

Title	Do you remember whether you participated in the past election? : the effect of political episodic memory on political attitudes and electoral participation in Japan
Sub Title	
Author	岡田, 陽介(Okada, Yosuke)
Publisher	Global Center of Excellence Center of Governance for Civil Society, Keio University
Publication year	2013
Jtitle	Journal of political science and sociology No.18 (2013. 3) ,p.1- 22
JaLC DOI	
Abstract	The purpose of this paper is to investigate the effect of political episodic memory on electoral participation based on cognitive psychological theory. Episodic memory is memory related to time and place. In a political and electoral context, the memory of one's voting behavior is episodic memory related to the election day (time) and the voting booth (place). In this paper, using the panel survey data (JES III data), I shed light on the role of accurately recollected memory of voting. The results of the panel data analysis demonstrate that (1) accurately recollected episodic memory of participation promotes the sense of civic duty to vote; (2) accurately recollected episodic memory of participation promotes participation in the subsequent election; (3) the above effects are shared between the House of Councillors election and the House of Representatives election. These results suggest that political episodic memory can bridge voting behaviors between different levels of election at a micro level.
Notes	
Genre	Journal article
URL	https://koara.lib.keio.ac.jp/xoonips/modules/xoonips/detail.php?koara_id=AA12117871-20130300-0001

慶應義塾大学学術情報リポジトリ(KOARA)に掲載されているコンテンツの著作権は、それぞれの著作者、学会または出版社/発行者に帰属し、その権利は著作権法によって保護されています。引用にあたっては、著作権法を遵守してご利用ください。

The copyrights of content available on the Keio Associated Repository of Academic resources (KOARA) belong to the respective authors, academic societies, or publishers/issuers, and these rights are protected by the Japanese Copyright Act. When quoting the content, please follow the Japanese copyright act.

Do You Remember Whether You Participated in the Past Election?: The Effect of Political Episodic Memory on Political Attitudes and Electoral Participation in Japan

Yosuke Okada

Abstract

The purpose of this paper is to investigate the effect of political episodic memory on electoral participation based on cognitive psychological theory. Episodic memory is memory related to time and place. In a political and electoral context, the memory of one's voting behavior is episodic memory related to the election day (time) and the voting booth (place). In this paper, using the panel survey data (JES III data), I shed light on the role of accurately recollected memory of voting. The results of the panel data analysis demonstrate that (1) accurately recollected episodic memory of participation promotes the sense of civic duty to vote; (2) accurately recollected episodic memory of participation promotes participation in the subsequent election; (3) the above effects are shared between the House of Councillors election and the House of Representatives election. These results suggest that political episodic memory can bridge voting behaviors between different levels of election at a micro level.

I. Introduction

What is it that makes people decide to participate in an election or not? Some people participate all the time, others participate only sometimes, and some others don't participate at all. In many studies of voting behavior, the sense of civic duty to vote (the civic duty, henceforth) is seen as the major factor that explains electoral participation. Downs (1957), for example, pointed out its aspect of long term benefit to maintain democracy. Moreover, Riker and Ordeshook (1968) expanded it into the D term as satisfaction from voting in rational choice model. In addition, many empirical studies have concluded its effect on political participation (Almond & Verba, 1963; Campbell, Converse, Miller & Stokes, 1960;

Campbell, Gurin & Miller, 1954; Blais, 2000). Empirical studies in Japan have also shown civic duty's effect on political participation in both national elections (Kobayashi, 1997, 2008; Miyake & Nishizawa 1997; Kabashima 1988, 1998) and local elections (Miyake, Kinoshita and Aiba, 1967; Miyake, 1990; Shinada, 1992; Iwagami, 2005). However, it is not clear what gives rise to the civic duty.

Voters experience many political events including voting in an election and these experiences make their memory, and in turn these experiences and political memories make political attitudes and political behaviors from medium- and long-term perspectives. This study sheds light on voters' episodic memory based on cognitive psychological theory. The purpose of this study is to investigate the effect of voters' episodic memory on the civic duty as political attitude and electoral participation as voting behavior.

II. Previous Studies

1. The Effect of Civic Duty and Habitual Voter on Electoral Participation

Previous studies on the civic duty have concluded that this duty not only has an aspect of Downsian model but also other aspects. Kobayashi (1997), for example, suggests the possibility of the civic duty making a difference to the long term benefit to maintain democracy in Japan. Miyake and Nishizawa (1997) suggest the civic duty as social pressures, and Okada (2007) suggests the civic duty as vertical conformity. In other words, the civic duty has various aspects, namely, abstract norm and specific cooperation under circumstance in a social dilemma. On the other hand, previous studies suggest the civic duty is connected with political efficacy and party image (Miyake et al., 1967). Although Miyake and his group's study indicate some factors which form the civic duty, it merely shows a correlation between attitudes. It is not clear what forms the civic duty. In sum, the nature and the formation factor of the civic duty remain vague, though the civic duty is the major factor that explains electoral participation.

In addition to the preceding studies, some studies on past electoral behavior and subsequent behavior suggest habitual voting. Richardson (1986) noted the existence of habitual voters who consistently vote for the same party. On the other hand, other empirical researches reported the existence of habitual voters who always vote for the same party and who always participate in elections (Geber, Green & Shachar, 2003; Green & Shachar, 2000; Plutzer, 2002). Moreover, Arai (2006) also suggests that the experience and assessment of voting and political participation affect subsequent participation, and that past participation itself has a positive effect on subsequent participation. These studies on habitual voting indicate that past participation and past voting behavior have an effect on subsequent participation and behavior. In other words, habitual voting demonstrates the coincidence of two behaviors. There is a gap between elections, however, and it is still not clear what can bridge the gap between elections at a micro level.

2. System of Human Memory and Voting Behavior

Recall that this study sheds light on voters' memory, political attitudes including the civic duty, and voting behavior. The memory is a system which connects past experiences and present at a cognitive level. Voters' memory can bridge the gap between elections as I pointed out above.

In cognitive psychology, the human memory system is seen to consist of two systems based on the difference of retention interval (Atkinson and Shiffrin, 1968). One is short-term memory and the other is long-term memory. Furthermore, long-term memory system has two aspects. Tulving (1972, 1983) suggests the distinction between episodic and semantic memory in long-term memory. Episodic memory is the memory related to time and place. It has self-consciousness of "remembering", and it is declarative and explicit memory. On the other hand, semantic memory is the memory as knowledge or abstract memory. It has self-consciousness of "knowing", and it is declarative and implicit memory. These distinctions are shown not only in cognitive psychology but also in neuroscience studies (Garrard & Hodges, 1999; Graham, Simons, Pratt, Patterson & Hodges, 2000).

In previous studies on voting behavior, like the schema studies, there are some studies that are focused on human memory. Ikeda (1991), for example, defines the schema as a structure of knowledge and belief. In addition, some studies suggest the schema as cognition of party has an effect on voting direction (Ikeda, 1997, 1994, 2007; Ikeda & Nishizawa, 1992). Hirano and Kamegaya (1994) suggest the schema about habitual voting, "I always participate in elections", and suggest its effect on electoral participation. However, the schema is a structure of knowledge and belief. In this sense, previous studies on political memory are focused on the abstract memory or semantic memory, and these studies are mainly focused on political memories and voting direction.¹ This means that previous studies are not geared to the relation of episodic memory system and electoral participation.

Like semantic memory, episodic memory is also the voters' own memory. Moreover, episodic memory is also the memory of their experience. This paper pays attention to the episodic memory as such about politics (political episodic memory) and assumes that political episodic memory is a factor that forms political attitudes including the civic duty and electoral participation. Incidentally, the relation between episodic memory and semantic memory is complementary. Through the process of repetitional recollection of episodic memory, an episodic memory is changed into a semantic memory or a schema by abstraction (Linton, 1982; Nelson, 1978). Consequently, if episodic memory concerning electoral participation loses the associated information of time and place, it may be retained in the more abstract and normative form of "election = participation". This is the process that the civic duty is formed by the memory of participation in an election.

In addition to the preceding argument, the effect of episodic memory on behavior has been shown in consumer studies. For example, AIDMA (Attention - Interest - Desire -

Memory - Action), classical theory of purchasing processes, indicate that interest in products and desire to buy have an effect on behaviors through the memory (Hall, [1924] 1985). In other words, the effect of psychological factors on behavior is mediated by memory. Moreover, studies of purchasing processes and brand judgments found that while the recollection of episodic memories reduced processing and attention of product attributes, the recollection of episodic memories raised evaluations of ads and products (Baumgartner, Sujan & Bettman, 1992; Sujan, Bettman & Baumgartner, 1993). In cognitive psychology, “availability heuristic” also demonstrates a major role of memories in decision making (Tversky & Kahneman, 1974). This heuristic is a shortcut of judgment based on relevant memories (i.e., the frequency or the probability). Having relevant memory about the same situation or not has an effect on thinking and behavior.

In sum, from the viewpoint of cognitive psychology and consumer studies, the retention and the recollection of episodic memory promotes attitudes. However, episodic memory decreases the effect of attitudes on behaviors, and then episodic memory itself determines behaviors. Enlarging on these implications for studies on voting behavior, in decision-making of political matter, episodic memories about political events determine political attitudes and behaviors. Moreover, political episodic memory (which decreases the effect of political attitudes on voting behaviors and political episodic memory) itself determines voting behaviors. Voters choose their participation in election based on episodic memories about their past voting behavior.

III. Hypothesis

Episodic memory is memory related to time and place. In a political and electoral context, episodic memory is the memory about political events like voting in an election. For many people, participation in an election or voting in an election is the most popular political event. Accordingly, the most popular political episodic memory is “I participated in the election, on the election day (time) at the voting booth (place)”. Hence, in this paper, *political episodic memory* is defined as the memory of participation in a past election. However, political episodic memory about participation is not always accurate.² Accurate political episodic memories will promote political attitudes and political behaviors. In contrast, inaccurate political episodic memories will not promote political attitudes and political behaviors compared with accurate memory. The effect is different. If an inaccurate political episodic memory promotes political attitude and behavior, it will be more important for democracy to retain false memory. Accordingly, the hypotheses of this paper are as follows.

H1: The accurate memory of having participated in an election promotes subsequent civic duty.

H2: The civic duty promotes electoral participation.

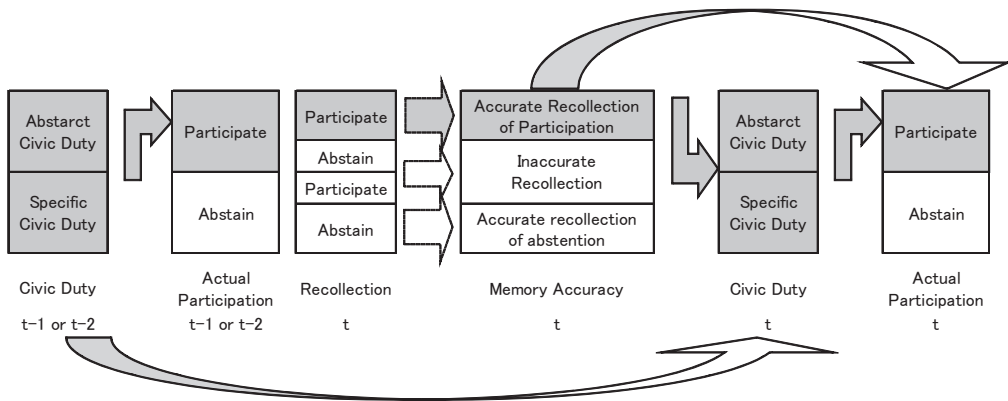


Figure 1. Model of Analysis

H3: The accurate memory of having participated in an election promotes subsequent electoral participation.

Hypothesis 1 and hypothesis 3 are the effect of political episodic memory on the civic duty as political attitudes and electoral participation as political behavior. In contrast, hypothesis 2 is the follow-up study of the effect of the civic duty on electoral participation. Figure 1 is the model of this analysis based on these hypotheses. The civic duty (t-1 or t-2) promotes the electoral participation and its accurate memory of participation promotes the subsequent civic duty and subsequent participation.

IV. Data and Variables

1. Data

The data used in this paper is the JES III (Japanese Election Study III). The JES III is the survey from 2001 to 2005, and it includes two House of Councillors elections (2001 and 2004) and two House of Representatives elections (2003 and 2005).³ In Japan, the JES II,⁴ and the JES III have compiled datasets of election study over middle to long-term periods. These surveys conduct a follow-up survey of the same individuals and store cross-sectional data into time-series data. Accordingly, these surveys provide the features of both cross-sectional data and panel data. Nevertheless, previous studies conducted using these datasets almost all focused on cross-sectional analyses and fiscal year comparisons of those analyses, even though the surveys were designed to accumulate panel data. This paper covers past electoral participation, its accurate memory, and hence the subsequent civic duty,

and the subsequent participation. Accordingly, panel datasets surveying the same individuals over multiple years is required. In this sense, the JES III which is a panel dataset and has multiple elections provides noteworthy data.

Panel data analysis has the following advantages (Baltagi, 2001; Hsiao, 2003; Greene, 2003; Kitamura, 2005, 2006; Higuchi, Ota & Shinpo, 2006).⁵ First, panel data includes a diversity of individuals that cannot be controlled by time-series data or cross-sectional data alone. In other words, it includes effects that are unique to individuals and cannot be observed. Controlling for those individual effects, panel data analysis can estimate common effects. Second, panel data combined from cross-sectional data over several years contains a wealth of information. Hence, it can resolve the multicollinearity problem, give greater degrees of freedom to estimates, and make estimates less biased. Third, the use of panel data, which has the characteristics of time-series data, enables micro-level verification of behavior at different points in time.⁶

In this paper, I use the JES III which was implemented a total of four times along with national elections from 2001 to 2005. Furthermore, I implement panel data analysis to reveal the effects of memory as a factor in forming the civic duty and the effects of memory on electoral participation from medium- and long-term perspectives.

2. Variables

The civic duty is measured by two questionnaires (see appendix). One is an attitude for “voting is duty” (the abstract civic duty), the other is an attitude for cooperation in an election (the specific civic duty). These differences stem from two distinct aspects of civic duty, as discussed above. The former indicates an axis contrasting voting as a responsibility with voting as a right. When voting is viewed as a responsibility, the voter chooses to participate in the election in all circumstances, regardless of the possibility of free riding. The latter indicates cooperation in a more concrete circumstance. A voter chooses to participate in the election even though free riding is possible when this index is high, whereas a voter chooses not to participate if free riding is possible when this index is low.

Table 1 and Table 2 show the transition matrix of two civic duties. Shaded cells show the same strength of duties between elections. Of course, many responses are the same strength between elections, but we can see the changes of strength between elections. For example, the percentage of the abstract civic duty that was “1” both at t and at $t + 1$ is about 30%. It means the same strength. On the other hand, about 40% of the responses that were “1” at t changed to “2” at $t + 1$. About 30% of the responses that were “1” at t changed to “3” at $t + 1$ (Table 1). Similarly, in the specific civic duty, we can see the changes between elections (Table 2). Compared with the shaded cells, the percentage of the totals to the right of the shaded cells is larger in both tables. This indicates a higher civic duty at $t+1$ and this means the increase in the civic duty.⁷ In contrast, the decline in the civic duty shown by the totals to the left of the shaded cells is also confirmed to some extent.

Table 1. Transition Matrix of Abstract Civic Duty

	t+1			Total
	1	2	3	
1	87 (30.6)	110 (38.7)	87 (30.6)	284 (100)
2	86 (6.7)	650 (50.6)	549 (42.7)	1285 (100)
3	62 (2.6)	549 (22.6)	1824 (74.9)	2435 (100)
Total	235 (5.9)	1309 (32.7)	2460 (61.4)	4,004 (100)

Note: Figures inside parentheses indicate percentages.

Table 2. Transition Matrix of Specific Civic Duty

	t+1					Total
	1	2	3	4	5	
1	28 (20.4)	31 (22.6)	18 (13.1)	13 (9.5)	47 (34.3)	137 (100)
2	20 (6.4)	77 (24.8)	58 (18.7)	68 (21.9)	88 (28.3)	311 (100)
3	9 (2.8)	45 (14.0)	89 (27.6)	72 (22.4)	107 (33.2)	322 (100)
4	17 (2.4)	55 (7.9)	77 (11.0)	219 (31.2)	333 (47.5)	701 (100)
5	47 (1.9)	85 (3.5)	90 (3.7)	352 (14.3)	1891 (76.7)	2465 (100)
Total	121 (3.1)	293 (7.4)	332 (8.4)	724 (18.4)	2466 (62.7)	3,936 (100)

Note: Figures inside parentheses indicate percentages.

Previous studies have concluded the strong effect of civic duty on electoral participation. However, civic duties themselves are not necessarily stable. In this sense, investigations seeking factors which form the civic duty at a micro-level in the medium- and long-term perspectives are required. Hence, the memory of voters, which can mediate time and space, is useful.

Political episodic memories as independent variables are as follows. The matching between actual participation and its recollection is available because the JES III has self-reported responses of participation about past and relevant elections in each wave. For example, the survey in 2005 (the House of Representatives election; wave 8) asks the recollection whether respondents participated or not in the last election (the House of Councillors election in 2004; wave 7) and in the election before the last (the House of Representatives election in 2003; wave 5). Checking the survey in 2004 (wave 7) and 2003 (wave 5), we can see whether or not the matching of recollection is accurate (Figure 2).

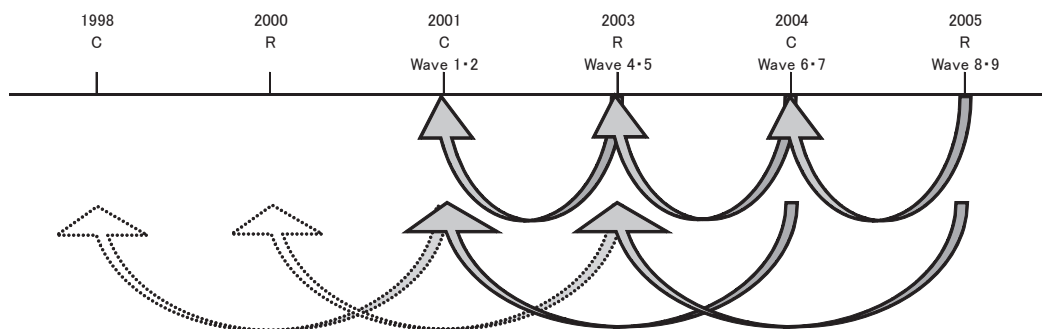


Figure 2. The Matching Between Actual Participation and its Recollection

Notes: The recollections of the 1998 and 2000 elections (dotted lines) are memories of events prior to the survey, so their accuracy could not be confirmed. C = The House of Councillors election, R = The House of Representatives election. Wave3 is the survey of local election in 2003. Wave 3 is not used in this analysis.

In this way, four dummy variables are made. In chronological order (past election - relevant election), they are PP (Participate - Participate), PA (Participate - Abstain), AP (Abstain - Participate), and AA (Abstain - Abstain). The accuracy of these is explained as follows. PP is the accurate recollection of participation, PA and AP are inaccurate recollections, and AA is the accurate recollection of abstention. In panel data analysis, they are integrated into the recollection of the last election and the recollection of the election before the last. The recollection of the last election means the memory of voting on a different kinds of election (e.g. the House of Representatives election and the House of Councillors election). The recollection of the election before the last means the memory of voting on the same kinds of election (e.g. the House of Representatives election and the House of Representatives election). Table 3 shows the pattern of recollection in panel data.⁸ This table shows political episodic memory about participation is not only an accurate memory of participation but also an inaccurate memory of participation or an accurate memory of abstention.⁹

Control variables are as follows. Demographic variables (Gender, Age, Education, Years of Residency, and City Size), political attitudes (Interest in Politics, Political Efficacy, Strength of Party Support, and Lag of Civic duty), and year dummy (analysis on electoral participation) are used (see appendix).¹⁰ These are the variables which have an effect on the civic duty and electoral participation, as previous studies predicted. Above all, political attitudes affect the civic duty and electoral participation. In the estimations of panel data analysis, random effects model are used because control variables include constant variable.¹¹

Table 3. Political Episodic Memory: Pattern of Recollection

	Election Before the Last				Last Election			
	Overall		Between		Overall		Between	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
(Actual Participation – Recollection)								
Participate - Participate	1557	(92.7)	1170	(92.9)	3062	(88.6)	1745	(88.9)
Total	1680	(100.0)	1286	(102.1)	3457	(100.0)	2074	(105.7)
N			1260				1963	
Participate - Abstain	18	(1.1)	18	(1.4)	111	(3.2)	108	(5.5)
Total	1680	(100.0)	1266	(100.5)	3457	(100.0)	2024	(103.1)
N			1260				1963	
Abstain - Participate	55	(3.3)	53	(4.2)	141	(4.1)	133	(6.8)
Total	1680	(100.0)	1276	(101.3)	3457	(100.0)	2041	(104.0)
N			1260				1963	
Abstain - Abstain	50	(3.0)	47	(3.7)	143	(4.1)	124	(6.3)
Total	1680	(100.0)	1268	(100.6)	3457	(100.0)	2001	(101.9)
N			1260				1963	

V. Results

1. Analysis 1: The Effect on Civic Duty

Table 4 and Table 5 show the effect on civic duties using panel data. Reference categories of political episodic memory are the accurate recollection of participation (PP). As a result of statistical test,¹² the random effects model was adopted in the model without lag of civic duty (Model I). On the other hand, the pooled model was adopted in the model with lag of civic duty (Model II).

The summary of Analysis 1 is as follows. First, compared with the accurate recollection (PP), inaccurate recollections (AP and PA) and the accurate recollection of abstention (AA) have negative effects on the civic duty. Second, lags of duties have effects on subsequent civic duties and political episodic memories have effects on subsequent civic duties even after controlling for lags of duties and other variables. Last, in particular, political episodic memories have effects in the recollection of the last election. The last election means different kinds of election, which in the case means the House of Councillors would be the House of Representatives, and vice versa. These results support hypothesis 1. Hence, these results suggest that accurate memory of having participated in elections promotes the subsequent civic duty.

Table 4 shows the effect on the abstract civic duty. The coefficients of memory patterns mostly show negative effects. Compared with the accurate memory of participation (PP), the other memory patterns restrict the abstract civic duty. This means the accurate memory

Table 4. Effect on Abstract Civic Duty

	Recollection of the election before the last				Recollection of the last election			
	Model I		Model II		Model I		Model II	
	B	Std. Err.	B	Std. Err.	B	Std. Err.	B	Std. Err.
Abstain - Participate	-.100	(.096)	-.062	(.090)	-.067	(.071)	.027	(.073)
Participate - Abstain	-.257 +	(.143)	-.311 *	(.157)	-.222 **	(.074)	-.167 *	(.072)
Abstain - Abstain	-.320 **	(.119)	-.267 +	(.138)	-.207 *	(.093)	-.164 +	(.094)
Abstract Civic Duty (lag)	-	-	.181 ***	(.034)	-	-	.197 ***	(.023)
Specific Civic Duty (lag)	-	-	.056 ***	(.015)	-	-	.059 ***	(.011)
Gender (male)	-.011	(.032)	.005	(.030)	.009	(.025)	.006	(.022)
Age	.006 ***	(.001)	.005 ***	(.001)	.006 ***	(.001)	.004 ***	(.001)
Education	.015	(.017)	.006	(.016)	.041 **	(.013)	.026 *	(.012)
Years of Residency	.021	(.018)	.014	(.017)	.001	(.013)	.005	(.012)
City Size	.008	(.011)	.005	(.010)	-.010	(.008)	-.007	(.007)
Interest in Politics	.083 ***	(.022)	.044 *	(.022)	.088 ***	(.016)	.063 ***	(.016)
Political Efficacy	.024 *	(.010)	.022 *	(.010)	.024 **	(.007)	.019 **	(.007)
Strength of Party Support	.110 ***	(.032)	.090 **	(.031)	.106 ***	(.024)	.085 ***	(.022)
Constant	1.751 ***	(.128)	1.288 ***	(.139)	1.784 ***	(.088)	1.263 ***	(.093)
Model	Random-effects		Pooling		Random-effects		Pooling	
Breusch - Pagan LM Test	.004		.347		.000		.709	
R ²	within	.000	-	-	.003	-	-	-
	between	.117	-	-	.130	-	-	-
	overall	.101	.156	.105	.162			
N	obs	1224	1138	2462	2353			
	groups	969	-	1515	-			

Notes: + p<.10, * p<.05, ** p<.01, *** p<.001. Robust Standard Error in Model II.

(PP) promotes the civic duty relatively. In contrast, PA shows statistically significant effects among inaccurate memories. Accordingly, even when voters participated in an election, it does not promote the civic duty strongly unless they retain the participation as an accurate memory. Memories which are accurate but do not include participation, that is, memories of abstention not only fail to promote the civic duty but even conversely restrict it. Moreover, both lags of civic duty have effects on the abstract civic duty. Above all, the same type of the civic duty (i.e., the lag of abstract civic duty) has a larger effect. This finding shows the prior civic duty regulates the subsequent. Furthermore, there are no difference between the recollection of the last election and the recollection of the election before the last.

Interest in politics, sense of political efficacy and strength of party support as control variables also have effects. This indicates that the civic duty is regulated by the lag of the civic duty and the accurate memory of participation in addition to political attitudes which previous studies predict. In other points, no great difference was seen between the recollection of the last election and the recollection of the election before the last.

Meanwhile, table 5 shows the effect on the specific civic duty. The memory patterns have similar effects on the abstract civic duty. The coefficients mostly show negative effects. Accordingly, compared with the accurate memory of participation (PP), the other memory

Table 5. The Effect on Specific Civic Duty

		Recollection of the election before the last				Recollection of the last election			
		Model I		Model II		Model I		Model II	
		B	Std. Err.	B	Std. Err.	B	Std. Err.	B	Std. Err.
Abstain	- Participate	-.302	(.198)	-.093	(.161)	-.486 ***	(.133)	-.196	(.140)
Participate	- Abstain	-.507	(.469)	-.483	(.442)	-.560 ***	(.156)	-.469 **	(.157)
Abstain	- Abstain	-.654 *	(.277)	-.050	(.198)	-.597 ***	(.168)	-.383 *	(.176)
	Abstract Civic Duty (lag)	-	-	.178 **	(.053)	-	-	.199 ***	(.039)
	Specific Civic Duty (lag)	-	-	.263 ***	(.035)	-	-	.280 ***	(.025)
	Gender (male)	.001	(.061)	.034	(.055)	-.042	(.049)	-.018	(.040)
	Age	.008 **	(.002)	.003 +	(.002)	.008 ***	(.002)	.004 **	(.002)
	Education	.102 **	(.029)	.057 *	(.028)	.127 ***	(.024)	.086 ***	(.021)
	Years of Residency	-.039	(.031)	-.027	(.028)	-.039	(.024)	-.043 *	(.021)
	City Size	-.046 *	(.020)	-.039 *	(.018)	-.039 *	(.016)	-.039 **	(.014)
	Interest in Politics	.237 ***	(.039)	.150 ***	(.037)	.212 ***	(.031)	.156 ***	(.028)
	Political Efficacy	.092 ***	(.016)	.090 ***	(.015)	.079 ***	(.012)	.059 ***	(.012)
	Strength of Party Support	.051	(.056)	.039	(.055)	.118 **	(.043)	.069 +	(.040)
	Constant	3.099 ***	(.227)	2.019 ***	(.244)	3.020 ***	(.165)	1.878 ***	(.175)
	Model	Random-effects		Pooling		Random-effects		Pooling	
	Breusch - Pagan LM Test	.000		.264		.000		.916	
	R ²								
	within	.018		-		.014		-	
	between	.147		-		.169		-	
	overall	.129		.218		.134		.229	
	N								
	obs	1226		1140		2463		2354	
	groups	971		-		1515		-	

Notes: + $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$. Robust Standard Error in Model II.

patterns restrict the specific civic duty. At the same time, the accurate memory of participation (PP) relatively promotes the civic duty. Moreover, the results also indicate the complementary effect of both lags on the specific civic duty. Above all, the results also indicate a larger effect of the same type of civic duty (i.e., the lag of specific civic duty). On the other hand, estimated with the lag of civic duties, the effect of the memory of the election before the last is no longer statistically significant. The effect of memory of the last election is only confirmed. This indicates that only the memory of the most recent election has an effect on the specific civic duty.

This is mainly because of the following reasons. The first possibility is voters' forgetting with the passage of time. Because more time has passed since the election before the last than the last election, the prediction by memory of the election before the last (i.e., distant in time) weakens. That is, it is easier to retain more recent events accurately in the memory. However, this cannot be explained by the voters' forgetting alone because memories of the election before the last and the last election both have effects on the abstract civic duty. Accordingly, the second possibility is provided by interpreting the nature of the civic duty. Compared with the abstract civic duty such as responsibilities versus rights, the specific civic duty has the more cooperative aspect of choosing to participate

even though free riding is possible. Voters make their decisions based on the immediate conditions or more recent conditions. Moreover these conditions make the cooperative aspect of the civic duty to vote.¹³ The results indicate that the political episodic memory linked to more specific information such as time and place has an effect on the specific civic duty, which is also linked to specific conditions. Experience of electoral participation and its memory make the specific civic duty, and then the specific civic duty makes the abstract civic duty. Furthermore, this means the relation of two aspects of civic duty, as well. That is, the specific civic duty based on political experiences as cooperation makes an abstract civic duty as a norm. Then, the norm causes subsequent cooperation.

From the viewpoint of memory accuracy, the significant effect of PA on civic duties is also confirmed in both tables, though it is false memory. This suggests the distinction of memory and behavior. The separation of attitude and behavior is considered in psychological approach. The separation of memory and behavior is a similar subject to be considered in the study of memory, as well. We cannot see the effect of PA if memory and behavior is the same concept. In addition, the effect of AP is confirmed in part. The memory and behavior are distinguishable.

Summarizing the above findings of Analysis 1, the factor which regulates the civic duty in the first place is the prior level of the civic duty. Then, the accurate memory of participation further heightens the civic duty. On the other hand, both types of the civic duty are related, and have a complementary effect in promoting each other.

2. Analysis 2: The Effect on Electoral Participation

Table 6 shows the effect of political episodic memory on electoral participation. As a result of statistical test,¹⁴ the random effects model was adopted in the model without political episodic memories (Model I). On the other hand, the pooled model was adopted in the model with political episodic memories (Model II). In this data, the number of abstentions in elections is a rare event. Accordingly, the Relogit (Rare Events Logistic Regression) model is used in the latter estimation using pooled model. Like other analyses, reference categories are the accurate recollection of participation (PP).

The summary of Analysis 2 is as follows. First, civic duties have positive effects on electoral participation. However, estimated with political episodic memories, the effect is very weak. Second, compared with the accurate recollection (PP), inaccurate recollections (AP and PA) have negative effects on electoral participation. Moreover, compared with the accurate recollection (PP), the accurate recollection of abstention (AA) also has a negative effect on participation. Political episodic memories have effects on participation even after controlling for civic duties and other variables. Last, in particular, political episodic memories have more effects in the recollection of the last election. This means the effect between different kinds of election.

Table 6. The Effect on Electoral Participation

		Model I		Model II	
		B	Std. Err.	B	Std. Err.
Abstain	- Participate (before last)	-	-	-.886	(.860)
Participate	- Abstain (before last)	-	-	-.506	(1.328)
Abstain	- Abstain (before last)	-	-	-2.300 *	(.913)
Abstain	- Participate (last)	-	-	-2.247 ***	(.657)
Participate	- Abstain (last)	-	-	.098	(1.430)
Abstain	- Abstain (last)	-	-	-2.946 ***	(.823)
Abstract Civic Duty		1.408 ***	(.200)	.644 +	(.369)
Specific Civic Duty		.346 ***	(.089)	.111	(.214)
Gender (male)		-.103	(.245)	.155	(.490)
Age		.040 ***	(.009)	-.019	(.021)
Education		.305 *	(.144)	-.234	(.238)
Years of Residency		.062	(.103)	.197	(.301)
City Size		-.065	(.085)	.100	(.137)
Interest in Politics		.527 ***	(.151)	.377	(.422)
Political Efficacy		.016	(.099)	.011	(.206)
Strength of Party Support		.650 +	(.342)	.423	(.653)
Dummy (2005)		1.025 ***	(.276)	1.276 **	(.466)
Constant		-5.342 ***	(.906)	.131	(1.851)
Model		Random-effects		Pooling (relogit)	
Likelihood-ratio test of rho=0		.000		.168	
N	obs	4259		1116	
	groups	2198		-	
Pseudo R ²		.158		.320	

Notes: + p<.10, * p<.05, ** p<.01, *** p<.001. Pseudo R2 in Model II is reported by logit model.

Robust Standard Error in Model II.

These results support hypothesis 2 and hypothesis 3. In addition, these results suggest that the civic duty promotes electoral participation and accurate memory of having participated in an election promotes the subsequent electoral participation. Furthermore, these results are different from previous studies. Many studies about the civic duty have concluded the strong effect of the civic duty on electoral participation. Of course, as mentioned above, the civic duty has a positive effect on participation in this paper but political episodic memory has greater effect on participation. These findings are not limited to the civic duty. As previous studies show, interest in politics, political efficacy, and strength of party support have effects on electoral participation in the model without political episodic memories (Model I). Estimated with political episodic memory (Model II), however, statistically significant effects of these variables are not confirmed. These results show that political episodic memory decrease the effect of political attitudes on voting behavior. Similarly, the effect of demographic variables (Gender, Age, Education, Years of residency and City size) have no effect in Model II. As a consequence, political episodic memory is a factor which includes like political attitudes and demographic variables.

On the election day, voters choose the participation in the election if they recall their

past participation, whereas, these results show that the inaccurate memory has an effect on electoral participation, as well. Compared with the accurate recollection of participation, the effect is relatively negative, but compared with the accurate recollection of abstention, the inaccurate memory promotes the participation though the effect is weak. However, only the effect of AP is confirmed. Hence, to feel “participated in the past election” promotes the subsequent participation in the election though they did not participate in the past election. This effect of false memory, strictly speaking, is different from the effect on the civic duty (PA has the effect on the civic duty in Analysis 1, mainly). This is the other side of the evidence that memory and behavior differ.

In contrast to above, the political episodic memory in the election before the last has no effect. This is similar to the effect on the civic duty, that is, the political episodic memory in the last election has large effect. The closer the temporal distance, the larger the effect is. In this paper, elections (the House of Councillors election and the House of Representatives election) are held alternately. Therefore, the effect of the last election means the effect on different kinds of election.

VI. Conclusion

The results of panel data analysis demonstrate the following implications. First, accurately recollected episodic memory of participation promotes the sense of civic duty to vote. Political episodic memory as voters’ experience and its accuracy give rise to the civic duty. This suggests that to keep experiences as own experience forms subsequent political attitudes. In other words, this process shows that the memory of participation, as a political episodic memory linked with more specific circumstances, becomes the abstract civic duty, through the civic duty linked to specific circumstances. This finding indicates the formation mechanism of schemata and political attitudes. Concrete experiences about political events make the abstract norms about politics.

Second, accurately recollected episodic memory of participation promotes participation in the subsequent election. Political episodic memory as voters’ experience promotes political behavior. Similarly, this suggests that to keep experiences as own experiences forms subsequent political behavior. Of course having participated in election is important but having retained it accurately is more important. This finding also indicates the mechanism of habitual voting. As “availability heuristic” demonstrates, relevant memories of the participation promote continuous electoral participation.

Third, political episodic memory restricts the effect of political attitudes on political behavior, as consumer studies predict. This suggests that the political episodic memory is the major factor that can explain voting behavior. Though previous studies on voting behavior have neglected the aspect of episodic memory, this paper clarifies the role of episodic memory and shows that the voters’ experience and its memory is the new independent variable.

Fourth, political episodic memory has effects between different elections. In this paper, the last election refers to different kinds of election, namely the House of Councillors election and the House of Representatives election. This suggests that political episodic memory can bridge different kinds of election. We could presumably see these effects in not only between the House of Councillors and the House of Representatives but also between national level and local level elections. Most studies of voting behavior have analyzed different levels of election as different kinds separately. The results of this paper, however, suggest that political episodic memory can bridge voting behaviors between different levels of election at a micro level. In this sense, political episodic memory enables us to integrate different analyses into the same analysis, and enables us to handle voters' attitude and behavior more comprehensively.

Last, this paper has not been concerned with the voting direction because this paper defined the political episodic memory as the memory of participation in elections. The memory of participation, however, includes the memory which party they voted. In addition, subsequent voting behavior also includes the voting direction. Hence, further analysis which deals with voting direction as political episodic memory and shows the effect of political episodic memory on voting direction is required. Furthermore, political episodic memory is not limited to voting behavior. It can include various experiences. Accordingly, further analysis which extends a variety of political episodic memory is also required. In addition, political episodic memory is not limited to the memory as constituent. The memory and its process (experiences of political events, retention as episodic memory, and recollection) can determine voting behavior, even though it is the memory of childhood or adolescence. This indicates the mechanism of political socialization. As mentioned above, there is scope for future research. However, this paper clearly shows the importance of the voters' experience and its political episodic memory on political attitudes and behavior.

Acknowledgements

The JES III data are the result of the JES III Research Project (Participants: Ken'ichi Ikeda, University of Tokyo; Yoshiaki Kobayashi, Keio University; and Hiroshi Hirano, Gakushuin University), a part of "The Nationwide Chronological Studies on Voting Behaviors in the Early 21st Century" supported by "Grants-in-Aid for Scientific Research 2002-2006" from the Ministry of Education, Culture, Sports, Science, and Technology. The framework of this paper is based on part of the author's doctoral dissertation (Gakushuin University), which has been significantly revised.

Notes

¹ Political knowledge is also one of the memories, and hence it has an effect on electoral participation (Delli Carpini & Keeter, 1996, Yamazaki, 2008). However, political knowledge is the very “knowledge”. It is classified into semantic memory.

² Wrong answers of self voting behavior and false memories (inaccurate memories) have been handled as missing values in survey researches of voting behavior. Furthermore, previous studies have been focused on the relation between wrong answers and bias in social surveys (Miyano, 1986; Iwasaki, 1992). There has been no focus on the effect of false memories themselves.

³ The research design of the JES III is as follows. Sampling: Stratified Two-stage Sampling (201 locations in 201 regions, towns and villages nationwide). Samples: 3,000 persons (Men and women over 20 years of age living in Japan). Method: interviewing method. Period: From 2001 to 2005 (9 waves). Response rate: 41.8% - 86.3%. See Ikeda (2007) for the details of the survey.

⁴ The JES II is a panel survey implemented in seven waves from 1993 to 1996 (Kabashima, Watanuki, Miyake, Kobayashi and Ikeda, 1998).

⁵ This paper sheds light on the political episodic memory and electoral participation using panel dataset. On the other hand, Okada (2008) used the JES II data as cross-sectional dataset and demonstrated the effect of political episodic memory on electoral participation. He measured political episodic memory by the recollection of whether or not respondents participated in the past election and its accuracy. This way of measurement is also used in this paper (see below for further details). The JESII is the dataset which has only three elections. Hence, it is difficult to estimate the differences between the House of Councillors election and the House of Representatives election and to estimate by using panel data.

⁶ The fourth advantage of panel data analyses is as follow. Namely, compared with macro-data, panel data using survey has no aggregation errors or biases. However, most voting behavior research conducts analyses using survey data. This point is believed to have already been realized as well in the previous studies using cross-sectional data.

⁷ This also means that cooperative respondents in the latter survey (i.e., panel survey at t+1) have a high civic duty. Conversely this shows that the increase in the civic duty made respondents more cooperative in responding to the latter panel survey.

⁸ DK and NA were excluded from this analysis because they included patterns that did not exist.

⁹ Survey research of voting behavior normally has the problem of overestimating voter turnout (Miyano, 1986). The JES III is no exception. Hence, this point must be heeded in interpreting the analysis results. One of the causes of this overestimation is the presence of non-cooperative respondents who intentionally give false responses that they participated, even though they abstained. This is also an important problem in terms of the purpose of this paper, which focuses on the accuracy of memory. However, cooperative respondents remain in panel surveys while non-cooperative respondents drop out, and hence it may not be necessary to worry too much about overestimation from such intentionally false responses. Moreover, the accuracy of memories which is a focus of this paper is secured. In addition, PA has the following possibility. That is, a respondent who intentionally gave a false response of participation in the prior survey even though they actually abstained, but then forgot giving a false response. Accordingly, they provided the accurate response (i.e., Abstained) in the subsequent survey. Nevertheless, there is no way to determine whether or not participation reported at the time of elections is true, so the analyses in this paper are conducted treating this memory pattern as an inaccurate memory.

¹⁰ In analysis of effects on the civic duty, because of controlling for the effect of prior level of duties, lags of civic duties (t-1) are used. Moreover, in analysis of effects on electoral participation, because of controlling for Koizumi effect in 2005, year dummy (2005) is used.

¹¹ Fixed effects model cannot estimate the effect of variables which has constant values through all years. Gender, for example, is the same value through all years. Accordingly, Fixed effects model is not available in this analysis. Strictly speaking, city size is a variable that changes over the long term, but the JES III data gives a fixed value to each wave.

¹² Breusch-Pagan Lagrangian multiplier test is used. The null hypothesis is the variance of the individual effects is zero (the pooling model should be used). For details of examination methods, see Kitamura (2005), and Tsutsui, Hirai, Akiyoshi, Mizuochi, Sakamoto and Fukuda (2007).

¹³ From the viewpoint of game theory as the tit-for-tat strategy (Axelrod, 1984), it is interesting that accurate memories of the prior conditions influence the decision on free riding. Confirming this requires additional analyses such as simultaneous estimates of memories of the election before the last and memories of the last elections. However, those are left for future research.

¹⁴ Likelihood-ratio test of rho is zero. The null hypothesis is pooling logit model should be used.

Appendix: Coding of Variables

Abstract Civic Duty:

In regard to voting, choose the opinion that best reflects your opinion.

Voting is a citizen's duty (3)

Voting is something that a citizen really should do (2)

Voting is something that each citizen must decide on their own to do (1)

Specific Civic Duty:

It really doesn't matter whether or not I vote.

Disagree (1) - Agree (5)

Voting: Self-reported participation in each election.

Political Episodic Memory:

Dummy variables (past election - relevant election) in each election.

PP (Participate - Participate)

PA (Participate - Abstain)

AP (Abstain - Participate)

AA (Abstain - Abstain)

Respondent who did not have the right to vote at the time of the election are treated as missing values. There are five year combinations, that is, 2001x2003, 2001x2004, 2003x2004, 2003x2005, and 2004x2005 (past election - relevant election).

Gender: male dummy

Age: age at last birthday

Education:

Junior high school (1), High school (2), Technical college, Junior college or Advanced vocational school (3), University or Graduate school (4) .

Years of Residency:

Less than 3 years (1), 4-9 years (2), 10-14 years (3), 15 years or more (4), From birth (5).

City Size:

Towns & Villages (1), Less than 100,000 (2), 100,000 or more (3), 200,000 or more (4), 13 major cities (Tokyo, Osaka, Yokohama, Nagoya, Kyoto, Kita-Kyushu, Sapporo, Sendai, Kawasaki, Kobe, Hiroshima, Fukuoka, Chiba) (5).

Interest in Politics:

How much attention do you pay to political affairs?
Never (1) - Almost always (4)

Political Efficacy:

I have no power to influence the government's actions.
Disagree (1) - Agree (5)

Strength of Party Support:

No party support (0)
Not so enthusiastically (1)
Enthusiastically (2)

Civic Duty (lag):

Civic Duty (t-1)

References

- Almond, Gabriel A., and Sidney Verba. 1963. *The Civic Culture: Political Attitudes and Democracy in Five Nations*. Princeton: Princeton University Press.
- Arai, Kiichiro. 2006. "Sanka keiken to sono hyouka ni motozuku shimin no seiji sanko mekanizumu (A Mechanism of Political Participation: Experience and Evaluation)." *Senkyo gakkai kiyou (Review of Electoral Studies)* (6): 5-24 (in Japanese).

- Atkinson, Richard C., and Richard M. Shiffrin. 1968. "Human Memory: A Proposed System and its Control Processes." In *The Psychology of Learning and Motivation: Advances in Research and Theory*. Vol. 2, eds. Kenneth W. Spence, and Janet Taylor Spence. New York: Academic Press, 89-195.
- Axelrod, Robert. 1984. *Evolution of Cooperation*. New York: Basic Books.
- Baltagi, Badi H. 2001. *Econometric Analysis of Panel Data*. 4th ed. Chichester: John Wiley & Sons.
- Baumgartner, Hans, Mita Sujana, and James R. Bettman. 1992. "Autobiographical Memories, Affect and Consumer Information Processing." *Journal of Consumer Psychology* 1(1): 53-82.
- Blais, Andre. 2000. *To Vote or Not to Vote?: The Merits and Limits of Rational Choice Theory*. Pittsburgh: University of Pittsburgh Press.
- Campbell, Angus, Philip E. Converse, Warren E. Miller, and Donald Stokes. 1960. *The American Voter*. New York: John Wiley.
- Campbell, Angus, Gerald Gurin, and Warren E. Miller. 1954. *The Voter Decides*. Evanston: Row, Peterson and Company.
- Delli Carpini, Michael X., and Scott Keeter. 1996. *What Americans Know About Politics and Why It Matters*. New Haven: Yale University Press.
- Downs, Anthony. 1957. *An Economic Theory of Democracy*. New York: Harper & Row.
- Garrard, Peter, and John R. Hodges. 1999. "Semantic Dementia: Implications for the Neural Basis of Language and Meaning." *Aphasiology* 13(8): 609-623.
- Gerber, Alan S., Donald P. Green, and Ron Shachar. 2003. "Voting May Be Habit-Forming: Evidence from a Randomized Field Experiment." *American Journal of Political Science* 47(3): 540-550.
- Graham, Kim S., Jon S. Simons, Katherine H. Pratt, Karalyn Patterson, and John R. Hodges. 2000. "Insights from Semantic Dementia on the Relationship between Episodic and Semantic Memory." *Neuropsychologia* 38(3): 313-324.
- Greene, William H. 2003. *Econometric Analysis*. 5th ed. Upper Saddle River, N.J.: Prentice Hall.
- Green, Donald P., and Ron Shachar. 2000. "Habit Formation and Political Behaviour: Evidence of Consuetude in Voter Turnout." *British Journal of Political Science* 30: 561-573.
- Hall, S. Roland. [1924] 1985. *Retail Advertising and Selling*. New York: Garland Publishing.
- Higuchi, Yoshio, Kiyoshi Ota, and Kazushige Shimpo. 2006. *Nyuumon paneru deeta ni yoru keizai bunseki (Introduction to Economic Analysis by Panel Data)*. Tokyo: Nippon Hyoronsha (in Japanese).
- Hirano, Hiroshi, and Masahiko Kamegaya. 1994. "Sukiima ni yoru seijiteki ninchi (Political Cognition through Schema)." In *Seiji shinrigaku rinyuuaru (Political Psychology Renewal)*, ed. Nobuyoshi Kurita. Tokyo: Gakubunsha, 155-174 (in Japanese).
- Hsiao, Cheng. 2003. *Analysis of Panel Data*. Cambridge, U.K.: Cambridge University Press.
- Ikeda, Ken'ichi. 1991. "Touhyou koudou no sukiima riron (Schema Theory in Voting Behavior)." *Senkyo kenkyu (Japanese Journal of Electoral Studies)* (6): 137-159 (in Japanese).

- Ikeda, Ken'ichi. 1994. "Seitou sukiima to seiken koutai (Party Schemas in Changing Political Powers)." *Rebaisan (Leviathan)* (15): 73-103 (in Japanese).
- Ikeda, Ken'ichi. 1997. *Tenpen suru seiji no riaritii (Changing Reality of Politics)*. Tokyo: Bokutakusha (in Japanese).
- Ikeda, Ken'ichi. 2007. *Seiji no riaritii to shakai shinri – heisei Koizumi seiji no dinamikukusu (Political Reality and Social Psychology: The Dynamics of the Koizumi Years)*. Tokyo: Bokutakusha (in Japanese).
- Ikeda, Ken'ichi, and Yoshitaka Nishizawa. 1992. "Seijiteki akutaa to shite no seitou – 89 nen sangiin senkyo no bunseki wo tsuujite (Political Parties as Political Actor : Explaining Voting Behavior by the Patterns of Cognitive Schema about Political Parties)." *Rebaisan (Leviathan)* (10): 62-81 (in Japanese).
- Iwagami, Yasukuni. 2005. "Nihon ni okeru chihou senkyo to yuukensha ishiki (Local Elections and Public Opinion in Japan)." In *Nihon ni okeru yuukensha ishiki no doutai (Political Attitudes in Contemporary Japan)*, ed. Yoshiaki Kobayashi. Tokyo: Keio University Press, 209-228 (in Japanese).
- Iwasaki, Kiyoko. 1992. "Yoron chousa ni okeru gotou to kaitou meiku no eikyou (The Effects of False Responses and Faked Responses in Survey Research for Non-voting)." In *Kiken no jishshouteki kenkyuu (The Empirical Analyses on Non-voting)*, ed. The Japan Election Studies Association. Tokyo: Hokuju Shuppan, 59-63 (in Japanese).
- Kabashima, Ikuo. 1988. *Seiji sanku (Political Participation)*. Tokyo: University of Tokyo Press (in Japanese).
- Kabashima, Ikuo. 1998. *Seiken koutai to yuukensha no taido henyuu (Changing Voter Attitudes and Alternation in Power)*. Tokyo: University of Tokyo Press (in Japanese).
- Kabashima, Ikuo, Joji Watanuki, Ichiro Miyake, Yoshiaki Kobayashi, and Ken'ichi Ikeda. 1998. *JES II koodobukku (Japanese Election Study II Codebook)*. Tokyo: Bokutakusha (in Japanese).
- Kitamura, Yukinobu. 2005. *Paneru deeta bunseki (Panel Data Analysis)*. Tokyo: Iwanami Shoten (in Japanese).
- Kitamura, Yukinobu. 2006. "Paneru deeta no igi to sono katsuyou – naze paneru deeta ga hitsuyou ni natta no ka (Meanings of Panel Data and its Use: Why We Need the Panel Data?)." *Nihon roudou kenkyuu zasshi (Japanese Journal of Labour Studies)* (551): 6-16 (in Japanese).
- Kobayashi, Yoshiaki. 1997. *Nihonjin no touhyou koudou to seiji ishiki (Electoral Behavior and Party Identification in Japan)*. Tokyo: Bokutakusha (in Japanese).
- Kobayashi, Yoshiaki. 2008. *Seido kaikaku ikou no nihongata minshushugi – senkyo koudou ni okeru renzoku to henka (Is Democracy Working in Japan after the Political Reform?)*. Tokyo: Bokutakusha (in Japanese).
- Linton, Marigold. 1982. "Transformation of Memory in Everyday Life." In *Memory Observed: Remembering in Natural Contexts*, eds. Ulric Neisser, and Ira E. Hyman. San Francisco: W. H. Freeman and Co., 77-81.

- Miyake, Ichiro. 1990. *Seiji sanko to touhyou koudou – daitoshi juumin no seiji seikatsu (Political Participation and Voting Behavior – Political Activities of Major City Residents)*. Kyoto: Minerva Shobo (in Japanese).
- Miyake, Ichiro, Tomio Kinoshita, and Juichi Aiba. 1967. *Kotonaru reberu no senkyo ni okeru touhyou koudou (Voting Behavior at Different Levels of Elections.)*. Tokyo: Sobunsha (in Japanese).
- Miyake, Ichiro, and Yoshitaka Nishizawa. 1997. “Nihon no touhyou sanko moderu (A Model of Voting Participation in Japan).” In *Kankyou hendou to taido henyou (Environmental Change and Attitude Change)*, eds. Joji Watanuki, and Ichiro Miyake. Tokyo: Bokutakusha, 183-219 (in Japanese).
- Miyano, Masaru. 1986. “Gotou kouka to hikaitou baiasu: touhyouritsu wo rei to shite (Nonresponse Bias and 'Misreport Effect' in Sample Survey).” *Riron to houhou (Sociological Theory and Methods)* 1(1): 101-114 (in Japanese).
- Nelson, Katherine. 1978. “How Children Represent Knowledge of Their World In and Out of Language: A Preliminary Report.” In *Children's Thinking: What Develops?* ed. Robert S. Siegler. Hillsdale, N.J. : Lawrence Erlbaum Associates, 255-273.
- Okada, Yosuke. 2007. “Touhyou sanko to shakai kankei shihon – nihon ni okeru shakai kankei shihon no nimensei (Electoral Participation and Social Capital: Two-Dimensions of Social Capital in Japan).” *Nihon seiji kenkyuu (Japanese Political Studies)* 4(1): 91-116 (in Japanese).
- Okada, Yosuke. 2008. “Touhyou sanko no episoodo kioku ga nochi no touhyou sanko ni ataeru eikyou (Episodic Memory and Electoral Participation).” *Gakushuuin daigaku daigakuin seijigaku kenkyuuka seijigaku ronshuu (Political Review, Gakushuuin University Graduate School of Politics)* (21): 1-23 (in Japanese).
- Plutzer, Eric. 2002. “Becoming a Habitual Voter: Inertia, Resources, and Growth in Young Adulthood.” *American Political Science Review* 96(1): 41-56.
- Richardson, Bradley M. 1986. “Japan's Habitual Voters: Partisanship on the Emotional Periphery.” *Comparative Political Studies* 19(3): 356-384.
- Riker, William H., and Peter C. Ordeshook. 1968. “A Theory of the Calculus of Voting.” *American Political Science Review* 62(1): 25-42.
- Shinada, Yutaka. 1992. “Kouhosha no tousen (rakusen) yosou to kiken (The Perception of Candidate Viability and Not Voting).” In *Kiken no jisshouteki kenkyuu (The Empirical Analyses on Non-voting)*, ed. The Japan Election Studies Association. Tokyo: Hokuju Shuppan, 50-58 (in Japanese).
- Sujan, Mita, James R. Bettman, and Hans Baumgartner. 1993. “Influencing Consumer Judgements Using Autobiographical Memories: A Self-Referencing Perspective.” *Journal of Marketing Research* 30(4): 422-36.
- Tsutsui, Junya, Hirohisa Hirai, Mito Akiyoshi, Masaaki Mizuochi, Kazuyasu Sakamoto, and Nobutaka Fukuda. 2007. *Stata de keiryuu keizaigaku nyuumon (Econometric Analysis using Stata)*. Kyoto: Minerva Shobo (in Japanese).

- Tulving, Endel. 1972. "Episodic and Semantic Memory." In *Organization of Memory*, eds. Endel Tulving, and Wayne Donaldson. New York: Academic Press, 381-403.
- Tulving, Endel. 1983. *Elements of Episodic Memory*. New York: Oxford University Press.
- Tversky, Amos, and Daniel Kahneman. 1974. "Judgment under Uncertainty: Heuristics and Biases." *Science* 185(4157): 1124-1131.
- Yamazaki, Arata. 2008. "Seijitisisiki ga touhyousanka ni ataeru eikyou – GLOPE2005 deita niyoru jissyou bunseki (An Effect of Political Knowledge on Voting Participation: Empirical Analysis using GLOPE2005 DATA)." *Waseda Seiji kouhou kenkyu (The Waseda Study of Politics and Public Law)* (88): 1-10 (in Japanese).