, social networks not only transfer information from one voter to another, but also shape human relationships in a society, generating a basis for trust or mistrust, cooperation or disconnection. Hence, social networks form not only the informational content, which emerges from the networks itself or from media, but also the people's relationship to this informational content. Even if the media translates only one-sided information, the effects of this information determined by networks are dependent, first of all, on whether people trust it or not. Therefore, the problem of latent homophily, i.e. the fact that voter behavior and social network relations influence each other implies that it is generally problematic to identify causal relations from observational data, since voting behavior and networks co-evolve over time (Zuckerman et al., 1994). However, at this stage we are not explicitly interested in the detailed causal mechanisms of how network and voting behavior influence each other, but focus instead on testing theoretical hypotheses on a significant correlation of a specific ego-centric network structure and the relative importance of policy versus non-policy voting.

3.2.2. Networks, Capture, and Government Performance

Social networks, as components of social capital, are able to contribute to the greater or smaller economic and political performance. Networks may help explain coherence between voter behavior and government performance, since networks reflect the state of the information milieu. If, for example, voters are uninformed as well as distrustful and disconnected in their networks, then interest groups or local elites become disproportionately represented and receive legal and illegal advantages in institutional rules, in public service delivery or in the misdirection of public resources at the cost of the ordinary population.

This phenomenon is named the *capture* (The World Bank, 2000). Especially in transition countries, the processes of building new political and economic institutions and a massive redistribution of state assets have created fertile ground for capture and low government performance. Capture leads to considerable negative effects on the political accountability of public officials. In particular, accountability refers to the obligation of bureaucrats and politicians to justify and explain their actions, and to the possibility of citizens to sanction poor performance (Widlund, 2007). Therefore, in the absence of stronger political competition and given non-transparency of political decisions, i.e. under the conditions where information is strongly distorted voters lack necessary and sufficient information to evaluate government performance. Capture and accountability are discussed first with regard to poor countries and discriminated public service delivery. The problem of unfair public service delivery is that voters cannot easily evaluate the quality and efficiency of these services, partly because they lack accessible information about democratic rights, remedies, and responsibilities, which affects their political awareness (Keefer and Khemani, 2005). Information constraints reduce the ability of citizens to hold politicians accountable. Even if poor people actively participate in the political process, imperfect information can distort politicians' incentives; hence, politicians prefer to expend resources for narrow interest groups in constructing targetable public goods within a short time horizon, since narrow interest groups obtain better signals of politicians' ability, rather than improvements in broad public services within the long time horizon (Keefer and Khemani, 2005). Thus, political participation alone cannot explain government performance and illuminate the reasons for low performance. However, the total information environment formed by networks can explain why non-policy voting leads to low performance of political institutions.

3.3. Theory

3.3.1. An informational rationale for the importance of policy versus non-policy voting: a theoretical framework

We relate the relative importance of policy when compared to policy preferences with voter uncertainty regarding the impact of policy on voters' welfare. Voters can be separated into different social groups $J = 1, \dots, n_g$. There are two parties, denoted as A and B. In the Downsian tradition, parties announce policies prior to the election, and are assumed to

credibly commit to these once elected. Voters engage in probabilistic voting, i.e. a voter $j \in J$ of group J will vote for party A as long as:

$$W^J(X^A) - W^J(X^B) + \alpha_{jA}^J - \alpha_{jB}^J > 0 \quad (3.1)$$

$W^J(X^k)$ denote voter j 's welfare derived from the policy platform X^k , announced by party $k=A,B$.

While political economists interpret the non-policy factors as ideological preferences (Persson and Tabellini, 2000), political scientists interpret the non-policy factors as the *valence* perceived by individual voters (Hinich and Munger, 1997; Schofield, 2003).

We relate the relative importance of non-policy when compared to policy preferences to voter uncertainty regarding the impact of policy on voters' welfare. To this end, we assume for simplicity's sake that voters' policy preferences correspond to one-dimensional spatial policy preferences:

$$W^J(X^A) = -|Y^J - Z^A|, \quad Z^A = T(X^A)$$

Z^A is the policy outcome, where Y^J is the preferred policy outcome of voters from group J . $T(X^A)$ denotes the political technology describing the technical transformation of policy into outcomes.

Now, voters are uncertain regarding the true political technology. To describe this Uncertainty, we assume the following simple stochastic relation between policy X^A and outcome Z^A (Gilligan and Krehbielm, 1989):

$$Z^A = X^A + \omega,$$

where ω is a stochastic variable. For simplicity, we assume that ω is uniformly distributed between the interval $[-\frac{1}{2\sigma}, \frac{1}{2\sigma}]$, i.e. we assume that ω is uniformly distributed with a zero mean and variance of $\frac{1}{2\sigma}$ ¹.

With assumption $d = Y^J - X^A$, it follows that:

$$W^J(X^A) = -|d - \omega|$$

Accordingly, the expected utility for voters from policy X , $EU(X)$, is then:

¹ We consider a one-dimensional policy space, but it is possible to extend this to more dimensions

$$EU(X) = -\sigma \int_{-1/2\sigma}^{1/2\sigma} |d - \omega| d\omega = -\sigma \left(\int_{-1/2\sigma}^d (d - \omega) d\omega - \int_d^{1/2\sigma} (d - \omega) d\omega \right)$$

Thus, it follows from integration:

$$EU(X) = -\sigma d \left(\int_{-1/2\sigma}^d d\omega - \int_d^{1/2\sigma} d\omega \right) - \sigma \left(\int_d^{1/2\sigma} \omega d\omega - \int_{-1/2\sigma}^d \omega d\omega \right)$$

After rearrangement, we get:

$$EU(X) = -\sigma d \left(d - (-1/2\sigma) - (1/2\sigma - d) \right) - \frac{\sigma}{2} \left(\frac{1}{4\sigma^2} - d^2 - (d^2 - \frac{1}{4\sigma^2}) \right) = -(\sigma d^2 + \frac{1}{4\sigma})$$

Hence, the higher the uncertainty, i.e. the higher the variance of ω and the lower the density σ the lower the weight of the policy preferences when compared to the non-policy preferences, i.e. the less informed a voter, the more non-policy-oriented she or he votes *ceteris paribus*.

3.3.2. Post-logit evaluation of non-policy Indicator

We showed theoretically that voters' uncertainty influences their policy and non-policy preferences. But how is it possible to estimate the weight of the policy preferences relative to the non-policy preferences? To respond to this question, we start with the classic spatial models extended by non-policy variables and come to a derived *non-policy indicator* containing the weight of both voter preferences.

In theoretical and empirical models, it is assumed that informed voters prefer parties whose positions are close to their own positions along the policy dimension. In other words, (informed) voters support the candidates who best reflect their policy beliefs. Therefore, the modelers use a utility function based on metric (Euclidean) distances in a one- or multi-dimensional space. A utility function $V_i(j)$ of the voter i for a candidate j is specified as the negative of the squared distance between the voter i at location x_i and the candidate j at location s_j in a one-dimensional space in the following way:

$$V_i(j) = -(x_i - s_j)^2. \tag{3.2}$$

In a multidimensional space, voters have preferences for different issues. Suppose that there are N issues, then x_{in} is the voter position on the n th issue, and s_{jn} is the candidate's position on the n th issue. The multidimensional utility function is obtained by summing up the one-dimensional utilities over the various issue dimensions. With the policy-salience parameter for the n th issue, β_n , the voter utility for the candidate's policies is given by:

$$V_i(j) = - \sum_n \beta_n (x_{in} - s_{jn})^2. \quad (3.3)$$

The voters' behavior cannot be described only through political beliefs, because voters can be uninformed about policies and support a preferred candidate even if some rival candidate better reflects the voters' political beliefs (Alvarez, 1997). Since there are many unobservable factors that cannot be measured from voters' evaluations of the candidates in voters' surveys, these factors are modeled by a stochastic component. Therefore, the probabilistic *policy-only* model (Adams et al., 2005) can be extended with measured non-policy variables (such as age, education, income), so that we obtain two kinds of variables. In this case, the most suitable model for this estimation is an extended conditional logit model that combines the multinomial logit model with the pure conditional logit model. An extended conditional logit model in the framework of the discrete choice model was established and developed by McFadden (1974, 1982). This kind of model allows one to examine how the characteristics of an individual i (case-specific data) and the characteristics of some choice j (alternative-specific data) affect the probabilities. In this case, the independent variables of choice- or alternative-specific variables (in our analysis, *policy* variables) do not provide information about the decision maker, but rather information relative to each alternative: The effect of these variables on the utility does not differ across alternatives. In contrast, the socio-demographic variables (here non-policy variables) do not vary over the alternatives: The effect of these variables on the utility of alternatives differs across alternatives.

Thus, the extended conditional logit model takes the form:

$$V_i(j) = \alpha_j + \sum_l \gamma_{lj} t_{li} - \sum_n \beta_n (x_{in} - s_{jn})^2, \quad (3.4)$$

or the condensed form:

$$V_i(j) = \alpha_j + \sum_l \gamma_{lj} t_{li} - \sum_n \beta_n d_{ij}^n, \quad (3.5)$$

where d_{ij}^n are corresponding Euclidean distances. $\sum_l \gamma_{lj} t_{li}$ is the sum of non-policy-measured factors: The vector t_{li} is a vector of non-policy variables specifying an individual characteristic of voter i for the l th non-policy variable and the vector γ_{lj} is a vector of a salience parameter of party j for the l th non-policy variable. α_j is an alternative-specific constant, which captures the average effect on utility of all factors that are not included in the model. When alternative-specific constants are included in the model, the stochastic component ϵ_{ij} has a zero mean by construction.

We now derive a *non-policy indicator* that is based on the post-logit evaluation. Since only differences in utility matter in the logit estimation, we set the differences pair-wise across all utilities equal to zero to find the point in which all pairs of parties' probabilities to become elected are identical to each other. It means that we find the hypothetical point in which a voter is indifferent to two parties, since the utilities of these parties are identical. But it does not mean that a weight of a non-voting utility's component is equal to a weight of a voting utility's component. These components can be diverse. Assume that J is a set of parties with $1, 2, \dots, j \in J$. Thus, the non-policy indicator is derived in the following way:

$$V_i(j) - V_i(j') = (\alpha_j - \alpha_{j'}) + \sum_l (\gamma_{lj} - \gamma_{lj'}) t_{li} - \sum_n \beta_n (d_{ij}^n - d_{ij'}^n) = 0. \quad (3.6)$$

This equation needs to be rewritten:

$$\sum_n \beta_n (d_{ij}^n - d_{ij'}^n) = (\alpha_j - \alpha_{j'}) + \sum_l (\gamma_{lj} - \gamma_{lj'}) t_{li}. \quad (3.7)$$

Further, we divide by the sum of betas on both sides:

$$\sum_n \frac{\beta_n (d_{ij}^n - d_{ij'}^n)}{\sum_n \beta_n} = \frac{(\alpha_j - \alpha_{j'}) + \sum_l (\gamma_{lj} - \gamma_{lj'}) t_{li}}{\sum_n \beta_n}. \quad (3.8)$$

Assume that $\widetilde{\beta}_n = \frac{\beta_n}{\sum_n \beta_n}$ is the relative weight of the distances' difference for a policy issue n . Thus, we obtain:

$$\sum_n \widetilde{\beta}_n (d_{ij}^n - d_{ij'}^n) = \frac{(\alpha_j - \alpha_{j'}) + \sum_l (\gamma_{lj} - \gamma_{lj'}) t_{li}}{\sum_n \beta_n}. \quad (3.9)$$

$\sum_n \widetilde{\beta}_n (d_{ij}^n - d_{ij'}^n)$ is the weighted sum of the differences in distances over all issues n for a voter i . We denote it with $C_{jj'}^i$ and name it the weighted policy voting component. We want to answer the following question: How great must a weighted policy voting component be to compensate for non-policy voting advantages?

$$C_{jj'}^i = \frac{(\alpha_j - \alpha_{j'}) + \sum_l (\gamma_{lj} - \gamma_{lj'}) t_{li}}{\sum_n \beta_n}. \quad (3.10)$$

Finally, it is interesting to know the weighted policy voting component not only for one party constellation but the mean of all party pairs for a voter.

To derive a non-policy indicator, we shape the mean over all party constellations in the following way:

Table 3.1.: Evaluation of Non-policy Indicator

Parties	1	...	j	...	J	
1	0	...	C_{1j}^i	...	C_{1J}^i	$\frac{1}{J-1} \sum_{h=1}^J C_{1h}^i$
...	...	0	...	...	...	...
j	C_{j1}^i	...	0	...	C_{jJ}^i	$\frac{1}{J-1} \sum_{h=1}^J C_{jh}^i$
...	...	...	...	0	...	...
J	C_{J1}^i	...	C_{Jj}^i	...	0	$\frac{1}{J-1} \sum_{h=1}^J C_{Jh}^i$

Therefore, a non-policy indicator for individual i for party j results in:

$$|Id_j^i| = \left| \frac{\sum_{h=1}^J C_{jh}^i}{J-1} \right| \quad (3.11)$$

By the last step, we find the only weighed sum of all party means, so that we get only one non-policy indicator for a voter i of the following form:

$$Id^i = \sum_{j=1}^J S_j * |Id_j^i| \quad (3.12)$$

where S_j is the share of party j .

A non-policy indicator derived from a non-policy voting term is a hypothetical measure. If the non-policy indicator of voter i is high, then the policy voting term of the voter must

be increased considerably to compensate for non-policy voting advantages.

3.4. Empirical Model

3.4.1. Heterogeneous Preferences in Random Utility Models and Latent Class Analysis

Like economic analysis estimating consumers' heterogeneous preferences for goods, the political economy is interested to find voters' heterogeneous preferences characterized by their individual characteristics. When unobserved heterogeneity in the population is forecast, this leads to a class of response models based on random utility maximization (RUM) (McFadden and Train, 2000). There are mainly two types of models based on the idea of using a mixture of a simple underlying model, such as multinomial logit, over the distribution of preferences: mixed multinomial logit models (MMLM) and latent class logit models (LCLM). While in MMLM this distribution is continuous, in the latent-class context, a finite number of classes is used to express the heterogeneity (Hess et al., 2011). Both types of models are RUM models generalizing standard logit by allowing the parameter associated with each observed variable to vary randomly across individuals. Although mixed logit models explicitly account in a sense for heterogeneity, latent class analysis (LCA) is better suited to explain the sources of heterogeneity that relate to the characteristics of individual consumers (Boxall and Adamowicz, 2002). Hence, this paper concentrates on LCA, since it uncovers unobserved heterogeneity in a population and aims to find meaningful groups of voters that are similar in their responses to measured variables. In an LCA, the parameter heterogeneity across individuals is modeled by a discrete distribution or set of classes. The estimation results in a fixed number of classes; thereby, the parameters of the statistical model differ across these latent classes formed by unobserved latent variables. Thus, the preferences of voters are homogeneous within each latent class, but can vary between the classes. The latent class estimation of this paper was realized in Latent GOLD Choice 4.0, developed by Vermunt and Magidson (2005). The regression model used in Latent GOLD Choice 4.0 is the conditional logit model developed by McFadden (1974) (Vermunt and Magidson, 2005). Latent GOLD Choice implements a non-parametric variant of the random-coefficient or mixed conditional logit model (McFadden and Train, 2000; Vermunt and Magidson, 2005). From three possible methods in Latent GOLD Choice 4.0 based on different response formats (*first choice*, *ranking task*, *rating task*), the *first choice* format

was selected as the most suitable method concerning the assumption that each choice set has the same number of alternatives. Since random utility theory is first employed to model choices among a set of substitutes or alternatives, we give its formalization first. Next, we formulate conditional and latent class models. Discrete choice models derived in a random utility model (RUM) framework assume that decision makers choose between two or more discrete alternatives and behave like expected utility maximizers. In the case of spatial models, the voter supports the candidate or the party that maximizes his combination of measured policy-related utilities and his unmeasured utilities (Adams et al., 2005). Assume there are J alternatives for a decision maker. Thus, the decision maker i chooses the party j if and only if:

$$U_i(j) > U_i(j'), \forall j \neq j'. \quad (3.13)$$

In RUMs, one presumes that the utility $U_i(j)$ provided to individual i by party j is composed of a deterministic component $V_i(j)$, which can be calculated based on observed characteristics, and a stochastic error component ϵ_{ij} , which is unobserved, so that the formula for a random utility model determining only policy factors is given by:

$$U_i(j) = V_i(j) + \epsilon_{ij}, \quad (3.14)$$

where ϵ_{ij} is a voter-specific random utility term that represents unmeasured components of the voter i 's utility for a party j . Note that in all discrete choice models, the absolute level of utility is irrelevant. The choice probability is $P_{ij} = Prob(U_i(j) > U_i(j')) = Prob(U_i(j) - U_i(j') > 0)$, which depends only on the difference in utility and not its absolute level.

The conditional logit model (McFadden, 1974) can be utilized to estimate these probabilities if the random terms are assumed to be independently distributed Type I extreme value variates. Let y_{it} denote the value of the dependent variable for individual i at replication t , which can take on values $1 \leq j \leq J$. We use vector notation \mathbf{y}_i , \mathbf{z}_i^{cov} , \mathbf{d}_{it}^{att} , \mathbf{k}_{it}^{pre} to refer to all responses, all covariate values for individual i , and the attribute and predictor values corresponding to individual i at replication t . The conditional logit model for the response probabilities has the form (Vermunt and Magidson, 2005):

$$P(y_{it} = j | \mathbf{d}_{it}^{att}, \mathbf{k}_{it}^{pre}) = \frac{\exp(V_{it}(j))}{\sum_J \exp(V_{it}(j'))}, \quad (3.15)$$

where $V_{it}(j)$ is the systematic component in the utility of alternative j for individual i at replication t . The term $V_{it}(j)$ is a linear function of an alternative-specific constant α_j , predictor effects γ_{lj} , and attribute effects β_n . That is,

$$V_{it}(j) = \alpha_j + \sum_l \gamma_{lj} k_{lit} + \sum_n \beta_n d_{itj}^n, \quad (3.16)$$

Thus, the regression parameters corresponding to the predictor effects γ_{lj} are alternative-specific.

In a latent class or finite mixture variant of the conditional model, it is assumed that individuals belong to different latent classes that differ with respect to the parameters appearing in the linear model for $V_{it}(j)$. In order to indicate that the choice probabilities depend on class membership x , the logistic model is now of the form:

$$P(y_{it} = j | x, \mathbf{d}_{it}^{att}, \mathbf{k}_{it}^{pre}) = \frac{\exp(V_{it|x}(j))}{\sum_{j'} \exp(V_{it|x}(j'))}, \quad (3.17)$$

Here, $V_{it|x}(j)$ is the systematic component in the utility of alternative j , given that individual i belong to latent class x . As can be seen, the logit regression coefficients are class-specific and the linear model for $V_{it|x}(j)$ in this specific case is:

$$V_{it|x}(j) = \alpha_{xj} + \sum_l \gamma_{xlj} k_{lit} + \sum_n \beta_{xn} d_{itj}^n. \quad (3.18)$$

In addition to the attributes and predictors, we include in our LCA another type of explanatory variable covariates in the latent class model. While attributes enter the regression model for choices, covariates are used to predict class membership. When covariates are included in the model, the probability density turns into the following form (Vermunt and Magidson, 2005):

$$P(\mathbf{y}_i) = \sum_{x=1}^X P(x | \mathbf{z}_i^{cov}) \prod_{t=1}^{T_i} P(y_{it} | x, \mathbf{d}_{it}^{att}, \mathbf{k}_{it}^{pre}), \quad (3.19)$$

where the class membership of individual i is now assumed to depend on a set of covariates denoted by \mathbf{z}_i^{cov} .

In the following, we specify our estimated LC model by network parameters and describe the used data base.

3.4.2. Network Parameters as Voting Determinants

Given our theoretical model above, two main characteristics describing the ego-centric network structure of individual voters are, in particular, network size and network density. Network size, i.e. the total number of direct ties of one individual is considered by Lake and Huckfeldt (1998) and is important for the voter's information level since "network size should serve to multiply the frequency and expertise of individual discussants. Since the larger networks are less likely to be fully interconnected, they should be more likely to include independent sources of information and expertise; thereby, the relevant politics is discussed more objectively (Lake and Huckfeldt, 1998). On the other side, if an individual seldom talks about politics, the proliferation of contacts stochastically increases the odds that this individual will finally discuss politically relevant information, since open networks are more likely to introduce new ideas and opinions to their members than the closed networks. Individuals with more connections to other members are likely to have access to a wider range of information that helps them to generate a better opinion.

The *network density*, generally, is the degree to which a respondent's ties know one another. If a social network has n 'nodes', people, firms or other social units, the density is the ratio of realized ties among ego's direct contacts over all possible connections among alters in ego's neighborhood. "The denser a network, the more unique paths along which information, ideas and influence can travel between any two nodes. Thus, greater density makes ideas about proper behavior likely to be encountered repeatedly, discussed and fixed"(Granovetter, 2005).

Based on network theory (Lake and Huckfeldt, 1998) and the theory of special interest groups (Lohmann, 1998), we set up the following hypotheses:

1. The information level of an individual voter depends on the ego-centric network structure, where ceteris paribus the information level is the higher the larger the network size, i.e. the larger the network size, the more policy-oriented is the voter's political choice.
2. Information on politics is lower with a higher density (clustering) of ego's network, i.e. the denser the ego-centric network, the less policy-oriented the voter is.

3. The farmers, as a special interest group, vote in a more policy-oriented manner and, hence, have greater policy weight.

3.4.3. Case Slovakia

Data

The data used for the empirical analysis is derived from a household questionnaire that includes 269 non-farm and 122 farm households in four different rural communities in Slovakia: Trnava, Galanta, Michalovce, and Trebisov. The communities have been selected following a two-dimensional design covering economically high- and low-performing rural regions and communities located close to or far from a major city. Personal interviews were conducted by locally trained professional interviewers in 2007.

Interviewees were asked about the perceived positions of the parties and their self-placement concerning three issues using the following questionnaires:

- *EU – Subsidies* (EU): Some people say that the Slovak government should lobby in Bruxelles to obtain more subventions for agricultural sector in Slovakia. Others say that the government should lobby for other issues
- *Socio – economic trade – off* (Eco): Some people say that tax should be increased in favour of better public services and social security. Others say that public services and social security should be cut down to reduce tax
- *Social – cultural dimension* (Soc): Some people agree with liberal policies like legalizing abortion, homosexual marriage etc. Others disagree with such liberal policies

The questions referred to the most recent national parliamentary election which took place on 17 June 2006. The relevant parties and their results at the latest election are summarized in Table 3.2. Note that the following LCA includes only voters of those parties to whom seats in the National Council (Narodna rada Slovenskej republiky) have been allocated. This means parties with at least 5% of the nationwide votes.

Using a scale from one to seven, respondents score the parties and themselves concerning the issues above. Based on these policy preferences of voters and their beliefs about all parties in three dimensions, the squared (Euclidean) distances have been calculated for each dimension and for each of six parties, so that these 18 distances have been taken as attributes (*policy* variables) in LCA.

3. Networks as determinants of voter behavior for the farm and non-farm population

Table 3.2.: Party System in Slovakia after Election 2006

Party	Abbr.	Ideology	Votes,%	Seats
Direction - Social Democracy (Smer)	SMER	Center left	29.14	50
Slovak Democratic and Christian Union	SDKU	Christian Democrat	18.35	31
Slovak National Party	SNS	Nationalist	11.73	20
Party of the Hungarian Coalition	SMK	Minority	11.68	20
People's Party - Movement for a Democratic Slovakia	HZDS	Center right	8.79	15
Christian Democratic Movement	KDH	Conservative	8.31	14
Communist Party of Slovakia	KSS		3.88	
Free Forum	SF		3.47	
Alliance of the New Citizen	ANO		1.42	
other Parties under 1 %			3.23	

The further socio-economic characteristics gathered from the household surveys were also available for analysis. These are explanatory and class-membership-determining variables:

- Subjective Characteristics:
 - Age (Age)
 - Education (Education): 1=basic, 2=vocational, 3=secondary, 4=high school, 5=university
 - Total monthly income in Euro (Income)
 - Farmer Affiliation (Farmer): 1=farmer, 0=non-farmer
- Regional Differences:
 - Distance to city (Distance-to-city): 1=close, 0=distant
 - Economic Performance of community (High-Performance): 1=high, 0=low
- Egocentric network parameters:
 - Network Size (Network Size): Values are between 0 and 10
 - Network Density (Network Density): Values are between 0 and 1

The ego-centered network data is derived from a network part of the Slovakian household questionnaire using name generators. The network questionnaire aims to specify five different types of networks. These are exchange network, information network, advice network, social network, and co-operation. Hence, the name generators cover different areas of social life. For all interviewees in five name generators, we also asked for their gender, age, education, and profession. Following the concept of Krackhardt (Wasserman and Faust, 1994), we asked interviewees to describe the pair-wise relations of 10 most important individuals mentioned on a three-point scale with 0 = "do not know each other", 1 = "know each other", and 2 = "know each other very well". We extract the total number of relations that a respondent mentions in all these name generators and consider this to be the size of

the network. As the respondents also gave us the strengths of relationships between the 10 most important network members, we can also estimate whether all the network members are closely connected among each other or whether they consist of different subgroups in different realms of society (network density).

Results

Non-policy Voting

We estimated LCLM using a different number of classes. To decide on the best number of classes we consider the Akaike information criterion (AIC) and the Bayesian information criterion (BIC). A formal comparison in terms of performance between AIC and BIC is difficult, particularly because AIC and BIC address different questions. BIC assumes that the true generation model is in the set of candidate models. Most simulations that prefer BIC over AIC assume that the true model is in the candidate set and that it is relatively low-dimensional. In contrast, the AIC does not assume that any of the candidate models is necessarily true in order to make the best possible predictions. Most simulations that favor AIC over BIC assume that reality is high or infinitely dimensional (Wagenmakers and Farrell, 2004). Markon and Krueger (2004) noted that AIC performs relatively well in small samples, but is inconsistent and does not improve in performance in large samples. In contrast, BIC appears to perform relatively poorly in small samples, but is consistent and improves in performance with larger sample size (De-Graft Acquah, 2010).

Table 3.3.: Fit for different number of latent classes

	Model 1		Model 2		Model 3	
	BIC	AIC	BIC	AIC	BIC	AIC
2 classes model	1391.46	1097.78	1271.16	1096.53	1261.56	1094.87
3 classes model	1543.23	1086.83	1339.20	1061.39	1290.57	1028.64
4 classes model	1661.13	1042.01	1431.18	1050.19	1405.38	1048.20

Since our sample is relatively large and our model based on the network theory supposes a low number of dimensions in which the network characteristics can have (or not have) effects on policy choice, we decided to choose the model based on the BIC, which is also more consistent. We see in Table 3.3 that BIC is more consistent than AIC and that two-class models have the best fit.

Estimation results for the latent class model are presented in Table 3.4. We consider three models to point out the robustness of our results. In all three models, the class membership probabilities (class sizes) are similar. Model 1 is the most filled: it includes constants, attributes (Euclidean distances in three dimensions EU, ECO, SOC), and five socio-economic and network characteristics (age, education, income, network size, and network density) to predict preferences for one or another party according to these voter features.

The results indicate heterogeneity of party preferences across the two latent classes. As can be seen from Table 3.4, policy-oriented choice is different in both latent classes. For instance, in Model 1, while Class 1 votes according to the preferences with significant and negative parameters for all three dimensions, Class 2 has significant negative parameters only for the ECO dimension. A negative sign for an attribute means that the less the Euclidean distance between the voter and the party in this and that dimension, the more the likelihood for the party to be elected.

Two classes are marked by different ideology constants. As can be seen from Model 1, Class 1 has great significant constants for three parties (HZDS, SMER, and SNS). In contrast, Class 2 has this for SDKU and SMER. The socio-economic and network predictors point out: Voters with which individual features have *valence* for a given party? For instance, we see from Model 1 that larger network size and density significantly increase the probability for party SMER to be elected in Class 1.

As can be seen from Table 3.4, the class membership of Model 1 is determined also by these socio-economic and network characteristics as well as by two dummies (farmer dummy and distance-to-city dummy) to form classes corresponding to the individual characteristics of voters. Only four variables have significant influence in class determination, such as a farmer belonging, education, and both network parameters.

Regarding class membership, Class 1 voting being more policy-oriented is significantly determined by farmers. Moreover, members of the class have a relatively higher education level as well as larger and denser ego-centric networks.

3. Networks as determinants of voter behavior for the farm and non-farm population

Table 3.4.: Estimation Results of Latent Class Models

Variables	Parties	Model 1: Log-LL=-474.85		Model 2: Log-LL=-504.27		Model 3: Log-LL=-505.44							
		1 Class (0.445) Coeff. z-val.	2 Class (0.555) Coeff. z-val.	1 Class (0.514) Coeff. z-val.	2 Class (0.486) Coeff. z-val.	1 Class (0.515) Coeff. z-val.	2 Class (0.485) Coeff. z-val.						
Constants	HZDS	7.404***	2.938	-4.223	-1.1353	1.972**	2.157	-2.077	-1.388	2.052**	2.268	2.052**	2.268
	SDKU	1.905	0.805	4.420***	2.033	0.105	0.106	-0.311	-0.436	0.115	0.119	-0.326	-1.434
	SMER	-12.995***	-2.82	4.134***	2.816	-2.496	-1.558	2.137***	4.012	-2.491	-1.607	2.179***	4.097
	SMK	-2.959	-1.265	1.021	0.552	-2.942***	-2.531	0.620	0.880	-3.059***	-2.64	0.670	0.956
	KDH	-3.852	-1.01	1.499	0.754	0.110	0.094	0.323	0.443	0.035	0.030	0.423	0.390
EU	SNS	10.498***	3.366	-6.844	-1.409	3.252***	2.460	-0.692	-0.708	3.349***	2.659	-0.859	-0.870
ECCO		-0.509***	-3.962	-0.014	-0.642	-0.433***	-4.664	-0.003	-0.149	-0.443***	-4.755	-0.001	-0.030
SOC		-0.127***	-2.531	-0.097***	-3.291	-0.055	-1.171	-0.095***	-2.953	-0.051	-1.090	-0.098***	-3.026
Network Density		-0.662***	-4.883	0.0004	0.027	-0.592***	-4.816	0.012	0.731	-0.594***	-4.657	0.013	0.783
Network Size	HZDS	-3.957***	-2.941	-4.006	-1.013	-1.526	-1.512	-3.384	-1.450	-1.533	-1.540	-3.208	-1.394
	SDKU	0.073	0.053	-2.243	-1.604	0.969	0.733	-2.354*	-1.806	1.063	0.833	-2.355*	-1.791
	SMER	7.272***	2.67	1.397	1.371	1.755	1.084	2.022***	2.332	1.761	1.123	1.941**	2.239
	SMK	3.957***	2.463	3.773***	3.146	3.308***	2.483	3.865***	3.486	3.519***	2.683	3.733***	3.358
	KDH	1.238	0.554	0.578	0.462	-1.209	-0.794	2.002*	1.767	-1.27	-0.838	2.057*	1.837
	SNS	-8.583***	-4.5	0.502	0.220	-3.298*	-1.833	-2.15	-1.429	-3.54**	-2.133	-2.168	-1.409
	HZDS	-0.399**	-2.089	0.667	1.351	-0.145	-0.745	0.689***	1.977	-0.178	-0.941	0.684*	1.966
	SDKU	-0.266	-1.21	0.404*	0.287*	-0.017	-0.078	-0.474***	2.432	-0.042	-0.201	-0.48***	2.444
	SMER	1.003***	3.319	-0.287*	-1.853	0.57***	2.823	-0.355***	-2.172	0.556**	2.782	-0.351**	-2.131
	SMK	0.646***	3.235	-0.791**	-3.059	0.509***	2.782	-0.782***	-2.861	0.497***	2.772	-0.773***	-2.797
Age	KDH	-0.379	-1.266	-0.253	-1.308	0.266	1.147	-0.402*	-1.676	0.285	1.219	-0.446*	-1.898
	SNS	-0.605***	-2.506	0.26	0.403	-1.183**	-2.013	0.375	1.54	-1.118**	-2.010	0.406*	1.679
	HZDS	-0.02	-0.775	0.017	0.403								
	SDKU	0.037	1.209	-0.092**	-3.12								
	SMER	-0.021	-0.445	-0.022	-1.305								
	SMK	-0.04	-1.417	0.01	0.484								
	KDH	0.128***	2.799	-0.009	-0.391								
	SNS	-0.083**	-2.090	0.096*	1.817								
	HZDS	-0.124	-1.641	0.246***	2.453								
	SDKU	-0.003	-0.048	-0.03	-0.43								
	SMER	-0.029	-0.262	0.027	0.736								
	SMK	0.063	0.889	0.002	0.035								
	KDH	0.19***	2.337	-0.221***	-3.121								
	SNS	-0.097	-1.039	0.03	0.325								
	HZDS	-0.181	-0.729	-0.266	-0.709								
	SDKU	-0.511*	-1.722	0.273	1.029								
	SMER	1.675***	3.103	0.065	0.399								
	SMK	0.24	0.867	-0.156	-0.689								
	KDH	-1.504***	-2.9	0.74***	2.876								
	SNS	0.282	0.709	-0.656	-1.306								
Model for Classes:													
Constant		-1.252***	-2.601	1.252***	2.601	-1.569***	-2.769	1.569***	2.769	-1.416***	-2.805	1.416***	2.805
Farmer Dummy		0.28*	1.71	-0.28*	-1.71	0.311	1.623	-0.311	-1.623	0.39**	2.294	-0.39**	-2.294
Network Density		1.773	1.773	-0.519*	-1.773	0.646*	1.864	-0.646*	-1.864	0.600*	1.884	-0.600*	-1.884
Network Size		0.131***	3.345	-0.131***	-3.345	0.118***	2.700	-0.118***	-2.700	0.121***	2.81	-0.121***	-2.810
Age		0.002	0.293	-0.002	-0.292	0.008	1.307	-0.008	-1.307	0.007	1.146	-0.007	-1.146
Education		0.133***	2.353	-0.133***	-2.353	0.087	1.358	-0.087	-1.358	0.077	1.256	-0.077	-1.256
Income		-0.009	-0.656	0.009	0.656	0.014	1.016	-0.014	-1.016				
Distance-to-city		-0.149	-1.069	0.149	1.069	-0.149	-0.918	0.149	0.918				

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$

Further, we undertake several robustness checks to see whether the effects of network parameters will remain stable. Our main aim is to analyze the effect of networks on voter behavior namely, the relative importance of policy and non-policy voting. Hence, to test also for more complex non-linear relations, we include network parameters as both predictors of party preference and also as class membership predictors. In Model 2, we excluded socio-economic variables as predictors of party preferences in the main equation. As one can see in Model 2, Class 1 votes in a more policy-oriented manner than Class 2. Moreover, Class 1 has higher and significant preferences for the two policy dimensions, EU and SOC, while Class 2 has only significant and lower preferences for the policy dimension ECO.

Further in Model 3, we excluded two covariates income and distance-to-city as these were found to be insignificant determinants of class membership in Model 2. The significant influence of network parameters and the farmer dummy on class membership remains independent in all three models; hence, we can consider these results as robust.

Further, we investigate implications of our estimation on voter behavior analyzing the *non-policy indicator*.

Based on an estimated coefficient of the latent class model, this indicator can be calculated for each voter, each party, and each class as follows:

$$\left| Id_{xj}^i \right| = \left| \frac{\sum_{h=1}^J C_{xjh}^i}{J-1} \right| = \left| \frac{\sum_{h=1}^J ((\alpha_{xj} - \alpha_{xh}) + \sum_{l=1}^L (\gamma_{xlj} - \gamma_{xlh}) t_{li})}{(J-1) \sum_{n=1}^N \beta_{xn}} \right| \quad (3.20)$$

Averaging over parties results in a total index for each voter and each class:

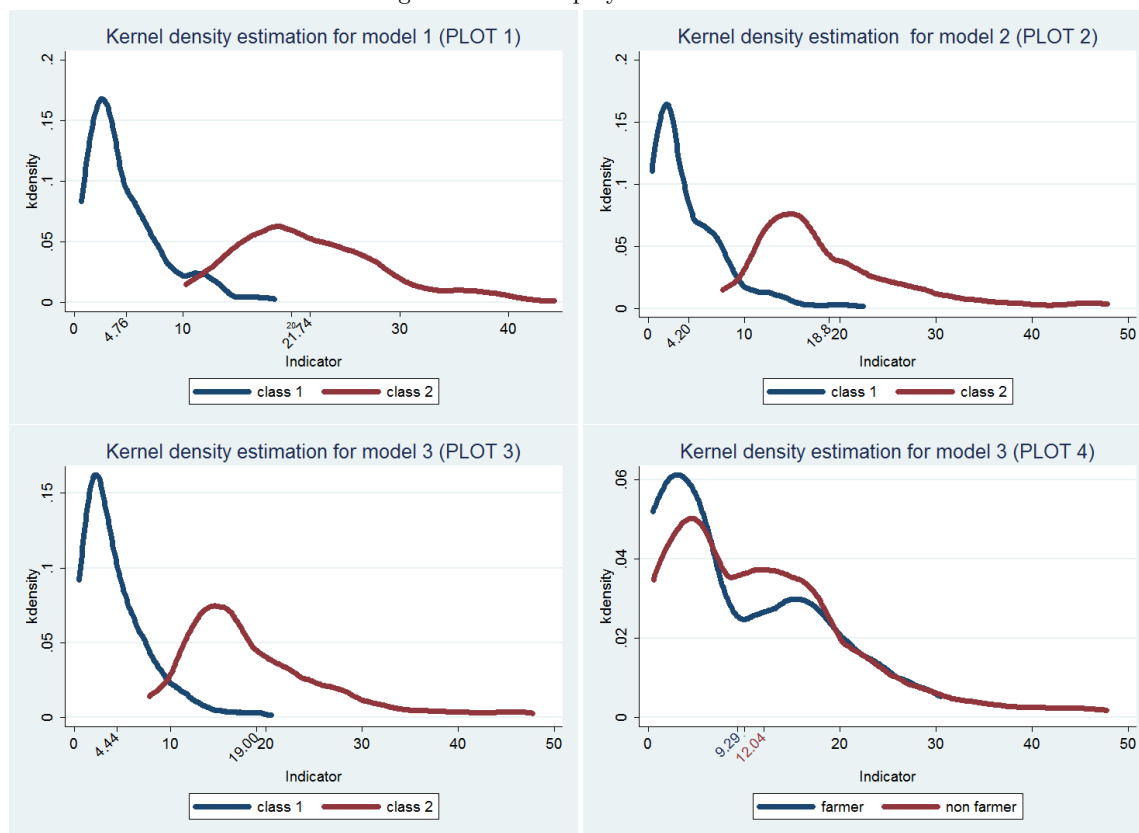
$$Id_x^i = \sum_{j=1}^J S_j * \left| Id_{xj}^i \right| \quad (3.21)$$

Finally, using voters' individual posterior class membership probabilities $\hat{P}(x|\mathbf{y}_i)$ delivers a single individual *non-policy indicator* for each voter i :

$$Id^i = \sum_{x \in X} Id_x^i \hat{P}(x|\mathbf{y}_i) \quad (3.22)$$

Further, we computed kernel-density plots of individual *non-policy indicators* separated for Class 1 and Class 2.

Figure 3.1.: Local polynomial smooth



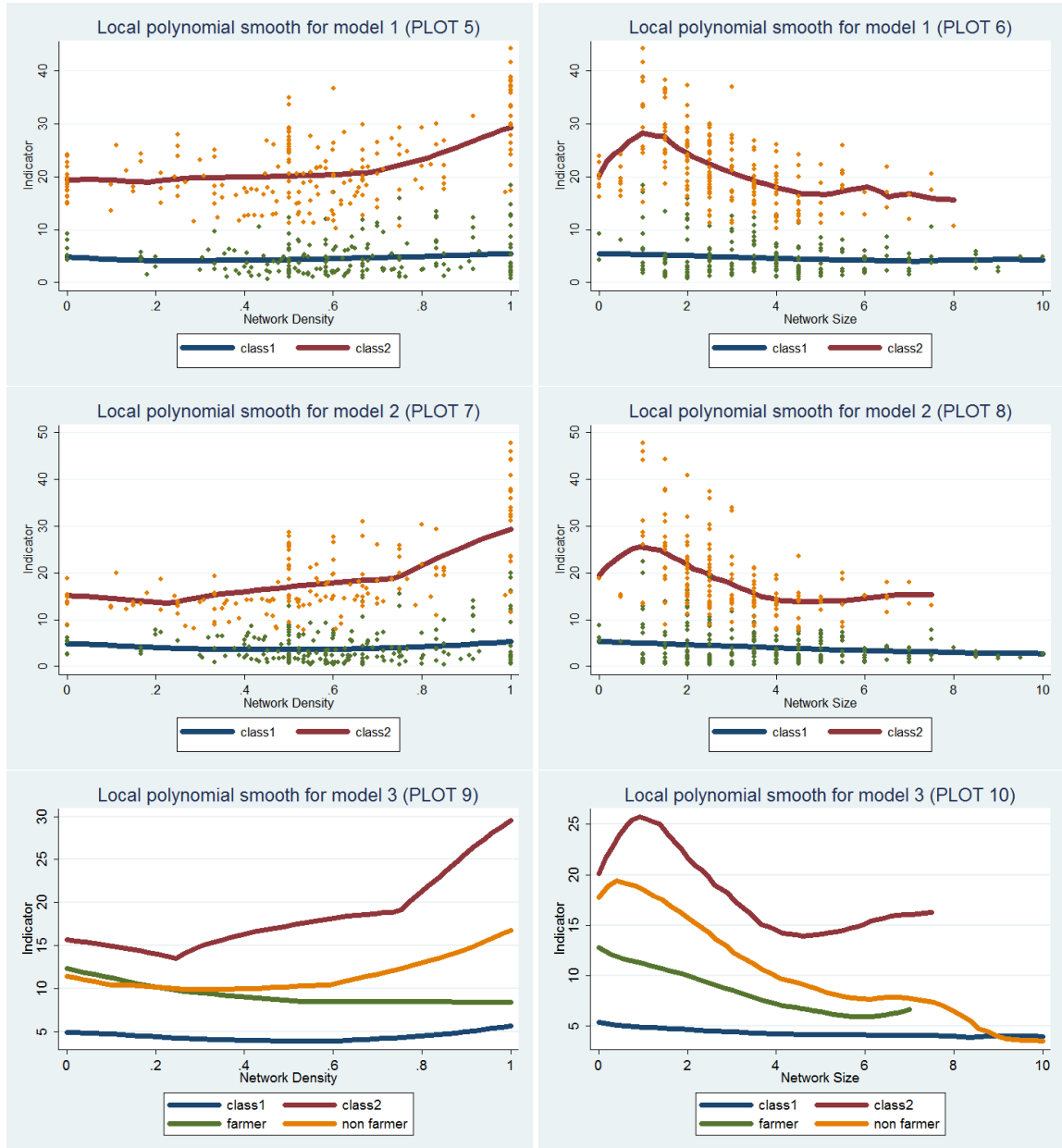
Plots 1, 2 and 3 of Figure 3.1 provide evidence of heterogeneous non-policy preferences across classes. As can be seen from these plots, the results for all three models are similar: Class 1 with significant farmer affinity votes in a more policy-oriented way than Class 2 with non-farmer affinity. Moreover, Plot 4 provides the differences of non-policy voting between farmers and non-farmers. We undertook a t-test and Levene’s test for all four kernel-density estimations testing for the difference in means and variances. For Model 1, a significant difference in both variance and mean of the non-policy indicator resulted in means of 4.76 and 21.74 for Class 1 and 2, respectively. Analogously, significant differences of variances and means between the two classes could be confirmed for Models 2 and 3. Also for Plot 4, we found significant differences both in means (9.29 and 12.04) and variances between farmers and non-farmers, which confirm our third hypothesis.

Given our central theoretical hypotheses, the impact of social networks on voting behavior is of special interest. As seen from Table 3.4, for all models, both network variables—network size and density have a significant impact on class membership. Moreover, in the main equation, both network variables have a significant impact on vote choice. To test our theory, however, we are especially interested in the specific impact of the net-

3. Networks as determinants of voter behavior for the farm and non-farm population

work variables on non-policy voting beyond statistical significance. Therefore, to visualize the complex non-linear relationship between the calculated *non-policy indicator* and the network parameters, we conducted kernel estimations separately as follows.

Figure 3.2.: Local polynomial smooth



The estimated kernels for all three models are presented in Figure 3.2. As can be seen from Figure 3.2, the *non-policy indicator* does not increase by rising network density in the farmer class (Class 1), whereas the more the network density, the more the non-policy preferences in the non-farmer class (Class 2). Given the network size, non-policy preferences for Class 1 remain relatively stable by increasing network size, while non-policy preferences

for Class 2 decrease. These estimation results support our first and second hypotheses, i.e. the importance of non-policy voting increases with network density, while it decreases with network size. In other words, the larger and the less clustered the peer networks of a voter, the higher ceteris paribus her or his information level regarding politics and the less pronounced her or his choice in terms of non-policy voting. Moreover, as can be seen from Plots 9 and 10 of Figure 3.2, we also found similar differences in the magnitude of network effects between farmers and non-farmers.

In particular, the impact of social networks on non-policy voting is more pronounced for the non-farmers, when compared to the farmers. One possible explanation for this finding hints at Slovakian farmers being well-organized in farm interest groups; hence, they receive information on relevant policies not via their peer networks but via their local farm intra-organizational networks. Accordingly, it is conceivable that peer group information is far less important for farmers when compared to non-farmers. However, in this empirical application, we could not explicitly control for the organizational membership of voters to test our hypotheses explicitly and, thus, leave this for future research.

Policy Voting

Further, we find the *political weights* for each voter. The political weights reflect a sensitivity of voter probability on policy distance. *Non-policy indicators* and *political weights* are highly correlated with -0.506^{***} , which means the more the importance of non-policy voting, the less sensitively voters react on policy issues. The relationship between both is illustrated in Plot 11 of Figure 3.3. Moreover, Plot 12 of Figure 3.3 provides the differences in political weights between farmers and non-farmers. The minimal significant differences in means between both groups (2.89 and 2.41 respectively) were proved.

On the one hand, we show the impact of network parameters on the non-policy indicator. On the other hand, the non-policy indicator is correlated with political weights. As the next step, it is logical to consider also an impact of some independent variables on the political weights. Regarding the linear regression model for all voters (Table 3.5), we see that network size has a significant positive impact on political weights, thus confirming our first hypothesis. Moreover, the network density has a considerable positive influence on political weights, which partly contradicts our second hypothesis.

Further, we consider linear regressions separated for two samples: farmers and non-

Figure 3.3.: Local polynomial smooth

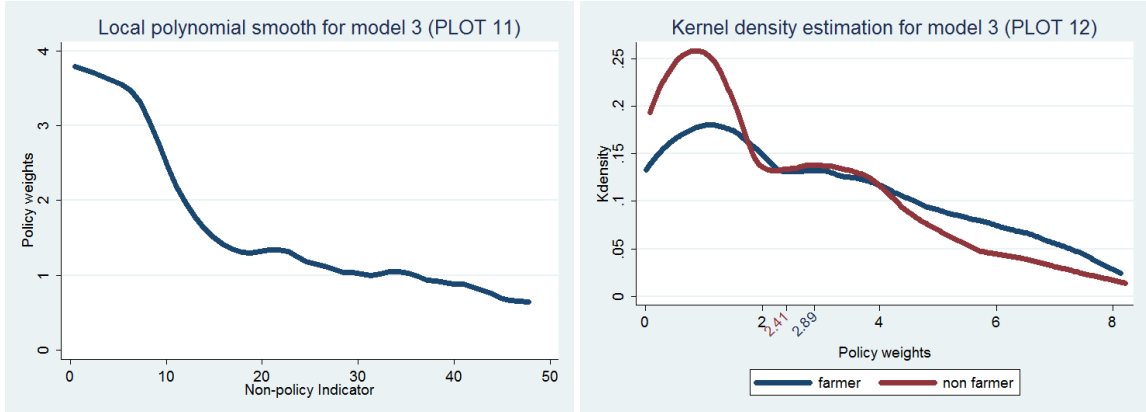


Table 3.5.: Linear regression on political weights

	all voters	farmer	non-farmer
independent variables	coef. (stan.coef.)	coef. (stan.coef.)	coef. (stan.coef.)
Network Density	1.528*** (0.191)	2.335*** (0.285)	1.182** (0.151)
Network Size	0.107* (0.095)	0.106 (0.078)	0.117* (0.111)
Income	0.041** (0.116)	0.077** (0.221)	0.0123 (0.030)
Age	-0.002 (-0.010)	-0.012 (-0.069)	0.002 (0.013)
Education	0.012 (0.007)	-0.034 (-0.018)	0.070 (0.045)
High-Performance	0.576*** (0.133)	0.803** (0.169)	0.480* (0.118)
Distance-to-city	-0.554*** (-0.131)	-0.676* (-0.146)	-0.506** (-0.126)
Farmer	0.465* (0.103)		
Constant	0.883	1.071	0.956
R-squared	0.123	0.206	0.086
Observations	391	122	269

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

farmers. Note that the farmers and non-farmers have principal differences in network structure: Whereas the farmer network size is significantly smaller (mean 2.73) and correlated with network density (0.335***), the non-farmer network size is significantly greater (mean 3.59) and not correlated with network density. Regarding the linear regression for the farmers, only network density and income have strong influence on political weights, which points to a partial importance of peer networks for the farmers due to their probable intra-organizational networks. For the non-farmers, both network size and density are significantly important for political weights.

By using political weights, we are able to evaluate capture between socio-economic groups. Thus, the capture coefficient of 1.20 means a divergence of 20%, i.e. the farmers are less captured by 20% as the non-farmers, confirming our third hypothesis.

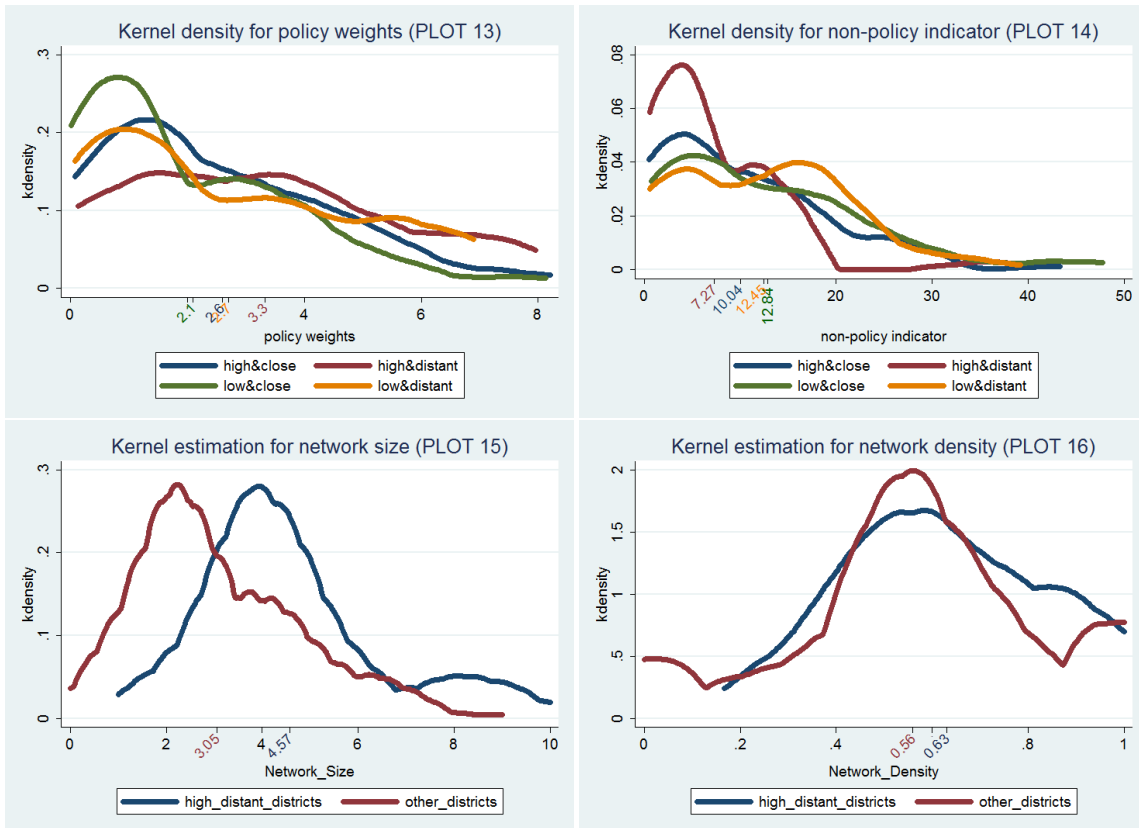
The Gini coefficient for political weights is relatively great (0.452), i.e. there exist consi-

3. Networks as determinants of voter behavior for the farm and non-farm population

derable differences in political weights between voters. We are interested to find all possible sources of capture on a macro level, since the impact of two macro variables (economic performance and distance-to-city) on political weights is evident from the linear regression (Table 3.5). According to these two dummy variables, we plot the political weights as well as non-policy indicators for districts with high and low performance, which are distant from or close to a city respectively. As seen from Plots 13 and 14 of Figure 3.4, high-performing distant districts show the significant greatest political weights and the significant smallest non-policy indicator. The capture coefficient for such districts is 1.39 in meaningless capture and there is more accountability by 39% when compared to all other districts.

When applying also two network parameters, we see that the high-performing distant districts have the significant greater and denser networks (Plots 15 and 16 of Figure 3.4), when compared to all other districts.

Figure 3.4.: Local polynomial smooth



Thus, we show, first, that network density has primary importance for farmer political weights, while network size has secondary importance for farmer behavior, probably since their networks are significantly smaller. In contrast, for the non-farmers, both network

parameters have a significant influence on political weights. That network density has such an essential positive impact on political weights disproves our second hypothesis and suggests that network density is able to intensify both non-policy and policy voting.

Second, a farmer group and the well-developed distant districts have the relatively lower capture. Whereas the low capture of the well-developed distant districts can be explained by the greater and denser networks, it is no longer applied to the farmers. This is due to the essential role of density in farmer peer networks, and despite the smaller ones, the farmer group is able to bargain better.

3.5. Conclusions

This paper provides a comprehensive theoretical and empirical analysis of the impact of social network structure on voter behavior at the micro level and its implication for government performance and capture at the macro level. At a theoretical level, this paper develops a model explaining the impact of uncertainty, i.e. informational level of voters on voter behavior.

At the methodological level, we apply a latent class approach to the probabilistic voter model to take heterogeneous voter behavior explicitly into account, where the latent class approach, in contrast to mixed logit approaches, allows one to identify the determinants of heterogeneity (Boxall and Adamowicz, 2002).

We test our theory estimating a probabilistic voting model for Slovakia using our own election survey data. Based on estimation results, we are able, first, to calculate the individual and group-specific relations of non-policy and policy voting motives and, second, to indicate the capture between the social groups based on the calculated political weights, which have direct implications for government performance.

The main results of the empirical estimation are: (i) Social network structure represented by two network parameters size and density is a significant determinant of voting behavior. (ii) Farmers vote in a more policy-oriented way and exhibit relatively lower capture compared to non-farmers. (iii) The low capture of the well-performing and distant districts is related to the greater and denser networks. (iv) Increasing network size leads to the lower importance of non-policy factors and the greater sensitivity of voter behavior on policy issues, thus confirming our hypothesis. (v) Both the importance of non-policy factors and voter sensitivity on policy issues rise with increasing network density, partly confirming our expectation. (vi) Network effects are more pronounced for the non-farmer

group when compared to the farmers. This finding hints at Slovakian farmers being well-organized in farm interest groups and, hence, receiving information on relevant policies via their local farm intra-organizational networks. Accordingly, it is conceivable that peer group information is far less important for farmers compared to non-farmers. However, in this empirical application, we could not explicitly control for organizational membership of voters to test our hypotheses explicitly. Hence, we leave this for future research.

ANNEX

3.A. Political weights

The marginal effects of an independent policy alternative-specific variable d_{ij}^n in a policy-dimension n for individual i and party j on the choice probabilities is:

$$\frac{\partial P_{ij}}{\partial d_{ij}^n} = P_{ij}(1 - P_{ij})\beta_n$$

For the whole policy space with N variables, the total differential of the probability can be gained accordingly:

$$dP_{ij} = \sum_{n=1}^N \frac{\partial P_{ij}}{\partial d_{ij}^n} dd_{ij}^n = P_{ij}(1 - P_{ij}) \sum_{n=1}^N \beta_n dd_{ij}^n$$

so that the absolute marginal effect for individual i , party j , and class x is:

$$ME_{ijx} = P_{ijx} (1 - P_{ijx}) \left| \sum_{n=1}^N \beta_{nx} \right|$$

which means how sensitively a voter reacts to the changing distance between one party and him. The marginal effects over all classes is:

$$ME_{ij} = \sum_{x=1}^X \hat{P}(x|\mathbf{y}_i) * ME_{ijx}$$

Moreover, the marginal effects over all parties are the sum weighted with the mean party's probabilities:

$$g_i = \sum_{j=1}^J S_j * ME_{ij}$$

Finally, we estimate the normalized marginal effects, i.e. political weights, as:

$$\bar{g}_i = \frac{g_i}{\sum_i g_i}$$

3.B. Capture

Straightforward definition of government capture corresponds to the degree to which political weights of social groups diverge from their corresponding population shares. The higher the weight of a social group, when compared to its population shares, the more this group is able to capture the government. Hence, we estimate the following capture index for two voter groups l and m :

$$CAP_{l_m} = \frac{\frac{\sum_{i \in l} \bar{g}_i}{S_l}}{\frac{\sum_{i \in m} \bar{g}_i}{S_m}}$$

$CAP_{l_m} > 1$ means that group l is more accountable and, hence, less captured.

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4. Kapitel

Social organization of voting and government performance: Theory and empirical application in Poland and Slovakia

Svetlana Petri and Christian H.C.A. Henning

Abstract

Empirically speaking, a persistence of inefficient (biased) agricultural policies can be observed both in industrialized and developing countries. In democratic systems, a theory of political economy explains biased agricultural policies by an influence of special interest groups (SIGs) on policy makers. Policy makers often have incentives to implement special politics at the expense of the general public, since voters often do not make their political choice based on policy issues because of their low informational level. In terms of the probabilistic theoretical works (Baron, 1994; Grossman and Helpman, 1996; Bardhan and Mookherjee, 2002), voters are modeled to make a political choice based on their discrete informational level. But we analyze voter behavior in two transition countries, Poland and Slovakia, using individual non-discrete voting motives. These voting motives are calculated as RMEs based on a latent class model. The factors affecting the individual informational level refer to the *individual* characteristics and *social* organization of voters, whereby the latter is presented by *formal* organization of voters in a farmer group and by *informal* communication of voters in their social networks. An impact of social networks on individual non-policy voting motives is analyzed by taking into account the *quantitative* (*network size* and *density*) and *qualitative* (*network ambivalence* formulated by Nir (2005)) aspects of informational flow. Further, assuming that the informational level corresponds to voters' uncertainty about an impact of political instruments on policy outcome, we show theoretically that the non-policy motives increase with a declining informational level. Assuming *network ambivalence* as a predictor for individual uncertainty, we confirm our theory.

4.1. Introduction

Empirically speaking, a persistence of inefficient (biased) agricultural policies can be observed in both industrialized and developing countries. In democratic systems, a theory of political economy explains biased agricultural policies by an influence of special interest groups (SIG) on policy makers, since policy makers often have incentives to implement special politics at the expense of the general public. Classical studies focus on lobbying activities and understand a policy outcome as the result of political bargaining competition among various interest groups for income or welfare redistribution (Olson, 1965; Buchanan and Tullock, 1967; Coleman, 1973; Zusman, 1976; Becker, 1983; Tyers and Anderson, 1992). In contrast, more recent theoretical models of a micropolitical foundation of interest

politics (Hinich and Munger, 1997; Baron, 1994; Grossman and Helpman, 1996; Bardhan and Mookherjee, 2002; Persson and Tabellini, 2000), arising from classic spatial voting works (Arrow, 1951; Downs, 1957), focus on explaining a policy outcome by probabilistic voter behavior.

In terms of probabilistic theoretical works (Baron, 1994; Grossman and Helpman, 1996), voters are modeled to make a political choice based on their level of information on politics. In particular, political parties or candidates have incentives to serve special interests if there exist relatively many *uninformed* and few *informed* voters. The policy positions of candidates or parties depend, first of all, on the proportion of informed and uninformed voters: The higher the proportion of uninformed voters, the more the candidates tend toward interest groups and biased policies, since the productivity of campaign expenditures is high.

A further probabilistic theoretical model is particularly applicable for developing countries (Bardhan and Mookherjee, 2002). The authors distinguish among three population classes (poor, middle, and rich), which differ from each other not only by the share of informed voters, but also their degree of organization: The group of the rich is small and well-organized; therefore, it is able to capture the politicians to create a desired specific policy at the expense of the general public. The main attainment of these probabilistic models (Baron, 1994; Grossman and Helpman, 1996; Bardhan and Mookherjee, 2002) is that the authors explain the biased policies by modeling voter behavior and involving lobbying activities.

Thus, the authors of the probabilistic theoretical models (Baron, 1994; Grossman and Helpman, 1996; Bardhan and Mookherjee, 2002) show that an inefficient outcome in equilibrium can be modeled by voter behavior. This leads to the following question: How can we explain voter behavior? Especially Bardhan and Mookherjee (2002) try to explain political behavior by the *individual* characteristics of voters. In addition to voters' affiliation to one or another society group according to their income level, voters can be uninformed and have a low political awareness because of illiteracy or their low education. In this case, voters are likely to be influenced by campaigning spends (Bardhan and Mookherjee, 2002); hence, lobbying for campaign contributions is highly efficient due to specific *individual* characteristics of voters.

However, in addition to the *individual* characteristics, we also found literature pointing to the essential importance of *social organizations* of voters for their information level.

Thus, in an interesting way, Lohmann (1998) shows theoretically that an informational status depends on the *formal* organization of voters. The information asymmetry arises endogenously as a result of a free-rider problem and the different organization degrees of groups. While it is „costly“ for ordinary voters to gather the information, „special interests are 'naturally' better informed; compared to the general public, they get costless information as a by-product of their specialized activities, and they have stronger incentives to invest in costly information gathering, to pay costly attention to complex information, and to invest in costly expertise that allows them to understand such information“ (Lohmann, 1998).

While Lohmann (1998) speaks about an impact of the *formal* organization of voters on their informational status, we also found studies devoted to the analysis of *informal* communication of voters in the peer groups in which political behavior and political preferences are influenced by discussing political issues or candidates. Within the framework of these studies, it is possible to distinguish between the *qualitative* and *quantitative* aspects of social networks. A *quantitative* aspect includes a network structure presented in this paper by *network size* and *network density*. A *qualitative* aspect means a presence of homogeneous or heterogeneous preferences in a social network. Further, we give a short insight into the results devoted to these aspects.

Regarding *network density*, Granovetter (2005) and Burt (1992) demonstrate the importance of network density for the flow of information within networks. „The denser a network, the more unique paths along which information, ideas and influence can travel between any two nodes. Thus, greater density makes ideas about proper behavior likely to be encountered repeatedly, discussed and fixed“ (Granovetter, 2005). Using individual-level data, Fowler (2005) showed that the density of relationships among one's acquaintances has an impact on the incentive to vote: „people with a mix of 'weak' and 'strong' ties can initiate larger turnout“ than people with all weak or all strong ties. We can see that this effect is not monotonically increased: When the relationships become too dense, the incentive to vote declines because „people are less connected to the rest of society“ (Fowler, 2005). Further, Huckfeldt et al. (2005) point out that political disagreement between discussion partners, i.e. different political choice can be explained „by low-density characteristics of political communication networks“ (Huckfeldt et al., 2005).

Regarding the *qualitative* aspects of networks, an impact of heterogeneous (homogeneous) preferences in networks on voter behavior is analyzed by Huckfeldt and Sprague

(1987); Huckfeldt et al. (2002). Thus, Huckfeldt et al. (2002) point out that individuals who hold minority preferences are less likely to be politically influential within networks of social communication, compared to individuals with majority preferences. Moreover, the holders of minority preferences are more likely to perceive majority preferences accurately: They are more likely to perceive their discussion partner's political preference correctly if their discussion partners have other preferences (Huckfeldt and Sprague, 1987).

Regarding *qualitative* aspects of networks, an impact of heterogeneous (homogeneous) preferences in networks on voter behavior is analysed by Huckfeldt and Sprague (1987); Huckfeldt et al. (2002). Thus, Huckfeldt et al. (2002) point to the fact that individuals who hold minority preferences are less likely to be politically influential within networks of social communication compared with individuals with majority preferences. Moreover, the holders of a minority preferences are more likely to perceive the majority preferences accurately: they are more likely to perceive their discussion partner's political preference correctly if their discussion partners have other preferences (Huckfeldt and Sprague, 1987). Further, individual partisan orientation arises from the social networks. Thus, Huckfeldt and Sprague (1992) shows that „individual partisan orientations are subject to the influence of the individual's partisan surroundings“. „In particular, the mean partisanship of the neighborhood has important consequences for the partisanship of individuals who live within the neighborhood“ Huckfeldt and Sprague (1992).

Moreover, Huckfeldt et al. (2004) provide interesting results about an autoregressive effect of networks. One network member's influence is highly dependent on the others in the network, i.e. it is autoregressive. Accordingly, an ego is more influenced by an alter if he finds another alter with the same political opinion in his network. These results help explain why opinions are resistant, but not impregnable, to political change: „In particular, new information is unlikely to gain acceptance until it is widely communicated from a variety of sources“ Huckfeldt et al. (2004).

The next important aspect of the networks' influence on voter behavior is analyzed by Zuckerman et al. (1994). The authors consider both the interactions based on political preferences and the interactions based on voters' affiliation to a social class or group. They find that „variations in the extent to which people regularly interact with individuals who share the same political preferences and the same social class or ethnic associations have a direct and strong impact on the likelihood that they will persistently support the same political party.“ But „multiple and reinforcing interactions with others who have the same

political preferences have a greater impact on voting decisions than do connections to people of the same social class or ethnic group“ (Zuckerman et al., 1994).

1.

Further, the homogeneous or heterogeneous content of social networks is best articulated by the concept of cross-pressure. First formulated by Lazarsfeld et al. (1968, Original 1944) and later developed by Berelson et al. (1954); Campbell et al. (1960), the concept of cross-pressure and ambivalence become widely recognized in more recent works (Thompson et al., 1995; Mutz, 2002; Nir, 2005; Huckfeldt et al., 2004). Thus, Huckfeldt et al. (2004) show that political diversity within networks creates the potential for political ambivalence: „heterogeneous networks produce enhanced levels of attitudinal ambivalence regarding candidates“ Mutz (2002) uses „cross-cutting social networks,“ denoting a person’s self-reported exposure to disagreement with his or her own point of view in his or her discussion networks, and shows that „cross-cutting exposure“ is negatively related to voting and political participation. Moreover, the larger „cross-cutting exposure“ encourages people to make up their minds later in the campaign (Mutz, 2002). The more the individuals are between different conflicting opinions, the longer they need to formulate their own position (Mutz, 2002). Further, Nir (2005) formulates *social network ambivalence* „as the balance of competing considerations perceived by the individual within his or her social network.“ This *network ambivalence* differs from previous operationalizations (Pinner, 1968; Lazarsfeld et al., 1968; Powell, 1976; Mutz, 2002). Surprisingly, Nir (2005) found neither significant effects of network ambivalence on political participation (to help a party or a candidate to win the election) nor on the voting, since she used ordinary least squares (OLS) in the first case and a logistic regression in the second case, whereby neither method reveals heterogeneous preferences in contrast to the latent class analysis (LCA) used in this paper.

We start by explaining the contributions of this paper.

1. Probabilistic studies showed theoretically that the most important factor influencing voter behavior is the informational level of voters (Baron, 1994; Grossman and Helpman, 1996; Bardhan and Mookherjee, 2002). While probabilistic studies focus only on a discrete information level of voters, we use non-discrete policy and non-policy voting motives (whereby the latter are often linked to ideological preferences), since an identification of informed and uninformed voters is very restricted in reality: The same voter can be informed

¹There exist other studies devoted to an influence of social networks on *party identity*, *party identification* or *partisanship*. But, since these definitions are ambiguous and the authors mean often differently oriented voting motives, we let it for future research.

in one policy issue and uninformed in another policy issue because of multidimensional reality. We note that not only is an absolute level of the policy and non-policy motives relevant for voter behavior and, therefore, for policy outcome, but rather the relative one.

2. Since a modeling of the non-discrete informational level of a voter can be best realized by a formulation of a concept of *uncertainty*, i.e. voters have low informational level and, therefore, are uncertain about an impact of political instruments on policy outcome we use this concept to better explain individual non-policy motives in our analysis.

3. We formulate theoretically that the relative importance of a non-policy when compared to policy-oriented voting increases with the voters' uncertainty regarding the true impact of policies, i.e. the less the informational level, the more ideologically people vote.

4. Higher uncertainty corresponds to a lower informational level of voters. However, we know that not only does the amount of information (quantitative aspect) influence voting behavior, but also its qualitative aspect. Hence, both quantitative and qualitative aspects have an impact on uncertainty.

Moreover, a greater informational level can be attained by better formal organization and informal communication of voters so that both sources have an impact on voters' uncertainty and, therefore, on voting behavior. Hence, we are interested to measure whether the formal and informal organization of voters has an impact on their political behavior, i.e. on the policy- and non-policy-oriented voting motives of voters.

A *formal* organization of voters is controlled by belonging, or not belonging, to a farmer group. Hence, we consider two groups: farmer and non-farmer. While the assumption that farmers are well-organized because of their homogeneous economic interests and, therefore, vote in a more policy-oriented way is confirmed for the Slovak case by Henning and Petri (2012), in this paper we extend our analysis with Polish data and show that not only does belonging to one SIG have an impact on the political behavior of its members but also the degree of organization of the members is important. For *formal* organization of voters, exact separation into the *qualitative* and *quantitative* characteristics of information flow is impossible based on our data.

An *informal* organization of voters is analyzed by social network characteristics, which we decompose into *quantitative* and *qualitative* parameters. *Quantitative* parameters reflect whether social networks are able to provide much or limited information to voters. The limited information, e.g. because of small networks, can raise voters' uncertainty so that they make their choice in a more non-policy-oriented manner (Henning and Petri,

2013). Therefore, in our analysis, we consider a network *structure*, including network *size* and *density*, which indicates the quantitative specifics of information flow. *Qualitative* parameters reflect a presence of homogeneous or heterogeneous preferences in the network, i.e. qualitative features of providing information. Thus, if a voter has a large ego-centered network but the political preferences in this network are strongly heterogeneous, the voter can become essentially uncertain and undecided, i.e. ambivalent. In terms of the previous studies, we apply a concept of *network ambivalence* (Nir, 2005), corresponding to „external cross-pressure,“ in connection with LCA (Vermunt and Magidson, 2005) helping to uncover heterogeneous preferences.

5. Methodically, using an LCA, we estimate a two-class model with „known class affiliation.“ Moreover, we estimate a model with „unknown class affiliation“ to see which endogenous latent micro and macro characteristics of the voters' social milieu are responsible for the greater policy-oriented voting. Based on the marginal effects, we calculate a relative non-policy component corresponding with a marginal rate of substitution and reflecting the extent to which a probability change of non-policy motives is greater compared to a probability change of policy motives. Determination of non-policy motives because of the different latent classes occurs based on voters' individual characteristics (age, education, income), network characteristics (size, density, ambivalence), social group organization (farmer versus non-farmer) as well as regional parameters (regional performance and distance to city). In the context of formal organization and informal communication, we investigate the question of the extent to which network *structure* (size and density) and *network ambivalence* are important for the non-policy motives of farmer and non-farmer groups in two countries, Poland and Slovakia.

6. Using *network ambivalence* as a predictor for uncertainty, we confirm our theory: We gain positive effects between network ambivalence and non-policy voting motives in both countries. We start with formulation of deterministic voter utility. Further, we present our theoretical model and proceed with the empirical model: We explain data, formulate the empirical model, and derive the RMEs measuring the importance of non-policy versus policy voter motives. Finally, we present the results confirming our theoretical model and discuss it.

4.2. Policy- versus Non-policy-oriented Voting

Following the literature on the theory of voting, we assume that people vote for different parties based on the utility which a voter affiliates to the different parties. The voter supports the candidate or party that maximizes his combination of measured and unmeasured utilities. In random utility models, the utility $U_i(j)$ provided to individual i by party j is composed of a deterministic component $V_i(j)$ and a stochastic component ϵ_{ij} :

$$U_i(j) = V_i(j) + \epsilon_{ij}, \quad (4.1)$$

where ϵ_{ij} is a voter-specific random utility term that represents unmeasured components of the voter i 's utility for a party j . Thus, the decision maker i chooses the party j if and only if $U_i(j) > U_i(j'), \forall j \neq j'$. The assumption used in the logit estimation is that the unobserved portion of utility ϵ_{ij} follows independently and identically an extreme value distribution. Extreme value distribution of a stochastic component allows derivation of an analytical form for probability McFadden (1974):

$$P_{ij} = \frac{e^{V_i(j)}}{\sum_J e^{V_i(j)}}, \quad (4.2)$$

Basically, the deterministic utility may consist of non-policy, policy, and retrospective components:

$$V_i(j) = \alpha_j - \sum_n \beta_n (x_{in} - s_{jn})^2 + \sum_l \gamma_{lj} k_{lit} \quad (4.3)$$

In a perfect political world, electoral competition would be based on policy platforms. The motive of policy-oriented voting goes back to the classic voting theory created by Downs (1957); Enelow and Hinich (1984). In the sense of the spatial theory of voting (Downs, 1957; Enelow and Hinich, 1984), voters prefer the parties whose positions are close to their own positions along a salient policy dimension. In other words, voters support the candidates who best reflect their policy beliefs. Therefore, the modelers form a policy component based on the negative squared distance between voter i at location x_i and candidate j at location s_j in a multi-dimensional space with N issues. With the policy-

salience parameter β_n , the policy-oriented utility for the candidate's policies is given by $-\sum_n \beta_n (x_{in} - s_{jn})^2$.

The next component, $\sum_l \gamma_{lj} k_{lit}$, corresponds to the concept of retrospective voting (Fiorena, 1981), i.e. voters use observable welfare indicators, such as income growth or other well-being indicators realized in the incumbent's last election period, to update their evaluation of the incumbent's competence and popularity. The retrospective component of voters' perceived utility is also a function of governmental policy. Since, in reality, electoral competition is imperfect, the utility also incorporates a non-policy voting component, or valence. While the transformation of policies into welfare is rather complex, the calculation of expected utility is also complex from the viewpoint of individual voters. Hence, voters apply simple heuristics to estimate their expected utility. Basically, their behavior is based on different types of non-policy factors. One type of non-policy-oriented factor corresponds to the concept of valence (Schofield, 2007), which holds that based on specific characteristics of the incumbent, such as appearance, charisma, occupation, and ethnicity, voters perceive a specific competence or popularity of candidates and parties. Following Grossman and Helpman (1996), voters are at least partially swayed by the relative campaign spending of different parties. This effect may reflect the influence of election advertisements or other efforts made to mobilize support (e.g. election rallies, door-to-door visits by campaign workers).

Another type of non-policy-oriented factor arises from party *identity* based on social, political, religious or ethnic factors. This type of non-policy motive tends to not be influenced by campaign spending. Following the theory of Lipset-Rokkan (Lipset and Rokkan, 1967), voters' electoral choices are determined by their social class. Hence, an electoral competition may imply incentives for elected politicians either to consider the needs only of such a social class or to ignore such a social class completely. For example, ethnic voting predominates vote choice in African democracies (Horowitz, 1985; Ferree and Horowitz, 2010; Bratton et al., 2011; Henning et al., 2014).

4.3. Theoretical approach

Next, we relate the relative importance of ideology when compared to policy preferences with the voter's uncertainty regarding the impact of policy on voters' welfare. To this end, we assume for simplicity that voters' policy preferences correspond to one-dimensional spatial policy preferences:

$$W^J(X^A) = -|Y^J - Z^A|, \quad Z^A = T(X^A)$$

Z^A is the policy outcome, where Y^J is the preferred policy outcome of a voter from the group J . $T(X^A)$ denotes the political technology describing the technical transformation of policy into outcomes.

Now, voters are uncertain regarding the true political technology. To describe this uncertainty, we assume the following simple stochastic relation between policy X^A and outcome Z^A (Gilligan and Krehbielm, 1989):

$$Z^A = X^A + \omega,$$

where ω is a stochastic variable. For simplicity, we assume ω is uniformly distributed between the intervals $[-\frac{1}{2\sigma}, \frac{1}{2\sigma}]$, i.e. we assume ω is uniformly distributed with a zero mean and a variance of $\frac{1}{2\sigma}$.

With assumption $d = Y^J - X^A$, we get:

$$W^J(X^A) = -|d - \omega|$$

Accordingly, the expected utility for voters from policy X, $EU(X)$, is then:

$$EU(X) = -\sigma \int_{-1/2\sigma}^{1/2\sigma} |d - \omega| d\omega = -\sigma \left(\int_{-1/2\sigma}^d (d - \omega) d\omega - \int_d^{1/2\sigma} (d - \omega) d\omega \right)$$

Thus, it follows from integration:

$$EU(X) = -\sigma d \left(\int_{-1/2\sigma}^d d\omega - \int_d^{1/2\sigma} d\omega \right) - \sigma \left(\int_d^{1/2\sigma} \omega d\omega - \int_{-1/2\sigma}^d \omega d\omega \right)$$

After rearrangement, it follows that:

$$EU(X) = -\sigma d \left(d - (-1/2\sigma) - (1/2\sigma - d) \right) - \frac{\sigma}{2} \left(\frac{1}{4\sigma^2} - d^2 - (d^2 - \frac{1}{4\sigma^2}) \right) = -(\sigma d^2 + \frac{1}{4\sigma})$$

Accordingly, the higher the uncertainty, i.e. the higher the variance of ω and the lower the density σ the lower is the weight of the policy preference when compared to the ideological

preference, i.e. the less informed a voter the more ideologically she votes *ceteris paribus*. This is our formulated hypothesis for the further empirical analysis.

4.4. Empirical Model

4.4.1. Database

The data used for the empirical analysis is derived from a household questionnaire distributed among non-farm and farm households, which includes 391 households (31.20% farmers and 68.80% non-farmers) in four Slovakian rural communities (Trnava, Galanta, Michalovce, and Trebisov) and 569 households (50.44% farmers and 49.56% non-farmers) in Polish rural regions (Chotcza, Kamieniec, Siemiatkowo, and Wieliszew). The communities were selected following a two-dimensional design covering economically high- and low-performing rural regions and communities located close to or distant from a major city. Personal interviews were undertaken by locally trained professional interviewers in 2007-2008. In addition to the individual socio-economic and egocentric network questions, the interviewees were asked about the perceived positions of the parties and their own positions on three issues using the following questionnaires:

- *EU – Subsidies* (EU): Some people say that the Slovak government should lobby in Bruxelles to obtain more subventions for agricultural sector in Slovakia. Others say that the government should lobby for other issues
- *Socio – economic trade – off* (Eco): Some people say that tax should be increased in favour of better public services and social security. Others say that public services and social security should be cut down to reduce tax
- *Social – cultural dimension* (Soc): Some people agree with liberal policies like legalizing abortion, homosexual marriage etc. Others disagree with such liberal policies

On a scale from one to seven, respondents scored the parties and themselves regarding the issues above. The ideal positions of voters of farm and non-farm groups over three dimensions are given in the Appendix. Based on these policy preferences of voters and their beliefs about all parties in three dimensions, the squared (Euclidean) distances were calculated for each of three dimensions and for each of six parties. These 18 distances were taken as attributes (*policy* variables) in LCA. The questions referred to the national

4. Social organization of voting and government performance

parliamentary elections held in Slovakia on June 17, 2006 and in Poland on October 21, 2007. The relevant parties and their results at the most recent elections are summarized in Tables 4.1 and 4.2. Note that the following LCA includes only voters of the parties to whom seats in the National Council (*Narodna rada* and *Sejm*) have been allocated; these are the parties with at least 5% of the nationwide votes.

Table 4.1.: Party System in Slovakia after Election 2006

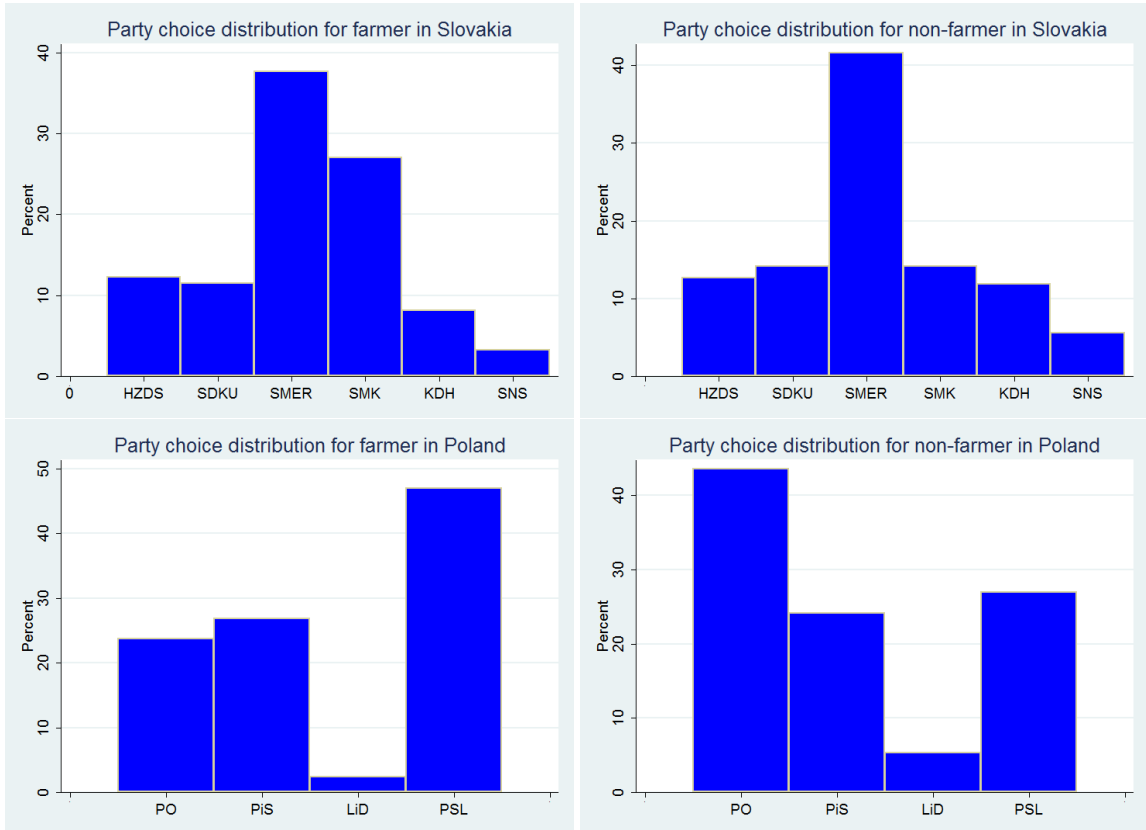
Party	Abbr.	Ideology	Votes,%	Seats	Sample,%
Direction - Social Democracy (Smer)	SMER	Social Democracy	29.14	50	40.41
Slovak Democratic and Christian Union	SDKU	Liberal Conservative	18.35	31	13.30
Slovak National Party	SNS	Nationalist	11.73	20	4.86
Party of the Hungarian Coalition	SMK	Minority	11.68	20	18.16
People's Party Movement for a Dem. S.	HZDS	Nat. Conservative	8.79	15	12.53
Christian Democratic Movement	KDH	Conservative	8.31	14	10.74
Communist Party of Slovakia	KSS		3.88		
Free Forum	SF		3.47		
Alliance of the New Citizen	ANO		1.42		
other Parties under 1 %			3.23		

Table 4.2.: Party System in Poland after Election 2007

Party	Abbr.	Ideology	Votes,%	Seats	Sample,%
Civic Platform	PO	Liberal Conservative	41.5	209	33.57
Law and Justice	Pis	Nat. Conservative	32.1	166	25.48
Left and Democrats	LiD	Social Democracy	13.2	53	3.87
Polish People's Party	PSL	Chr.-Democratic, Agrarian	8.9	31	37.08
Self-Defense of the Republic of P.	SRP	Nat. Conservative, Agrarian	1.5	0	
League of Polish Families	LPR	Nat. Conservative	1.3	0	
Polish Labour Party	PPP	Left, Socialism	1.0	0	
other Parties under 1 %			0.5	0	

From plots for choice distribution for the farmers and non-farmers in both countries (Figure 4.1), we see that the political preferences of Polish farmers tend toward the agrarian-oriented party PSL, whereas the nationwide winner PO lost the votes of the farmer population. Interestingly, approximately 27% of the non-farmer population in our sample voted for agrarian-oriented PSL that much more as the nationwide average was 8.9%. This may be explained by two points: First, being objectively justified, the promised support of farmers is often perceived by people as total support of rural regions; second, the communication and political discussions between farmers and non-farmers in networks have impacts on the policy choice of the latter.

Figure 4.1.: Party choice distribution for the farmers and non-farmers in Poland and Slovakia



The political choice of the Slovak farmers tends to the winning party SMER, being on an average the same also for the non-farmers, and the minority party SMK. The last fact can be historically explained : The great share of farmers belong to the Hungarian minority. Already in the 19th century, farmers in Slovak regions were peasant farmers in tenancy on Hungarian estates. At present, 23.7% of the population in Trnava, more than 40% of the population in Galanta, and 30% in Trebisov belong to Hungarian minority.

The further socio-economic characteristics gauged from the household surveys were also available for analysis, and are explanatory and class membership-determining variables:

- Subjective Characteristics:
 - Age (Age)
 - Education (Education): 1=basic, 2=vocational, 3=secondary, 4=high school, 5=university
 - Total monthly income in Euro (Income)
 - Farmer Affiliation (Farmer): 1=farmer, 0 otherwise
- Egocentric network parameters:
 - Network Size (Network Size): Values are between 0 and 10
 - Network Density (Network Density): Values are between 0 and 1

- Ambivalence: from 0=lowly ambivalent to 4.5=highly ambivalent
- Regional Differences:
 - Economic Performance of community (High-Performance): 1=high, 0=low
 - Distance to city (Distance-to-city): 1=close, 0=distant

The ego-centered network data is derived from a network part of a Slovakian and Polish household questionnaire using *name generators*. The network questionnaire has the aim to specify a network of one person with different *name generators* covering different arenas of social life: political discussion, advice network, and social co-operation. For all interviewees in the *name generators*, we also asked for their gender, age, education, and profession. Following the concept of Krackhardt (Wasserman and Faust, 1994), we asked interviewees to describe the pair-wise relations of 10 most important individuals mentioned on a three-point scale with 0 = „do not know each other“, 1 = „know each other“, and 2 = „know each other very well“. We extract the total number of relations that a respondent mentions in all these *name generators* and consider this as the size of the network. As the respondent also gave us the strengths of relationships between the 10 most important network members, we can estimate whether all the network members are closely connected with each other or whether they consist of different subgroups in different realms of society (network density).

In addition, we use a measure for *network ambivalence* defined as the balance of competing considerations perceived by the individual within his or her social network (Nir, 2005; Lavine, 2001). The network ambivalence was constructed using a method analogous to the individual-level Griffen ambivalence index (Thompson et al., 1995; Lavine, 2001; Mutz, 2002; Huckfeldt et al., 2004) according to the following formula:

$$Ambivalence = \frac{same + other}{2} - |same - other|$$

where *same* corresponds to the number of alteri whose ideological orientation of the „left-right“ scale corresponds to that of the respondent, and *other* is the number of alteri who have a different ideological orientation. Hence, the balance of *same* and *other* opinions captures the perceived „cross-pressures.“ The theoretical range of network ambivalence was -2.5 to two, with the higher scores indicating greater ambivalence within the network or stronger *external cross-pressures* (Nir, 2005). Moreover, this measure of ambivalence includes two components: The first summand is „intensity“ and the second summand is „polarization“ (Huckfeldt et al., 2004).

4.4.2. Latent Class Analysis

Like economic analysis estimating consumers' heterogeneous preferences for goods, the political economy is interested to find voters' heterogeneous preferences characterized by their individual characteristics. When unobserved heterogeneity in the population is forecast, this leads to a class of response models based on random utility maximization (RUM) (McFadden and Train, 2000). There are mainly two types of models based on the idea of using a mixture of a simple underlying model, such as multinomial logit, over the distribution of preferences: mixed multinomial logit models (MMLM) and latent class logit models (LCLM). While in MMLM this distribution is continuous, in the latent class context, a finite number of classes is used to express the heterogeneity (Hess et al., 2011). Both types of models are RUM models generalizing standard logit by allowing the parameter associated with each observed variable to vary randomly across individuals. Although mixed logit models explicitly account in a sense for heterogeneity, LCA is better suited to explain the sources of heterogeneity that relate to the characteristics of individual consumers (Boxall and Adamowicz, 2002).

Hence, we concentrate in this paper on the LCA, since it uncovers unobserved heterogeneity in a population and aims to find meaningful groups of voters that are similar in their responses to measured variables. In an LCA, the parameter heterogeneity across individuals is modeled by a discrete distribution or set of classes. The estimation results in a fixed number of classes; thereby, the parameters of the statistical model differ across these latent classes formed by unobserved latent variables. Thus, the preferences of voters are homogeneous within each latent class, but can vary between the classes. The latent class estimation of this paper was realized in Latent GOLD Choice 4.0, developed by Vermunt and Magidson (2005).

We estimate a model with individual utility $V_i(j)$ as a linear function of an alternative-specific constant α_j and attribute effects β_n , where I is used to refer to the number of cases and i to a particular individual or case, J is the number of alternatives and j a particular alternative, N is the number of attributes, and n a particular attribute. Let y_{it} denote the value of the dependent variable for case i at replication t , which can take on values $1 \leq j \leq J$. Note that each individual was observed only once; therefore, we have one-to-one correspondence between replications and choice sets.

That is,

$$V_i(j) = \alpha_j + \sum_n \beta_n d_{ij}^n, \quad (4.4)$$

where $\sum_{j=1}^J \alpha_j = 0$ is presumed. The detailed form of estimated model is given then by

$$V_i(j) = \alpha_j + \beta_{EU} d_{ij}^{EU} + \beta_{Eco} d_{ij}^{Eco} + \beta_{Soc} d_{ij}^{Soc}, \quad (4.5)$$

where β_{EU} , β_{Eco} , β_{Soc} are attribute effects accordingly for attributes d_{ij}^{EU} , d_{ij}^{Eco} , d_{ij}^{Soc} , calculated Euclidean distances in three dimensions, which characterize a policy choice of voters.

In a latent class variant of the conditional model, it is assumed that individuals belong to different latent classes that differ with respect to β_n . In order to indicate that the choice probabilities depend on class membership x , the logistic model is of the form (cf. Vermunt and Magidson 2005, p. 12):

$$P(y_{it} = j|x) = \frac{\exp(V_{i|x}(j))}{\sum_J \exp(V_{i|x}(j'))}, \quad (4.6)$$

Here, $V_{i|x}(j)$ is the systematic component in the utility of alternative j , given that individual i belong to latent class x . As can be seen, the logit regression coefficients are class-specific and the linear model for $V_{i|x}(j)$ in this specific case is:

$$V_{i|x}(j) = \alpha_{xj} + \sum_n \beta_{xn} d_{ij}^n. \quad (4.7)$$

In addition to the attributes, we include in our LCA another type of explanatory variable covariates in the LC model. While attributes enter the regression model for choices, covariates are used to predict class membership. When covariates are included in the model, the probability density took the following form (cf. Vermunt and Magidson 2005):

$$P(\mathbf{y}_i) = \sum_{x=1}^X P(x|\mathbf{z}_i^{\text{cov}}) \prod_{t=1}^{T_i} P(y_{it}|x), \quad (4.8)$$

where $\mathbf{z}_i^{\text{cov}}$ is a set of covariates of individual i and \mathbf{y}_i a vector of all responses.

4.4.3. Relative marginal effects

Based on LCA estimation, we are able to calculate the relative marginal effects (RMEs) to see the extent to which the non-policy preferences are more important than policy-oriented preferences. The greater the RME, the more that voters vote in a non-policy oriented (ideological) manner. The RMEs are calculated in the following way.

The marginal effects of an independent policy alternative-specific variable d_{ij}^n in a policy dimension n for individual i and party j on the choice probabilities is:

$$\frac{\partial P_{ij}}{\partial d_{ij}^n} = P_{ij}(1 - P_{ij})\beta_n$$

For the whole policy space with N variables, the total differential of the probability can be gained accordingly:

$$dP_{ij} = \sum_{n=1}^N \frac{\partial P_{ij}}{\partial d_{ij}^n} dd_{ij}^n = P_{ij}(1 - P_{ij}) \sum_{n=1}^N \beta_n$$

so that the absolute marginal effect in the policy dimension for individual i , party j , and class x is:

$$PME_{ijx} = P_{ijx}(1 - P_{ijx}) \left| \sum_{n=1}^N \beta_{nx} \right|$$

which means how sensitively a voter reacts to the changing distance between one party and him. Further, we calculate the marginal effects for the non-policy dimension (NME) reflected in constants. Given the constants being party-specific, we obtain for non-policy preferences t_i for individual i and party j the following NME:

$$\frac{\partial P_{ij}}{\partial t_i} = P_{ij}(1 - P_{ij})(\alpha_j - \bar{\alpha}_k)$$

with

$$\bar{\alpha}_k = \sum_{k \neq j}^J \left[\frac{P_{ik}}{\sum_{k \neq j}^J P_{ik}} \alpha_k \right]$$

so that the absolute marginal effect in the non-policy dimension for individual i , party j , and class x is

$$NME_{ijx} = P_{ijx}(1 - P_{ijx}) |\alpha_{jx} - \bar{\alpha}_{kx}|$$

Further, we find individual RMEs for each class and party:

$$RME_{ijx} = \frac{NME_{ijx}}{PME_{ijx}}$$

Weighting with the average party share, we obtain the RME over all parties:

$$RME_{ix} = \sum_{j=1}^J s_j RME_{ijx}$$

Finally, we obtain individual RME over all classes on multiplying with the average class probability:

$$RME_i = \sum_{x=1}^X P(x|\mathbf{z}_i^{cov}) RME_{ix}$$

Thus, we obtained individual-specific RME.

4.5. Results

4.5.1. Non-policy versus policy Voting

We estimated LCLM using a different number of classes. To decide on the best number of classes, we consider the Akaike information criterion (AIC) and Bayesian information criterion (BIC). A formal comparison in terms of performance between AIC and BIC is difficult, particularly because AIC and BIC address different questions. BIC assumes that the true generation model is in the set of candidate models. Most simulations that prefer BIC over AIC assume that the true model is in the candidate set and that it is relatively low-dimensional. In contrast, AIC does not assume that any of the candidate models is necessarily true in order to make the best possible predictions. Most simulations that favor AIC over BIC assume that reality is highly or infinitely dimensional (Wagenmakers and Farrell, 2004). Markon and Krueger (2004) noted that AIC performs relatively well in small samples, but is inconsistent and does not improve in performance in large samples. Meanwhile, BIC appears to perform relatively poorly in small samples, but is consistent and improves in performance with a larger sample size (De-Graft Acquah, 2010). Since our sample is relatively large and our model based on network theory supposes the existence of a low number of dimensions in which the network characteristics can have (or not have) effects on policy choice, we decided to choose the model based on BIC as this is also more

consistent (Table 4.3).

Table 4.3.: Fit for different number of latent classes

	Slovakia		Poland	
	BIC	AIC	BIC	AIC
2 classes model	1204.822	1101.635	1282.092	1186.527
3 classes model	1235.387	1084.576	1304.873	1165.869

Based on individual distances between voters and parties in the political space as well as regional, individual, and network characteristics, we estimate two kinds of models: with known class membership for „farmer affiliation“ and unknown class membership (endogenously generated) to find which other hidden micro and macro characteristics, except „farmer affiliation,“ influence voting in both countries. According to discrete choice models, the voter supports the candidate or the party that maximizes his combination of measured policy-related utilities and his unmeasured utilities. Therefore, we aim to investigate the nature of the relationship between the dependent (choosing a political party) and independent variables (distances in three political dimensions). This relationship depends also on covariates (regional, individual, and network characteristics) determining the class probabilities.

Table 4.4 shows the results of the LCA with the estimated parameters, whereas Models 1 and 3 are endogenously generated, for Slovakia and Poland respectively, and Models 2 and 4 have known class membership (i.e. 100% of farmers belong to one class and 100% of non-farmers belong to another class). The results indicate heterogeneity of party preferences across the two latent classes. As can be seen from Table 4.4, policy-oriented choice has been determined in both latent classes and in both kinds of models.

4. Social organization of voting and government performance

Table 4.4.: Results of the Latent Class Analysis with the Estimated Parameters by z-values

Slovakia	Model 1				Model 2			
	Class1	z-value	Class2	z-value	Class1	z-value	Class2	z-value
Class size	50.13%		49.87%		31.25%		68.75%	
Farmer shares belonging to class	77.87%		22.13%		100%		0%	
<i>Constants:</i>								
HZDS	0.281	0.934	-0.770*	-1.813	-0.181	-0.719	-0.224	-1.392
SDKU	0.180	0.578	0.048	0.199	0.014	0.054	0.058	0.374
SMER	0.815***	2.459	1.426***	7.929	0.995***	5.467	1.088***	9.758
SMK	0.551*	1.691	0.289	1.177	0.631***	3.171	0.107	0.693
KDH	0.042	0.113	-0.424	-1.411	-0.166	-0.567	-0.046	-0.279
SNS	-1.869**	-2.255	-0.568*	-1.725	-1.293***	-3.023	-0.983***	-4.364
<i>Attributes:</i>								
EU	-0.665***	-3.827	-0.001	-0.050	-0.168***	-3.922	-0.050***	-2.823
Eco	-0.078	-1.001	-0.067***	-2.482	-0.005	-0.178	-0.090***	-4.028
Soc	-0.654***	-3.789	0.007	0.410	-0.082***	-2.402	-0.044***	-3.410
<i>Covariates:</i>								
Class Constant	-1.479*	-1.939	1.479*	1.939	-1.420***	-3.257	1.420***	3.257
Age	0.010	1.293	-0.010	-1.293	0.008	1.621	-0.008	-1.621
Education	0.060	0.749	-0.060	-0.749	-0.100*	-1.865	0.100*	1.865
Income	0.007	0.381	-0.007	-0.381	0.102***	7.412	-0.102***	-7.412
Ambivalence	-0.245*	-1.664	0.245*	1.664	0.094	0.996	-0.094	-0.996
Network Size	0.027	0.442	-0.027	-0.442	-0.122***	-3.213	0.122***	3.213
Network Density	0.460	1.204	-0.460	-1.204	-0.017	-0.071	0.017	0.071
High-Performance	0.507**	2.305	-0.507**	-2.305	-0.053	-0.391	0.053	0.391
Distance-to-city	-0.208	-1.032	0.208	1.032	0.345***	2.549	-0.345***	-2.549
Farmer	0.589**	2.216	-0.589**	-2.216	-	-	-	-
LL function	-524.818				-750.472			
BIC	1204.822				1650.163			
AIC	1101.635				1550.945			
Poland	Model 3				Model 4			
	Class1	z-value	Class2	z-value	Class1	z-value	Class2	z-value
Class size	63.16%		36.84%		50.44%		49.56%	
Farmer shares belonging to class	70.38%		29.62%		100%		0%	
<i>Constants:</i>								
PO	0.563***	3.488	1.056***	4.922	0.517***	3.680	0.745***	7.026
PiS	0.313*	1.853	-0.783*	-3.033	0.231	1.596	0.026	0.211
LiD	-1.816***	-4.440	-0.241	-0.743	-1.529***	-5.252	-1.133***	-5.568
PSL	0.940***	6.089	-0.032	-0.161	0.780***	6.060	0.361***	3.021
<i>Attributes:</i>								
EU	-0.040***	-2.544	-0.090***	-3.282	-0.058***	-4.208	-0.052***	-4.131
Eco	0.001	0.076	-0.092***	-3.068	-0.031	-1.451	-0.030*	-1.819
Soc	-0.014	-1.078	-0.170***	-5.104	-0.063***	-5.070	-0.051***	-4.020
<i>Covariates:</i>								
Class constant	4.219	1.488	-4.219	-1.488	-0.234	-0.913	0.234	0.913
Age	0.008	0.216	-0.008	-0.216	0.005	1.151	-0.005	-1.151
Education	0.116	0.314	-0.116	-0.314	0.039	0.915	-0.039	-0.915
Income	-0.044	-1.168	0.044	1.168	-0.001	-0.356	0.001	0.356
Ambivalence	1.680**	2.241	-1.680**	-2.241	-0.330***	-3.747	0.330***	3.747
Network Size	0.322	1.042	-0.322	-1.042	-0.025	-0.644	0.025	0.644
Network Density	-1.138	-1.203	1.138	1.203	-0.146	-1.213	0.146	1.213
High-Performance	-4.520***	-3.083	4.520***	3.083	0.064	0.717	-0.064	-0.717
Distance-to-city	-2.549***	-2.932	2.549***	2.932	-0.085	-0.914	0.085	0.914
Farmer	1.940*	1.909	-1.940*	-1.909	-	-	-	-
LL function	-571.264				-988.545			
BIC	1282.092				2110.311			
AIC	1186.527				2019.090			

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$

For models with pure farmer affiliation (Model 2 for Slovakia and Model 4 for Poland), the economic issue of *EU subsidies* and *social freedom* seem rather important for the farmers, while all three issues are important for the non-farmers. Why the economic issue is non-relevant for farmers may be explained by the fact that the question about the EU subsidies already contains economic voting for agrarian population. But it is more interesting that the EU issue is also important for the rural non-agrarian population, but not as strong as for the farmers. The Slovak farmer class demonstrates a significantly lower education level, greater income, greater distance from the city, and a smaller network size. In contrast, the Polish farmer class exhibits only significantly lower ambivalence („external cross-pressure“). Thus, the farmer class in both countries has significant differences in network characteristics.

Further, in the endogenously generated Models 1 and 3, we do not specify the „known class belonging“ and allow the program to generate a model with the best fit. The BIC and AIC in such models are much better compared to the models with „fix class belonging“. In addition to farmer status, we also identify other important parameters influencing the differences in policy versus non-policy voting: ambivalence, regional economic performance level, and distance to city.

It is interesting that compared to our previous results (Henning and Petri, 2013), *network density* and *size* are not more significant by class determination, while *ambivalence* becomes significant. Thus, if *ambivalence* (i.e. network content) is presented, it appears even more important than network structure.

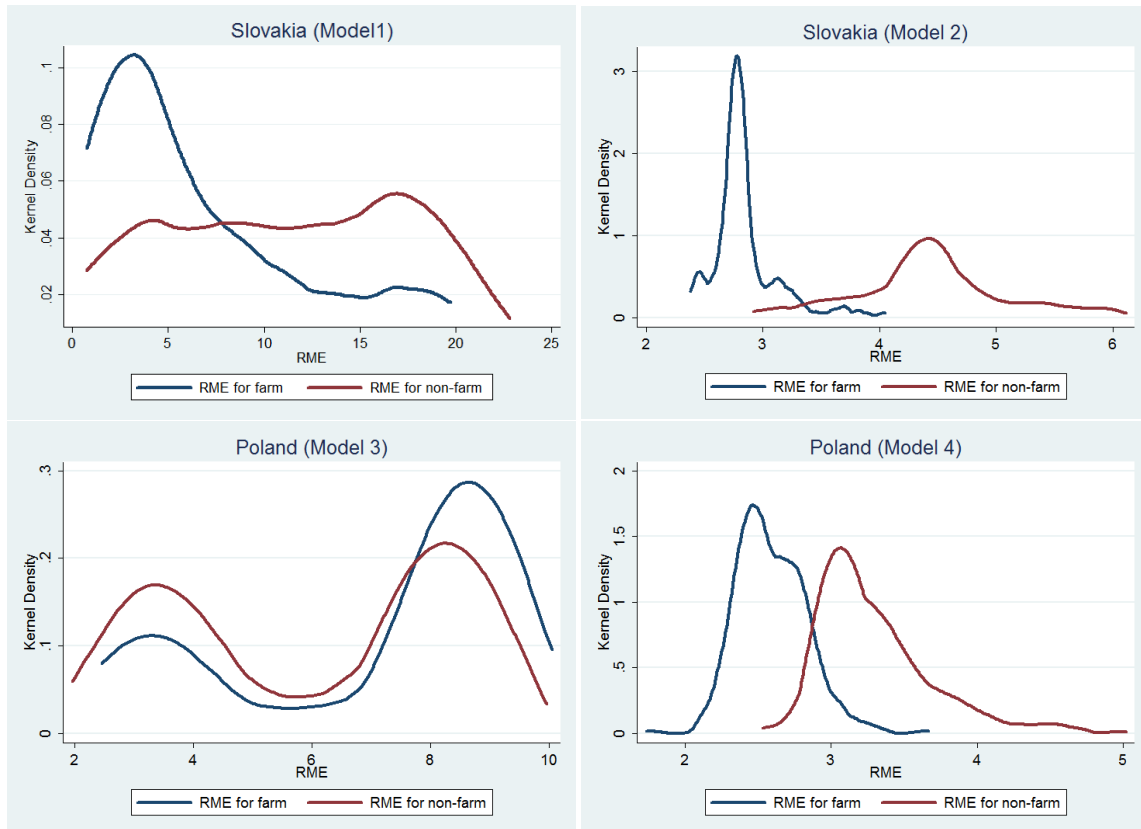
We see that policy-oriented voting in Slovak Model 1 is stronger for Class 1, being rather agrarian, with significantly lower ambivalence and higher economic performance, while the policy-oriented voting in Polish Model 3 is stronger for Class 2, being rather not agrarian, with lower ambivalence and higher performance. But this estimated level of policy-oriented voting is rather absolute, since non-policy voting is not taken into consideration. Therefore, assuming a relevance of the relative level of non-policy versus policy motives, we calculate the individual marginal effects for policy variables as well as those for alternative specific non-policy constants. Then we calculate RMEs indicating the extent to which the non-policy preferences are more important than policy-oriented preferences. The greater the RMEs, the more voters vote in a non-policy-oriented (ideological) manner.

Further, we computed kernel density plots of individual RMEs according to farmer status (Figure 4.2) and economic framework conditions (Figure 4.3) as well as with detailed

distributions of both parameters (Figure 4.6 in Appendix).

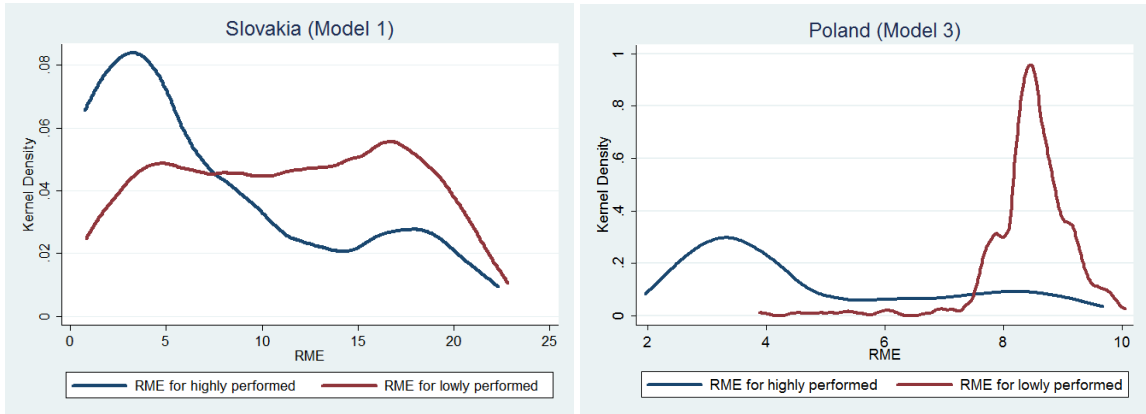
Based on the models with „fix class affiliation“ (Models 2 and 4), Figure 4.2 provides us with the greater importance of non-policy-oriented voting for non-farmer groups and greater importance of policy-oriented voting for farmer groups in both countries, although the interval between both groups is larger in Slovakia. This means that *farmer status* is relatively more important for voting determination in Slovakia than in Poland.

Figure 4.2.: Kernel density for relative marginal effects (RME), by for farmer status



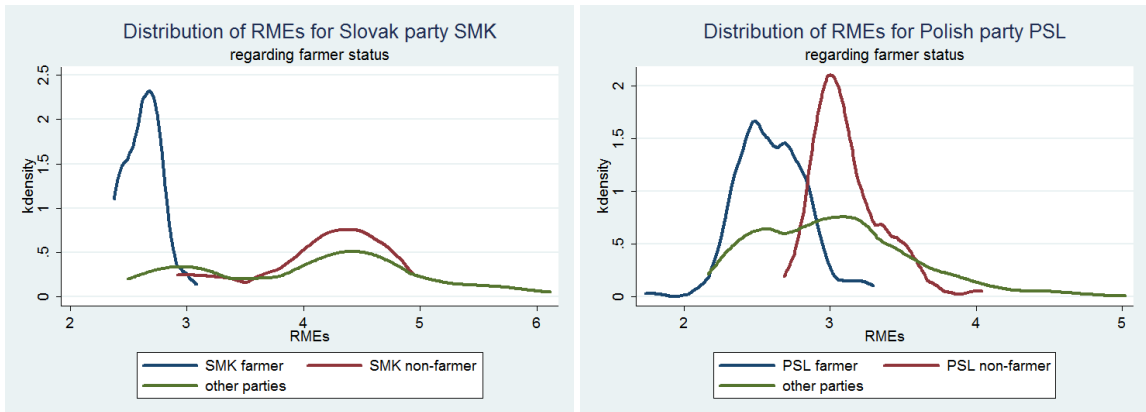
Additionally, the endogenously determined models (Models 1 and 3) point to the same results for Slovakia, i.e. greater policy-oriented voting for a farmer group (Figure 4.2) while in Poland the farmers vote in an even more non-policy-oriented way (see correlation table in Appendix). However, Figure 4.3 shows that voters from regions with better economic performance vote in a more policy-oriented manner in both countries, whereas the interval between both kinds of regions is larger in Poland. This means that macro economic conditions are relatively more important for voting determination in Poland than in Slovakia. Thus, based on these results from Figure 4.2 and Figure 4.3, we see that while in Slovakia an affiliation to a farmer group is relatively more important than a macro economic performance, macro economic conditions play a greater role than farmer status in Poland.

Figure 4.3.: Kernel density for relative marginal effects (RME), by economic framework conditions



Further, we do plots regarding the Slovak minority party SMK and Polish agrarian-oriented party PSL, since our sample is biased toward these parties by farmer group. The results are implied in Figure 4.4. We see for Slovak data that SMK voters from farmer groups make their policy choice in a more policy-oriented manner than those from non-farmer groups. The same is true for the Polish party PSE: PSE voters with a farm background vote in a more policy-oriented way than PSE non-farm voters.

Figure 4.4.: Kernel density for relative marginal effects regarding political parties



This indicates that though an external influence on voters (e.g. political discussion in networks or fail perception of politics by the rural non-farm population) definitely has impacts on party choice, it has much less effect on their policy-oriented behavior. It means people can be externally convinced to vote for one or another pro-agrarian party because of their neighbors and friends or their subjective perception of the agricultural politic, but they do it in a non-policy-oriented way.

4.5.2. RME and cross-pressure

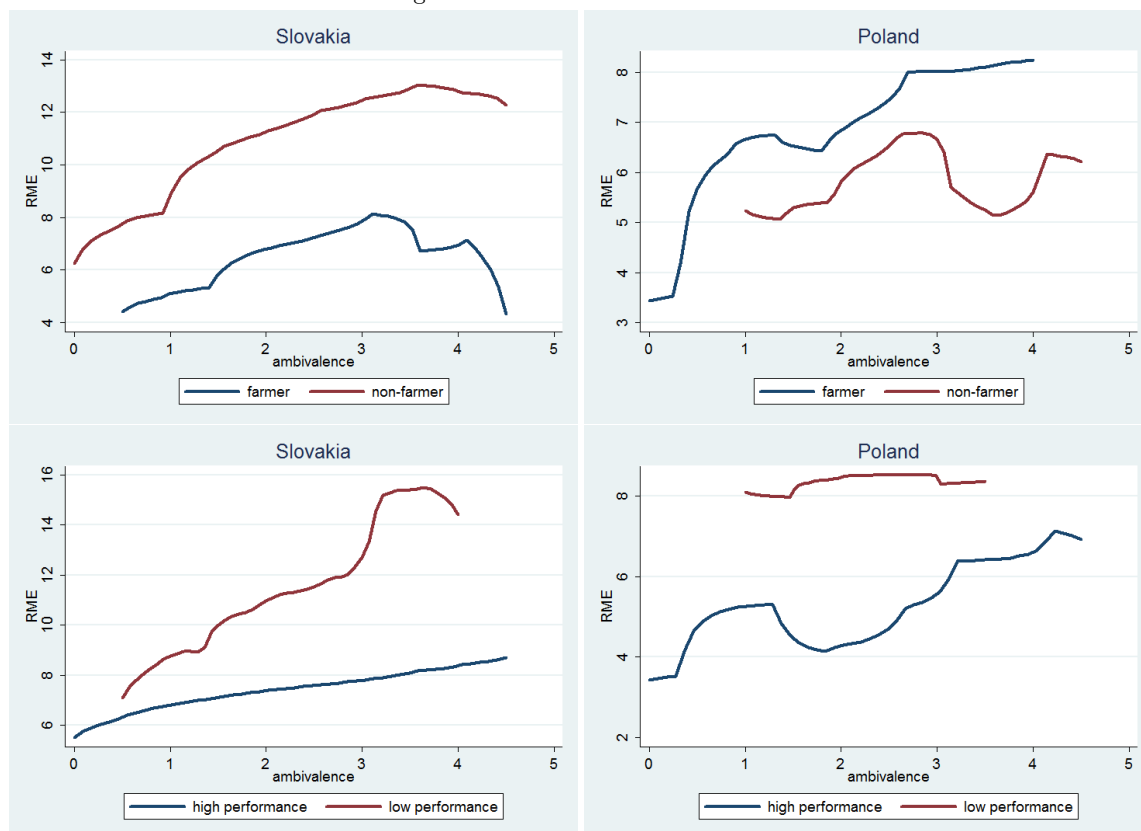
Since individual *network ambivalence* was significant in both countries, we investigate the cohesion between it and RMEs based on Models 1 and 3 regarding farmer status as well as regional economic performance. The general correlation between ambivalence and RMEs is 0.20*** for Slovak data and 0.17*** for Polish data. The plots in Figure 4.5 demonstrate the increasing RMEs, i.e. increasing non-policy preferences compared to policy preferences with rising ambivalence. This result confirms our theoretical approach that the more the uncertainty, i.e. the more heterogeneous the network content the less voters vote in a policy-oriented way.

Moreover, we find that the relationship between ambivalence and non-policy voting is stronger for the Polish farmers (0.27***) versus non-farmers (0.14***) and better developed regions (0.25***) versus the worse ones (0.14***), while the results for Slovakia are the converse: 0.16* versus 0.24*** as well as 0.20*** versus 0.24***, respectively. Thus, these results point out that the significant influence of social networks on policy voting is confirmed for both countries, but network content is relatively more important for SIG in Poland, while the Slovak-representative farm group appears to be more organized; therefore, the Slovak farmers are less dependent on the information content in peer networks. This can be indirectly confirmed by the facts that, first, the Slovak farmers have significantly smaller *network size* compared to the Slovak non-farmers, and second, network ambivalence is unrelated to farmer status in Slovakia while it is related negatively to farmer status in Poland (i.e. Polish farmers have more homogeneous information in their peer networks).

However, these interesting results require an exact explanation. From our sample, we know that 1.41% of farmers in Poland and 2.81% of farmers in Slovakia are members of a professional association. Moreover, we investigate an organization degree of farmers at the macro level in the following way.

We calculate an average number of agricultural cooperatives per agricultural *unit*. As one agricultural *unit*, we use a normalized number of agricultural holdings, farm labour force and utilised agricultural area, based on the statistics of the European Commission (2008). According to Bandlerova et al. (2011); Matczak (2011), there were 1,492 agricultural cooperatives in Slovakia and 9,311 in Poland in 2007. The calculated results are given in Table 4.5. Knowing that the average size of agricultural producer cooperatives was 222 ha in Poland and 1509 ha in Slovakia (Chloupkova, 2002), we conclude that the

Figure 4.5.: RME and ambivalence



greater degree of Slovak farmers' organization in agricultural cooperatives confirmed our intuitive assumption and empirical results that formal organization of Slovak farmers is relatively more important than that of Polish farmers, while Polish farmers are relatively more reliant on information in informal networks compared to Slovak farmers.

Table 4.5.: Calculation of degree of farmer organisation in agricultural cooperatives, 2007

	Slovakia	Poland
Number of agric. cooperatives (AC)	1492	9311
Number of agric. holdings (AH), 1000	15.8	1128.1
Farm labour force (FLF), 1000 persons	88	2830
Utilised Agricultural Area (UAA), 1000 ha	1889	13856
Number of AC per 1000 AH	94.4	8.3
Number of AC per 1000 persons of FLF	17.0	3.3
Number of AC per 1000 hectares of UAA	0.79	0.67

4.6. Conclusions

We provide a systematic analysis of policy- and non-policy-oriented voting motives in two countries, Poland and Slovakia.

First, we start with the theoretical model. Assuming that voters have ideological preferences and are uncertain about the real positions of political decision makers, we derive voters' expected utility function and find that the higher the uncertainty, the lower the weight of the policy preference when compared to the ideological preference, i.e. the less informed a voter, the more ideologically he votes *ceteris paribus*. This model explains why some social groups behave more ideologically than other interest groups. Based on the assumption that the (un)certainty can arise from the *formal* organization of voters or their *informal* communication in networks, we consider these two factors.

Second, we implement an LCA model based on the conditional logit model in Software Latent GOLD Choice 4.0 (Vermunt and Magidson, 2005) and estimate two kinds of models for both countries, with „fix class belonging“ and endogenously generated, to investigate the objective results. While the model with fix class affiliation allows us to investigate the voting being interested because of fixed parameters (in this case, *farmer status*), the model endogenously generated uncovers the truth as well as hidden macro and micro parameters which are very important for voting. For both models, we calculate the RME reflecting an importance of non-policy versus policy voting motives. Thus, the empirical models and RMEs provide the following results:

1. Regarding policy preferences, the perception of non-farmers is biased toward agricultural subsidies and pro-agrarian parties in both countries. Although the perception of non-farmers is pronounced by agrarian preferences, this biased perception determines rather non-policy-oriented voting.

2. RMEs provide only relative statements about voting behavior. These statements are dependent on the chosen variables taken into estimation because of multidimensional reality. Therefore, an objectivity of results can be achieved by comparing the different models and variables.

3. Thus, the models with „fix class belonging“ (Models 2 and 4) supply the more policy-oriented voting of farmers compared to non-farmers in both countries. It applies if other latent factors are not taken into consideration. Since the analysis based only on „fix class belonging“ is not objective because of multidimensional reality, a final decision regarding

whether the farmers vote really in a more or less policy-oriented way versus non-farmers, is only possible when a substantial number of other exogenous micro and macro factors are taken into analysis. For that reason, we also estimate endogenously generated models (Models 1 and 3).

4. In the Slovak case, according to the endogenously generated models, the Slovak farmers vote in a more policy-oriented way. Therefore, an absolute statement based on both kinds of models is possible: Since the results for both kinds of models are stable (correlation between *farmer status* and RMEs have the same negative sign for both models), we conclude that farmers vote in a more policy-oriented way. Moreover, the Slovak farmers are better organized and *farmer status* is relatively more important compared to for Polish farmers.

5. In the Polish case, according the endogenously generated models, Polish farmers vote in an even less policy-oriented manner than non-farmers since *farmer status* appears less important than other macro (closeness to city and economic performance) and micro (ambivalence) characteristics. Therefore, an absolute statement based on both kinds of models, whether farmers vote in more or less policy-oriented ways, is impossible since the results for two models are not identical (while *farmer status* is positively related to policy-oriented voting in Model 3, it is negatively related to one in Model 4). Thus, although there are some clues for the policy-oriented behavior of the Polish farmers, other macro and micro factors determine their behavior much more strongly.

6. Regarding our previous work (Henning and Petri, 2013), the *network ambivalence* reflected in the *qualitative* aspects of a social network plays an even the greater role compared to *network structure*. In contrast to Nir (2005), we showed an impact of *network ambivalence* on voting behavior and non-policy-oriented voting.

7. Our theory is confirmed: The more the uncertainty, i.e. the more the network ambivalence the more voters vote in a non-policy-oriented way. This point can be discussed further.

In particular, to reproduce *uncertainty* empirically, we used *network ambivalence*. In the framework of this paper, *uncertainty* is defined regarding the extent to which a voter is uncertain about an impact of a political instrument on policy outcome. We assumed that *uncertainty* corresponding to the informational status of voters depends on the quantitative and qualitative aspects of information, while *network ambivalence* reflects only the qualitative aspect. Hence, we used an assumption that „more *network ambivalence*“ means

„more *uncertainty*“, but „more *uncertainty*“ does not mean „more *network ambivalence*“ because *network ambivalence* (in addition to *network structure*) is just one of the possible external characteristics generated by a social network and affecting internal *uncertainty*. Moreover, this assumption corresponds to the results of McGraw et al. (2003), which confirm that an „objective ambivalence“ is a significant predictor for „subjective uncertainty.“

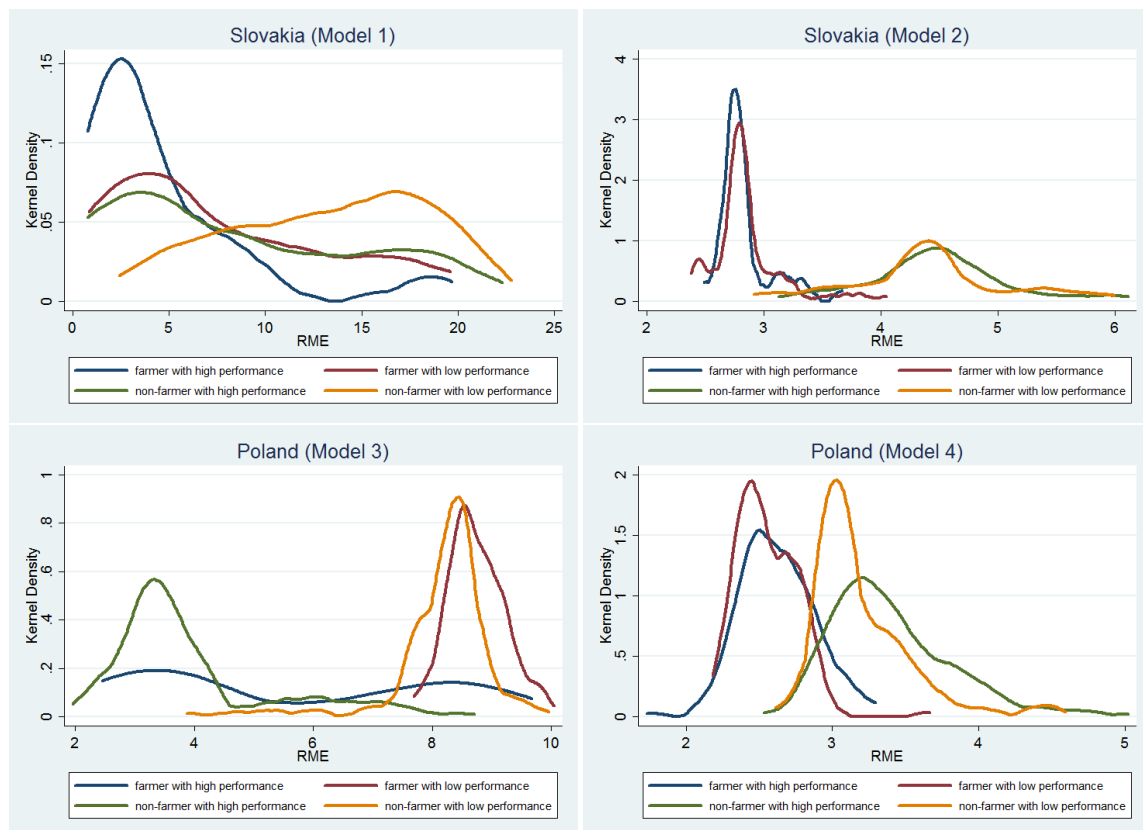
8. On comparing two countries, we can say that the importance of network ambivalence is a relatively more important factor of behavior determination for Polish farmers and Slovak non-farmers compared to the Polish non-farmers and Slovak farmers, respectively.

On the whole, the voting behavior of Slovak farmers is pronounced by their *formal* organization, while the voting behavior of Polish farmers is pronounced rather by *informal* communication in peer networks.

ANNEX

Detailed distributions by farmer status and economic performance

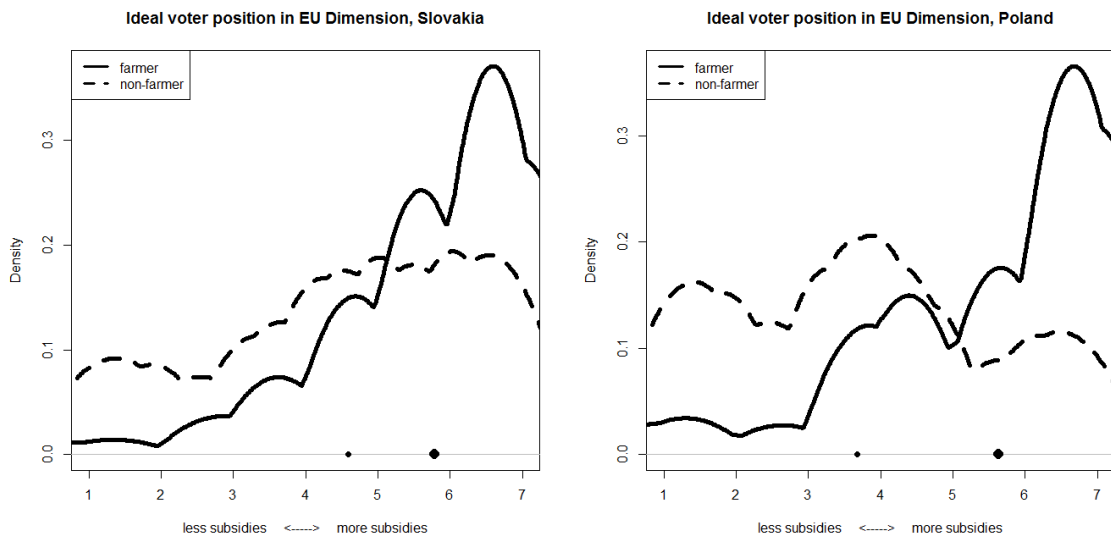
Figure 4.6.: Kernel density for relative marginal effects (RME), together for farmer status and economic framework conditions



The plots of Figure 4.6 provide evidence of policy-oriented voting by both farmer status and economic framework conditions. As can be seen in models with fix class affiliation (Models 2 and 4), the farmers vote in a more policy-oriented way in both countries when other hidden parameters, e.g. economic conditions affecting voting behavior are ignored. In contrast, the models endogenously generated (Models 1 and 3) present much more importance for economic framework conditions. The Slovak non-farmers with low performance have the most non-policy preferences, while Slovak farmers with high performance vote in the most policy-oriented way. In the Polish case, the farmers demonstrate the smaller policy motives compared to the non-farmers both in low- and high-performing regions (4.6). This is at odds with the results of Model 4 with fix class affiliation and can be explained by the endogenously considered macro factor (economic performance and distance to city) having latently more influence on voter behavior than affiliation to a farm group. This is also confirmed by correlations.

Ideal positions of voters

Figure 4.7.: Ideal voter position in EU dimension for Slovakia and Poland



4. Social organization of voting and government performance

Figure 4.8.: Ideal voter position in Eco dimension for Slovakia and Poland

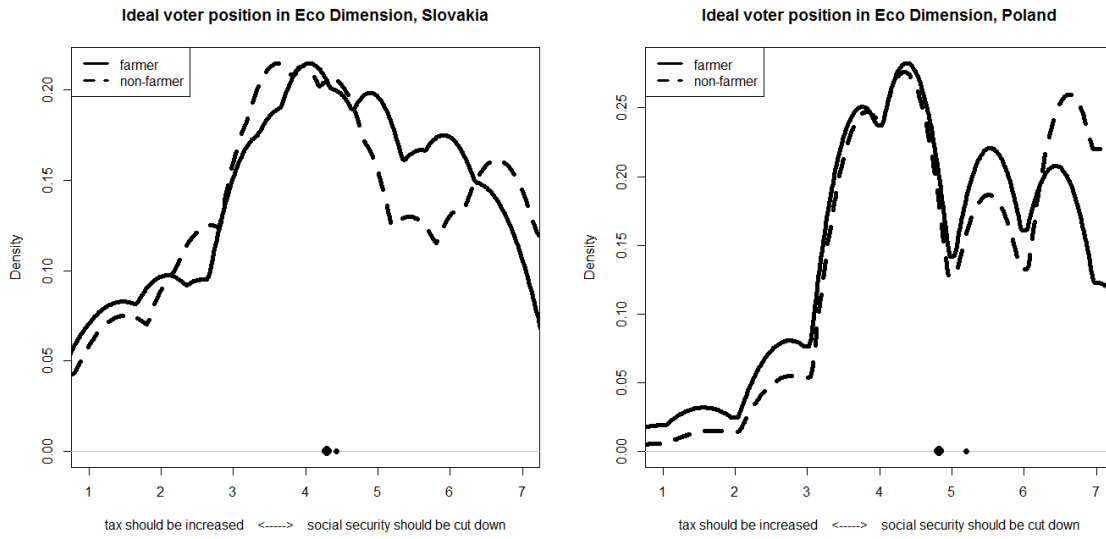
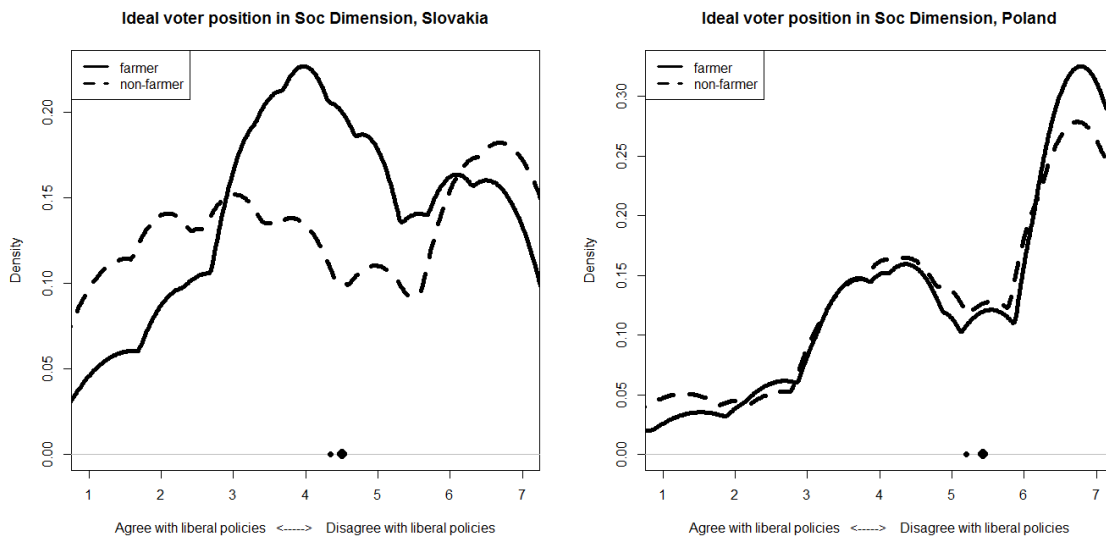


Figure 4.9.: Ideal voter position in Soc dimension for Slovakia and Poland



Correlation tables

Table 4.6.: Slovakia

	RME_model1	RME_model2	age	education	income	economic	distance_city	n_size	n_dens	ambivalence
RME_model1										
RME_model2	0.29***									
age	-0.17***	-0.05								
education	-0.03	0.04	-0.23***							
income	-0.21***	-0.40***	-0.16***	0.07						
economic	-0.30***	0.09*	0.02	0.04	-0.03					
distance_city	0.10*	-0.13***	0.04	0.08	-0.10**	-0.04				
n_size	-0.08	0.17***	-0.13**	0.06	-0.03	0.17***	-0.14***			
n_dens	-0.15***	-0.03	0.00	-0.07	0.03	-0.04	-0.04	0.14***		
ambivalence	0.20***	0.02	0.03	-0.01	-0.04	0.03	-0.06	-0.07	-0.07	
farmer	-0.33***	-0.79***	0.06	-0.08	0.42***	-0.06	0.09*	-0.21***	-0.02	0.04

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$

4. Social organization of voting and government performance

Table 4.7.: Slovakia, nonfarmer

	RME_model1	RME_model2	age	education	income	economic	distance_city	n_size	n_dens
RME_model1									
RME_model2	0.07								
age	-0.20***	-0.02							
education	-0.07	-0.05	-0.22***						
income	-0.08	-0.16***	-0.30***	0.26***					
economic	-0.38***	0.07	0.07	0.02	0.05				
distance_city	0.18***	-0.11*	0.02	0.11*	-0.09	-0.07			
n_size	-0.18***	0.00	-0.10	0.04	0.17***	0.19***	-0.22***		
n_dens	-0.12**	-0.08	0.02	-0.04	0.11*	-0.07	-0.08	0.05	
ambivalence	0.24***	0.08	-0.01	0.01	-0.06	0.02	-0.07	-0.07	-0.04

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$

Table 4.8.: Slovakia, farmer

	RME_model1	RME_model2	age	education	income	economic	distance_city	n_size	n_dens
RME_model1									
RME_model2	0.04								
age	-0.04	0.04							
education	-0.01	0.10	-0.22**						
income	-0.10	0.01	-0.05	-0.15*					
economic	-0.25***	0.09	-0.09	0.06	-0.11				
distance_city	0.02	-0.12	0.06	0.03	-0.28***	0.05			
n_size	-0.11	0.07	-0.16*	0.07	-0.12	0.08	0.14		
n_dens	-0.29***	-0.08	-0.03	-0.13	-0.06	0.02	0.06	0.34***	
ambivalence	0.16*	0.05	0.13	-0.05	-0.09	0.08	-0.06	-0.04	-0.14

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$

Table 4.9.: Poland

	RME_model3	RME_model4	age	education	income	economic	distance	n_size	n_dens	amb
RME_model3										
RME_model4	-0.29***									
age	-0.05	-0.06								
education	-0.07	0.01	-0.17***							
income	-0.24***	0.07	-0.03	0.11**						
economic	-0.75***	0.12***	0.04	0.09**	0.17***					
distance_city	-0.40***	0.13***	0.02	0.05	-0.01	0.13***				
n_size	-0.23***	0.06	-0.04	0.05	0.13***	0.24***	0.34***			
n_dens	-0.16***	0.01	0.03	0.00	0.03	0.02	0.19***	0.34***		
amb	0.17***	0.07*	0.03	0.05	-0.04	-0.03	-0.02	-0.16***	0.01	
farmer	0.21***	-0.74***	0.04	0.02	-0.01	0.03	-0.05	-0.03	-0.07*	-0.16***

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$

Table 4.10.: Poland, nonfarmer

	RME_model3	RME_model4	age	education	income	economic	distance_city	n_size	n_dens
RME_model3									
RME_model4	-0.27***								
age	-0.02	-0.06							
education	-0.09	0.06	-0.15**						
income	-0.42***	0.22***	0.06	0.16***					
economic	-0.88***	0.26***	0.04	0.13**	0.35***				
distance_city	-0.42***	0.10	-0.06	0.02	0.20***	0.23***			
n_size	-0.23***	0.14**	-0.06	0.04	0.19***	0.17***	0.46***		
n_dens	-0.06	-0.08	-0.01	-0.05	0.10*	-0.08	0.24***	0.33***	
ambivalence	0.14**	0.13**	0.07	-0.01	0.02	0.06	-0.11*	-0.12**	0.02

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$

Table 4.11.: Poland, farmer

	RME_model3	RME_model4	age	education	income	economic	distance_city	n_size	n_dens
RME_model3									
RME_model4	-0.13**								
age	-0.10*	-0.01							
education	-0.06	0.02	-0.20***						
income	-0.20***	0.06	-0.09	0.10*					
economic	-0.66***	0.15**	0.04	0.05	0.13**				
distance_city	-0.37***	0.21***	0.14**	0.08	-0.09	0.03			
n_size	-0.21***	-0.08	-0.01	0.05	0.12**	0.30***	0.23***		
n_dens	-0.23***	-0.04	0.09	0.04	0.01	0.10*	0.15**	0.35***	
ambivalence	0.27***	0.04	0.00	0.11*	-0.07	-0.10*	0.04	-0.21***	-0.01

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$

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5. Kapitel

Capture in the Russian Parliamentary Elections 2003–2011: Panel Analysis of Voting Motives using Latent Class Approach

Svetlana Petri and Christian H.C.A. Henning

Abstract

A persistence of *state capture* in the economic performance of firms and companies in transition countries is confirmed. But does *capture* exist in the Russian elections? First, this study aims to show whether a *capture* among different socio-economic groups can be revealed by analyzing individual voting motives. Second, we hope to investigate whether the non-policy voting motives of voters rise over time. Using the latent class approach, we derive individual *non-policy indicators* (NPIs) and calculate individual *political weights* with regard to a government party. Using the Lorenz curve and the Gini coefficient, we find that there is no large heterogeneity in the political weights of the population. It means that although there are population groups which vote more or less ideologically, we cannot find a definite population group by which the government party should have been strongly captured.

5.1. Introduction

The electoral competition is a fundamental democratic mechanism for guaranteeing that governmental policies reflect society's interests. This mechanism performs well in democratic countries. But a process of democratic development in Russia failed during the 2000s. According to the results of Freedom House, while Russia was partly free from 1999 until 2004, since 2005 the country is ranked as „not free.“ In a non-free country, special interest groups (SIGs) have much more possibilities to protect their financial and political interests at the cost of ordinary people than in free countries (Bardhan and Mookherjee, 2002).

On the one hand, SIGs can act as firms and companies to win state support and, therefore, additional financial profits. This phenomenon characterizes most transition countries, since the separation of private and public interests has not been adequately defined after the fall of the communist system (The World Bank, 2000). The interacting economic and political elites led to *state capture*, i.e. the disproportional representation of interest groups or local elites receiving legal and illegal advantages in institutional rules. A persistence of *state capture* in the economic performance of firms and companies in transition countries is confirmed by researchers (Hellman et al., 2003; Yakovlev and Zhuravskaya, 2006; Yakovlev, 2011; Slinko et al., 2005). Hellman et al. (2003) showed that capture tends to be a strategy of large private firms trying to compete in a market dominated by large incumbent (state-owned) firms. „These firms engage in capture to compensate for weakness in

the overall legal framework and to gain improvements in the security of property rights“ (Hellman et al., 2003). For the Russian case, Slinko et al. (2005) showed that the political power of firms yields substantial gains for these organizations, e.g. higher growth of profitability and sales. Moreover, Yakovlev and Zhuravskaya (2006) showed that a capture has changed its nature between Yeltsin’s and Putin’s time: There is a shift in the allocation of bargaining power within regions from private firms and firms owned by the regional government to firms of the federal government.

On the other hand, SIGs can influence a political outcome in the political elections (Baron, 1994; Grossman and Helpman, 1996; Bardhan and Mookherjee, 2002). In this case, strong special interests lead to a biased policy because of the efficiency of campaign spending if the voters are strongly uninformed (Baron, 1994; Grossman and Helpman, 1996; Bardhan and Mookherjee, 2002). A key result of a theoretical work of Bardhan and Mookherjee (2002) is that a necessary condition for government capture is that voters make their party choice based *not* on policy issues but rather on non-policy factors. The goal of this paper to investigate whether *capture* can be identified based on individual party choice in the Russian elections. That means whether there exists a specific group of the population (regarding socio-economic or regional characteristics) which should be taken into account by the government to enhance the chance of the government being re-elected. In contrast to most previous studies trying to explain a capture at the macro (regional) level (Yakovlev, 2011; Frye and Iwasaki, 2011; Hellman et al., 2003; Slinko et al., 2005; Yakovlev and Zhuravskaya, 2006), this paper concentrates on a possible capture arising from the micro level, i.e. from an individual political choice.

In this work, we deal with *policy* and *non-policy* voting components, whereby the latter are often linked to *ideological preferences* (Persson and Tabellini, 2000). We note that not only is an absolute level of *policy-* and *non-policy-oriented* voting components relevant for policy outcome but rather the relative one. Thus, we distinguish between *policy-* and *non-policy-oriented* voting. *Policy-oriented* voting refers to the classic policy space model (Downs, 1957), where informed voters prefer parties whose positions are close to their own positions along a policy dimension. *Non-policy* voting includes *valence*, which is interpreted as the non-policy basis of political judgment made by the electorate concerning the quality of political candidates (Schofield, 2007), and the *lobbying activities* of SIGs Grossman and Helpman (1996). In this work, we carry out the following steps. First, using probabilistic latent class analysis (LCA), we estimate two-class latent conditional models for all available

samples from the ESS for the years 2006–2012, referring to three election periods from 2003–2011. Second, we calculate an individual *non-policy indicator* (NPI) promoting the extent to which non-policy-oriented voting is more important than the policy-oriented version and analyze it according to the socio-economic and regional characteristics. Third, we investigate a capture at the meso-level among socio-economic groups based on the political weights for a government party. Using the Lorenz curve and Gini coefficient, we analyze a heterogeneity of the political weights.

As Russia has become less democratic over time, we derive the following hypotheses corresponding to a theoretical work of Bardhan and Mookherjee (2002). We expect that:

1. Non-policy-oriented voting should rise over time.
2. Capture should exist in Russian elections.

Moreover, some authors agree that the transition period has been characterized by rapidly growing economic inequality among Russia’s regions. Based on a confirmed growing regional polarization in Russia in the 90s Fedorov (2002), we form our third hypothesis:

3. The central regions should be much more important for Russian politicians and therefore, distant regions should be captured by central regions.

5.2. Discrete Choice Models

Discrete choice models derived in a random utility maximization model (RUM) framework assume that the decision maker chooses between two or more discrete alternatives and behaves as the expected utility maximizer. In the case of spatial models, the voter supports the candidate or the party that maximizes his combination of measured policy-related utilities and his unmeasured utilities (Adams et al., 2005). Assume that there are J alternatives for a decision maker. Thus, the decision maker i chooses the party j if and only if:

$$U_i(j) > U_i(j'), \forall j \neq j'. \quad (5.1)$$

In RUMs, one presumes that the utility $U_i(j)$ provided to individual i by party j is composed of a deterministic component $V_i(j)$, which can be calculated based on observed characteristics, and a stochastic error component ϵ_{ij} , which is unobserved, so that the

formula for a random utility model determining only policy factors is given by

$$U_i(j) = V_i(j) + \epsilon_{ij}, \quad (5.2)$$

where ϵ_{ij} is a voter-specific random utility term that represents unmeasured components of the voter i 's utility for a party j . Note that in all discrete choice models, the absolute level of utility is irrelevant. The choice probability is $P_{ij} = Prob(U_i(j) > U_i(j')) = Prob(U_i(j) - U_i(j') > 0)$, which depends only on the difference in utility and not its absolute level.

The conditional logit model (McFadden, 1974) can be utilized to estimate these probabilities if the random terms are assumed to be independently distributed Type I extreme value variates. Let y_{it} denote the value of the dependent variable for individual i at replication t , which can take on values $1 \leq j \leq J$. We use vector notation \mathbf{y}_i , \mathbf{z}_i^{cov} , \mathbf{d}_{it}^{att} , to refer to all responses, all covariate values for individual i , and the attribute values corresponding to individual i at replication t . The conditional logit model for the response probabilities has the form (Vermunt and Magidson, 2005):

$$P(y_{it} = j | \mathbf{d}_{it}^{att}) = \frac{\exp(V_{it}(j))}{\sum_J \exp(V_{it}(j'))}, \quad (5.3)$$

where $V_{it}(j)$ is the systematic component in the utility of alternative j for individual i at replication t . The term $V_{it}(j)$ is a linear function of an alternative-specific constant α_j and attribute effects β_n :

$$V_{it}(j) = \alpha_j + \sum_n \beta_n d_{itj}^n, \quad (5.4)$$

where the squared distance between the voter i at location x_i and a candidate j at location s_j in a one-dimensional space n for observation t is calculated in the following way:

$$d_{itj}^n = -(x_{in} - s_{jn})^2. \quad (5.5)$$

In a latent class or finite mixture variant of the conditional model, it is assumed that individuals belong to different latent classes differ with respect to the parameters appearing in the linear model for $V_{it}(j)$. In order to indicate that the choice probabilities depend on

class membership x , the logistic model is now of the form:

$$P(y_{it} = j|x, \mathbf{d}_{it}^{att}) = \frac{\exp(V_{it|x}(j))}{\sum_J \exp(V_{it|x}(j'))}, \quad (5.6)$$

Here, $V_{it|x}(j)$ is the systematic component in the utility of alternative j , given that individual i belong to latent class x . As can be seen, the logit regression coefficients are class-specific and the linear model for $V_{it|x}(j)$ in this specific case is:

$$V_{it|x}(j) = \alpha_{xj} + \sum_n \beta_{xn} d_{itj}^n. \quad (5.7)$$

In addition to the attributes, we include in our LCA another type of explanatory variable—covariates—in the latent class model. This is used to predict a class membership. When covariates are included in the model, the probability density turns into the following form (Vermunt and Magidson, 2005):

$$P(\mathbf{y}_i) = \sum_{x=1}^X P(x|\mathbf{z}_i^{cov}) \prod_{t=1}^{T_i} P(y_t|x, \mathbf{d}_{it}^{att}), \quad (5.8)$$

where the class membership of individual i is now assumed to depend on a set of covariates denoted by \mathbf{z}_i^{cov} . Class membership probability $P(x|\mathbf{z}_i^{cov})$ is:

$$P(x|\mathbf{z}_i^{cov}) = \frac{\exp(\eta_{x|z_i})}{\sum_X \exp(\eta_{x'|z_i})} \quad (5.9)$$

with a linear term

$$\eta_{x|z_i} = r_{0x} + \sum_{h=1}^H r_{hx} z_{ih}^{cov} \quad (5.10)$$

Here, r_{0x} denotes the constant corresponding to latent class x and r_{hx} is the effect of the h th covariate for class x .

In a perfect political world, the electoral competition would be based on policy platforms. The motive of policy-oriented voting goes back to the classic voting theory created by Downs (1957); Enelow and Hinich (1984). In the sense of the spatial theory of voting

(Downs, 1957; Enelow and Hinich, 1984), voters prefer the parties whose positions are close to their own positions along a salient policy dimension. In other words, the voters support candidates who best reflect their policy beliefs. Therefore, the modelers form a policy component based on the negative squared distance between the voter i at location x_i and the candidate j at location s_j in a multi-dimensional space with N issues. With the policy-salience parameter, β_n , the policy-oriented utility for the candidate's policies is given by $-\sum_n \beta_n (x_{in} - s_{jn})^2$.

Since in reality electoral competition is imperfect, the utility incorporates a non-policy voting component, or valence, as well. The transformation of policies into welfare is rather complex, while the calculation of expected utility is also rather complex from the viewpoint of individual voters. Hence, voters apply simple heuristics to estimate their expected utility. Basically, their behavior is based on the different types of non-policy factors. One type of non-policy-oriented factor corresponds to the concept of valence (Schofield, 2007), which holds that based on specific characteristics of the incumbent, such as appearance, charisma, occupation, and ethnicity, voters perceive a specific competence or popularity of candidates and parties. Following Grossman and Helpman (1996), voters are at least partially swayed by the relative campaign spending of different parties. This effect may reflect the influence of election advertisements or other efforts to mobilize support (e.g. election rallies, door-to-door visits by campaign workers).

Another type of non-policy-oriented factor arises from party *identity* based on social, political, religious or ethnic factors. This type of non-policy motive cannot be influenced by campaign spending. Following the theory of Lipset-Rokkan (Lipset and Rokkan, 1967), voters' electoral choices are determined by their social class. Hence, electoral competition may imply incentives for elected politicians either to consider the needs only of such a social class or to ignore such a social class completely. For example, ethnic voting dominates vote choice in African democracies.

5.2.1. Non-policy Indicator

To analyze the extent to which non-policy voting is greater than policy-oriented voting, we calculate an indicator based on the relative marginal effects (RMEs) in the following way. The marginal effects of an independent policy alternative-specific variable d_{ij}^n in a policy dimension n for individual i and party j on the choice probabilities is:

$$\frac{\partial P_{ij}}{\partial d_{ij}^n} = P_{ij}(1 - P_{ij})\beta_n$$

For the whole policy space with N variables, the total differential of the probability can be gained accordingly:

$$dP_{ij} = \sum_{n=1}^N \frac{\partial P_{ij}}{\partial d_{ij}^n} dd_{ij}^n = P_{ij}(1 - P_{ij}) \sum_{n=1}^N \beta_n$$

so that the absolute marginal effect in the policy dimension for individual i , party j , and class x is:

$$PME_{ijx} = P_{ijx}(1 - P_{ijx}) \left| \sum_{n=1}^N \beta_{nx} \right|$$

which indicates how sensitively a voter reacts to the changing distance between one party and him. Further, we calculate the marginal effects for non-policy dimension (NME) reflected in constants. Concerning the constants being party-specific, we obtain for non-policy preferences t_i for individual i and party j the following NME:

$$\frac{\partial P_{ij}}{\partial t_i} = P_{ij}(1 - P_{ij})(\alpha_j - \bar{\alpha}_k)$$

with

$$\bar{\alpha}_k = \sum_{k \neq j}^J \left[\frac{P_{ik}}{\sum_{k \neq j}^J P_{ik}} \alpha_k \right]$$

so that the absolute marginal effect in the non-policy dimension for individual i , party j , and class x is:

$$NME_{ijx} = P_{ijx}(1 - P_{ijx}) |\alpha_{jx} - \bar{\alpha}_{kx}|$$

Further, we find individual RMEs for each class and party:

$$RME_{ijx} = \frac{NME_{ijx}}{PME_{ijx}}$$

Weighting with the average party share, we obtain RME over all parties:

$$RME_{ix} = \sum_{j=1}^J q_j RME_{ijx}$$

Finally, we obtain individual RME over all classes on multiplying with average class probability:

$$RME_i = \sum_{x=1}^X P(x|\mathbf{z}_i^{cov}) RME_{ix}$$

Thus, we obtain the RME for each voter. We describe these RMEs as *NPIs*. Such an indicator implies the extent to which the voters vote in a non-policy-oriented manner, i.e. ideologically.

Relative importance of Voting Components

While the *NPI* based on the RMEs corresponds to the rate of substitution (i.e. by what percentage the probability of non-policy changes with a 1% increase in the probability of policy voting), the further index assesses the relative importance of different voting motives to the sum of all marginal effects:¹

$$RI_i^{NP} = \frac{NME_i}{NME_i + PME_i}$$

$$RI_i^P = \frac{PME_i}{NME_i + PME_i}$$

5.3. Empirical Model

5.3.1. Heterogeneous Preferences in Random Utility Models and Latent Class

Analysis

Like economic analysis estimating consumers' heterogeneous preferences for goods, the political economy is interested to find voters' heterogeneous preferences characterized by their individual characteristics. When unobserved heterogeneity in the population is forecast, it leads to a class of response models based on random utility maximization (McFadden and Train, 2000). There are mainly two types of models based on the idea of using a mixture of

¹Relative importance of different voting motives (RI) is derived from non-policy indicator (NPI) because of $NME/(NME+PME) = 1/(1+1/(NME/PME))$

a simple underlying model, such as multinomial logit, over the distribution of preferences: mixed multinomial logit models (MMLM) and latent class logit models (LCLM). While in MMLM this distribution is continuous, in the latent class context, a finite number of classes is used to express the heterogeneity (Hess et al., 2011). Both types of models are random utility maximization (RUM) models generalizing standard logit by allowing the parameter associated with each observed variable to vary randomly across individuals. Although mixed logit models explicitly account, in a sense, for heterogeneity, LCA is better suited to explain the sources of heterogeneity that relate to the characteristics of individual consumers (Boxall and Adamowicz, 2002).

We tested both kinds of models, MMLM and LCLM, and found that the data are rather heterogeneous. Hence, we concentrate in this paper on LCA, since it uncovers unobserved heterogeneity in a population and aims to find meaningful groups of voters that are similar in their responses to measured variables. In an LCA, the parameter heterogeneity across individuals is modeled by a discrete distribution or set of classes. The estimation results in a fixed number of classes; thereby, the parameters of statistical models differ across these latent classes formed by unobserved latent variables. Thus, the preferences of voters are homogeneous within each latent class, but can vary between the classes.

The latent class estimation of this paper was realized in Latent GOLD Choice 4.0, developed by Vermunt and Magidson (2005). The regression model that is used in Latent GOLD Choice 4.0 is the conditional logit model developed by McFadden (1974) (Vermunt and Magidson, 2005). Latent GOLD Choice implements a nonparametric variant of the random coefficient or mixed conditional logit model (McFadden and Train, 2000; Vermunt and Magidson, 2005). From three possible methods in Latent GOLD Choice 4.0 based on different response formats (*first choice*, *ranking task*, *rating task*), the *first choice* format was selected as the most suitable method concerning the assumption that each choice set has the same number of alternatives. Since random utility theory is first employed to model choices among a set of substitutes or alternatives, we first provide its formalization.

5.3.2. Case of Russia

Data

The data used for the empirical analysis is derived from the European Social Survey (ESS). The data for Russia are available from Round 3 (2006), Round 4 (2008), Round 5 (2010),

and Round 6 (2012). The ESS questionnaire consists of a collection of questions on the different themes (socio-demographics, subjective well-being, politics etc.). For our analysis based on the probabilistic modeling of political choice, we selected the relevant questions and included only the data for which the chosen party of the interviewee was available. The relevant questions for political choice were: „Some people don’t vote nowadays for one reason or another. Did you vote in the last [country] national election?“, „Which party did you vote for in that election?“. The validation of data was referred to the last few national parliamentary elections held in 2003, 2007, and 2011. The relevant parties and their results at the last few elections are summarized in Table 5.1. We see that a party system is no longer a „floating party system“ (Rose 2001) compared to a situation in the 90s. Parliament formation is more or less constant over the time and only the four largest parties have won seats in the Duma (ER, KPRF, LDPR, SR) for the last two election periods. It is explained not only by the increased threshold but also by newly implemented party legislation rules: Parties must overcome the hurdle of registration to be legislated.

Table 5.1.: Party Seats in Duma after Elections 2003–2011 and party shares in our sample

Party (Ideology)	Abb.	Elect. 2003 %	Sample 2006 %	Elect. 2007 %	Sample 2008 %	Sample 2010 %	Elect. 2011 %	Sample 2012 %
United Russia (centrism)	ER	37.57	64.67	64.30	75.02	69.90	49.32	61.6
Communist Party (socialism)	KPRF	12.61	18.82	11.57	14.43	16.23	19.19	19.7
Lib.-Democ. Party (national-cons.)	LDPR	11.45	7.25	8.14	6.39	7.88	11.67	8.5
Rodina (socialism)	Rodina	9.02	4.84	-	-	-	-	-
Union of Right Forces (liberal-cons.)	SPS	3.97	2.84	0.96	-	-	-	-
Just Russia (social-democ.)	SR	-	-	7.74	3.66	4.81	13.24	7.9
Yabloko (social-democ.)	Yabloko	4.30	1.58	1.59	0.5	1.18	3.43	2.3
others		21.08	-	5.7	-	-	3.15	-
Total number of voters		-	951	-	1393	1269	-	1191

Moreover, as can be seen from Table 5.1, our data pointed to some bias in favor of ruling party ER because of regional distortions (the ruling party is more favored in distant regions). Further, it can be also expected that the voters of the ruling party are more willing to be interviewed while the voters of small parties are more worried about potential consequences from the honest declaration of their political preferences. For that reason, our

analysis includes not only the parties' obtained relative large weight in the voting structure, but also the parties that did not pass the 5% threshold (since 2007, the 7% threshold). For example, the opposition party with liberal ideology Yabloko won parliamentary seats for the last time in 2003. The probabilistic analysis of Russian parliamentary elections based on the ESS is interesting because of finding the voters' true motives and determinants of ideological voting.

In our analysis, we use two kinds of variables to investigate policy- and non-policy-oriented voting.

1. Policy variables

Since the structure of the ESS questionnaire of 2012 was modified, we chose three questions relating to political issues which corresponded with each other in all periods. The interviewees were asked about their self-placement concerning political dimensions using the following scales:

- *Left – Right – Scala* (L-R): In politics people sometimes talk of 'left' and 'right'. Where would you place yourself on this scale, where 0 means the left and 10 means the right?

Further, interviewees were asked about the extent to which they agree or disagree with each of the four following statements, where 1 means „agree strongly“ and 5 means „disagree strongly“:

- *Economical dimension* (Eco): Government should reduce differences in income levels.
- *Social – cultural dimension* (Soc): Gay men and lesbians should be free to live their own life as they wish.

The position of each party in this three-dimensional space was calculated as the mean of the positions over the voters casting a vote for a corresponding party (Schofield, 2012). Further, knowing the positions of voters and parties for each of the three dimensions, it is possible to calculate square (Euclidean) distances, so that these *policy* variables are taken as attributes in LCA.

2. Explanatory variables

The further data of socio-economic characteristics and regional differences were also available for analysis which we use as explanatory and class-membership determining variables:

1. Age (Age)
2. Education (Education): 1=less than lower secondary, 2=lower secondary, 3=lower tier upper secondary, 4=upper tier upper secondary, 5=advanced vocational, 6=lower tertiary education, BA level, 7=higher tertiary education, >= MA level
3. Total monthly income in Euro (Income): 1=Less than 6000 roubles, 2=6001-9000 roubles, 3=9001-12000 roubles, 4=12001-15000 roubles, 5=15001-18000 roubles, 6=18001-21000 roubles, 7=21001-25000 roubles, 8=25001-30000 roubles, 9=30001-40000 roubles, 10=More than 40000 roubles
4. Region (Region): 1=Centre, 2=North and North West, Volgo-Vyatsky, Central-Chernozhem, 3=Volga, North Caucasus, Ural, 4= West Siberia, East Siberia, Far East
5. Year (Year): 1=2008, 2=2010

From the descriptive statistics (see Appendix), we see that the data have a similar structure, except the median for *income* which has an increasing tendency that can be explained by rising income at a whole. The correlations between all explanatory variables are also similar in all periods (see Appendix).

Thus, using two kinds of variables, we try to explain the parliamentary elections in Russia by means of the policy issues and ideological components. The explanatory variables are responsible for determining class affiliation, while the policy variables determine policy-oriented voting. All other remaining factors are unobservable and, therefore, contained in alternative-specific constants. Thereby, the alternative-specific constants and policy coefficients are also determined by explanatory variables characterizing the class.

Results

Model

We estimated LCLM with a different number of classes. To decide on the best number of classes, we consider the Akaike information criterion (AIC) and the Bayesian information criterion (BIC). A formal comparison in terms of performance between AIC and BIC is difficult, particularly because AIC and BIC address different questions. BIC assumes that the true generation model is in the set of candidate models. Most simulations that prefer BIC over AIC assume that the true model is in the candidate set and that it is relatively low-dimensional. In contrast, the AIC does not assume that any of the candidate models is necessarily true in order to make the best possible predictions. Most simulations that

Table 5.2.: Fit for different number of latent classes

	Model 2006		Model 2008		Model 2010		Model 2012	
	BIC	AIC	BIC	AIC	BIC	AIC	BIC	AIC
2 cl. model	1990.74	1888.73	2254.30	2154.75	2320.31	2222.54	2609.13	2512.57
3 cl. model	2045.14	1879.98	2292.09	2129.67	2377.79	2218.27	2653.50	2485.94

favor AIC over BIC assume that reality is highly or infinitely dimensional (Wagenmakers and Farrell, 2004). Markon and Krueger (2004) noted that AIC performs relatively well in small samples, but is inconsistent and does not improve in performance in large samples, while BIC appears poorly in small samples, but is consistent and improves in performance with larger sample sizes (De-Graft Acquah, 2010). Since our sample is relatively large and two class models are more stable, we chose the model based on the BIC (5.2).

Estimation results for the latent class model are presented in Table 5.3. We consider the same two-class model for each year. The model includes ideological constants, attributes (Euclidean distances in three dimensions: Left-Right, Eco, Soc), and four individual characteristics (age, education, income, region) determining class membership probabilities. The results indicate heterogeneity of party preferences across the two latent classes and differ from year to year.

The means of party positions (how voters perceive it) can be found in the Appendix and seem plausible for the *left-right positioning* of parties. It should be noted that most Russian voters have in the *economic* dimension left-oriented preferences and in the *socio-cultural* dimension rather centric ones. As can be seen from Models 1 to 4 of Table 5.3, there is policy-oriented voting in all four years, whereby the most predictable dimension is *left-right positioning*. A negative sign for an attribute means that the less the Euclidean distance between the voter and the party in this or that dimension, the more the likelihood for the party to be elected. We can see also a significantly great ideological constant for ruling party ER: The greater the constant, the more party identity is based on unexplained phenomena and unobserved factors influencing voter choice and the more the unexplained part of probability for this party.

As can be seen, class membership probability is mainly determined significantly by age and region. The significant influence of other explanatory variables is different in diverse periods.

5. Capture in the Russian Parliamentary Elections 2003–2011

Table 5.3.: Estimation Results of Latent Class Models

Variables	Model 1 2006 (Log-LI=-923.36)		Model 2 2008 (Log-LI=-1058.37)		Model 3 2010 (Log-LI=-1092.27)		Model 4 2012 (Log-LI=-1237.28)	
	1 Class (0.591) Coeff.	2 Class (0.411) z-val.	1 Class (0.722) Coeff.	2 Class (0.278) z-val.	1 Class (0.685) Coeff.	2 Class (0.315) z-val.	1 Class (0.646) Coeff.	2 Class (0.354) z-val.
Constants								
ER	2.428***	17.468	2.641***	21.999	2.588***	14.243	3.689*	1.727
KPRF	-0.201	-0.647	-0.230	-1.019	-0.046	-0.185	2.766	1.292
LDPR	0.571***	3.120	0.274*	1.685	0.634***	3.093	-2.936	-0.679
Rodina	-0.666***	-2.256	-	-	-	-	-	-
SPS	-0.638***	-2.508	-	-	-	-	-	-
SR	-	-	-0.568***	-2.552	-	-	-	-
Yabloko	-1.494***	-3.884	-2.118***	-6.418	-0.804***	-2.584	1.115	0.522
Left-Right								
Eco	-0.344***	-6.918	-0.396***	-4.986	-0.262***	-5.966	-0.113***	-4.349
Soc	-0.406***	-2.892	-0.732***	-2.077	-0.020	-0.044	-0.376*	-1.807
Classes	-0.110	-0.756	-0.376***	-2.677	-0.229	-0.489	-0.443**	-2.197
Constant	4.612***	3.468	2.227***	2.365	3.766***	-3.766***	-0.492	-0.907
age	-0.063***	-3.411	-0.042***	-3.097	-0.053***	-3.845	0.015***	3.239
education	-0.105	-1.218	-0.012	0.012	-0.139***	-2.165	-0.030	-0.663
income	-0.023	0.190	0.064	-0.064	-0.004	-0.103	-0.058**	-2.127
region	-0.197	-1.359	0.169*	1.702	0.110	-1.197	-0.218***	2.398
Variables								
			Model 5: 2008-2010 (Log-LI=-2246.93)		Model 6: 2008-2010 (Log-LI=-2180.98)			
			1 Class (1.00) Coeff.		1 Class (0.624) Coeff.		2 Class (0.376) Coeff.	
Constants								
ER	2.410***	27.194	2.410***	27.194	2.570***	22.082	2.019***	17.439
KPRF	0.747***	7.317	0.747***	7.317	-0.056	-0.297	1.334***	7.213
LDPR	-0.043	-0.359	-0.043	-0.359	0.473***	3.496	-1.215***	-2.860
SR	-0.602***	-4.364	-0.602***	-4.364	-0.562***	-3.284	-0.389***	-2.130
Yabloko	-2.512***	-8.207	-2.512***	-8.207	-2.424***	-7.136	-1.748***	-5.847
Left-Right								
Eco	-0.162***	-11.428	-0.162***	-11.428	-0.261***	-6.152	-0.110***	-4.530
Soc	-0.401***	-2.970	-0.401***	-2.970	-0.425	-1.482	-0.135	-0.516
Variable	-0.295***	-3.569	-0.295***	-3.569	-0.327**	-2.242	-0.205	-1.558
Year								
ER	-0.339***	-3.027	-0.339***	-3.027	-	-	-	-
KPRF	-0.118	-0.891	-0.118	-0.891	-	-	-	-
LDPR	-0.047	-0.305	-0.047	-0.305	-	-	-	-
SR	0.003	0.018	0.003	0.018	-	-	-	-
Yabloko	0.501	1.350	0.501	1.350	-	-	-	-
Classes								
Constant	-	-	-	-	0.948***	3.189	-0.948***	-3.189
year*age	-	-	-	-	-0.031***	-2.796	0.031***	2.796
year*education	-	-	-	-	0.026	0.591	-0.026	-0.591
year*income	-	-	-	-	0.081**	2.111	-0.081**	-2.111
year*region	-	-	-	-	0.284***	2.836	-0.284***	-2.836

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$

As can be seen from Table 5.3, the results based on the samples from 2008 and 2010 and related to election 2007 are similar. Therefore, we consolidate both data sets in one sample and estimate the models based on the consolidated sample to draw conclusions for election 2007. Since the consolidation of both data sets may lead to result distortions, we undertake two steps. First, we are concerned with Model 5 (Table 5.3) a one-class model being equivalent to the conditional logit model to see the extent to which ideological effects move over time.

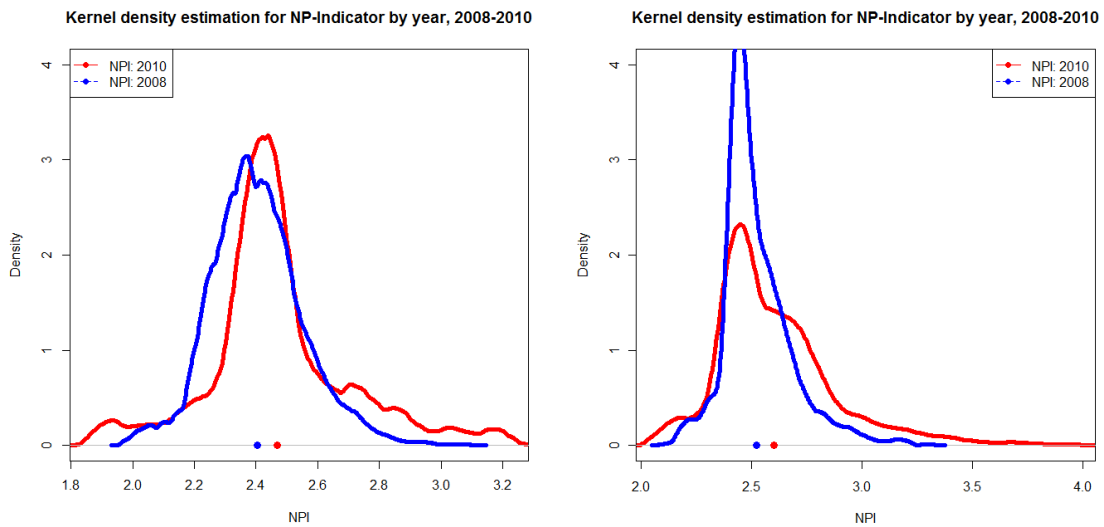


Figure 5.1.: Distribution of relative marginal effects for Model 5 (2008-2010) Figure 5.2.: Distribution of relative marginal effects for Model 6 (2008-2010)

Although by comparing Models 2 (2008) and 3 (2010) it is already recognizable that policy-oriented voting is greater in 2008 and Model 5 shows a significantly shifted constant for the ruling party (-0.339^{***}), we cannot speak about the general shift of non-policy voting unless we calculate the RMEs. Therefore, we calculated the RMEs for Model 5 (see below for details) and obtained the following kernel density distributions for both years, whereby the undertaken t-test and Levene’s test exhibited significant differences in means and variances (plot 5.1). So, related to election 2007, we observe a significant increase in the non-policy voting of sample 2010 compared to 2008. This result makes us think that a timing point of data collection has an influence on people’s opinion, their policy positions, and finally on non-policy voting. Whether a greater time lag between election year and collection moment leads systematically to stronger non-policy voting in data since people may be less worried about politics as well as since political competition and escalation of political discussion may be much less compared with the election time period it cannot be

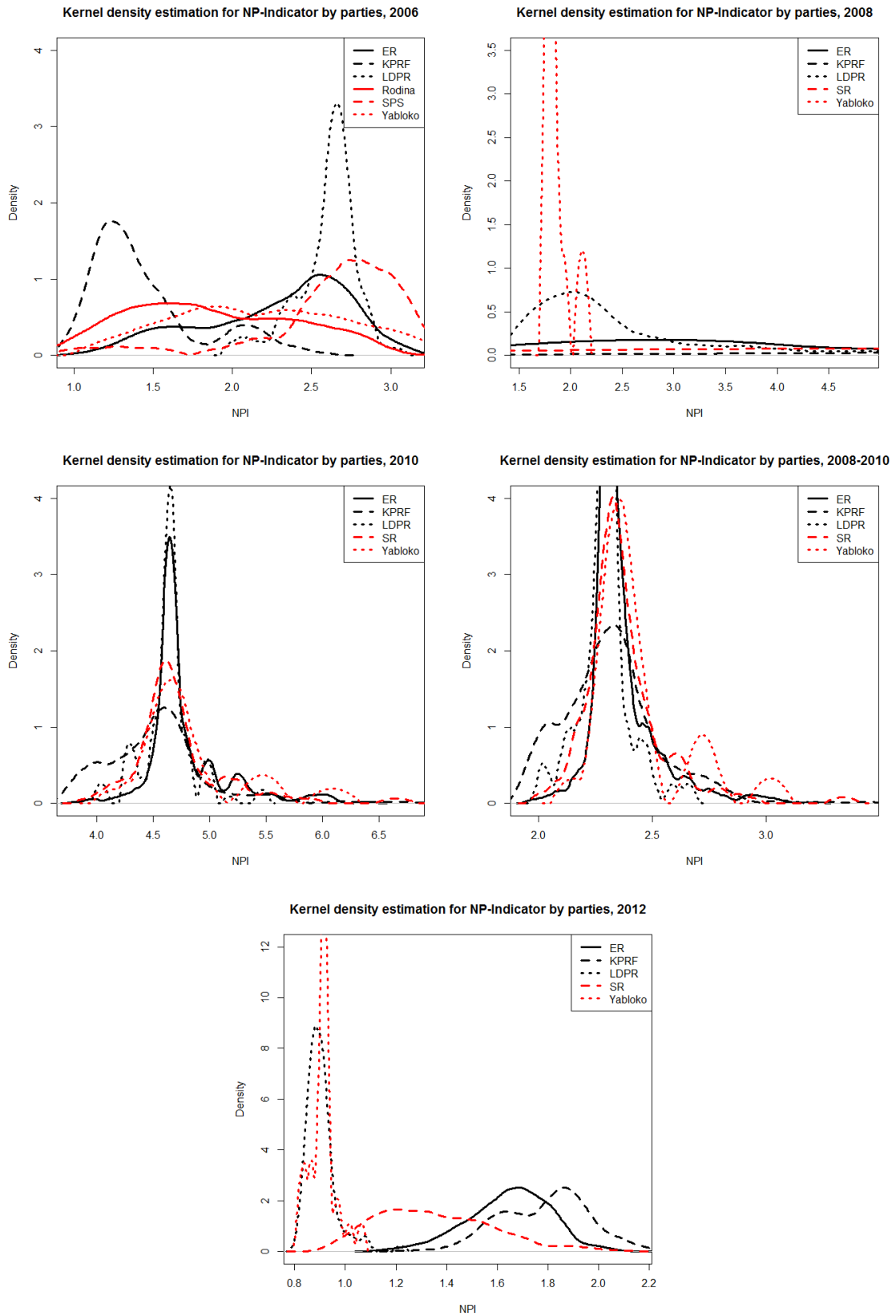
exactly examined in the framework of this paper and should be verified in future.

As a second step, we are concerned with Model 6. The logic of Model 6 is the following. We are interested to investigate the heterogeneous voting preferences in the election of 2007. Hence, in contrast to Model 5, a two-class LCA model should reveal better heterogeneity. Further, we are interested to find not only the shifted ideological effects over 2008–2010 but also to analyze the non-policy components generating this shift. We expect that the shift of the RMEs over the years occurs not only due to different timing points but also due to the non-policy variables (age, education, income, region). Hence, we take into account interaction effects ($year*age$, $year*education$, $year*income$, $year*region$), i.e. we operate on the assumption that the shifted voting behavior is determined by the different non-policy variables in addition to the different timing points. For example, the older people from 2010 have other voting preferences not only related to the younger people from 2010 but also related to the younger people from 2008. The results for Model 6 estimated based on the consolidated sample for 2008 and 2010 are presented in Table 5.3: The heterogeneity of non-policy voting as well as significant timing effects are detected by three interaction variables: $year*age$, $year*income$, $year*region$. To control, we perform density estimation by year (5.2). Comparing two plots 5.1 and 5.2 we see similar results by year and, therefore, decide to use the results of Model 6 in our further analysis.

Non-policy Voting over Parties

We see the distributions of NPI over the parties (Figure 5.3). First, while some parties, e.g. KPRF and LDPR, changed their positions (LDPR voters became less non-policy-oriented and KPRF voters became more policy-oriented), other parties, e.g. ruling party ER and opposition party Yabloko, retained their positions in a more or less stable manner. ER has relatively more non-policy-oriented voters while Yabloko has relatively more policy-oriented voters over time (Figure 5.3). Further, we can see heterogeneity among the parties in 2006 and 2012. In contrast, the distributions of NPI in 2008 and 2010 as well as for the consolidated sample (Model 6) do not exhibit great heterogeneity over the parties. This is also why it makes sense to operate with one consolidated sample for 2008 and 2010. Thus, we deal with Model 1 for election 2003 (sample 2006), Model 6 for election 2007 (samples 2008–2010), and Model 4 for election 2011 (sample 2012).

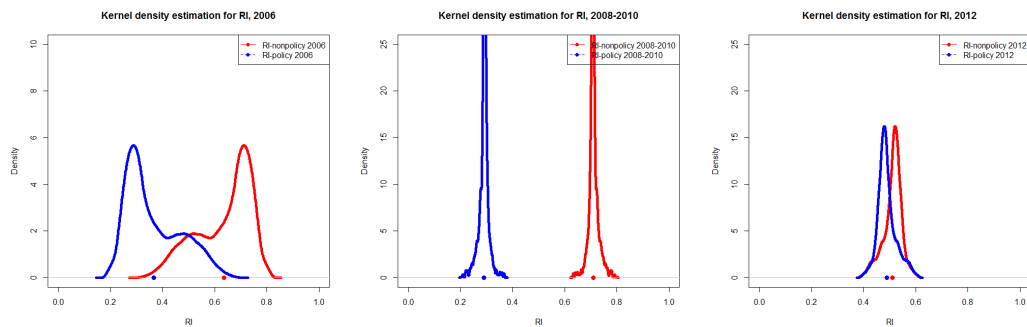
Figure 5.3.: Distribution of NPI over the parties



Relative Importance of Non-policy and Policy Voting Motives

Analyzing a relative importance of policy and non-policy motives, we see that a non-policy voting component does not increase over time. Thus, while the mean RI for non-policy voting in the election 2003 is 64% and 72% in 2007, the mean RI for non-policy voting in election 2011 is only 52%. It means, in general, people voted in a relatively more policy-oriented manner in election 2011 compared to elections 2007 and 2003. This also explains the Russian protests after the uncovered falsifications of votes in election 2011, which were also empirically confirmed (Kobak et al., 2012; Neretin, 2012). Voting motives are not equally important for every voter and differ from person to person. For further insight into the heterogeneity of voting behavior, we investigate NPIs by diverse socio-economic and regional characteristics. In this way, we can better understand by which group of voters a policy-oriented voting component increased over time.

Figure 5.4.: Election 2003 (Model 1) Figure 5.5.: Election 2007 (Model 6) Figure 5.6.: Election 2011 (Model 4)



Voting by Non-policy Variables

As a next step, we computed the kernel density plots of individual NPIs according to age, education, income, and region to see to what extent the different groups of voters differ in non-policy voting. We split up all voters into two groups, e.g. for *age*, the first voter group with the greater age (relative to *mean of age*) and the second voter group with the smaller age. While in election 2003 relatively younger people voted in a more non-policy-oriented way (Figure 5.7), in elections 2007 and 2011 we observe relatively greater policy-oriented voting of younger people (Figure 5.8,5.9). The results are especially interesting since the variable *age* is significant in all periods. The significant correlation between *age* and NPI in all periods is confirmed: -0.82^{***} (2003), 0.34^{***} (2007), and 0.45^{***} (2011). Thus, we see a changing tendency in the cohesion between age and non-policy voting, confirmed by

the next plots of nonparametric regression.

Figure 5.7.: Election 2003 (Model 1) Figure 5.8.: Election 2007 (Model 6) Figure 5.9.: Election 2011 (Model 4)

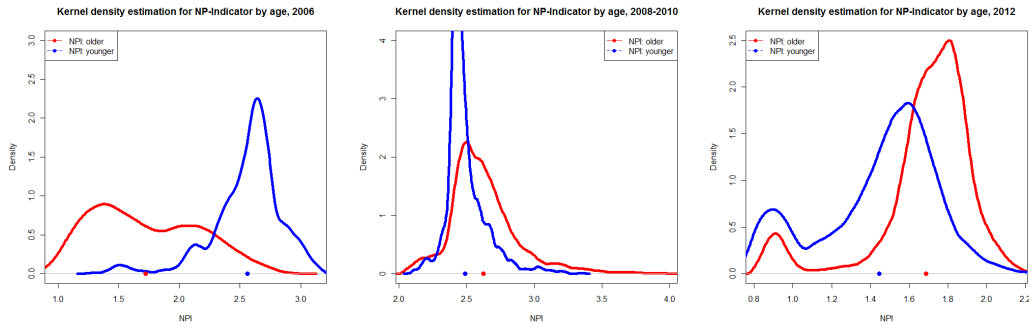
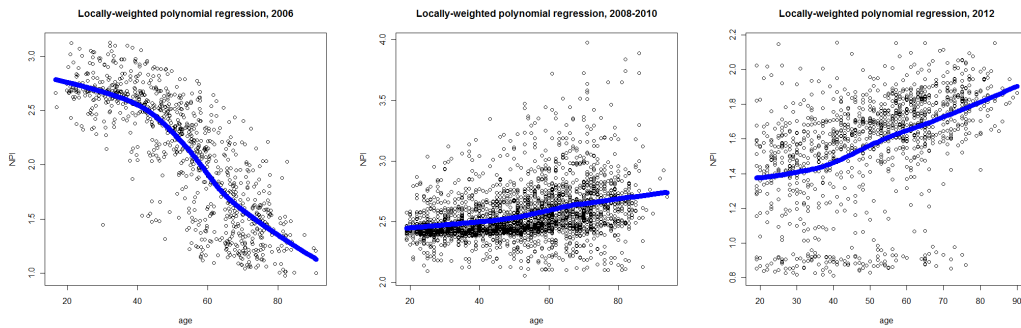


Figure 5.10.: Election 2003

Figure 5.11.: Election 2007

Figure 5.12.: Election 2011



Further, with the same splitting up of all voters into two groups according to their education and income level, we make plots for NPI (Figure 5.13 -5.18). The similar but reverse tendency compared to *age* can be recognized for education and income: Non-policy voting for relatively better-educated and higher-earning voters decreases in 2006, while in 2012 better-educated and higher-earning voters vote in a relatively more policy-oriented way.

Last, we also plot NPI according to the variable *region*. The influence tendency of NPI in different regions changes in time by regions (Figure 5.19-5.21): Voters from central regions become relatively more policy-oriented.

As can be seen from the results, all observed variables have an influence over the years. An effect over the years changes in an interesting way: Policy-oriented voting is getting „younger,“ „better educated,“ and „better earning“ from „central regions.“ Obviously, the main variable inducing the shift in (non-)policy voting is *age* having the significantly strongest effect on NPI in all periods (see Appendix). Two other individual variables (*education* and *income*) have a significant influence on NPI and on the shift in policy voting over time because of their relation to *age*. More precisely, the variable *region* is

5. Capture in the Russian Parliamentary Elections 2003–2011

also identified as mostly a class-determining (i.e. policy voting) variable since it has no permanent correlation with *age*.

Figure 5.13.: Election 2003 (Model 1) Figure 5.14.: Election 2007 (Model 6) Figure 5.15.: Election 2011 (Model 4)

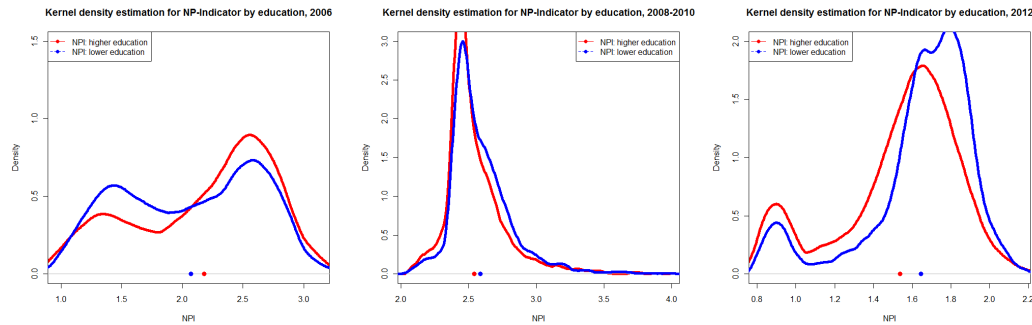


Figure 5.16.: Election 2003 (Model 1) Figure 5.17.: Election 2007 (Model 6) Figure 5.18.: Election 2011 (Model 4)

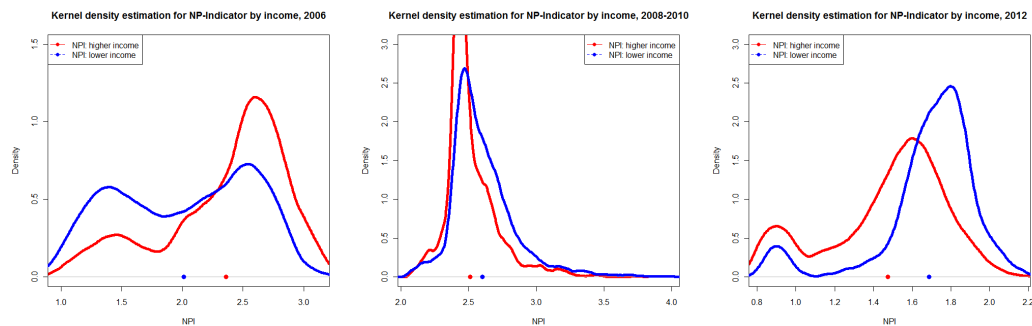
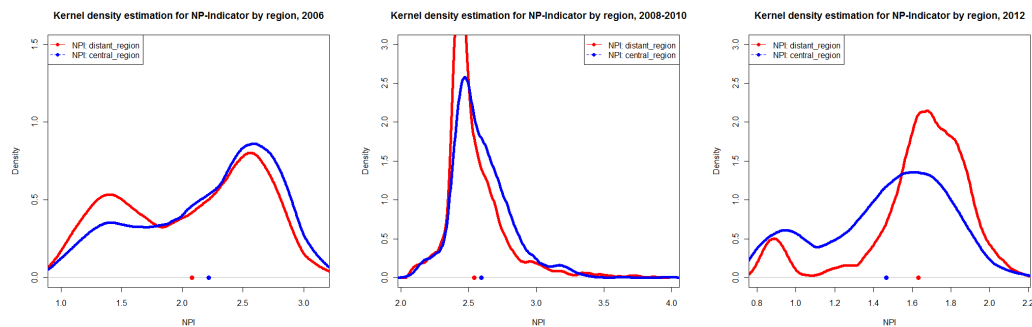


Figure 5.19.: Election 2003 (Model 1) Figure 5.20.: Election 2007 (Model 1) Figure 5.21.: Election 2011 (Model 1)



Policy Voting

Further, using the estimated results of latent class models, we investigate the implications of our estimation on voter behavior by analyzing the *political weights* for each voter. The *political weights* reflect a sensitivity of probability on policy issues for government party G and are calculated only for party ER as follows:

$$g_{iGx} = P_{iGx}(1 - P_{iGx}) \left| \sum_{n=1}^N \beta_{nx} \right|$$

This shows the degree of sensitivity of a voter reaction on the changing distance between him and the government party.

The marginal effect over all classes is the following:

$$g_{iG} = \sum_{x=1}^X \hat{P}(x|\mathbf{z}_i^{cov}) * g_{iGx}$$

where $\hat{P}(x|\mathbf{z}_i^{cov})$ is the voters' individual class membership probabilities. Finally, we estimate the political weights as

$$\overline{g_{iG}} = \frac{g_{iG}}{\sum_i g_{iG}}$$

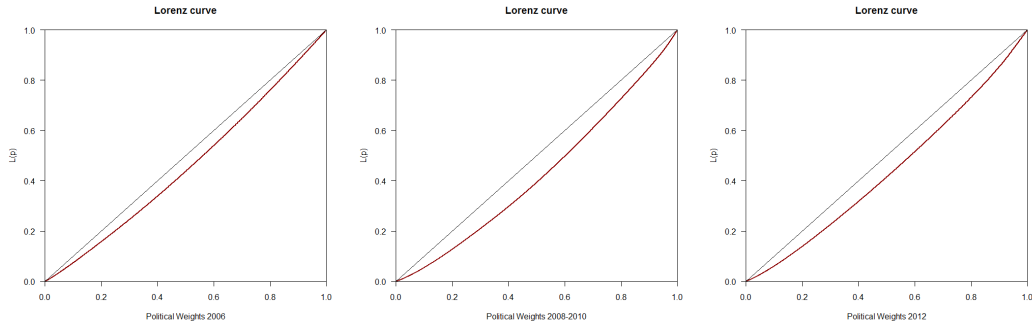
For the one-class model, the following approximation could be applied:

$$\overline{g_{iG}} = \frac{g_{iG}}{\sum_i g_{iG}} \approx \frac{P_{iG}(1 - P_{iG})}{\sum_i P_{iG}(1 - P_{iG})}$$

From this approximation for the one-class model, it follows that swing voters (i.e. voters with a probability to reelect the government party that is close to 0.5) have a particularly high voting weight. It means such voters are important for policy makers to win a greater voting share.

Our results indicate that the NPI is negatively correlated with political weights, i.e. swing voters vote in the most policy-oriented way, whereby the correlation between both rises: -0.67***(2003), -0.75***(2007) and -0.82***(2011). That means the cohesion between political weights and the NPI becomes stronger.

Figure 5.22.: Distribution of effective voting weights in the elections 2003-2011



In Figure 5.22, we present the relative distribution of the calculated voting weights. As indicated by the Lorenz curve in Figure 5.22, the effective voting weights are more or less equally distributed, with the corresponding relatively low Gini coefficients of 0.085 (2003), 0.149 (2007), and 0.126 (2011). Estimating models based on the four socio-economic characteristics (age, education, income, region), we cannot find a great interdependence between political weights in the population.

Moreover, we are interested to investigate by which voter group the government party is captured (i.e. which voter groups have relatively higher political weights related to their population share) and the political importance of which swing voters has increased over time. The more that swing voters vote in a policy-oriented way, the more important their voting becomes and the more their preferences should be taken into account by policy makers to win their votes. To find out which voter group increasingly gained in political importance, we calculate the *capture indices*. A straightforward definition of government capture corresponds to the degree, to which political weights of social groups diverge from their corresponding population shares, i.e. the higher the political weight of a social group compared to its population shares, the more this group is able to capture the government. Hence, we estimate the following capture index for two voter groups l and m :

$$CAP_{l_m} = \frac{\frac{\sum_{i \in l} \bar{g}_i}{S_l}}{\frac{\sum_{i \in m} \bar{g}_i}{S_m}}$$

$CAP_{l_m} > 1$ means that group l is more able to capture votes.

The following Table 5.4 presents the calculated capture indices for different social groups.

Table 5.4.: Capture coefficients over the time

Voter groups	2003	2007	2011
younger versus older	0.862	1.159	1.153
poorer versus richer	1.044	0.897	0.891
low educated versus higher educated	1.007	0.942	0.951
central versus distant regions	0.980	0.937	1.084
Gini-coeff.	0.085	0.149	0.126

The results correspond to the relation between NPI and social characteristics. Relatively younger, richer, and better-educated individuals have higher political weights; hence, the government seeking reelection should have more incentives to deliver policies and policy outcomes to these groups by taking into account their preferences. However, based on

a relatively low Gini coefficient, we cannot observe a politically strong group of voters determined by one of four used non-policy characteristics with a really significant impact on a government party. Therefore, an inclusion of further variables, e.g. a variable for the information and satisfaction of voters with government performance, is essential to better understand the voting motives of the Russian voter.

5.4. Conclusions

In contrast to most previous studies trying to explain election output at the macro level, we concentrate on testing the influence of policy versus non-policy voting at the micro level and try to reveal a capture at the meso level (level of population groups). We develop an empirical framework to analyze policy- and non-policy-oriented voting. In our attempt to understand how non-policy voting can be better analyzed, we used the innovative methodology of latent class estimation.

We implement the LCA model based on the conditional logit model in Software Latent GOLD Choice 4.0 (Vermunt and Magidson, 2005), which in turn follows from the data of the ESS about the Russian parliamentary elections from 2003–2011. We estimate a two-class model based on non-policy variables (age, education, income, region) and policy ones (Euclidean distances in three political dimensions). The model estimations show relatively stable results over time: *Age* is an important non-policy class-determining variable in all periods, while self-positioning on the *left-right* scale is a relatively more important policy issue for individual choice.

Based on the RMEs from probabilistic models, we develop a NPI corresponding with the marginal rate of substitution and reflecting the extent to which a probability change of non-policy motives is greater compared to a probability change of policy motives. Based on the NPI, we could reveal interesting results. For example, in 2011, the voters of liberal oppositional party Yabloko and the ambiguous party LDPR voted in the most policy-oriented way.

Our **first** hypothesis is not confirmed: Policy-oriented voting in election 2011 was considerably greater than in elections 2003 and 2007. A relative importance of policy-oriented voting in 2011 was 48%, compared to 36% in 2003 and 28% in 2007. The policy-oriented voting increased because younger, better-educated voters with higher income began to vote in a more policy-oriented manner. While in election 2003 the younger population voted in a relatively less policy-oriented way, in elections 2007–2011 they were more policy-oriented.

Moreover, central regions appear to vote in a more policy-oriented way as well: While in elections 2003 and 2007 there were no great differences between the voters from diverse regions, in election 2011, the central regions voted in a significantly more policy-oriented manner.

Regarding our **second** hypothesis, we investigate a capture and define it regarding the extent to which the political weights of social groups diverge from their corresponding population shares. Using the Lorenz curve and the Gini coefficient, we find that there is no large heterogeneity in the political weights of the population. Surprisingly, although there are population groups which vote more or less ideologically, we could not find a definite population group by which the government party would have been strongly captured.

Our **third** hypothesis that the central regions capture the distant regions is not confirmed. This indicates that regional polarization is not generated by political factors. It corresponds also with the empirical conclusions of Fedorov (2002) that „regional polarization is driven by structural differences between regions rather than geographic or political.“

Regarding national elections, we could not reveal a *capture* over the different socio-economic groups based on the variables used in the analysis. But it does not matter that capture is missing. It may exist, for example, in regional elections. However, a capture in Russian elections may be absent because no group of ordinary voters is able to capture the government party for two reasons: a) great importance of the economic and political elites and, therefore, b) low importance of voters and the elections as a whole in the political system of Russia.

Although we could not find a capture in parliamentary elections, a changing tendency of voting behavior is very interesting. Thus, the following questions arise: Is this tendency accidental? Or does it indicate a switching political awareness of young people in Russia?

Appendix

Table 5.5.: Descriptive Statistics

Variable	2006	2006	2008	2008	2010	2010	2012	2012
	mean/ median	SD	mean/ median	SD	mean/ median	SD	mean/ median	SD
age	52.41	16.60	51.57	17.84	52.26	17.00	50.91	17.23
income	2	-	4	-	4	-	6	-
education	5	-	5	-	5	-	5	-
region	3	-	3	-	3	-	3	-

Table 5.6.: Perceived positions in policy dimensions over parties and years

Variable Scale	2006			2008-2010			2012		
	Left-Right	Eco	Soc	Left-Right	Eco	Soc	Left-Right	Eco	Soc
	0-10	1-5	1-5	0-10	1-5	1-5	0-10	1-5	1-5
ER	5.33	1.85	3.14	5.59	1.89	3.43	5.70	1.86	3.52
KPRF	4.02	1.51	3.69	4.46	1.71	3.66	4.32	1.60	3.74
LDPR	4.72	2.02	3.28	4.83	1.88	3.36	5.18	1.97	3.33
Rodina	5.09	1.65	3.41	-	-	-	-	-	-
SPS	6.23	2.48	2.78	-	-	-	-	-	-
SR	-	-	-	5.31	1.88	3.43	5.14	1.75	3.75
Yabloko	6.11	2.07	3.13	5.75	1.77	3.09	5.26	1.74	3.67

Table 5.7.: Correlations 2006

	NPI	age	educ	income	region
NPI					
age	-0.82***				
educ	0.22***	-0.33***			
income	0.33***	-0.37***	0.32***		
region	-0.09**	-0.06	0.05	-0.06*	
political weights	-0.67***	0.54***	-0.13***	-0.14***	0.06*

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$

Table 5.8.: Correlations 2008-2010

	NPI	age	educ	income	region
NPI					
age	0.34***				
educ	-0.09***	-0.34***			
income	-0.22***	-0.40***	0.34***		
region	-0.14***	-0.02	-0.05*	-0.14***	
political weights	-0.75***	-0.32***	0.10***	0.22***	0.14***

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$

Table 5.9.: Correlations 2012

	NPI	age	educ	income	region
NPI					
age	0.45***				
educ	-0.24***	-0.27***			
income	-0.40***	-0.37***	0.34***		
region	0.27***	-0.01	-0.08**	-0.14***	
political weights	-0.82***	-0.34***	0.13***	0.27***	-0.17***

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$

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6. Kapitel

Satisfaction and Media as Determinants of Voting Behavior in Russian Elections 2003–2011

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Abstract

We show empirically how media and voter *satisfaction* with government performance influence voting behavior in the Russian parliamentary elections from 2003–2011. In terms of probabilistic voting models, we investigate *retrospective*, *policy*, and *non-policy* voting motives. We use *satisfaction* with government performance as a component for retrospective voting. We take into account *media* as an important determinant of non-policy motives because of a great bias of the Russian media toward the pro-Kremlin party. Based on relative marginal effects, we derive indices that measure non-policy, policy, and retrospective voting components. Empirically, we confirm that the considered voting components are strongly pronounced by value of satisfaction with government performance and media. The more the satisfaction of voters, the more the non-policy voting is and the less the policy and retrospective voting. As a whole, we showed that accountability of the government falls over time.

6.1. Introduction

Two mechanisms government capture and a lack of government accountability lead to the biased policy and arise from low political awareness based on the bad informational level of voters (Bardhan and Mookherjee, 2002). In addition to a social organization of voters (Lohmann, 1998; Huckfeldt and Sprague, 1987; Huckfeldt et al., 2002, 2004), the *media* have a great impact on voting behavior because they influence public opinion (Baron, 2006; Besley and Prat, 2006). In addition to *media*, we take into account a voter's *satisfaction* with government performance, since, in contrast to media and public opinion, satisfaction is internally determined by voters. Therefore, a consideration of *satisfaction* is crucial for understanding retrospective voting motives, *especially if* the information space is strongly biased toward a government party *but* people do not believe the media and vote due to their feelings about perceived welfare. Thus, the goal of this paper is to investigate individual voting motives based on panel data from Russian parliamentary elections in the period 2003–2011.

Reviewing the relevant literature, the first strand of studies devoted to the effects of mass media on public opinion and voter behavior is enormous. While some studies investigate empirically the effects of mass media on voting behavior in western democracies (Wagner, 1983; Mutz, 1992; Dalton et al., 1998; Beck et al., 2002; Schmitt-Beck, 03; Ger-

ber et al., 2006; DellaVigna and Kaplan, 2006; McDonald Ladd, 2010; Schmitt-Beck and Mackenrodt, 2010; McCombs, 2004), other studies empirically research mass media and running democratic processes in transforming and developing countries by using not only descriptive but also quantitative methods (Voltmer, ed, 2006; Bourgault, 1995; Hyden et al., eds, 2003; Gunther and Mughan, 2000; Zasurskii, 2004; White et al., 2005; Enikolopov et al., 2010). Moreover, some studies derive a theoretical basis to explain the effects of mass media on public opinion and elections (Baron, 2006; Besley and Prat, 2006; Petrova, 2008; Chan and Suen, 2009; Corneo, 2006). For example, Besley and Prat (2006) develops a theoretical model produced by a number of predictions on the relationship between features of the media industry, *media capture*, and political outcomes. This model provides a link between *media capture* and government accountability. The author discusses the role of the media in achieving government accountability, pointing to the important factors of reducing *media capture*: media pluralism and independent ownership of media. In this model, *media capture* endogenously determined affects the voters' information and, hence, their voting decision. The baseline of the model is a pure adverse-selection model, where the policy outcome is a function solely of the politician's type based on an intrinsic ability to produce public goods or steal resources from voters. In equilibrium, the bargaining game determines whether the media are an effective information provider: If the media receive a transfer in exchange for silence, media is defined as *captured*, and otherwise as *independent*. *Media capture* affects political outcome represented in the model by *turnover*, defined as the probability that an incumbent is replaced by a challenger, and by voter welfare.

The second strand of studies is devoted to an empirical and theoretical analysis of economic (retrospective) voting on political behavior and elections (Fiorina, 1978, 1981; Powell and Whitten, 1993; Anderson, 2000; Tucker, 2006; Gomez and Wilson, 2001, 2003). An influence of economic circumstances on voter behavior is evident (Fiorina, 1978, 1981; Powell and Whitten, 1993; Anderson, 2000; Tucker, 2006). Researchers distinguish between *sociotropic* and *egocentric* measures of economic perception. While the sociotropic questions are related to perceptions of voters about the economic situation in a country, egocentric questions refer to the individual financial situation. Thus, Anderson (2000) provides an empirical model based on individual-level cross-national data and ascertains that economic voting is stronger in countries with a higher level of government responsibility and better clarity of this responsibility. This indicates that transparency and clarity of rules motivate voters to vote more retrospectively. Sociotropic economic effects on government

party voting consistently outperformed egocentric ones in countries with lower as well as higher government responsibility. Further, Gomez and Wilson (2001) show that political choice depends not only on sociotropic or egocentric parameters but also on an ability of voters to attribute causal responsibility for changes in both personal and national economic conditions, i.e. on a level of political sophistication. The sophistication level of voters in turn is dependent on their information level. The authors also confirm a thesis about a better and more consistent evaluation of candidates based on sociotropic measures, whereas egocentric voting generally occurs only among the more politically sophisticated voters. Since egocentric voting is dependent on the sophistication (informational) level of voters (Gomez and Wilson, 2001), which we do not know from our data, in this work we use a sociotropic measure reflecting voters' satisfaction with government performance calculated by factor analysis.

6.1.1. Public Opinion and Voter Beliefs in Russia

The main principals that should be used as instruments for effective democratic output, e.g. freedom are injured in Russia. Moreover, the beliefs of Russian voters about freedom are also biased. Thus, in a BBC survey from 2007, 47 percent of Russians put *stability* first, while 39 percent chose *freedom*, compared to Western European countries, where the overwhelming majority believes *press freedom* is most important. Moreover, although Russians are not strong advocates of media freedom and do not generally believe in having a say in news reporting decisions, 57 percent of Russians believe that media ownership is a major issue because the owner's political views often emerge in the news. As can be seen, Russians are ambiguously related to the actual political system, since they are in a dilemma over the choice between *stability* or *freedom*, a dilemma that is being reinforced by the pro-Kremlin media.

Thus, the nature of Russian beliefs has a very biased character, essentially enforced by the lack of information freedom in the media landscape. Regarding the current situation in information space, we note that there is generally a very low level of debate; hence, meaningful criticism of the authorities is absent. This is due to a lack of access to critical media as well as popularity of TV media largely controlled by the Kremlin. Moreover, the current results of the Levada Centre survey (Volkov and Goncharov, 2014) show that the internet as a source of information cannot currently substitute the traditional mass media (television, radio, newspapers). Even in Moscow, TV remains a monopoly for formation of

public opinion within the country: 90 percent of Russians mostly get news from the TV, 25 percent from their friends and relatives, 24 percent from the internet, and 19 percent from newspapers. According to analysis of the Levada Center, half of the population receives news mainly from one source, every fifth (20 percent) from two, 17 percent from three, and 12 percent use more than three sources. For those who receive a one-sided opinion about the world, the main information channel is the TV (85 percent). Thus, the most poorly informed Russians largely depend on TV, whereas the information sources are relatively more various for the inhabitants of Moscow and other big cities as well as for better-educated and well-earning respondents. Further, 57 percent of survey participants are regular internet users (for Moscow 73 percent), whereby only half of regular network users, i.e. one in every three Russians, uses the internet to read news, while other internet users see it as a means for communication or entertainment. Moreover, 70 percent of Russians think that federal mass media spoke objectively about the recent political events in Ukraine and in the Crimea (22 percent „objectively“, 48 percent „mostly objectively“). The authors explain the great trust for television springs from its repeating the same information: The more the propaganda and the less the count of alternative sources, the more people start believing in it.

6.1.2. Hypotheses

That the voters' preferences are biased in favor of the pro-Kremlin party is confirmed. Regarding the effects of media on voters' preferences in Russia, White et al. (2005) indicate that media exposure influences voting behavior: Those who watch state television regularly are much more likely to support the pro-Kremlin party. Further, voters of the ruling party are more likely than nearly all others to think the state television is objective and trustworthy. Enikolopov et al. (2010) show that in the parliamentary election of 1999, independent TV was able to decrease aggregate votes for the ruling party as well as increase the combined vote for major opposition parties. But the effects of media and voters' satisfaction on different motives of voting behavior in Russia over time have not been provided yet.

In this study, we develop a framework for an empirical approach. To confirm our hypotheses (see below), we estimate a probabilistic voting model applying a latent class approach using the Russian panel data of the European Social Survey (ESS) from the rounds of 2006–2012. We distinguish between three components of voting motives: *poli-*

cy, *non-policy*, and *retrospective*. The *policy* voting component refers to the classic policy space model (Downs, 1957), where the voters prefer parties whose positions are close to their own positions along the policy dimension. The *non-policy* voting component, i.e. voters' political judgment based on the leadership characteristics of a political candidate (Schofield, 2007; Miller and Shanks, 1996) or lobby activities, is not discussed here in depth and related to the constants determined by individual idiosyncratic characteristics. Finally, the *retrospective* voting component is based on voters' satisfaction with government performance (Fiorina, 1981). Based on relative marginal effects, we derive indices of importance of non-policy, policy, and retrospective voting motives.

In terms of theoretical and empirical findings, we formulate the following **hypotheses**:

1. The biased Russian media positively influences satisfaction with government performance since the media (mostly TV) suppresses negative signals about the government and the ruling party.
2. The biased Russian media negatively influences rational voting behavior, i.e. those who watch TV relatively much should vote more ideologically and in a less policy-oriented (and less retrospective) way.
3. A greater satisfaction negatively influences rational voting behavior, i.e. those who are more satisfied with government performance, should vote more ideologically and in a less policy-oriented (and less retrospective) way, since they are assumed to be non-informed about government performance.
4. The voters of the government party should watch more TV, be more satisfied, and vote more ideologically.

Moreover, we derive a theoretical approach and confirm it. However, an empirical part is central to this work, since a goal of this paper is to investigate the effects of media and voters' satisfaction on voting behavior over time. We try to better understand hidden political processes running in government accountability as well as in the political awareness of Russian voters.

6.2. An Informational Rationale for the Importance of Policy versus Non-policy Voting: A Theoretical Framework

We relate the relative importance of policy when compared to policy preferences with voter uncertainty regarding the impact of policy on voters' welfare. Voters can be separated into different social groups $J = 1, \dots, n_g$. There are two parties, denoted as A and B. In the Downsian tradition, parties announce policies prior to the election and are assumed to credibly commit to these once elected. Voters engage in probabilistic voting, i.e. a voter $j \in J$ of group J will vote for party A as long as:

$$W^J(X^A) - W^J(X^B) + \alpha_{jA}^J - \alpha_{jB}^J > 0 \quad (6.1)$$

$W^J(X^k)$ denote voter j 's welfare derived from the policy platform X^k , announced by party $k=A,B$.

While political economists interpret non-policy factors as ideological preferences (Persson and Tabellini, 2000), political scientists interpret non-policy factors as *valence* perceived by individual voters (Hinich and Munger, 1997; Schofield, 2003).

We relate the relative importance of non-policy when compared to policy preferences in voter uncertainty regarding the impact of policy on voters' welfare. To this end, we assume for simplicity's sake that voters' policy preferences correspond to one-dimensional spatial policy preferences:

$$W^J(X^A) = -|Y^J - Z^A|, \quad Z^A = T(X^A)$$

Z^A is the policy outcome, where Y^J is the preferred policy outcome of voters from group J . $T(X^A)$ denotes political technology describing the technical transformation of policy into outcomes.

Now, voters are uncertain regarding the true political technology. To describe this uncertainty, we assume the following simple stochastic relation between policy X^A and outcome Z^A (Gilligan and Krehbiel, 1989):

$$Z^A = X^A + \omega,$$

where ω is a stochastic variable. For simplicity, we assume ω is uniformly distributed between the interval $[-\frac{1}{2\sigma}, \frac{1}{2\sigma}]$, i.e. we assume ω is uniformly distributed with a zero mean

and variance of $\frac{1}{2\sigma}$.

With assumption $d = Y^J - X^A$, it follows

$$W^J(X^A) = -|d - \omega|$$

Accordingly, the expected utility for voters from policy X, $EU(X)$, is then:

$$EU(X) = -\sigma \int_{-1/2\sigma}^{1/2\sigma} |d - \omega| d\omega = -\sigma \left(\int_{-1/2\sigma}^d (d - \omega) d\omega - \int_d^{1/2\sigma} (d - \omega) d\omega \right)$$

Thus, it follows from integration:

$$EU(X) = -\sigma d \left(\int_{-1/2\sigma}^d d\omega - \int_d^{1/2\sigma} d\omega \right) - \sigma \left(\int_d^{1/2\sigma} \omega d\omega - \int_{-1/2\sigma}^d \omega d\omega \right)$$

After rearrangement, it follows:

$$EU(X) = -\sigma d \left(d - (-1/2\sigma) - (1/2\sigma - d) \right) - \frac{\sigma}{2} \left(\frac{1}{4\sigma^2} - d^2 - (d^2 - \frac{1}{4\sigma^2}) \right) = -(\sigma d^2 + \frac{1}{4\sigma})$$

Accordingly, the higher the uncertainty, i.e. the higher the variance of ω and the lower the density σ , the lower is the weight of the policy preferences when compared to the non-policy preferences, i.e. the less informed a voter, the more non-policy-oriented her vote will be *ceteris paribus*.

6.3. Discrete Choice Models

Discrete choice models derived in a random utility model (RUM) framework assume that the decision maker chooses between two or more discrete alternatives and behaves as an expected utility maximizer. In the case of spatial models, the voter supports the candidate or the party that maximizes his combination of measured policy-related utilities and his unmeasured utilities (Adams et al., 2005). Assume there are J alternatives for a decision maker. Thus, the decision maker i chooses the party j if and only if:

$$U_i(j) > U_i(j'), \forall j \neq j'. \quad (6.2)$$

In random utility models, one presumes that the utility $U_i(j)$ provided to individual i by party j is composed of a deterministic component $V_i(j)$, which can be calculated based on observed characteristics, and a stochastic error component ϵ_{ij} , which is unobserved, so that the formula for a random utility model determining only policy factors is given by:

$$U_i(j) = V_i(j) + \epsilon_{ij}, \quad (6.3)$$

where ϵ_{ij} is a voter-specific random utility term that represents unmeasured components of the voter i 's utility for a party j . Note that in all discrete choice models, the absolute level of utility is irrelevant. The choice probability is $P_{ij} = Prob(U_i(j) > U_i(j')) = Prob(U_i(j) - U_i(j') > 0)$, which depends only on the difference in utility and not its absolute level.

The conditional logit model (McFadden, 1974) can be utilized to estimate these probabilities if the random terms are assumed to be independently distributed Type I extreme value variates. Let y_{it} denote the value of the dependent variable for individual i at replication t , which can take on values $1 \leq j \leq J$. We use vector notation \mathbf{y}_i , \mathbf{z}_i^{cov} , \mathbf{d}_{it}^{att} , \mathbf{k}_{it}^{pre} to refer to all responses, all covariate values for individual i , and the attribute and predictor values corresponding to individual i at replication t . The conditional logit model for the response probabilities has the form (Vermunt and Magidson, 2005):

$$P(y_{it} = j | \mathbf{d}_{it}^{att}, \mathbf{k}_{it}^{pre}) = \frac{\exp(V_{it}(j))}{\sum_J \exp(V_{it}(j))}, \quad (6.4)$$

where $V_{it}(j)$ is the systematic component in the utility of alternative j for individual i at replication t . The term $V_{it}(j)$ is a linear function of an alternative-specific constant α_j , predictor effects γ_{lj} , and attribute effects β_n :

$$V_{it}(j) = \alpha_j + \sum_l \gamma_{lj} k_{lit} + \sum_n \beta_n d_{itj}^n, \quad (6.5)$$

where the squared distance between the voter i at location x_i and a candidate j at location s_j in a one-dimensional space n is calculated in the following way:

$$d_{ij}^n = -(x_i^n - s_j^n)^2. \quad (6.6)$$

The regression parameters corresponding to the predictor effects γ_{lj} are alternative-specific.

In a latent class or finite-mixture variant of the conditional model, it is assumed that individuals belong to different latent classes that differ with respect to the parameters appearing in the linear model for $V_{it}(j)$. In order to indicate that the choice probabilities depend on class membership x , the logistic model is now of the form:

$$P(y_{it} = j|x, \mathbf{d}_{it}^{att}, \mathbf{k}_{it}^{pre}) = \frac{\exp(V_{it|x}(j))}{\sum_J \exp(V_{it|x}(j'))}, \quad (6.7)$$

Here, $V_{it|x}(j)$ is the systematic component in the utility of alternative j , given that individual i belong to latent class x . As can be seen, the logit regression coefficients are class-specific and the linear model for $V_{it|x}(j)$ in this specific case is:

$$V_{it|x}(j) = \alpha_{xj} + \sum_l \gamma_{xlj} k_{lit} + \sum_n \beta_{xjn} d_{itj}^n. \quad (6.8)$$

In addition to the attributes and predictors, we include in our latent class analysis (LCA) another type of explanatory variable covariates in the latent class model. While attributes enter in the regression model for choices, covariates are used to predict class membership. When covariates are included in the model, the probability density occupies the following form (Vermunt and Magidson, 2005):

$$P(\mathbf{y}_i) = \sum_{x=1}^X P(x|\mathbf{z}_i^{cov}) \prod_{t=1}^{T_i} P(y_{it}|x, \mathbf{d}_{it}^{att}, \mathbf{k}_{it}^{pre}), \quad (6.9)$$

where class membership of individual i is now assumed to depend on a set of covariates denoted by \mathbf{z}_i^{cov} . The class membership probability is: $P(x | \mathbf{z}_i^{cov})$ is:

$$P(x | \mathbf{z}_i^{cov}) = \frac{\exp(\eta_{x|z_i})}{\sum_X \exp(\eta_{x'|z_i})} \quad (6.10)$$

with linear term

$$\eta_{x|z_i} = r_{0x} + \sum_{h=1}^H r_{hx} z_{ih}^{cov} \quad (6.11)$$

Here, r_{0x} denotes the constant corresponding to latent class x and r_{hx} is the effect of the h th covariate for class x .

6.3.1. Marginal Effects

To analyze the extent to which non-policy voting is greater than policy-oriented and retrospective voting, which impacts individual characteristics have on non-policy voting, and whether we can find the essential differences in all three voting components over the years, we calculate, first, marginal effects for all three components: policy-oriented, non-policy-oriented, and retrospective. Second, based on these components, we are able to define the relative importance of each voting vis-à-vis the two others.

Thus, the marginal effects of an independent policy alternative-specific variable d_{ij}^n in a policy dimension n for individual i and party j on the choice probabilities is:

$$\frac{\partial P_{ij}}{\partial d_{ij}^n} = P_{ij}(1 - P_{ij})\beta_n$$

For the whole policy space with N variables, the total differential of the probability can be gained accordingly:

$$dP_{ij} = \sum_{n=1}^N \frac{\partial P_{ij}}{\partial d_{ij}^n} dd_{ij}^n = P_{ij}(1 - P_{ij}) \sum_{n=1}^N \beta_n$$

so that the absolute marginal effect in the policy dimension for individual i , party j , and class x is:

$$PME_{ijx} = P_{ijx}(1 - P_{ijx}) \left| \sum_{n=1}^N \beta_{nx} \right|$$

This means how sensitively a voter reacts to the changing distance between one party and him.

Further, we calculate the marginal effects for retrospective preferences (ReME) reflected in individual satisfaction s_i by:

$$\frac{\partial P_{ij}}{\partial s_i} = P_{ij} (1 - P_{ij}) (\gamma_j - \bar{\gamma}_k)$$

with

$$\bar{\gamma}_k = \sum_{k \neq j}^J \left[\frac{P_{ik}}{\sum_{k \neq j}^J P_{ik}} \gamma_k \right]$$

so that the absolute marginal effect for retrospective voting for individual i , party j , and class x is

$$ReME_{ijx} = P_{ijx} (1 - P_{ijx}) |\gamma_{jx} - \bar{\gamma}_{kx}|$$

In the same way, we calculate the marginal effects for non-policy preferences (NME) reflected in constants. In terms of the constants being party-specific, we obtain for the unobservable non-policy preferences t_i for individual i and party j the following NME:

$$NME_{ijx} = P_{ijx} (1 - P_{ijx}) |\alpha_{jx} - \bar{\alpha}_{kx}|$$

with

$$\bar{\alpha}_k = \sum_{k \neq j}^J \left[\frac{P_{ik}}{\sum_{k \neq j}^J P_{ik}} \alpha_k \right]$$

Thus, we obtained three components (PME, NME, ReME) using which we are able to find a relative importance of one component relative to both others. In this way, we calculate relative marginal effects to the sum of both other marginal effects. The composed indices PV, NPV, and RV reflect the importance of policy, non-policy, and retrospective voting accordingly:

$$PV_{ijx} = \frac{PME_{ijx}}{NME_{ijx} + ReME_{ijx}} \quad (6.12)$$

$$NPV_{ijx} = \frac{NME_{ijx}}{PME_{ijx} + ReME_{ijx}} \quad (6.13)$$

$$RV_{ijx} = \frac{ReME_{ijx}}{PME_{ijx} + NME_{ijx}} \quad (6.14)$$

For example, the index PV_{ijx} measures the extent to which policy voting is more important than non-policy and retrospective voting together for individual i related to party j if the individual belongs to class x . Further, we weight the party and class-specific indices with the average party share and individual posterior class probability to obtain three weighted indices for each voter PV_i , NPV_i , RV_i .

6.4. Empirical Model

6.4.1. Heterogeneous Preferences in Random Utility Models and Latent Class Analysis

Like economic analysis estimating consumers' heterogeneous preferences for goods, the political economy is interested to find voters' heterogeneous preferences characterized by their individual characteristics. When unobserved heterogeneity in the population is forecast, this leads to a class of response models based on random utility maximization (RUM) (McFadden and Train, 2000). There are mainly two types of models based on the idea of using a mixture of a simple underlying model, such as multinomial logit, over the distribution of preferences: mixed multinomial logit models (MMLM) and latent class logit models (LCLM). While in MMLM this distribution is continuous, in the latent class context a finite number of classes is used to express the heterogeneity (Hess et al., 2011). Both types of models are RUM models generalizing standard logit by allowing the parameter associated with each observed variable to vary randomly across individuals. Although mixed logit models explicitly account in a sense for heterogeneity, LCA is better suited to explain the sources of heterogeneity that relate to the characteristics of individual consumers (Boxall and Adamowicz, 2002). Hence, we concentrate in this paper on LCA, since it uncovers unobserved heterogeneity in a population and aims to find meaningful groups of voters that are similar in their responses to measured variables. In an LCA, the parameter heterogeneity across individuals is modeled by a discrete distribution or a set of classes. The estimation results in a fixed number of classes; thereby, the parameters of the statistical model differ across these latent classes formed by unobserved latent variables. Thus, the preferences of voters are homogeneous within each latent class, but can vary between the

classes.

The latent class estimation of this paper was realized in Latent GOLD Choice 4.0, developed by Vermunt and Magidson (2005). The regression model that is used in Latent GOLD Choice 4.0 is the conditional logit model developed by McFadden (1974) (Vermunt and Magidson, 2005). Latent GOLD Choice implements a nonparametric variant of the random-coefficient or mixed conditional logit model (McFadden and Train, 2000; Vermunt and Magidson, 2005). From three possible methods in Latent GOLD Choice 4.0 based on different response formats (*first choice*, *ranking task*, *rating task*), the *first choice* format was selected as the most suitable method concerning the assumption that each choice set has the same number of alternatives. Since random utility theory is employed to the model choices among a set of substitutes or alternatives, we first provide its formalization.

6.4.2. Case of Russia

Data

The data used for the empirical analysis is derived from the European Social Survey (ESS). The data for Russia are available from Round 3 (2006), Round 4 (2008), Round 5 (2010), and Round 6 (2012). The ESS questionnaire consists of a collection of questions on the different themes (socio-demographics, subjective well-being, politics, etc.). For our analysis based on the probabilistic modeling of political choice, we selected the relevant questions and included only the data for which the party choice of the interviewee was available. The relevant questions for political choice were: „Some people don't vote nowadays for one reason or another. Did you vote in the last [country] national election?“, „Which party did you vote for in that election?“. Therefore, the validation of data was referred to the most recent national parliamentary elections held in 2003, 2007, and 2011. The relevant parties and their results at the latest elections are summarized in Table 6.1. As can be seen from Table 6.1, the conducted data sets from 2008 and 2010 are very similar and related to election 2007. Therefore, we consolidate both data sets to one sample in our next work and undertake a few steps (e.g. using interaction effects) to specify the results.

Moreover, Table 6.1 shows that our data pointed to some bias in favor of ruling party United Russian (ER) because of regional distortions (the ruling party is more favored in distant regions). Further, it can be also expected that the voters of the ruling party are more willing to be interviewed while the voters of small parties are more worried

Table 6.1.: Party Seats in Duma after Elections 2003–2011 and party shares in our sample

Party (Ideology)	Abb.	Elect. 2003 %	Sample 2006 %	Elect. 2007 %	Sample 2008 %	Sample 2010 %	Elect. 2011 %	Sample 2012 %
United Russia (centrism)	ER	37.57	64.67	64.30	75.02	69.90	49.32	61.6
Communist Party (socialism)	KPRF	12.61	18.82	11.57	14.43	16.23	19.19	19.7
Lib.-Democ. Party (national-cons.)	LDPR	11.45	7.25	8.14	6.39	7.88	11.67	8.5
Rodina (socialism)	Rodina	9.02	4.84	-	-	-	-	-
Union of Right Forces (liberal-cons.)	SPS	3.97	2.84	0.96	-	-	-	-
Just Russia (social-democ.)	SR	-	-	7.74	3.66	4.81	13.24	7.9
Yabloko (social-democ.)	Yabloko	4.30	1.58	1.59	0.5	1.18	3.43	2.3
others		21.08	-	5.7	-	-	3.15	-
Total number of voters		-	951	-	1393	1269	-	1191

about potential consequences from the honest declaration of their political preferences. For that reason, our analysis includes not only the parties that obtained a relatively large weight in the voting structure, but also the parties that did not pass the 5% threshold (since 2007, the 7% threshold). For example, the opposition party with a liberal ideology Yabloko received parliamentary seats for the last time in 2003. The probabilistic analysis of Russian parliamentary elections based on the ESS is interesting because of findings regarding voters' true motives and the determinants of ideological voting.

In our analysis, we use two kinds of variables to investigate policy- and non-policy-oriented voting.

1. Policy variables

In the ESS questionnaire, interviewees were asked about their self-placement concerning five political dimensions using the following scales:

- *Left – Right – Scala* (L-R): In politics people sometimes talk of 'left' and 'right'. Where would you place yourself on this scale, where 0 means the left and 10 means the right?

Further, interviewees were asked to what extent they agree or disagree with each of the four following statements, where 1 means „agree strongly“ and 5 means „disagree strongly“:

- *Economical dimension* (Eco): Government should reduce differences in income levels.
- *Social – cultural dimension* (Soc): Gay men and lesbians should be free to live their own life as they wish.
- *Democracy* (Dem): Political parties that wish to overthrow democracy should be banned.
- *Modern science* (Mod): Modern science can be relied on to solve our environmental problems.

Moreover, the following issues about political system in country were available only from round 6, where interviewees used a scale from 0 (does not apply at all) to 10 (applies completely):

- *Free election*: In country national elections are free and fair.
- *Free alternatives*: In country different political parties offer clear alternatives to one another.
- *Free critic*: In country opposition parties are free to criticize the government.
- *Free discuss*: Voters discuss politics with people they know before deciding how to vote.
- *Gov. decision*: In country the government explains its decisions to voters.
- *Courts*: In country the courts treat everyone the same.

Further, we undertake a reduction of policy space number to better specify political preferences. Taking the positions of voters on the five issues into a factor analysis, we constructed a two-dimensional policy space according to the following results 6.2:

In this way, we achieved factor values reproducing voter positions in a two-dimensional space. The high values of the first factor represent economic and social freedom but also „right“ political preferences. Hence, this dimension can be described as *not liberal* versus *liberal*. For 2006-2010, the second factor with high factor loadings for the issues of *modern science* and *democracy* represent voters who disagree with both questions; hence, we call this dimension *progressive* versus *conservative*. For 2012, the second factor represents voter

Table 6.2.: Factor analysis

Issues	2006 (El.2003)		2008 (El.2007)		2010 (El.2007)		2012 (El.2011)	
	Fac.1 not lib. /liberal	Fac.2 progr. /cons.	Fac.1 not lib. /liberal	Fac.2 progr. /cons.	Fac.1 not lib. /liberal	Fac.2 progr. /cons.	Fac.1 not lib. /liberal	Fac.2 polit. system
Social-cultural dim.	-0.689	0.151	-0.717	0.096	-0.677	0.294	-0.601	0.045
Economic. dim.	0.555	0.385	0.744	0.179	0.723	0.226	0.774	-0.030
Left-Right-Scala	0.647	-0.081	0.330	-0.529	0.484	-0.037	0.254	0.182
Modern science	-0.152	0.735	0.123	0.691	-0.170	0.723	-	-
Democracy	0.026	0.688	0.066	0.617	0.104	0.706	-	-
Free elections	-	-	-	-	-	-	0.137	0.764
Free alternatives	-	-	-	-	-	-	-0.023	0.760
Free critic	-	-	-	-	-	-	-0.015	0.758
Free discuss	-	-	-	-	-	-	-0.060	0.742
Gov.decision	-	-	-	-	-	-	0.236	0.707
Courts	-	-	-	-	-	-	0.414	0.529

beliefs about the freedom and fairness of the political system in the country. The position of each party in this two-dimensional space was calculated as the mean of the voters casting a vote for the corresponding party (Schofield and Zakharov, 2010). Furthermore, knowing the positions of voters and parties for each of two dimensions, it is possible to calculate square (Euclidean) distances, so that these *policy* variables (12 distances for 2006 and 10 distances for 2008–2012) are taken as attributes in LCA.

2. Retrospective variables

We also take into account the data reflecting the voters' assessment of government performance. Therefore, we put the three variables of voter satisfaction in a factor analysis and obtained one factor. The results of factor analysis for voter satisfaction over all years are in Table 6.3. The voters should respond to the following questions on a scale from 0 meaning „extremely unsatisfied“ to 10 meaning „extremely satisfied“:

- How satisfied are you with the present state of the economy in country? (economy)
- What do you think overall about the state of education in country nowadays? (education)
- What do you think overall about the state of health services in country nowadays? (health)

Table 6.3.: Factor analysis for satisfaction variables: factor loading matrix

Issues	Election 2003 (data 2006)	Election 2007 (data 2008-10)	Election 2011 (data 2012)
economy	0.757	0.764	0.718
education	0.850	0.854	0.858
health	0.871	0.868	0.879
Variance,%	68.4	68.9	67.5

3. Explanatory variables

The further data of socio-economic characteristics, regional differences, and voter informational level were also available for analysis. We used these as explanatory and class-membership-determining variables:

1. Age (Age)¹
2. Education (Education): 1=less than lower secondary, 2=lower secondary, 3=lower tier upper secondary, 4=upper tier upper secondary, 5=advanced vocational, 6=lower tertiary education, BA level, 7=higher tertiary education, >= MA level
3. Total monthly income in Euro (Income): 1=Less than 6000 roubles, 2=6001-9000 roubles, 3=9001-12000 roubles, 4=12001-15000 roubles, 5=15001-18000 roubles, 6=18001-21000 roubles, 7=21001-25000 roubles, 8=25001-30000 roubles, 9=30001-40000 roubles, 10=More than 40000 roubles
4. Region (Region): 1=Center, 2=North and North West, Volgo-Vyatsky, Central-Chernozhem, 3=Volga, North Caucasus, Ural, 4= West Siberia, East Siberia, Far East
5. Information (Info): Further, the eight following questions for *information* were included in factor analysis to determine factors for information sources:
 - a) On an average weekday, how much time, in total, do you spend watching television? (tv-t)
 - b) How much of your time watching television is spent watching news or programs about politics and current affairs? (tv-p)
 - c) How much time, in total, do you spend listening to the radio? (radio-t)
 - d) How much of your time listening to the radio is spent listening to news or programs about politics and current affairs? (radio-p)
 - e) How much time, in total, do you spend reading the newspapers? (news-t)
 - f) How much of this time is spent reading about politics and current affairs? (news-p)
 - g) How often do you use the internet, the World Wide Web or e-mail - whether at home or at work - for your personal use? (internet)
 - h) How interested would you say you are in politics (pol-int.): 1=Not at all interested... 4=Very interested
 - i) In country the media are free to criticize the government (m-free): 0=the statement does not apply at all... 10=statement applies completely

¹Moreover, for data set 2008-2010 we use interaction effects such as *year*age*, *year*income* etc, where *year* is a dummy variable with value 1 for 2008 and 2 for 2010

- j) In country the media provide citizens with reliable information to judge the government (m-real.): 0=the statement does not apply at all... 10=statement applies completely²

As can be seen from Table 6.4, issues relating to information sources and informational level were loaded in three factors: *newspapers*, *radio*, and *TV* versus *internet* for 2006-2010 as well as in two factors for 2012. Note that the question about the political interest of voters is related to the factor *newspapers*. The factor *media* for 2012 has high values for the people thinking that the media in Russia is free and reliable; this factor creates great interest for our research.

Table 6.4.: Factor analysis for information sources: factor loading matrix

Issues	2006			2008			2010			2012	
	Fac.1 Newsp.	Fac.2 Radio	Fac.3 TV	Fac.1 Newsp.	Fac.2 Radio	Fac.3 TV	Fac.1 Newsp.	Fac.2 Radio	Fac.3 TV	Fac.1 Media	Fac.2 TV
news-p	0.897	0.017	0.012	0.867	0.085	-0.051	0.900	0.023	-0.017	-	-
news-t	0.846	0.062	-0.064	0.826	0.072	-0.033	0.859	0.077	-0.061	-	-
pol-int.	0.582	0.110	0.193	0.605	0.078	0.059	0.511	0.120	0.257	-	-
radio-t	0.016	0.927	-0.022	0.041	0.908	0.004	0.063	0.913	-0.074	-	-
radio-p	0.154	0.903	0.068	0.171	0.882	0.049	0.116	0.907	0.050	-	-
internet	0.065	0.085	-0.476	0.150	0.061	-0.501	0.032	0.096	-0.487	-	-
tv-t	0.037	0.077	0.827	0.059	0.071	0.833	-0.038	0.054	0.805	0.065	0.941
tv-p	0.289	0.138	0.743	0.459	0.137	0.603	0.339	0.080	0.719	-0.037	0.614
m-free	-	-	-	-	-	-	-	-	-	0.877	0.032
m-real.	-	-	-	-	-	-	-	-	-	0.877	0.015

Thus, using three kinds of variables, we try to explain the parliamentary elections in Russia by means of the policy, non-policy, and retrospective voting factors. The explanatory variables are responsible for determining class affiliation, while the policy and retrospective variables are in the main model. All other remaining factors are unobservable and contained, therefore, in constants.

Results

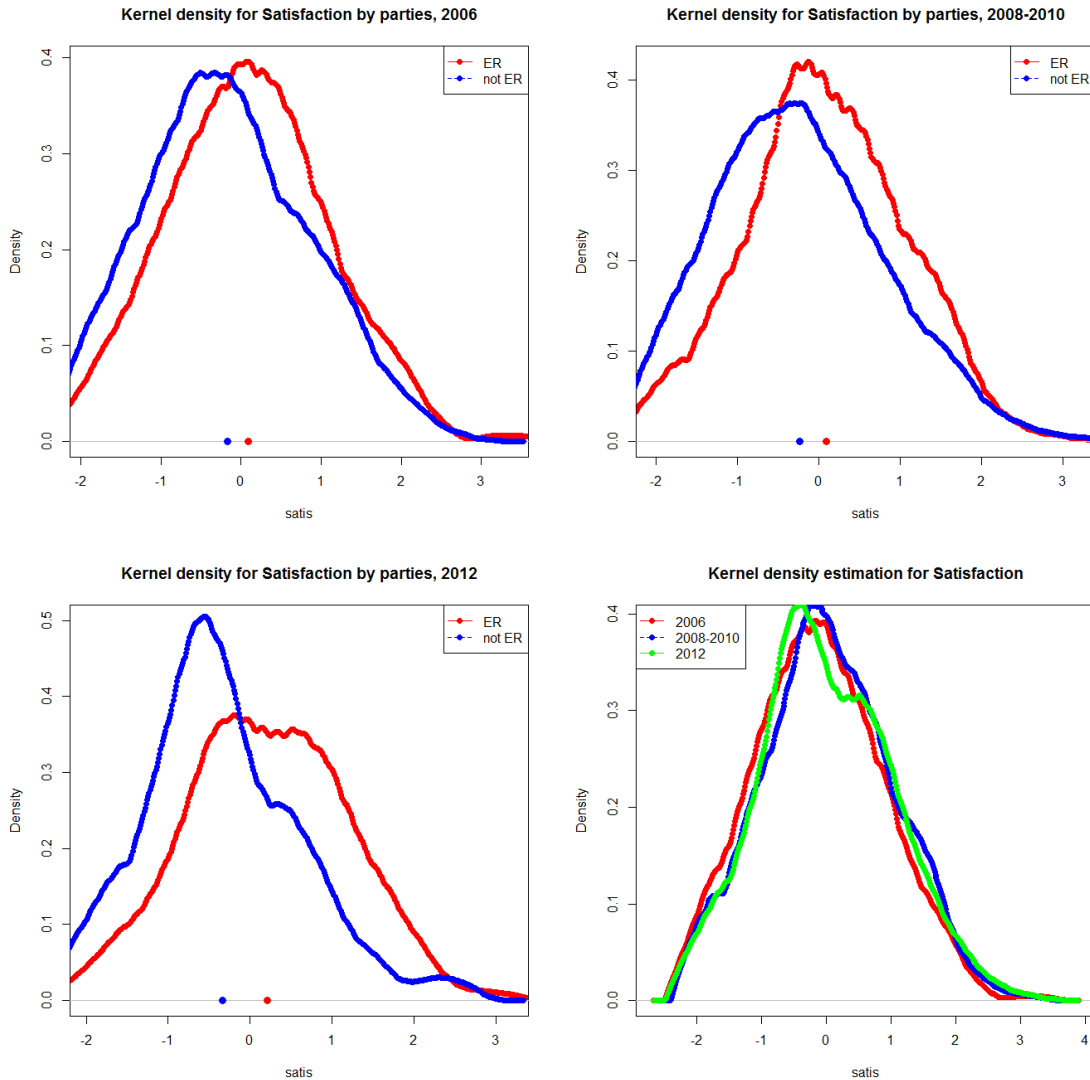
Parties and voters

First, we look at the distributions of satisfaction for different years arising from the separated factor analyses. From Figure 6.1, we see that voters of the Kremlin party ER are significantly more satisfied than the voters of other parties. Moreover, the discrepancy in satisfaction level between ER voters and other voters enlarged in 2011. To find a possible change in satisfaction, we also perform one-factor analysis for all years. The results can be

²Both last questions were available only for 2012

seen on Plot 4 of Figure 6.1. There are no essential shifts in the average level of satisfaction over time.

Figure 6.1.: Distribution of voter satisfaction for all years and over years



It is interesting to see how far satisfaction is correlated with other parameters (see Appendix). For example, the correlation between *satisfaction* and *age* becomes weaker from -0.11^{***} (2003) to -0.08^{***} (2007) and not more significant in 2011. Meanwhile, correlation between *satisfaction* and *income* becomes less essential: The correlation intensity sinks from 0.13^{***} (2003) to 0.07^{***} (2007) and has no more significance in 2011. Based on it, we can assume that taking into account only material welfare is no longer sufficient to explain satisfaction.

Further, the satisfaction level does not depend on a distance of regions to a centre. The

correlation between *satisfaction* and *intensity of TV watching* decreases over time and does not become more significant in the last two periods, i.e. the widespread opinion that Kremlin propaganda makes the people more satisfied with government performance is not correct. On the other hand, the more the people think that the media are free and reliable, the more they are satisfied (0.31*** in 2011).

Additionally, we consider the relation of *information sources* to other independent variables. Though a correlation between *information sources* and satisfaction level is only fragmentarily significant (see Appendix), the appointed information variables are well-correlated with individual characteristics. For example, the better-educated voters read more newspapers (0.17*** in 2003, 0.14*** in 2007). Note that the newspaper source is most related to education and not to age, since the older persons have less funds to buy newspapers. Also, one can see the strongest cohesion between the TV source and the older voters, equivalent to one between the internet source and the younger generation (0.29***, 0.39***, 0.27*** in 2003–2011 accordingly). Moreover, TV is watched more by low-skilled and low-earning voters. This is interesting for *media freedom*. It is not related to individual characteristics, except to satisfaction with government performance.

Model

We estimated LCLM with a different number of classes. To decide on the best number of classes, we consider the Akaike information criterion (AIC) and the Bayesian information criterion (BIC). A formal comparison in terms of performance between AIC and BIC is very difficult, particularly because AIC and BIC address different questions. BIC assumes that the true generation model is in the set of candidate models. Most simulations that prefer BIC over AIC assume that the true model is in the candidate set and that it is relatively low-dimensional. In contrast, AIC does not assume that any of the candidate models is necessarily true in order to make the best possible predictions. Most simulations that favor AIC over BIC assume that reality is highly or infinitely dimensional (Wagenmakers and Farrell, 2004). Markon and Krueger (2004) noted that AIC performs relatively well in small samples, but is inconsistent and does not improve in performance in large samples while BIC appears poorly in small samples, but is consistent and improves in performance with a larger sample size (De-Graft Acquah, 2010). Since our sample is large and two-class models are more stable, we chose the model based on BIC (Table 6.5).

Table 6.5.: Fit for different number of latent classes

	Election 2003		Election 2007		Election 2011	
	Model 1 (2006)		Model 2 (2008-2010)		Model 3 (2012)	
	BIC	AIC	BIC	AIC	BIC	AIC
2 cl. model	2064.31	1908.87	4622.73	4457.90	2641.02	2503.79
3 cl. model	2165.77	1913.18	4696.03	4425.24	2718.55	2494.92

Estimation results for the latent class model are presented in Table 6.6. We consider the same two-class model for each year. The model includes constants, attributes (Euclidean distances in two dimensions – liberalism as well as either conservatism or political system), predictor as satisfaction level, and seven individual characteristics (age, education, income, region, and information sources for Models 1 and 3 as well as corresponding interaction variables for Model 2) determining class membership probabilities.

The results indicate heterogeneity of party preferences across the two latent classes and differ from year to year. As can be seen from Table 6.6, there is policy-oriented voting in all four years and according to both dimensions. A negative sign for an attribute means that the less the Euclidean distance between the voter and the party in this or that dimension, the greater the likelihood for the party to be elected. Further, we see strong retrospective voting in Model 2, i.e. voting according to satisfaction with government performance: The more the voters are satisfied, the more probability for voting for the pro-Kremlin party ER. However, since we have more than two parties, we are able to find the comparative advantages for ER only after calculating marginal effects.

As can be seen, class membership probability is mainly determined significantly by the following variables: age, income, region, and information sources. As can be seen from Table 6.6, while in 2003 the „older“ class voted in a more policy-oriented way than the „younger“ class, in 2007 the situation changed, i.e. the class determined by the lower age voted in a more policy-oriented way. In 2011, the class of the younger people, who earned better and perceived the media as non-free, voted in a more policy-oriented manner according to the dimension *political system*.

6. Satisfaction and Media as Determinants of Voting Behavior

Table 6.6.: Estimation Results of Latent Class Models

Variables	Election 2003				Election 2007				Election 2011			
	Model 1 (2006) Log-LL=-922.44		Model 2 (2008-2010) Log-LL=-2200.95		Model 3 (2012) Log-LL=-1224.90		Model 4 (2012) Log-LL=-1224.90					
	1 Class Coeff.	z-val.	2 Class Coeff.	z-val.	1 Class Coeff.	z-val.	2 Class Coeff.	z-val.	1 Class Coeff.	z-val.	2 Class Coeff.	z-val.
Constants												
ER	2.539***	6.430	3.698**	2.290	2.677***	17.733	4.808***	2.409	2.925***	6.111	0.376	0.365
KPRF	2.048***	4.533	-0.927	-0.476	-0.138	-0.559	4.290**	2.149	1.765***	3.623	-3.532	-1.082
LDPR	-2.234*	-1.639	1.997	1.207	0.613***	3.566	-12.526	-1.574	-3.317*	-1.958	1.967**	2.105
Rodina	0.341	0.739	0.544	0.334	-	-	-	-	-	-	-	-
SPS	-2.298*	-1.701	0.983	0.601	-	-	-	-	-	-	-	-
SR	-	-	-	-	-0.419**	-2.239	-	-	-	-	-	-
Yabloko	-0.395	-0.799	-6.295	-0.821	-2.733***	-6.170	0.965	0.478	-1.754**	-2.119	0.072	0.071
liberalism	-0.493***	-7.040	-0.558***	-4.343	-0.550***	-3.023	-0.298**	-2.265	-0.261**	-2.099	-0.752***	-2.446
conservatism	-0.890*	-1.697	-0.162	-0.178	-0.820***	-3.001	-0.148	-0.443	-	-	-0.683*	-1.722
polit. system	-	-	-	-	-	-	-	-	-0.367***	-3.862	-	-
Satisfaction												
ER	0.080	0.362	-0.117	-0.188	0.394***	3.754	-1.032	-1.247	-0.120	-0.455	1.181	1.333
KPRF	-0.103	-0.440	-1.674	-1.475	-0.338*	-1.895	-1.316	-1.596	-0.631***	-2.346	2.990	1.630
LDPR	-1.639**	-1.964	-0.287	-0.460	0.235**	2.014	5.615*	1.712	1.470*	1.875	-1.199*	-1.855
Rodina	0.297	1.132	-0.243	-0.366	-	-	-	-	-	-	-	-
SPS	1.347*	1.772	-0.524	-0.783	-	-	-	-	-	-	-	-
SR	-	-	-	-	0.332**	2.004	-1.320	-1.568	-	-	-	-
Yabloko	0.018	0.054	2.844	0.931	-0.623*	-1.779	-1.947**	-2.240	-0.430	-1.286	-1.174	-1.204
Classes												
Constant	-4.184***	-4.371	4.184***	4.371	0.818***	3.888	-0.818***	-3.888	-0.355	-0.893	0.355	0.893
age	0.041***	5.270	-0.041***	-5.270	-0.026***	-5.082	0.026***	5.082	0.011***	2.960	-0.011***	-2.960
education	0.104	1.283	-0.104	-1.283	0.005	0.190	-0.005	-0.190	-0.019	-0.469	0.019	0.469
income	-0.104	-0.947	0.104	0.947	0.059**	2.189	-0.059**	-2.189	-0.040*	-1.779	0.040*	1.779
region	0.170	1.445	-0.170	-1.445	0.177***	3.752	-0.177***	-3.752	0.223***	3.003	-0.223***	-3.003
newspaper	0.406***	3.028	-0.406***	-3.028	0.020	0.404	-0.020	-0.404	-	-	-	-
radio	0.079	0.650	-0.079	-0.650	-0.026	-0.602	0.026	0.602	-	-	-	-
TV	0.205*	1.730	-0.205*	-1.730	0.109**	2.062	-0.109**	-2.062	0.075	1.232	-0.075	-1.232
media	-	-	-	-	-	-	-	-	0.107*	1.863	-0.107*	-1.863

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$

Non-Policy, Policy, and Retrospective Voting

To analyze which impacts the individual and regional characteristics have on policy, non-policy, and retrospective voting for each year as well as over the years, we calculate the indices according to Formulas 6.12, 6.13 and 6.14. These indices imply the extent to which one component, e.g. policy voting, is greater than the two other components. In this way, we receive tree indicators for each year and each voter, and can examine the relation of these indicators to voter characteristics.

First, we consider the relationship between individual satisfaction level and different voting components (Plots 6.2, 6.3, and 6.4). On increasing satisfaction with government performance, the retrospective voting falls in all periods (plot 6.2): Accordingly, the correlation coefficients in elections 2003, 2007, and 2011 are -0.36^{***} , -0.22^{***} , and -0.20^{***} . Thus, the more the voters are satisfied, the less the component of retrospective voting is compared to both others, i.e. the less they vote according to their satisfaction and opinion about government performance.

Figure 6.2.: Relationship between satisfaction with government performance and the retrospective voting

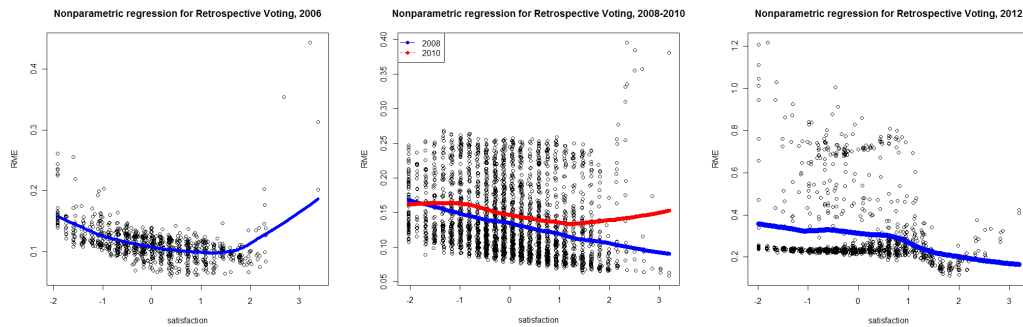


Figure 6.3.: Relationship between satisfaction with government performance and non-policy voting

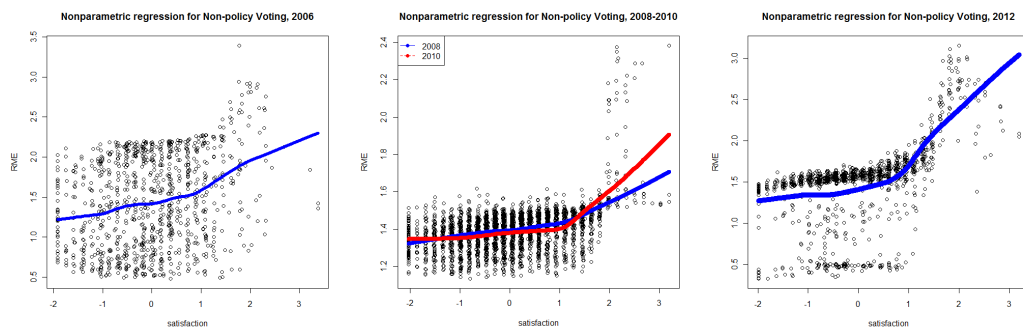
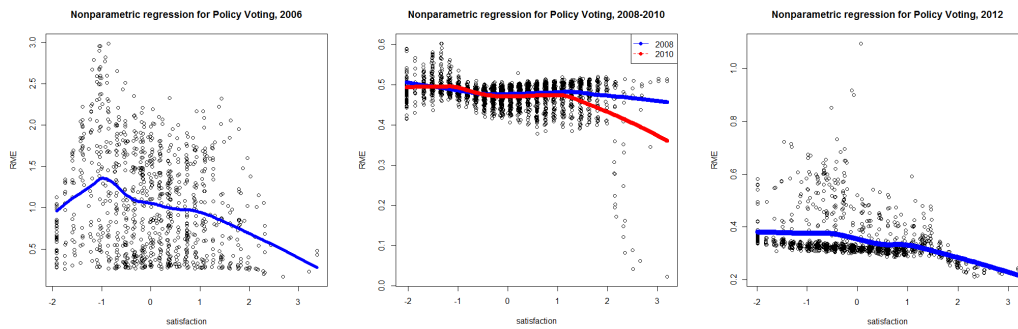


Figure 6.4.: Relationship between satisfaction with government performance and policy voting



Further, Plot 6.3 shows that with rising satisfaction, the non-policy voting permanently increases (0.28^{***} , 0.42^{***} , 0.53^{***}) and the connection between both becomes stronger over time. Finally, with increasing satisfaction, we also see a fall in policy voting with a stronger tendency over time 6.4: -0.22^{***} , -0.26^{***} , -0.31^{***} accordingly. Thus, we see that satisfaction level has a permanent effect on individual voting. Thereby, to vote in a mostly policy-oriented way, people must be extremely unsatisfied. In this regard, people understanding that the media in Russia is not free vote when voting in a more policy-oriented way and retrospectively. Hence, the amount of TV watching has a switching effect on voting components over time: While in 2003 TV watching was positively correlated with policy voting (0.32^{***}) and negatively with non-policy voting (-0.36^{***}), in 2011 the situation changed; TV watching became positively related to non-policy voting (0.10^{***}) and negatively to policy voting (-0.10^{***}).

Thus, on the one hand, we see diverging processes in the satisfaction level of Russian society over time, e.g. in the stronger relationship between satisfaction and voting components reflected, first, in the increasing differences in satisfaction level between the voters of the Kremlin party and of other parties (Figure 6.1), and second, in increasing heterogeneity in satisfaction within the whole population (e.g. satisfaction is not more correlated with age). On the other hand, we see the changing as well as converging processes in non-policy (or policy) voting: While in 2003 the relative greater non-policy voting has the most relevance to younger people from central regions who earn well and watch TV relatively less, in 2011 the relative greater non-policy voting moves to older people from distant regions who earn relatively less and watch TV relatively more (Figure 6.5). Logically, we find a converse process in policy voting converging in a similar way: The disparity in policy voting has become smaller (Figure 6.6).

Figure 6.5.: Kernel density estimation for Non-policy voting

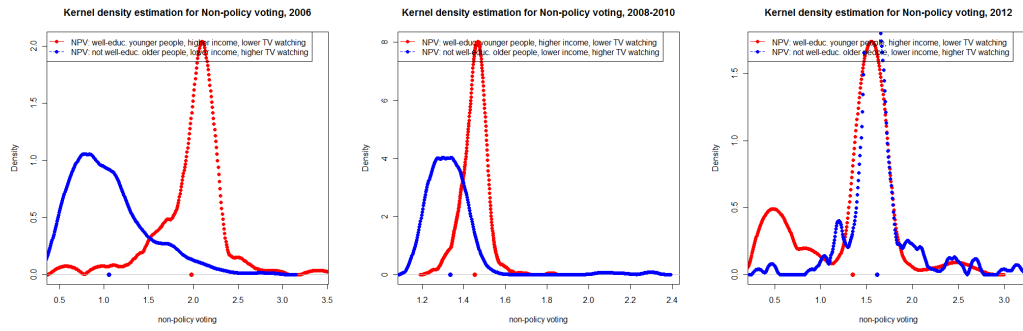
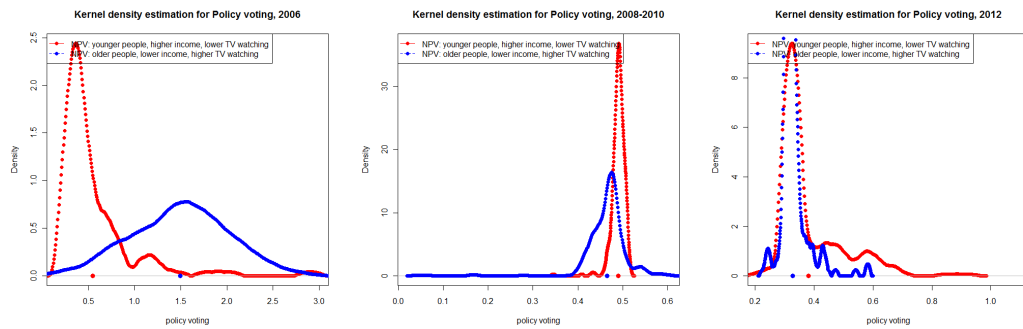


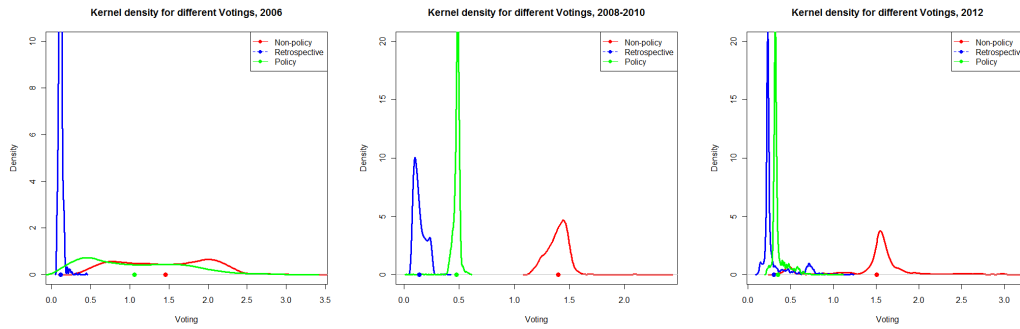
Figure 6.6.: Kernel density estimation for Policy voting



Analysis of voting components

First, we look at the correlation between three kinds of voting components. While retrospective voting can be defined as a voting process whereby people vote for a party based on past occurrences and opinions reflected in their actual satisfaction degree, this kind of voting cannot be clearly related to policy or non-policy preferences, as we see in the correlation in Tables 6.8, 6.9, and 6.10 (see Appendix). While in 2003 retrospective voting has a bearing on the non-policy aspect (0.30***), in 2011 it is strongly associated with policy voting (0.87***). Moreover, we do kernel estimation for all voting components and years, whereby Figure 6.7 provides interesting results. While the mean non-policy voting is relatively constant over time (approximately 1.5), the mean retrospective voting component increases from about 0.11 (2003 and 2007) to 0.3 (2011). Moreover, we consider a rapid reduction of the mean policy voting from 1.1 in election 2003 to 0.5 in 2007 and 0.35 in 2011.

Figure 6.7.: Distribution of voting components



Thus, from the correlation in Tables 6.8, 6.9, and 6.10 (see Appendix) it can be seen that all considered voting components are strongly pronounced by value of satisfaction level, age, and information resources (especially TV watching and media). For example, for 2011, the unsatisfied younger people who watch TV relatively less and think that the Russian media is not free tend to vote in a more policy-oriented way. Hence, we are also interested to find the extent to which voting components differ between voters of the Kremlin party *ER* and other parties. Therefore, we do the plots of kernel estimation density for these separated sets (Figures 6.8, 6.9, 6.10). Figure 6.8 provides the diverging process in retrospective voting corresponding also to the divergence of satisfaction. While in election 2003 there are no significant differences in the means of retrospective voting between parties, in 2007 there are significant differences in the means by about 0.05 (with less retrospective voting for Kremlin party). In 2011, these voting differences in the means are essential by approximately 0.2.

Figure 6.8.: Distributions of Retrospective Voting

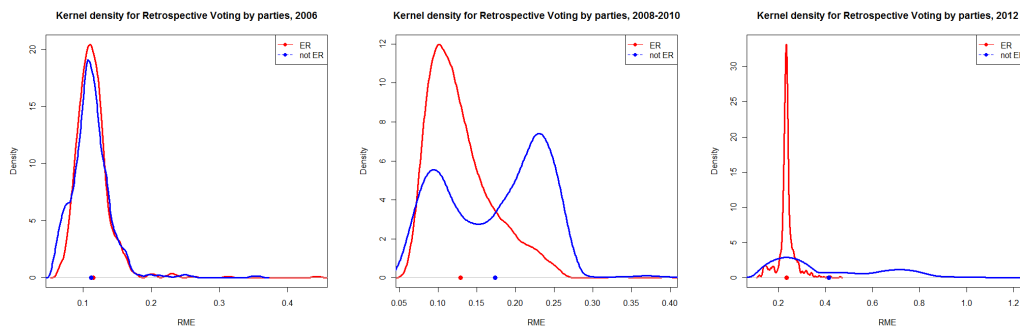


Figure 6.9.: Distributions of Non-policy Voting

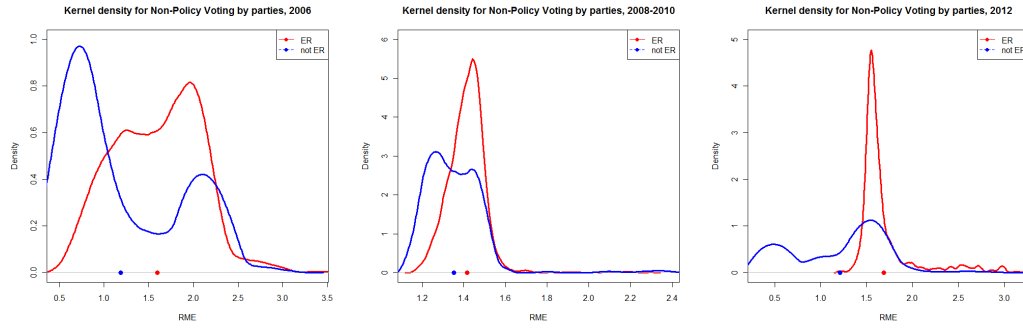
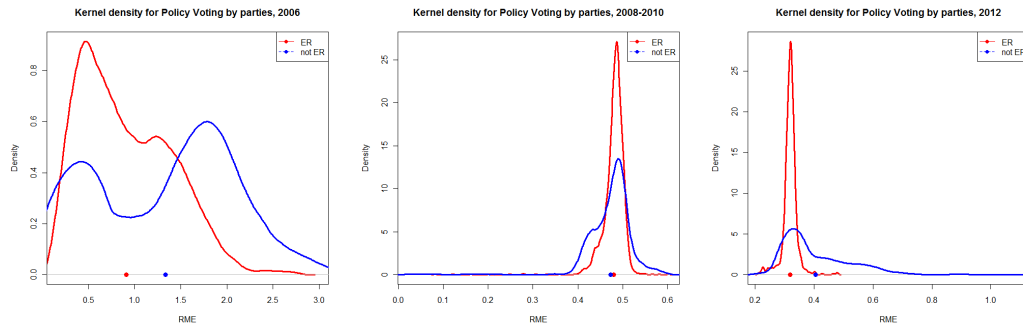


Figure 6.10.: Distributions of Policy Voting



Regarding non-policy and policy voting (Figure 6.9 and 6.10), we do not see any changes but in the permanently greater non-policy voting for the Kremlin party and the dominantly greater policy voting for other parties. Thus, the voters of the ruling party vote more ideologically based on their satisfaction as well as their policy preferences.

Capture

Further, using estimated results of latent class models, we investigate implications for our estimation on voter behavior by analyzing the *political weights* for each voter. The *political weights* reflect a sensitivity of probability on policy issues for the government party G , since they are calculated only for a ruling party as follows:

$$g_{iGx} = P_{iGx}(1 - P_{iGx}) \left| \sum_{n=1}^N \beta_{nx} \right|$$

This means how sensitively a voter reacts to the changing distance between government party and him, i.e. how important the voter is for the party in a political dimension.

The marginal effect over all classes is:

$$g_{iG} = \sum_{x=1}^X \hat{P}(x|\mathbf{z}_i^{cov}) * g_{iGx}$$

where $\hat{P}(x|\mathbf{z}_i^{cov})$ represents the voters' individual class membership probabilities. Finally, we estimate the political weights as:

$$\overline{g_{iG}} = \frac{g_{iG}}{\sum_i^I g_{iG}}$$

For the one-class model, the following approximation can be applied:

$$\overline{g_{iG}} = \frac{g_{iG}}{\sum_i^I g_{iG}} \approx \frac{P_{iG}(1 - P_{iG})}{\sum_i P_{iG}(1 - P_{iG})}$$

It follows from this approximation for the one-class model that swing voters (i.e. voters with a probability to reelect the government party that is close to 0.5) have a particularly high voting weight. It means such voters are important for policy makers to win a greater vote share.

Calculating the political weights we find, first, that the political weights permanently negatively correlate with the non-policy and retrospective voting. It is of special interest to consider the changing influence of the voters on the policy process: While in 2003 voters with greater policy voting have the larger political weights (0.83***), i.e. their opinion about policy issues was essential for the power party to be again elected, this cohesion drops to 0.41*** in 2007. But in 2011 this relationship is negative, i.e. the more the voters vote in a policy-oriented way, the less important they are for the power party. This confirms our hypothesis that the weighing of the power party has increased over time, mainly due to support from an ideologically oriented population, i.e. accountability of Russian policy makers has a decreasing tendency. These results correspond with the results from our previous study.

Further, we present the effective voting weights over the different groups which are more or less equally distributed, with corresponding relatively low Gini coefficients of 0.178 (2003), 0.154 (2007), and 0.170 (2011). We cannot find great interdependence between political weights in population, which corresponds to the results of our previous study.

Further, we are keen to investigate by which voter groups the government party is captured (i.e. which voter groups have relatively higher political weights related to their population share) and the political importance of which swing voters has increased over

time. The more that swing voters vote in a policy-oriented way, the more important their voting and the more strongly their preferences should be taken into account by policy makers to win their votes. To find out which voter group increasingly gained in political importance, we calculate *capture indices*. A straightforward definition of government capture corresponds to the degree of electoral competition which implies the political weights of social groups diverge from their corresponding population shares, where the higher the weight of a social group when compared to its population shares the more this group is able to capture the government. Hence, we estimate the following capture index for two voter groups l and m :

$$CAP_{l_m} = \frac{\frac{\sum_{i \in l} \bar{g}_i}{S_l}}{\frac{\sum_{i \in m} \bar{g}_i}{S_m}}$$

$CAP_{l_m} > 1$ means that group l is more able to capture.

Table 6.7 presents the calculated capture indices for different social groups. First, the results correspond to our previous study: Relatively younger, richer, and better-educated individuals have relatively higher political weights. Hence, the government seeking reelection should have more incentives to deliver policies and policy outcomes to these groups by taking into account their preferences. In reality, this is not applied because of a negative correlation between effective voting weights and policy components.

Second, based on a relatively low Gini-coefficient we cannot observe a politically strong group of voters determined by one of the considered individual characteristics having a permanent impact on the ruling party over time.

Table 6.7.: Capture coefficients over time

Voter groups	2003 (2006)	2007 (2008-2010)	2011 (2012)
unsatisfied versus satisfied	1.111	1.287	0.955
younger versus older	0.879	1.195	1.009
poorer versus richer	1.230	0.905	0.977
low educated versus higher educated	1.018	0.943	0.979
central versus distant regions	0.919	0.921	0.977
less NP reading versus more NP reading	0.844	0.975	-
less radio versus more radio	0.976	1.062	-
less TV versus more TV	0.849	1.030	0.985
not free media versus free media	-	-	1.026
Gini-coeff.	0.178	0.154	0.170

6.5. Conclusion

We develop a theoretical and empirical framework to analyze retrospective, policy- and non-policy-oriented voting. First, assuming that voters have ideological preferences and are uncertain about the real positions of the political decision maker, we derive voters' expected utility function and find that the higher the uncertainty, the lower is the weight of the policy preferences when compared to the ideological preferences, i.e. the less informed a voter, the more ideologically she or he votes *ceteris paribus*. Empirically, we confirm our theory: The more people think that the Russian media is free, the more ideologically, i.e. the less policy-oriented and retrospectively they vote.

Our **first** hypothesis that media (mostly TV) positively affects voters' satisfaction with government performance is not confirmed. Surprisingly, TV watching is not correlated with satisfaction in 2007 and 2011, and is even negatively correlated in 2003. This suggests that the media have no direct effects on the satisfaction of voters. Voters form their satisfaction based exclusively on their own feelings and opinion. However, satisfaction is positively related to whether the media are free. Those people who really think this are more satisfied (0.31***).

Our **second** hypothesis that the media influence voting behavior is partly confirmed. We found the changing process over time: While in 2003 TV watching is positively correlated with policy voting and negatively with non-policy voting, in 2007–2011 the situation changes; TV watching is positively related to non-policy voting and negatively to policy voting. This also confirms the negative influence of TV propaganda on the political awareness of Russian voters in recent years.

Our **third** hypothesis is confirmed. The findings support the idea that all voting components are strongly pronounced by value of satisfaction with government performance. The more the satisfaction of voters, the more is the non-policy voting and the less the policy and retrospective voting. Thereby, we see the reinforcing process over time. The positive relation between satisfaction and non-policy voting as well as the negative relation between satisfaction and policy voting increased over all periods. In contrast, a negative relation between satisfaction and retrospective voting becomes weaker.

Our **fourth** hypothesis is confirmed too. The voters of the pro-Kremlin party are permanently more satisfied with government performance and vote more ideologically compared to voters from other parties, whereby the difference in retrospective voting between

this party and other parties increase over time.

Our further results are also interesting. We consider that the changes in policy and non-policy voting proceed between the diverse voter groups. The relatively greater non-policy motives move over time to older people from distant regions earning relatively less and watching TV relatively more, whereas the role of centric regions and young voters with higher education becomes more important for policy-oriented voting.

The retrospective voting motives approach policy motives over time. While retrospective motives gain in importance, policy motives lose their importance; hence, both are relatively small and positively correlated in 2011. In contrast, ideological motives remain relatively constant and high.

Finally, we find that the political weights permanently negatively correlate with the non-policy and retrospective voting motives. It is of special interest to consider the changing influence of voters on the policy process. While in 2003 the voters with greater policy voting dominated the larger political weights (0.83***), i.e. their opinion on policy issues was essential for the power party to be re-elected, this cohesion drops to 0.41*** in 2007. In contrast, in 2011 this relationship is negative, i.e. the more the voters vote in a policy-oriented way, the less important they are for the power party. This points out that the weight of the power party has increased over time mainly because of the support of an ideologically oriented population, i.e. **the accountability of Russian policy makers has a decreasing tendency.**

Discussion

Based on the findings from our previous study (Petri and Henning, 2014) as well as the current findings, we would like to discuss a consistency of the results. On the one hand, in our previous study we found that policy-oriented voting was greater in 2011 compared to 2003 and 2007, without taking into account retrospective voting. On the other hand, the results of the current study reveal the decreasing tendency of policy-oriented voting if retrospective voting is included. The results are not ambiguous. They can really happen if retrospective voting takes place. Exactly this tendency can be seen in the current analysis, where retrospective voting rises from 0.11 to 0.3. Moreover, we conclude that the results of the current study are more objective because of consideration of the retrospective component.

The latent class approach also provides relatively robust results for two class models,

6. Satisfaction and Media as Determinants of Voting Behavior

since, for example, both studies reveal the same trend in increasing policy motives for younger people and centric regions.

The future analysis of voting behavior should concentrate on a deeper consideration of information in the voting process, whereby the deriving of a theoretical model includes the individual informational level and the deriving of an empirical measure for the informational level of voters is conceivable. Moreover, the deeper consideration of a dynamic in probabilistic models is conceivable, for example, by taking satisfaction from a previous election period into a subsequent election period because of the long-term thinking of voters and the short-term political actions of politicians who are interested to provide targetable public goods (Keefer and Khemani, 2005; Tucker, 2006).

Appendix

Table 6.8.: Correlation table for 2006 (Election 2003)

	RV	NPV	PV	satis	age	educ	income	region	newspapers	radio	tv
RV											
NPV	0.30***										
PV	-0.39***	-0.92***									
satis	-0.36***	0.28***	-0.22***								
age	-0.30***	-0.71***	0.67***	-0.11***							
educ	0.00	0.13***	-0.13***	0.02	-0.33***						
income	0.07*	0.35***	-0.31***	0.13***	-0.37***	0.32***					
region	-0.02	-0.10**	0.10**	-0.01	-0.06	0.05	-0.06*				
newspapers	-0.17***	-0.34***	0.32***	-0.03	0.09**	0.17***	0.08*	-0.02			
radio	-0.08*	-0.09**	0.09**	0.01	0.10**	0.02	0.05	-0.07*	0.00		
tv	-0.14***	-0.36***	0.32***	-0.07*	0.29***	-0.16***	-0.21***	0.02	0.00	0.00	
political weights	-0.30***	-0.91***	0.83***	-0.22***	0.69***	-0.12***	-0.33***	0.11***	0.34***	0.09**	0.34***

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$

Table 6.9.: Correlation table for 2008-2010 (Election 2007)

	RV	NPV	PV	satis	age	educ	income	region	newspapers	radio	tv
RV											
NPV	-0.53***										
PV	-0.49***	-0.27***									
satis	-0.22***	0.42***	-0.26***								
age	0.73***	-0.41***	-0.36***	-0.08***							
educ	-0.26***	0.15***	0.17***	-0.04*	-0.34***						
income	-0.42***	0.27***	0.19***	0.07***	-0.40***	0.34***					
region	-0.21***	0.11***	0.08***	0.01	-0.02	-0.05*	-0.14***				
newspapers	-0.03	-0.02	0.06**	-0.07***	0.04*	0.14***	0.07***	0.00			
radio	0.06**	-0.01	-0.04*	0.04*	0.04	0.04*	0.05**	-0.08***	0.00		
tv	0.21***	-0.15***	-0.06**	-0.04	0.39***	-0.16***	-0.23***	0.01	-0.01	0.00	
political weights	-0.42***	-0.03	0.41***	-0.57***	-0.38***	0.15***	0.19***	0.20***	0.06**	-0.11***	-0.07***

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$

Table 6.10.: Correlation table for 2012 (Election 2011)

	RV	NPV	PV	satis	age	educ	income	region	tv	media
RV										
NPV	-0.85***									
PV	0.87***	-0.81***								
satis	-0.20***	0.53***	-0.31***							
age	-0.20***	0.14***	-0.18***	-0.05						
educ	0.12***	-0.09**	0.11***	-0.06	-0.27***					
income	0.19***	-0.18***	0.18***	-0.05	-0.37***	0.34***				
region	-0.17***	0.14***	-0.15***	-0.01	-0.01	-0.08**	-0.14***			
tv	-0.13***	0.10***	-0.10***	0.00	0.27***	-0.10***	-0.11***	0.05		
media	-0.20***	0.26***	-0.27***	0.31***	0.04	-0.05	-0.04	-0.01	0.00	
political weights	-0.11***	-0.06*	-0.26***	-0.02	-0.04	0.03	0.05	-0.04	0.00	-0.06

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$

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7. Kapitel

Erläuterung der Methoden

7.1. Grundlagen der Sozialen Netzwerktheorie

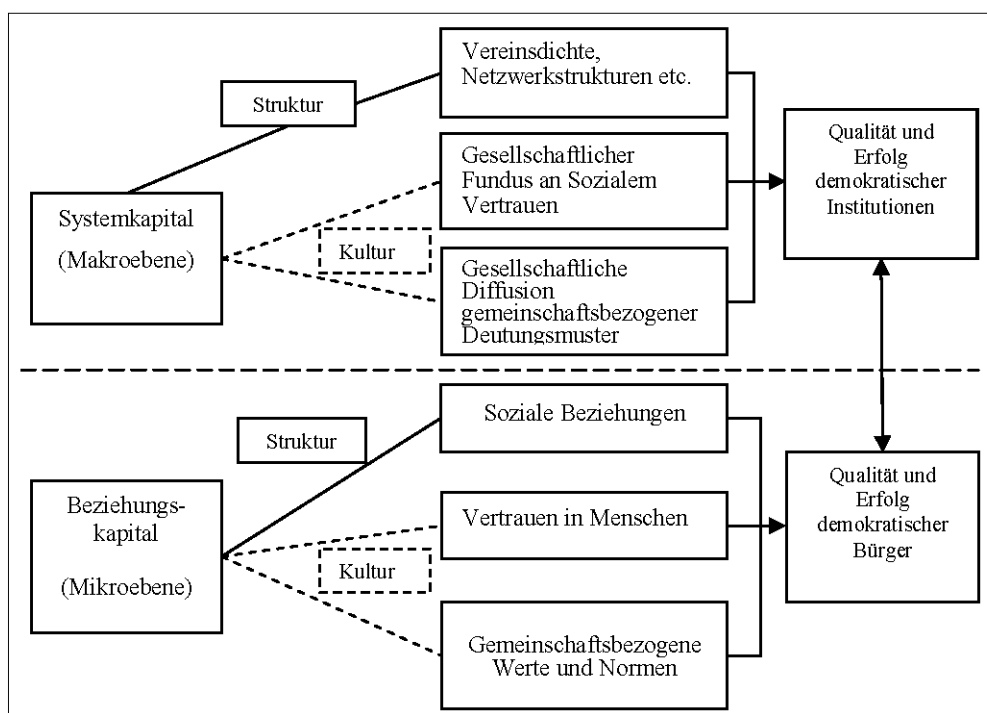
Die Netzwerkanalyse als sozialwissenschaftliche Methode befasst sich mit der Untersuchung der Beziehungen zwischen zuvor definierten Akteuren sowie strukturellen und inhaltlichen Eigenschaften dieser Beziehungen (Jansen, 2003; Wasserman und Faust, 1994; Trappmann et al., 2005) und hat sich als wichtiger Bestandteil der theoretischen und empirischen Forschung in unterschiedlichen wissenschaftlichen Bereichen wie Soziologie (Burt, 1982, 1992; Coleman, 1988a,b; Granovetter, 1985; Fukuyama, 1995), Politikwissenschaft (Pappi und Shikano, 2007; Putnam et al., 1993; Hardin, 1999; Van Deth et al., 1999), Wirtschaft (Alesina und La Ferrara, 2000; Knack und Keefer, 1997; Granovetter, 2005), Medizin, Pädagogik usw. etabliert.

Netzwerkanalytische Theorien werden häufig mit Rational-Choice-Ansatz (Coleman, 1988b; Burt, 1982, 1992) verbunden, gemäß dem ein individuelles Verhalten als Ergebnis eines nutzenmaximierenden Vorhabens interpretiert wird. Als Ausgangspunkt sozialer Phänomene kann dabei ein Akteur in Abhängigkeit von der betrachteten Ebene (Individuum, Gruppe, Organisation usw.) angesehen werden. Um soziale Phänomene erklären zu können, muss deshalb auf handelnde Akteure zurückgegriffen werden. Während der Zusammenhang zwischen nutzenorientiertem Handeln von Akteuren und sozialen Netzwerken darin besteht, dass die Individuen die Beziehungen eingehen, um ihre persönliche Interessen zu verfolgen (Coleman, 1988b; Burt, 1982; Florack, 2010), stellen die strukturellen Netzwerkcharakteristika nicht nur zusätzliche Handlungsmöglichkeiten für die beteiligten Akteure sondern auch Handlungsbeschränkungen dar.

Die mit Netzwerken gebundene Theorie des sozialen Kapitals beruht auf der Annahme, dass neben physischem und Humankapital die wirtschaftliche Entwicklung sowie das Wohlbefinden und die Leistung einer Gesellschaft zusätzlich von dem sozialen Umfeld abhängen. Soziale Netzwerke sind eine strukturelle Komponente des Sozialkapitals und bilden neben Vertrauen, Normen und Werten einen Bestandteil des ganzen Konzeptes des Sozialkapitals

(Gabriel et al., 2002; Westle und Gabriel, 2008), die theoretische Fundierung und empirische Erklärung dessen sowohl in den Schriften klassischer soziologischer Autoren, z.B. Weber (1921), als auch in den neueren wissenschaftlichen Arbeiten (Bourdieu, 1986; Coleman, 1988b; Putnam et al., 1993; Putnam, 2000; Fukuyama, 1995) zu finden sind. Dabei unterscheiden sich die theoretischen und empirischen Ansätze der Sozialkapitaltheorie, die eher die Systemebene (Makroebene) untersuchen, d.h. gesamtgesellschaftliche Folgen des Sozialkapitals hervorheben, von solchen Ansätzen, die sich auf den Einfluss des Sozialkapitals auf Individuen und Beziehungen zwischen Individuen (Mikroebene) konzentrieren (Coleman, 1988b; Westle und Gabriel, 2008). Aufgrund der starken Korrespondenz zur Sozialkapitaltheorie tritt die soziale Netzwerkanalyse auch auf beiden Ebenen auf. Der Unterschied zwischen beiden Herangehensweisen besteht vor allem darin, ob man die Beziehungen zwischen mehreren Einheiten betrachtet (Gesamtnetzwerk) oder das Netzwerk aus der Perspektive von Ego untersucht (Pappi, 1987). Die egozentrierte und soziozentrierte Netzwerkanalyse korrespondiert mit den entsprechenden Aspekten des Sozialkapitals auf den beiden Ebenen (Westle und Gabriel, 2008) (siehe Abbildung 7.1).

Figure 7.1.: Sozialkapital auf Makro- und Mikroebenen



Quelle: Westle und Gabriel, 2008

Die Popularität des Sozialkapitalansatzes in der Politikwissenschaft geht vor allem auf

die Arbeit von Putnam zur Performanz der Demokratie in Italien zurück (Putnam et al., 1993). Putnam et al. (1993) definieren Sozialkapital als '...features of social organization, such as trust, norms, and networks, that can improve the efficiency of society by facilitating coordinated actions' und betonen die Partizipation der Menschen mit sozialer und politischer Einbindung, wobei ein hohes Maß an Einbindung ihrer Ansicht nach positiv auf die Leistung der Regierung wirkt. Soziale Netzwerke und das durch sie produzierte Vertrauen stehen nach Putnam et al. (1993) im Mittelpunkt der Entstehung sozialer Kooperation, sodass kollektive politische Ziele mit weniger Aufwand zu erreichen sind. Darüber hinaus reduzieren sich die Kontroll- und Verhandlungskosten. Die Zivilgesellschaft wird nach Putnam durch soziale Netzwerkstrukturen (Vereine, Verbände und Parteien) gebildet, wo Kooperation, Vertrauen und zivile Partizipation verstärkt werden.

Neben der Analyse der *Government Performance* mithilfe der Sozialkapitaltheorie (Putnam et al., 1993) gibt es innerhalb der Politikwissenschaft vielfältige Bereiche (Internationale Beziehungen unter der Globalisierung sowie Vertrags-, Handels- und Kommunikationsnetzwerke von Staaten und NGOs) und Anwendungen, die ihre Auswertungen aufgrund der Sozialen Netzwerkanalyse vornehmen. Vor allem handelt es sich dabei um zwei Konzepte: *Politiknetzwerke* und *egozentrierte Netzwerke*, die sich entsprechend den beiden Herangehensweisen in Datenerhebung und Datenauswertung unterscheiden (Serdült, 2002). Während Politiknetzwerke die Auswirkungen des Zusammenspiels von unterschiedlichen exekutiven, legislativen, judikativen und gesellschaftlichen Institutionen und Gruppen bei der Entstehung, Entscheidung und Durchführung von staatlichen Maßnahmen innerhalb eines thematisch abgegrenzten Politikfeldes abbilden, spiegeln die egozentrierten Netzwerke das soziale Umfeld der einzelnen Wähler wider und repräsentieren den Zugang von Ego zu sozial wichtigen Informationen. Im Vergleich zu Politiknetzwerken, die ein Teil der Erklärung eines politischen Prozesses sind und dazu beitragen, Entscheidungsfindungs- und Implementationsstrukturen innerhalb eines Politikbereichs zu analysieren, tragen die egozentrierten Netzwerke dazu bei, Wahl und Abstimmungsergebnisse auf der Mikroebene zu untersuchen (Serdült, 2002).

Die Pionierstudien zum Einfluss der sozialen Netzwerke auf die politischen Wahlen führte schon in den vierzigern Jahren die Columbia-Schule durch (Lazarsfeld, 1950; Lazarsfeld und Henry, 1968; Berelson et al., 1954; Katz und Lazarsfeld, 1955). Aufgrund, dass es die Wähler gibt, die gleichzeitig zu mehreren Gruppen mit unterschiedlichen politischen Interessen gehören und daher dem sog. *cross pressure* (Lazarsfeld et al., 1968; Berelson

et al., 1954; Campbell et al., 1960) ausgesetzt sind, etabliert sich in Sozialforschung das Konzept sozialer Netzwerke. Nach diesem Konzept wird mit Hilfe der netzwerkanalytischen Methode der Einfluss des sozialen Umfeldes auf die Wähler in die Analyse einbezogen, sodass ein Wähler nicht nur von einem Diskussionspartner Informationen erhält und sich davon beeinflussen lässt, sondern diese mit den weiteren Informationen in seinem Netzwerk vergleicht und dann entscheidet, ob er davon überzeugt ist. Huckfeldt et al. (2004) stellen in ihrer Analyse der egozentrierten Netzwerke fest, dass die Wähler von einem Netzwerk mit konsistenten Präferenzen mehr beeinflusst werden als von einem mit weniger konsistenten Präferenzen.

Das Grundmodell eines egozentrierten Netzwerkes basiert auf der Beziehung zwischen einem *Ego* genannten Individuum zu einer *Alter* genannten Person und den Beziehungen zwischen den mehreren möglichen Alteri untereinander. Da Ego in der sozialen Realität in eine Vielzahl von Beziehungen mit Alteri eingebettet ist, wird Ego mit einem sogenannten Namensgenerator aufgefordert, Personen zu nennen, zu denen Ego soziale Beziehungen unterhält, wobei für diese Alteri zusätzliche Angaben wie Alter, Geschlecht, Bildungsniveau, politische Einstellungen erfragt werden. Die grundlegenden Maße zur Charakterisierung eines Ego-Netzwerkes, die in vorliegenden Beiträgen verwendet wurden, sind *Netzwerkgröße* (Zahl der Alteri), *Netzwerkdichte* (Verhältnis der vorhandenen Beziehungen im Netzwerk zur Zahl der möglichen Beziehungen) sowie *Netzwerkambivalenz* (zu welchem Maß die untereinander konkurrierenden Einstellungen aller Alteri eines Egos unterschiedlich sind). Die weiteren Netzwerk charakterisierenden Merkmale sowie die Konzepte und Methoden der sozialen Netzwerkanalysen sind in Knoke und Kuklinski (1982), Pappi (1987), Wasserman und Faust (1994), Pappi (1987), Jansen (2003), Scott (1991, 2000), Jackson (2008) detailliert beschrieben.

7.2. Empirische Wählerforschung

Die moderne Wahlforschung basiert auf quantitativen Entscheidungsmodellen, die auf der Grundlage von repräsentativen Befragungsdaten mit Hilfe von ökonometrischen Methoden spezifiziert werden. Methodisch hat sich in der empirischen Wahlforschung heute das probabilistische Wählermodell als Standardansatz bewährt, welches grundsätzlich alle relevanten Elemente der unterschiedlichen sozialpsychologischen, soziologischen und räumlichen Wählertheorie integriert und geeignet ist, die relative Bedeutung der im obigen Abschnitt herausgearbeiteten politikorientierten und nicht-politikorientierten Wahlmotive

abzubilden (Pappi und Shikano, 2007; Adams et al., 2005).

Nach der probabilistischen Entscheidungstheorie wird das Wählen als Selektion zwischen Alternativen konzipiert. Diese Selektion erfolgt auf der Basis der Bewertung von einzelnen Alternativen. Im Rational-Choice-Ansatz wird die Bewertung der Alternativen explizit als Nutzen formuliert. In probabilistischen Modellen wird angenommen, dass der Nutzen, den ein Individuum einer Partei zuordnet, aus zwei Komponenten besteht: einer deterministischen Nutzenkomponente, die aufgrund beobachteter Charakteristika kalkulierbar ist, und einer stochastischen Error-Komponente, die grundsätzlich nicht beobachtbar ist. Die deterministische Nutzenkomponente kann unterschiedliche Komponenten beinhalten, die mit den oben genannten unterschiedlichen Wählermotiven korrespondieren (Pappi und Shikano, 2007). Der räumlichen Nutzentheorie¹ von Enelow und Hinich (1984) folgend kann die politikorientierte Komponente als gewichtete euklidische Distanz (ED) oder gewichtete quadrierte euklidische Distanz (QED) zwischen der eigenen Wählerposition (x_{ni}) und der jeweiligen Parteiposition (s_{nj}) auf relevante Politikdimensionen modelliert werden:

$$ED = \sqrt{\sum_n \beta_n (x_{ni} - s_{nj})^2}$$

$$QED = \sum_n \beta_n (x_{ni} - s_{nj})^2$$

Alternativ zu der euklidischen Distanz gibt es aber auch andere räumliche Nutzenfunktionen, z.B. das Richtungsmodell von Rabinowitz und Macdonald (1989). Eine interessante Erweiterung der räumlichen Wählermodelle geht auf Hinich et al. (2004) zurück, die das ursprüngliche Modell von Downs mit dem Richtungsmodell von Rabinowitz zu einem gemeinsamen räumlichen Modell vereint (Hinich et al., 2004; Henning et al., 2007).

Bereits Enelow und Hinich (1984) haben neben der politikorientierten Nutzenkomponente eine weitere sogenannte Valenzkomponente² eingeführt, die nicht auf die Politik bezogene Faktoren abhebt. Inhaltlich lässt sich die Bedeutung von nicht auf die Politik bezogenen Determinanten für die Bewertung und Wahl von Parteien dadurch erklären, dass individuelle Wähler nur begrenzte Informationen hinsichtlich der Wirkung von Politiken auf ihre Wohlfahrt haben, deshalb benutzen sie andere nicht auf die Politik bezogene

¹Obwohl die Theorie der räumlichen Modellen sich in den letzten Jahren erheblich entwickelt hat, gehen ihre theoretischen Grundlagen auf die Arbeiten von Hotelling (1929); Downs (1957); Black (1958) zurück

²Die Valenzkomponente wird in einer Reihe von neueren Studien (Abney et al., 2011; Clarke et al., 2011; Johns, 2011; Hummel, 2010; Ashworth and Bueno de Mesquita, 2009; Lupia and Menning, 2009; Schofield, 2004, 2003; Ansolabehere and Snyder, 2000) verstärkt untersucht

Indikatoren, um den Teilnutzen, den sie durch die Wahl einer speziellen Partei erwarten können, abzuschätzen. Eine Möglichkeit dies zu tun kann z.B. die Affinität einer Partei zu bestimmten sozialen oder ethnischen Gruppen abzuschätzen sein. Dabei macht es Sinn, dass diese auf Politik unabhängigen Kompetenzeinschätzungen der Parteien systematisch für bestimmte sozioökonomische Gruppen variieren, so dass diese Teilkomponente neben parteispezifischen Charakteristika auch von individuellen Wählercharakteristika wie Alter, Geschlecht, Beruf, Bildung, Einkommen, etc. (Z) abhängen kann. Eine spezielle individuelle Wählercharakteristik korrespondiert mit der von Wählern individuell wahrgenommenen Performanz der Parteien in vorangegangenen Legislaturperioden, diese wird auch als Parteiloyalität interpretiert (vgl. Pappi und Shikano 2007). Weiterhin wird als weitere spezielle Nutzenkomponente, die von Wählern in der letzten Legislaturperiode beobachtete eigene ökonomische Entwicklung bzw. die beobachtete regionale oder nationale ökonomische Entwicklung, als Bewertungskriterium der Parteien herangezogen. Dieser Aspekt der Bewertung von Parteien durch den Wähler wird als retrospektives Wählen bezeichnet (Fiorina, 1981).

7.3. Probabilistische Wählermodelle

In der Wahl- und Wählerforschung³ wird das Wählen als Selektion zwischen Alternativen konzipiert. Diese Selektion erfolgt auf der Basis der Bewertungen von einzelnen Alternativen. Im Rational-Choice-Ansatz wird die Bewertung der Alternativen explizit als Nutzen angesprochen. Die auf diesem Ansatz basierenden probabilistischen Wählermodelle gehen davon aus, dass ein Wähler i als rationaler Nutzenmaximierer sich verhält und aufgrund dessen diejenige Alternative j wählt, die ihm den größten Nutzen bringt:

$$U_i(j) > U_i(j'), \forall j \neq j'. \quad (7.1)$$

In probabilistischen Modellen wird angenommen, dass der Nutzen $U_i(j)$ vom Individuum i für Partei j als Komposition von zwei Komponenten darstellbar ist: zum einen, deterministische Komponente $V_i(j)$, die aufgrund der beobachteten Charakteristika kalkulierbar ist, zum anderen stochastische Nutzenkomponente ϵ_{ij} , wobei die stochastische

³Eine detaillierte Einführung in die Modellierung des politischen Verhaltens der Wähler sowie angewandte multivariate Analyseverfahren der Soziologie und Politikwissenschaften sind in Thurner (1998); Andreß et al. (1997) gegeben.

Nutzenkomponente über alle Alternativen und Individuen unabhängig voneinander, identisch und extremwert verteilt sind (Train, 2003). Der zu schätzende Nutzen nimmt dann die folgende Form an:

$$U_i(j) = V_i(j) + \epsilon_{ij} = - \sum_n \beta_n (x_{ni} - s_{nj})^2 + \epsilon_{ij}, \quad (7.2)$$

wobei die deterministische politische Komponente $V_i(j)$ den Nutzen darstellt, der mithilfe z.B. quadratischer Nutzenfunktion aufgrund den generischen (*Policy*-Variablen) gebildet wird. Die *Policy*-Variablen sind im Sinne der räumlichen Modelle die in einzelnen politischen n -Dimensionen berechneten Euklidischen Distanzen, wobei das negative Zeichen vor den Distanzen bedeutet: je kleiner die Distanz zwischen Position des Wählers i und Position der Partei j ist, desto größer ist der Nutzen.

Um abzuschätzen, inwiefern die individuellen *Nonpolicy*-Charakteristika (z.B. Alter, Ausbildung, Einkommen, religiöse Zugehörigkeit) die individuelle Wahlentscheidung beeinflussen, können auch diese Charakteristika in die deterministische Komponente des Modells aufgenommen werden. Diese Variablen sind alternativenspezifisch, weil die Regressionskoeffizienten γ_{jl} über die Alternativen unterschiedlich sind:

$$U_i(j) = \alpha_{ij} + \sum_l \gamma_{jl} t_{il} + \sum_n \beta_n (x_{ni} - s_{nj})^2 + \epsilon_{ij}, \quad (7.3)$$

wobei t_{il} individuelle l -Charakteristika von Wähler i ist.

Aufgrund der Tatsache, dass die politischen Determinanten gegenüber den unpolitischen Komponenten bei der Schätzung des individuellen Wählernutzens gestellt werden, lassen sich die politikorientierten Wahlen von ideologischen Wahlen unterscheiden und empirisch schätzen. Beruht die Wahlentscheidung auf individuellen politischen Einstellungen, wird von *politikorientierten* Wahlen gesprochen, die mithilfe der Euklidischen Distanzen in einem mehr dimensional Policy-Raum aufgrund der aus Umfrage erhaltenen politischen Positionen geschätzt werden. Wählen dagegen die Wähler aufgrund der *Nonpolicy*-Faktoren, finden die *ideologischen* Wahlen statt. Von politischen und ideologischen Wahlen sind auch die *retrospektiven* Wahlen zu unterscheiden, in denen der zeitliche Bezug der Wählerurteile und Erwartungen über das Regierungshandeln bezüglich öffentlicher Güter berücksichtigt wird (Hinich und Munger, 1994; Pappi und Shikano, 2007; Alvarez, 1996).

7.3.1. Das MNL-Modell

Die Methode, mit der die Nutzenfunktion den einzelnen Wahlalternativen zugeordnet wird, ist das diskrete Entscheidungsmodell (*Discrete Choice Model*), welches als Standard etabliert ist und die Parameter dessen mithilfe des multinomialen (oder konditionalen⁴) Logit-Modells (MNL) empirisch schätzbar sind (Adams et al., 2005; Temme, 2007; Thurner, 1998; Andreß et al., 1997). Die MNL-Modelle untersuchen den Zusammenhang einer kategorialen abhängigen Variablen und einer oder mehrerer unabhängiger Variablen, die sowohl metrisch als auch kategorial skaliert sein können, und werden somit als eine Erweiterung der logistischen Regression im Fall einer abhängigen Variable mit mehr als zwei diskreten Merkmalen gesehen (Temme, 2007).

In allen diskreten Entscheidungsmodellen ist das absolute Niveau des Nutzens irrelevant. Die Tatsache, dass die Wahlwahrscheinlichkeit $P_{ij} = \text{Prob}(U_{ij} > U_{ik}) = \text{Prob}(U_{ij} - U_{ik} > 0)$ nur von der Nutzendifferenz abhängig ist, hat die Implikation auf die Spezifizierung in Logit-Modellen, sodass die Wahrscheinlichkeit P_{ij} als Verhältnis von Exponenten einer deterministischen Komponente und der Summe allen Exponenten geschätzt wird:

$$P_{ij} = \frac{e^{V_i(j)}}{\sum_K e^{V_i(k)}}. \quad (7.4)$$

Beim Anschauen der Odds (Relation von Wahrscheinlichkeiten) wird es klar, dass lediglich die Differenz zwischen zwei Nutzen aus unterschiedlichen Alternativen für die Wahlentscheidung von Bedeutung ist (Thurner, 1998). Für jedes Alternativenpaar j und h lässt sich folgende lineare Logitform bilden:

$$\frac{P_{ij}}{P_{ih}} = e^{(V_i(j) - V_i(h))} = e^{((\alpha_{ij} - \alpha_{ih}) + \sum_l (\gamma_{jl} - \gamma_{hl})t_{il} + \sum_n \beta_n (d_{nij} - d_{nih}))} \quad (7.5)$$

$$(7.6)$$

$$\ln\left(\frac{P_{ij}}{P_{ih}}\right) = V_i(j) - V_i(h) = (\alpha_{ij} - \alpha_{ih}) + \sum_l (\gamma_{jl} - \gamma_{hl})t_{il} + \sum_n \beta_n (d_{nij} - d_{nih})$$

Bei der logistischen Regression ist die abhängige Variable ein logarithmiertes Wahrscheinlichkeitsverhältnis. Die Regressionskoeffizienten der logistischen Regression bezeichnen deswegen die Veränderung im logarithmierten Wahrscheinlichkeitsverhältnis, dass eine Alternative eintritt, wenn eine unabhängige Variable um eine Einheit ansteigt. Die Ko-

⁴Multinomiale und konditionale Logit Modelle lassen sich systematisch in das allgemeine Logit-Modell überführen (Thurner, 1998; Andreß et al., 1997)

effizienten sind schwer zu interpretieren und man beschränkt sich deswegen darauf, die Vorzeichen der Koeffizienten zu vergleichen. Es ist wichtig zu erwähnen, dass es zwei unterschiedliche Arten der Kodierung der unabhängigen Variablen gibt, *Dummykodierung* und *Effektkodierung*. Bei Dummykodierung benutzt man eine Referenzkategorie (eine Alternative), mit der alle anderen Alternativen verglichen werden. Bei der Dummykodierung schätzen die Regressionskoeffizienten die Abweichung des Logits in der betrachteten Kategorie (Alternative) vom Logit der Referenzkategorie. Die Effektkodierung unterscheidet sich von der Dummykodierung dadurch, dass es bei der Effektkodierung keiner Referenzkategorie gibt und die Regressionskoeffizienten die Differenz der Logits zum arithmetischen Mittel der Logits über aller Alternativen messen. Welche Kodierung gewählt wird, ist für die Modellschätzung unwichtig. Die geschätzten bedingten Wahrscheinlichkeiten sind bei beiden Kodierungen gleich (Andreß et al., 1997). Man spricht von unterschiedlichen Re-parametrisierungen eines Logitmodells (Andreß et al., 1997). Im Rahmen dieser Arbeit wurden Modelle mit Effektkodierung geschätzt (Vermunt und Magidson, 2005).

7.3.2. Die Parameterschätzung

Die von McFadden (1974) präsentierte *Maximum Likelihood Estimation* (ML) ist am meisten verwendete Schätzungsmethode und wird in der folgenden Form geleitet (Temme, 2007):

$$L(C) = \prod_{i=1}^I \prod_{j \in J} P_i(j)^{y_{ji}}$$

wobei C unbekannter Parametervektor ist. y_{ji} nimmt 1 an, wenn der Entscheidungsträger i eine Alternative j auswählt, und sonst null. Die Log-Likelihoodfunktion wird durch Logarithmieren bestimmt, die optimiert werden muss:

$$LL(C) = \sum_i \sum_j y_{ji} \ln(P_i(j))$$

An der Stelle, wo $LL(C)$ maximiert wird, ergibt sich der Schätzer für den Parametervektor C .

7.4. Latent-Class-Modelle

Im Gegensatz zu multinomialen logistischen Modellen (MNL), die seit vielen Jahren eine fundamentale Basis für die Discrete-Choice-Modelle darstellen und eine große Einschrän-

kung hinsichtlich der IIA-Annahme aufweisen (Interdependence of Irrelevant Alternatives)⁵, lassen sich Mixed-Logit- (MLM) und Latent-Class-Modelle (LCM) in der empirischen Forschung auch dann verwenden, wenn eine Verletzung dieser Annahme vorliegt und/oder unbeobachtete Heterogenität zwischen den Entscheidungsträgern existiert (Temme, 2007). Die großen Vorteile der Latent-Class Modelle sind eine höhere Handhabbarkeit, Plausibilität und statistische Prüfbarkeit, weil die Annahme über die Verteilung der Heterogenität determinierenden Parameter nicht spezifiziert werden muss.

Die Latent-Class-Modelle sind als eine logistische Erweiterung der probabilistischen Wählermodelle anzusehen (Lazarsfeld und Henry, 1968; Vermunt und Magidson, 2005), die ein tieferes Verständnis der Determinanten von ideologischen und politikorientierten Wahlen liefern können. Mithilfe der Latent-Class-Analyse (LCA) können die Wähler nach Heterogenität in ihren sozioökonomischen Charakteristika und politischen Präferenzen untersucht werden, sodass durch die ermittelte probabilistische Zugehörigkeit der Wähler zu einer oder einer anderen latenten Klasse analysiert werden kann, welche Wählerklassen ideologischer wählen. Der Unterschied zum MNL-Modell besteht in der Nutzenfunktion. Beim Latent-Class-Modell werden zusätzliche segmentspezifische Parameter (Kovariaten) geschätzt, die eine Klassenzugehörigkeit erklären. Die Wahrscheinlichkeitsdichte nimmt dann die folgende Form an (Vermunt und Magidson, 2005):

$$P(\mathbf{y}_i) = \sum_{x=1}^X P(x | \mathbf{z}_i^{cov}) \prod_{t=1}^{T_i} P(y_i | x, \mathbf{d}_{it}^{att}, \mathbf{k}_{it}^{pre}), \quad (7.7)$$

wo Klassenzugehörigkeit des Individuums i vom Kovariatenvektor \mathbf{z}_i^{cov} abhängig ist. Die Wahrscheinlichkeit der Klassenzugehörigkeit $P(x | \mathbf{z}_i^{cov})$ hat die folgende Form:

$$P(x | \mathbf{z}_i^{cov}) = \frac{\exp(\eta_{x|z_i})}{\sum_X \exp(\eta_{x'|z_i})} \quad (7.8)$$

mit linearem Term:

$$\eta_{x|z_i} = r_{0x} + \sum_{h=1}^H r_{hx} z_{ih}^{cov}, \quad (7.9)$$

⁵Gemäß IIA-Annahme ist der relative Nutzen einer Alternative im Vergleich zu einer anderen unabhängig gegenüber der Existenz einer dritten Alternative

wobei r_{hx} einen Einfluss der Kovariate z_{ih}^{cov} auf das Determinieren der Klasse x abbildet.

7.5. Marginale Effekte

Die geschätzten Parameter geben die Einflussstärke der unabhängigen Variablen auf die abhängige Entscheidungen für eine Alternative an. Der Regressionskoeffizient der logistischen Regression ist schwer zu interpretieren, denn die abhängige Variable bildet logarithmierte Wahrscheinlichkeitsverhältnisse zwischen den Alternativen ab. Der Regressionskoeffizient bezeichnet den Einfluss einer unabhängigen Variable auf die Logits einer Kategorie versus der anderen alternativen Kategorie einer abhängigen Variablen. Da es sich um eine nicht-lineare Funktion handelt, verändern sich die logarithmierten Odds (Wahrscheinlichkeitsverhältnisse) nicht konstant über den gesamten Wertebereich der unabhängigen Variablen, sondern in Abhängigkeit von deren jeweiligen Ausprägungen (Thurner, 1998).

Während die Regressionskoeffizienten einen Effekt der unabhängigen Variable auf die Wahrscheinlichkeitsverhältnisse darstellen, sind die empirischen Analysen oft daran interessiert, die direkten Effekte der Prädiktoren auf die Wahrscheinlichkeit der Wahl einer Alternative zu ermitteln. Diese partielle Ableitungen werden auch marginale Effekte genannt. Die partiellen Ableitungen zeigen, wie sich die Wahrscheinlichkeit der Wahl einer Alternative prozentual bei Veränderung der unabhängigen Variablen um eine Einheit ändert. Ausgehend davon, dass die Variablen in generischen (Attributen) und alternativenspezifischen Variablen sich unterscheiden, werden entsprechend ihre marginale Effekte in verschiedener Weise berechnet. Aufgrund einer Relation der unterschiedlichen marginalen Effekte werden in Rahmen dieser Arbeit unterschiedliche Indikatoren gebildet. Diese Relation spiegelt eine relative Wichtigkeit der *Non-policy*-Komponente zu einer *Policy*-Komponente wider und korrespondiert mit einer Grenzrate der Substitution.

Ableitung der marginalen Effekte für alternativenspezifische (Non-policy) Variablen

Sei t_{li} eine alternativenspezifische Variable l für Individuum i , wie z.B. Alter, Ausbildung oder Einkommen. Es gibt J Alternativen mit $1..j \in J$. Die Wahrscheinlichkeit, dass Individuum i die erste Alternative wählt ist:

$$P_{i1} = \frac{e^{U_{i1}}}{\sum_{j=1}^J e^{U_{ij}}}$$

Die Wahrscheinlichkeit, dass Individuum i die erste Alternative nicht wählt, ist dagegen:

$$1 - P_{i1} = \sum_{j=2}^J P_{ij} = 1 - \frac{e^{U_{i1}}}{\sum_{j=1}^J e^{U_{ij}}} = \frac{\sum_{j=1}^J e^{U_{ij}}}{\sum_{j=1}^J e^{U_{ij}}} - \frac{e^{U_{i1}}}{\sum_{j=1}^J e^{U_{ij}}} = \frac{\sum_{j=2}^J e^{U_{ij}}}{\sum_{j=1}^J e^{U_{ij}}}$$

Dann werden die marginalen Effekte für die erste Alternative als die Ableitung der entsprechenden Wahrscheinlichkeit bezüglich dieser Variable folgendermaßen berechnet:

$$\begin{aligned} \frac{\partial P_{i1}}{\partial t_{i1}} &= \frac{\frac{\partial e^{U_{i1}}}{\partial t_{i1}} * \left(\sum_{j=1}^J e^{U_{ij}} \right) - e^{U_{i1}} * \frac{\partial \left(\sum_{j=1}^J e^{U_{ij}} \right)}{\partial t_{i1}}}{\left(\sum_{j=1}^J e^{U_{ij}} \right)^2} = \\ &= \frac{e^{U_{i1}} * \frac{\partial U_{i1}}{\partial t_{i1}} * \left(\sum_{j=1}^J e^{U_{ij}} \right) - e^{U_{i1}} * \left(e^{U_{i1}} * \frac{\partial U_{i1}}{\partial t_{i1}} + e^{U_{i2}} * \frac{\partial U_{i2}}{\partial t_{i1}} + \dots + e^{U_{iJ}} * \frac{\partial U_{iJ}}{\partial t_{i1}} \right)}{\left(\sum_{j=1}^J e^{U_{ij}} \right)^2} = \\ &= \frac{e^{U_{i1}} * \gamma_{i1} * \left(\sum_{j=1}^J e^{U_{ij}} \right) - e^{U_{i1}} * \left(e^{U_{i1}} * \gamma_{i1} + e^{U_{i2}} * \gamma_{i2} + \dots + e^{U_{iJ}} * \gamma_{iJ} \right)}{\left(\sum_{j=1}^J e^{U_{ij}} \right)^2} = \\ &= \frac{e^{U_{i1}} \sum_{j=1}^J e^{U_{ij}} \left(\gamma_{i1} - \frac{e^{U_{i1}} * \gamma_{i1} + e^{U_{i2}} * \gamma_{i2} + \dots + e^{U_{iJ}} * \gamma_{iJ}}{\sum_{j=1}^J e^{U_{ij}}} \right)}{\left(\sum_{j=1}^J e^{U_{ij}} \right)^2} = \\ &= \frac{e^{U_{i1}} \left(\gamma_{i1} - \frac{e^{U_{i1}} * \gamma_{i1} + e^{U_{i2}} * \gamma_{i2} + \dots + e^{U_{iJ}} * \gamma_{iJ}}{\sum_{j=1}^J e^{U_{ij}}} \right)}{\sum_{j=1}^J e^{U_{ij}}} = \\ &= P_{i1} * \left(\gamma_{i1} - \frac{e^{U_{i1}} * \gamma_{i1} + e^{U_{i2}} * \gamma_{i2} + \dots + e^{U_{iJ}} * \gamma_{iJ}}{\sum_{j=1}^J e^{U_{ij}}} \right) = \\ &= P_{i1} * \left(\gamma_{i1} - \sum_{j=1}^J \frac{e^{U_{ij}}}{\sum_{j=1}^J e^{U_{ij}}} \gamma_{ij} \right) = \\ &= P_{i1} * \left(\gamma_{i1} - \sum_{j=1}^J P_{ij} \gamma_{ij} \right) = P_{i1} * \left(\gamma_{i1} - P_{i1} \gamma_{i1} - \sum_{j \neq 1}^J P_{ij} \gamma_{ij} \right) = \\ &= P_{i1} * \left(\gamma_{i1} (1 - P_{i1}) - \sum_{j \neq 1}^J P_{ij} \gamma_{ij} \right) = P_{i1} (1 - P_{i1}) \left(\gamma_{i1} - \sum_{j \neq 1}^J \frac{P_{ij}}{(1 - P_{i1})} \gamma_{ij} \right) = \end{aligned}$$

$$= P_{i1} (1 - P_{i1}) (\gamma_{i1} - \bar{\gamma}_{lj})$$

$$\text{wobei } \bar{\gamma}_{lj} = \sum_{j \neq 1}^J \left[\frac{P_{ij}}{\sum_{j \neq 1}^J P_{ij}} \gamma_{lj} \right]$$

Ableitung der marginalen Effekte für generische (Policy) Variablen

Sei d_{i1}^n eine generische Variable für Individuum i bezüglich der ersten Alternative, z.B. Euklidische Distanz zwischen dem Individuum und Partei 1 in einem n -dimensionalen Raum. Die Veränderung der Wahrscheinlichkeit, wenn die Distanz d_{i1}^n sich ändert, ist:

$$\begin{aligned} \frac{\partial P_{i1}}{\partial d_{i1}^n} &= \frac{\frac{\partial e^{U_{i1}}}{\partial d_{i1}^n} \left(\sum_{j=1}^J e^{U_{ij}} \right) - e^{U_{i1}} \frac{\partial \left(\sum_{j=1}^J e^{U_{ij}} \right)}{\partial d_{i1}^n}}{\left(\sum_{j=1}^J e^{U_{ij}} \right)^2} = \\ &= \frac{e^{U_{i1}} \frac{\partial U_{i1}}{\partial d_{i1}^n} \left(\sum_{j=1}^J e^{U_{ij}} \right) - e^{U_{i1}} e^{U_{i1}} \beta_n}{\left(\sum_{j=1}^J e^{U_{ij}} \right)^2} = \\ &= \frac{e^{U_{i1}}}{\sum_{j=1}^J e^{U_{ij}}} \beta_n - \frac{e^{U_{i1}} e^{U_{i1}}}{\left(\sum_{j=1}^J e^{U_{ij}} \right)^2} \beta_n = \beta_n \frac{e^{U_{i1}}}{\sum_{j=1}^J e^{U_{ij}}} \left(1 - \frac{e^{U_{i1}}}{\sum_{j=1}^J e^{U_{ij}}} \right) = P_{i1} (1 - P_{i1}) \beta_n \end{aligned}$$

Offensichtlich ist die Steigerung der Wahrscheinlichkeit am größten bei einer Wahrscheinlichkeit von 0,5 und wird zunehmend kleiner, je mehr man sich 0 bzw. 1 annähert. Um eine globale Kennziffer zu erhalten ist es möglich, die einzelnen durch die unabhängige Variable induzierten Veränderungsrate aufzusummieren und den Mittelwert über alle individuellen Veränderungsrate zu bilden (Thurner, 1998). Mittlere prozentuale Veränderungsrate geben an, wie sich die Auswahlwahrscheinlichkeiten einer jeden Alternative im Durchschnitt prozentual verändern, wenn sich der Wert einer unabhängigen Variable um eine Einheit ändert.

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8. Kapitel

Schlussbetrachtung

Diese Arbeit entstand vor dem Hintergrund, politik- und nicht-politikorientierte Wahlmotive, die durch bestimmte sozioökonomische Charakteristika der Wähler determiniert werden, zu untersuchen und somit zu einem besseren Verständnis des komplexen Zusammenhanges zwischen den politischen Wahlen und *Government Performance* in postsozialistischen Ländern beizutragen. Im Rahmen dieser Arbeit wird unter *Government Performance* das Vorhandensein der Anreizstrukturen verstanden, die einer Regierung (Machtpartei) ein Signal geben, in welchem Maße die Regierung sich anstrengen soll, um ihre Chancen, wieder gewählt zu werden, zu erhöhen.

Der Fokus der Untersuchungen lag dabei auf Industrieländern, der Slowakei, Polen und Russland, die jedoch in ihrer historischen Entwicklung unterschiedlich stark vom sozialistischen System geprägt sind. Durch das Aufgreifen bestehender Theorien und Weiterführen der innovativen empirischen Methoden der probabilistischen Wählerforschung wurden bestehende Kenntnisse erweitert und theoretisch postulierte Zusammenhänge bestätigt. Einen besonderen Anteil lieferte hierbei die Schätzung der probabilistischen Modelle mithilfe der bislang in Wählerforschung nicht breit genutzten Latent-Class-Analysen, die eine Einbettung aller die Wahlen determinierenden Komponenten erlauben. Darüber hinaus lieferte die Einbeziehung sozialer Netzwerke einen zusätzlichen Erklärungsbeitrag zu der Diskussion unterschiedlicher Wissenschaftsdisziplinen über die Bedeutung sozialer Netzwerke.

Die in dieser Arbeit vorgelegte empirische Anwendung der Latent-Class-Modelle stellt sich als eine plausible Methode für die Ermittlung des heterogenen Wählerverhaltens in der Wählerforschung dar. Die Ergebnisse der verschiedenen Beiträge zeigen, dass das Verhalten der Wähler im politischen Prozess in Abhängigkeit von ihren sozialen, ökonomischen, kulturellen und politischen Charakteristika sehr heterogen sein kann. Aus diesem Grund werden alle Wahlmotive in 'politik-orientierte', 'ideologische' und 'retrospektive' Komponente aufgeteilt. Während die 'politik-orientierte' Komponente die politischen Präferenzen der

Wähler im mehrdimensionalen *Policy*-Raum widerspiegelt, bildet eine 'ideologische' Komponente die *Non-policy*-Präferenzen ab, die unter anderem durch sozioökonomische Charakteristika der Wähler determiniert werden. Durch eine retrospektive Wahlkomponente wird die Analyse eines Einflusses der Zufriedenheit auf das Wahlverhalten ermöglicht.

Als wichtige Indikatoren für *Government Performance* haben sich die relative Größe der 'ideologischen' Komponente sowie der berechnete *Capture*-Index herausgestellt. Auf einer Seite können die ineffizienten Politiken dadurch erklärt werden, dass eine Bevölkerungsgruppe im Vergleich zu einer anderen Bevölkerungsgruppe ein viel größeres politisches Gewicht aufweist. Dies wurde mithilfe des *Capture*-Index untersucht. Die positiven Ergebnisse dieser Annahme wurden am Beispiel zweier Gruppen (Landwirte versus Nicht-Landwirte) in den beiden ersten Beiträgen ermittelt. Auf der anderen Seite kann niedrige *Government Performance* durch die starke Bedeutung der 'ideologischen' Komponente erklärt werden, auch dann, wenn die Diskrepanzen in den politischen Gewichten über unterschiedliche Bevölkerungsgruppen gering ausfallen (d.h. *Capture*-Index ist relativ klein). Die entsprechenden Ergebnisse sind in den beiden letzten Beiträgen zu politischen Wahlen in Russland zu finden.

Testing micropolitical foundation of agricultural protection: Latent Class approach to Slovakia

In diesem Ansatz werden aufgrund der slowakischen Daten zwei Interessengruppen, Landwirte und Nicht-Landwirte, analysiert. Ein erarbeitetes Modell leitet eine theoretische Erklärung dafür ab, dass in einem politischen System mit Verhältniswahlen ein politischer Kandidat die Transferleistungen an Landwirte (Subventionen) dann präferiert, wenn Letztere relativ gesehen besser organisiert sind und stärker politik-orientiert wählen. Die theoretischen Ergebnisse des Modells korrespondieren mit dem bekannten *development paradox*, wenn die relativ größeren Kosten der kollektiven Entscheidungen von Landwirten im Vergleich zu den kleineren und besser organisierten Gruppen des Industriesektors eine Besteuerung des Agrarsektors in Entwicklungsländern verursachen. Außerdem liefert das theoretische Modell die wichtigen Determinanten der Agrarprotektion, d.h. das erwartete Niveau der Agrarprotektion ist umso höher, je höher die relative Wichtigkeit des nicht-politikorientierten Wählens und je größer die Diskrepanz in relativen politischen Gewichten zwischen den Agrariern und anderen Bevölkerungsgruppen ist. Im empirischen Beitrag dieses Ansatzes wird auf die Schätzung der *Discrete-Choice*-Modelle mithilfe der

Latent-Class-Analysen (LCA) (McFadden, 1974; Vermunt und Magidson, 2005) innovativ eingegangen. Diese Art von Modellen geht davon aus, dass ein Wähler bei seiner politischen Wahl sich als Nutzenmaximierer verhält. Im Vergleich zu klassischen logistischen oder Mixed-Logit Modellen jedoch, die keine oder nur teilweise eine Heterogenität in individuellen Charakteristika der Wähler identifizieren können, bieten die LCA-Modelle eine bessere Möglichkeit an, die (latenten) Klassen aufgrund der heterogenen politischen und nicht-politischen Präferenzen der Wähler zu determinieren. Während die Variablen der politischen Komponente der Wähler als die berechneten Distanzen in einem mehrdimensionalen politischen Raum auftreten (Downs, 1957; Hinich und Munger, 1997), werden die sozioökonomischen Charakteristika (Alter, Ausbildung, Einkommen, Zugehörigkeit zu Landwirten, regionale ökonomische Performanz und Distanz zu einer Stadt) als nicht-politische Variablen der Mikro- und Makroebene für die Analyse herangezogen.

Da das empirische Ziel darin besteht, die Bedeutung der ideologischen Wahlen im Vergleich zu politik-orientierten Wahlen für zwei Bevölkerungsgruppen, Landwirte versus Nicht-Landwirte, zu untersuchen, wobei ein handhabungsfähiges Instrumentarium notwendig ist, wird basierend auf einer *Post-logit*-Evaluation des Modells ein *ideologischer Indikator* entwickelt. Der *ideologische Indikator* stellt ein hypothetisches Maß dar und besagt, zu welchem Grad ein Individuum mehr ideologisch wählt, d.h. wie stark soll die politische Komponente hypothetisch erhöht werden, um die ideologischen Vorteile auszugleichen. Des Weiteren werden aufgrund der berechneten relativen politischen Gewichten aus logistischen Schätzungen die theoretischen Hypothesen bestätigt. Tatsächlich ist der berechnete *ideologische Indikator* für Landwirte sowie für die Wähler aus ökonomisch besser entwickelten Regionen signifikant höher als für Nicht-Landwirte und Regionen mit schwacher ökonomischer Performanz, d.h. die Gruppe der Landwirte, die signifikant höhere relative Gewichte aufweisen, wählt tatsächlich mehr politik-orientiert, wobei das durch Landwirte verursachte *Capture* für ländliche Bewohner erheblich größer ist als für städtische. Somit werden in diesem Ansatz die zwei wichtigen Punkte empirisch erläutert: Zum einen hat Zugehörigkeit der Wähler zu Interessengruppen einen signifikanten Einfluss auf politik-orientierte Wahlen und damit letztendlich auf das politische *Outcome*, zum anderen erklären die bestätigte Existenz des Lobbykanals und die stark verzerrten Wähler *beliefs* das hohe Niveau der Agrarprotektion.

Networks as determinants of voter behavior for the farm and non-farm population: An estimation of spatial voting models using Latent Class Analysis

Das theoretische Modell dieses Beitrages leitet das Ergebnis ab, dass mit steigender Unsicherheit der Wählervorstellungen darüber, wie ein politisches System funktioniert, das Gewicht der politischen Präferenzen im Vergleich zu ideologischen Präferenzen sinkt, d.h. je weniger die Wähler informiert sind, desto ideologischer wählen sie. Des Weiteren bietet dieser Beitrag eine Einbettung der sozialen Netzwerke als die Determinante der individuellen Wahlentscheidung in die Latent-Class-Analyse und entfaltet eine evidente Korrespondenz der sozioökonomischen Charakteristika, unter denen auch die egozentrierten sozialen Netzwerke eine bedeutende Rolle spielen, nicht nur mit *ideologischen* Motiven, sondern auch mit politischen Gewichten der Wähler. Neben der praktischen Anwendung des Discrete-Choice-Ansatzes sowie des in der ersten Arbeit entwickelten *Ideologischen Indikatoren* aufgrund der post-logistischen Evaluierung wird die Analyse der politischen Präferenzen sowohl auf Mikro- als auch auf Makroebene unternommen.

Aufgrund der Netzwerkansätze (Lake und Huckfeldt, 1998; Granovetter, 2005), denen zufolge neue Informationen die Menschen mit großen Netzwerken schneller als die Menschen mit kleinen und dichten Netzwerken erreichen, werden neben der unabhängigen Variablen der *Non-Policy*-Dimension (Alter, Ausbildung, Einkommen) auch die weiteren die Netzwerkstruktur charakterisierenden Parameter, Netzwerkgröße und Netzwerkdichte, eingeführt. Aufgrund dessen besteht der Sinn der Modellierung darin, dass die bestimmten Eigenschaften der sozialen Netzwerke, die mithilfe der Netzwerkindikatoren abgebildet werden, den Zufluss der Information zu Wählern im ideologischen Raum erleichtern oder erschweren, so dass die Wähler sich weniger oder mehr *ideologisch* verhalten.

Obwohl der Schwerpunkt dieser Arbeit auf die Untersuchung der Wirkung der sozialen Netzwerke auf die individuelle politische Entscheidung gelegt wird, wird implizit auch auf die strukturellen Unterschiede in sozialen Netzwerken zwischen Landwirten und Nicht-Landwirten eingegangen. Es wird gezeigt, dass Netzwerke sowohl einen Einfluss auf die Präferenzen individueller Akteure haben können (mit steigender Netzwerkdichte und sinkender Netzwerkgröße steigen die ideologischen Präferenzen) als auch eine unterschiedliche Wirkung in Abhängigkeit von der Gruppe und ihrer Struktur aufweisen können (eine besser organisierte Gruppe der Landwirte verfügt über eine größere Stabilität ihrer *ideologischen* Präferenzen). Entsprechend den Ergebnissen kann die Netzwerkdichte positiv auf die ideo-

logische sowie auf politische Wahlkomponente wirken, was als eine kritische Anmerkung bezüglich dieser Analyse angesehen werden kann und auf das Erfordernis einer weiteren Untersuchung der möglichen Bedingungen für dieses soziale Phänomen hinweist.

Social organization of voting and government performance: Theory and empirical application in Poland and Slovakia

Durch die Einbeziehung eines weiteren Netzwerkparameters, Netzwerkambivalenz, stellt dieser Beitrag eine empirische Erweiterung der vorherigen Arbeit dar, wobei die Analyse für zwei EU-Länder, die Slowakei und Polen, komparativ durchgeführt wird. Neben der Einbeziehung der Netzwerkambivalenz wird in diesem Beitrag auf zwei Arten der logistischen Modelle, d.h. endogen determiniertes Latent-Class-Modell mit unbekannter Klassenzugehörigkeit und Latent-Class-Modell mit exogen gegebener (bekannter) Klassenzugehörigkeit, eingegangen. Daher stellt dieser Vergleich eine Grundlage für das tiefere Verständnis der Wahldeterminanten für die ideologische und politik-orientierte Komponente dar. Während die Modelle mit exogener Klassenzugehörigkeit lediglich eine Heterogenität in Präferenzen zwischen Landwirten und Nicht-Landwirten aufweisen, greifen die endogen determinierten Modelle tiefer und ermitteln eine starke Heterogenität in der individuellen Netzwerkambivalenz sowie in Variablen der Makroebene (*regionale ökonomische Entwicklung*).

Dieser Beitrag zeigt die Ähnlichkeiten und Unterschiede im Einfluss der *formalen* und *informellen* Organisation der Wähler auf die ideologischen Wahlmotive in beiden Ländern auf. Erstens ist aufgrund der beiden Arten von Modellen eine Aussage, dass die Landwirte relativ mehr politik-orientiert wählen, nur für die Slowakei möglich. Eine *formale* Zugehörigkeit zu der Gruppe der Landwirte ist in der Slowakei ein wichtiger Faktor, der das politische Verhalten erklärt. Zweitens ist das politische Verhalten der polnischen Landwirte weniger von ihrer *formalen* Organisation, sondern viel mehr von den anderen Mikro- und Makrofaktoren abhängig. Insbesondere ist in Polen der Einfluss der *informellen* Netzwerkkommunikation auf die ideologischen Wahlmotive für Landwirte größer als für Nicht-Landwirte. Drittens beeinflusst in beiden Gruppen und Ländern die Netzwerkambivalenz die ideologischen Wahlmotive signifikant positiv.

Capture in the Russian Parliamentary Elections 2003-2011: Panel Analysis of Voting Motives using Latent Class Approach

Vor dem Hintergrund einer quantitativen Entwicklung und Anwendung eines handhabungsfähigen Instrumentariums für die Untersuchung des individuellen politischen Verhaltens wird in diesem Beitrag die Analyse der politischen Wahlen in Russland anhand der Ermittlung der ideologischen (non-policy) Komponente und aufgrund der 'unbalanced' Paneldaten über drei Wahlperioden durchgeführt. Neben der Anwendung der Heterogenität generierenden Latent-Class-Modelle und ihrer Interpretation sowie einer Ableitung des *Non-policy*-Indikators trägt der Artikel zu einem besseren Verständnis der Determinanten des ideologischen Wählens in Russland bei. Darüber hinaus wird die dynamische Veränderung der ideologischen Komponente aufgezeigt. Die Erfassung der dynamischen Veränderung sowie Bezugnahme auf die Pearson-Korrelation unter Einbeziehung der Mikro- und Makroparameter bietet eine anschauliche Untersuchung der Entwicklung der ideologischen Wahlen.

Ein Interesse weckt eine Erweiterung der Analyse durch die Ermittlung des individuellen politischen Gewichts. Die Berechnung des *Capture*-Koeffizienten für die unterschiedlichen sozioökonomischen Gruppen sowie die Untersuchung der Disparitäten in politischen Gewichten für die ganze Bevölkerung anhand des Gini-Koeffizienten und der Lorenz-Kurve lassen die Rückschlüsse ziehen, dass das Vorhandensein des *Capture* in den politischen Wahlen eines Transformationslandes sich nicht unbedingt nachweisen lässt. Es haben sich nur geringe Diskrepanz in politischen Gewichten der Wähler und das aufgrund dieser Gewichten verhältnismäßig kleine gebildete *Capture* herausgestellt. Von besonderem Interesse ist das Ergebnis der herausgestellten Tendenz der über die Zeit steigenden politikorientierten Motive der jüngeren Bevölkerungsgruppe sowie der Wähler aus zentralen Regionen.

Satisfaction and Media as Determinants of Voting Behavior in Russian Elections 2003-2011

Dieser Artikel bietet eine tiefere Untersuchung der politischen Wahlen in Russland durch die Einbettung der weiteren Parameter, vom Zufriedenheit mit *Government Performance* sowie Medienkanäle, und liefert die Ergebnisse der über die Zeit herausgestellten Senkung der *Government Accountability* im Lande. Die ermittelte Heterogenität in den Wahldeter-

minanten in Abhängigkeit von sozioökonomischen Charakteristika sowie Zufriedenheitsniveau und den Medienkanälen der Entscheidungsträger unterstreicht den in diesem Beitrag gewählten Ansatz der Latent-Class-Analyse. Die ermittelten signifikanten Einflüsse der einbezogenen Variablen bestätigen die Ergebnisse des vorherigen Ansatzes.

Erstens bestätigt der Artikel einen über die Zeit signifikanten Einfluss des Medienkanals *TV* auf die steigenden ideologischen und fallenden politik-orientierten Wahlmotive. Zweitens hängt die große Zufriedenheit der Wähler mit ihrem starken *Non-policy*-Verhalten zusammen und beeinflusst die politik-orientierten sowie retrospektiven Komponenten in negativer Weise. Der über die Zeit stärker werdende Zusammenhang zwischen der Zufriedenheit der Wähler und ihren ideologischen Präferenzen bietet leider keine Anreize für die Prognostizierung der positiven Tendenzen im politischen System Russlands beim Erhalten der aktuellen soziopolitischen und ökonomischen Bedingungen im Lande. Auf der anderen Seite wird das Interesse durch die dynamisch verändernden Tendenzen in Policy-Voting für die jüngere Generation und zentralen Regionen sowie durch die Verstärkung der Diskrepanzen in der retrospektiven Komponente zwischen Parteien geweckt, was die Frage nach den möglichen Auswirkungen dieser Tendenzen infolge der möglichen zukünftigen Verschlechterung der ökonomischen Bedingungen aufwirft. Aufgrund der steigenden Unzufriedenheit und daher der zunehmenden Wichtigkeit der politik-orientierten und retrospektiven Wählermotive ist eine ansteigende Bedeutsamkeit der Wähler im politischen Prozess in Zukunft durchaus möglich.

Im Rahmen dieser Arbeit ist das 'politik-orientierte' Verhalten der russischen Wähler eventuell als kritisch anzumerken, da es vermutlich insgesamt auf einem niedrigen Niveau im Vergleich zu den anderen Ländern liegt, was den Bedarf eines komparativen Vergleichs zu den demokratischen und nicht-demokratischen Ländern aufweist. Angesichts der Tatsache, dass Russland ein präsidentielles Regierungssystem hat und das Parlament über deutlich schwächere legislative Funktionen und Rechte verfügt, ist die Analyse der präsidentiellen politischen Wahlen notwendig. Da die politischen Parteien aufgrund mehrerer mit Parteien assoziierten Persönlichkeiten die amorphen *Non-policy*-Eigenschaften aufweisen und dadurch für die Wähler schwerer als eine konkrete Person *ideologisch* zu charakterisieren wären, ist es zu erwarten, dass die Diskrepanzen zwischen den Wählermotiven in den Schätzungen aufgrund von Daten aus präsidentiellen Wahlen nur noch verschärft werden können.

Der nächste kritische Punkt beinhaltet für die Analyse des Wählerverhaltens die An-

wendung der im Survey vorhandenen Medienkanäle (TV, Radio, Zeitungen) anstatt eines leider nicht vorhandenen Maßes des individuellen Informationsstandes. Die Einbettung der weiteren ideologischen Komponenten (z.B. Parteienidentität und Charakteristika der Parteienleader) sowie die Erweiterung des untersuchten politischen Raums (z.B. über Issues der Außenpolitik) wären für die Aufdeckung der tiefergehenden Determinanten des politik- und nicht-politikorientierten Verhaltens in Zukunft sinnvoll.

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9. Kapitel

Summary

Understanding voting motives is important for explaining democratic processes and (low) Government Performance in both industrialized and transition / developing countries. Transition / developing countries are especially characterized by poor civic participation and low political awareness, which can lead to great capture by local elites and low Government Performance. Therefore, the measurement of policy and non-policy oriented preferences at the micro and macro level, the derivation of *capture* and voting indicators, and the identification of determinants of voting behavior can greatly improve our understanding of the consistency of democratic elections and Government Performance. Since the political behavior of individuals and groups is multidimensional and multifaceted, this work uses a direct estimation of heterogeneous preferences based on discrete choice models and latent class analysis. The complex individual interactions in social environments and dependence on the information milieu require embedding of social networks and informational resources to study the underlying processes in detail.

This dissertation consists of five papers related to policy, non-policy and retrospective voting motives. The papers differ in their theoretical and empirical approaches as well as in the parameters under study because of different empirical aims. The first paper focuses on a theoretical model explaining ideological incentives and a post-logit derivation of a coefficient as a measure of ideological voting. The first paper also compares policy motives between two special groups (farmers and non-farmers) and between low and high performing districts in Slovakia. Paper two is extended via egocentric network parameters and includes a derivation of political weights as well as an investigation of capture and the sources of capture for socio-economic groups at the micro and macro. In the third paper, we compare the ideological motivations of voters in two countries (Slovakia and Poland) as well as an extension via cross pressure (network ambivalence). We then discuss an investigation of exogenous and endogenous heterogeneity of voter preferences.

The two last papers study policy versus non-policy and retrospective motives of Russi-

an voters and changes in the electorate over time. The fourth paper concentrates on the influence of socio-economic characteristics upon an ideological indicator, calculated as a relation of two kinds of individual voting motives. We also analyze a capture and discrepancies of voting motives for different Russian parties. Paper five considers further important voting parameters, individual satisfaction with government performance and information sources (media). It also investigates the relationship and dynamic development between *policy oriented*, *ideological* and *retrospective* voting motives.

Testing micropolitical foundation of agricultural protection: Latent Class approach to Slovakia

This paper uses data for 391 Slovakian households and presents a theoretical and empirical model for the analysis of policy versus non-policy motives between different districts, socio-economic groups (farmers versus non-farmers), and individuals. Theoretically, we show that a level of agricultural protection increases with the falling relative importance of non-policy voting for the agrarian voters in comparison to the relative importance of non-policy voting for the non-agrarian voters. The model explains the well-known 'development paradox'. This theoretical model is a basis for the further empirical estimations. Using the advantages of latent class analysis (Vermunt and Magidson, 2005) based on the endogenous determination of heterogeneous preferences, we estimated the empirical models and derived an ideological indicator by which we compared the different groups. The comparison of farmer and non-farmer groups shows that farmers vote in a more policy-oriented fashion, confirming our theory. Further, we computed the relative political weights and identified a lobby canal with a low relative weight vis-a-vis all voters because of the strongly biased voter beliefs toward agricultural protection.

Networks as determinants of voter behavior for the farm and non-farm population: An estimation of spatial voting models using Latent Class Analysis

The main aim of the second article is to explain the policy-oriented incentives of different population groups by using social network parameters (Lake and Huckfeldt, 1998; Granovetter, 2005), network size and network density, in addition to socio-economic characteristics. This paper provides a theoretical and empirical analysis of the impact of social network structure on voter behavior at the micro level. Using Slovakian data, we find that

social network structure is a significant determinant of ideological preferences and political weights. The voters vote more policy-oriented with increasing network size and decreasing network density. Since the networks effects are more pronounced in the non-farmer group as compared to the farmers, probably because of the local intra-organizational networks of the latter, our empirical application may be basis for future research studies about the (in)stability of social network effects on the policy-oriented behavior of (un)organized groups.

Social organization of voting and government performance: theory and empirical application in Poland and Slovakia

The third article presents an extension of the first and second papers, using data from 569 Polish households. We accounted for individual *network ambivalence* (Nir, 2005), embedded as a measure for network cross-pressure and analyzed the influences of voters' *formal* and *informal* organization on their voting behavior. Using both kinds of models, known class membership corresponding with a pure logit model and unknown class membership based on endogenous determination by a latent factor, we show the differences between policy and non-policy voter incentives emerging from consideration of hidden factors. After the previous papers confirmed the strong influences of *farmer affiliation* and *network structure* on voting behavior in Slovakia, here we confirm the impact of *network ambivalence* on voting behavior in both Poland and Slovakia: ideological voting rises with increasing ambivalence in both farmer and non-farmer groups. Moreover, we find a weaker relationship between a formal organization of Polish voters within a farmer group and their policy-oriented voting motives, compared to Slovak farmers because of the higher organization degree of Slovak farmers.

Capture in the Russian Parliamentary Elections 2003-2011: Panel Analysis of Voting Motives using Latent Class Approach

In the 1990s, Russia started a transformation of its political and economic systems, but the process of democratic development in Russia failed during the 2000s. A non-democratic system induces greater possibilities for special interests. Thus, a persistence of special interests in the form of *state capture* in transition countries is confirmed (The World Bank, 2000). This article seeks to reveal a *capture* presence in the Russian parliamentary elections

in the period 2003-2011. Moreover, based on unbalanced panel data using 4,804 individual questionnaires from a *European social survey* over the three parliamentary legislative periods, this paper examines a dynamic development of policy and non-policy oriented voting incentives. The paper shows a shift of policy oriented voting motives from older voters and distant regions to younger voters and centric regions. Given the capture, although policy-oriented voting is confirmed, the socio-economic groups by which government party is strongly captured are not indicated.

Satisfaction and Media as Determinants of Voting Behavior in Russian Elections 2003-2011

This paper highlights the role of satisfaction and the media to explain the political behavior of Russian voters. The results support the idea that all considered voting components are strongly dependent on the value of satisfaction with government performance, i.e. the more the satisfaction of voters, the more the non-policy voting, and the less the policy and retrospective voting. Thereby, the reinforcing coherence between these, over time, is confirmed. While the changes in retrospective voting are seen mostly moving between the Kremlin party and other parties, changes in policy and non-policy voting proceed among the diverse socio-economic groups, corresponding with the results of the previous article. With regard to information sources, watching TV influences policy-oriented voting negatively. Moreover, the results allow us to form conclusions about government performance, thereby confirming theoretical derivations: For example, low accountability of Russian policy makers in recent times may be due the falling importance of satisfaction for the retrospective voting component and permanently rising importance of satisfaction for ideological motives. Although the importance of *dissatisfaction* to vote in a more policy-oriented way rises especially for younger people from the central regions, the relevance of policy motives remains low and even seems to fall. The reinforcing divergence between satisfied and unsatisfied people seems, on the one hand, to be harmless because of a well-balanced Lorenz-curve for political weights, but on the other hand, it can hide an increasing potential for conflicts of interests in the future.

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