

Exploring Political Values of Filipinos Using an Etic Approach

Allan B. I. Bernardo
University of Macau

An exploratory study was conducted to study political values of Filipinos. An etic approach was adopted using as starting point the theory of core political values (Schwartz, Caprara, & Vecchione, 2010) to explore the political values of a sample of 699 Filipinos who participated in an online survey. The results of exploratory and confirmatory factor analytic procedures suggest three core political values – conservation, globalism, equal rights – that have distinct motivational directions. Regression analysis revealed distinct patterns of relationships with social axioms, which indicate beliefs about the processes that lead to desired social outcomes. Finally, cluster analysis and MANOVAs indicated four groups of participants that show distinct profiles in terms of endorsement of political values and related social axioms. The results are discussed in terms of the limits of the etic approach, but also in terms of the potential usefulness of core political values in understanding different political attitudes and behaviors of Filipinos.

Key words: Political values, value types, social axioms, etic approach

Political attitudes and behaviors of individuals play an important role in shaping social movements in any society. These attitudes and behaviors contribute to the election of specific types of leaders, to support for particular policies, and to strengthening social movements. Political attitudes and behaviors partly determine whether a person engages political processes or turns away from anything political, and also whether political and social institutions are transformed or whether the status quo is maintained. In any society, individuals may hold diverse political attitudes and engage political processes in differing and possibly

opposing ways; political scientists (e.g., Evans, Heath, & Lalljee, 1996) and sociologists (e.g., Judd, Krosnick & Milburn, 1981) have long attempted to understand the structure and dimensions of such attitudes. There has not been as much work done on trying to understand the underlying processes that would explain the differences in political attitudes (see Peffley & Hurwitz, 1995, for an early exception), and it was Feldman (2003) who suggested that “one potentially valuable approach...that has not received sufficient attention...is based on the value construct” (p. 479). Since then, proposals have been made regarding the structure of core political values (e.g., Goren, 2005; Gunther & Kuan, 2007) that explain differences in political attitudes and behaviors. The assumption is that core political values help reduce complexity in political information (Jacoby, 2006) and aid individuals in deciding their positions on a wide range of issues in a coherent manner (Converse, 1964).

Political scientists infer people’s core political values from people’s agreement with statements about how political institutions or government should function, which political scientists typically constrain in terms of ideological constructs. Social psychologists (e.g., Schwartz, Caprara, & Vecchione, 2010) propose that people’s more basic personal values constrain their core political values, and that there are a set of eight core political values that can account for political behaviors across different social contexts (Schwartz et al., 2010; 2014). The current study explores political values of Filipinos by using the core political values defined in the literature. This approach for exploration is an etic approach to research, as it uses theory and measures developed in one culture to measure and compare the construct in other cultures (Berry, 1989). The approach is in contrast to the more particularistic emic approach that focuses on meanings of constructs that emerge from specific cultural contexts, and cultural social psychologists have encouraged that etic and emic approaches be combined to get a fuller understanding of psychological constructs across cultures. However, we use the etic approach as a starting point to re-engage in a discussion of political values in the Philippine social context. The term “re-

engage” is used here because there have been previous attempts by Philippine social psychologists to use the concept of values in trying to understand Philippine political phenomena. These studies will be reviewed later, after more recent foreign studies that observe the usefulness of values in exploring differences in political attitudes and behaviors are discussed.

Social Psychological Studies on Values and Political Behaviors

As noted earlier, political scientists attribute differences in political attitudes and behaviors to differences in values that they infer from the former. Social psychologists refer to different theories of basic human values to try to understand political behaviors. Studies in recent decades refer to Schwartz’ theory of basic human values, and examine how they relate to specific political attitudes or orientations (Caprara, Schwartz, Capanna, Vecchione, & Barbaranelli, 2006; Piurko, Schwartz, & Davidov, 2011) and political behaviors such as voting (Barnea & Schwartz, 1998) and political activism (Vecchione et al., 2015).

More recently, social psychologists propose a set of eight core political values that seem to be valid in various cultures (Schwartz et al., 2014) and relate to political behaviors such as voting (Schwartz et al., 2010; Vecchione, Caprara, Dentale, & Schwartz, 2013) and politically motivated consumer behaviors (Kotzur, Torres, Kedzior, & Boehnke, 2015). Note that basic human values are conceptually distinct from political values. Basic values are typically defined as important goals that an individual pursues and that guide the individual’s many life decisions (Rokeach, 1973; Schwartz, 1992). As such, basic values are abstract or context free, but are expressed in various attitudes and behaviors in many different domains of a person’s life. In contrast, political values are specific to the political domain and refer to “attitudes, beliefs, or preferences about the ways government, citizenship, and society should function” (Schwartz et al., 2014, p. 905; see also McCann, 1997). Thus, political values can be seen as being less abstract than basic human values because their expressions are limited to the domain of politics. However,

political values could still be seen as being derived from the basic set of human values, and can be interpreted as expressing the same motives that underlie basic human values but applying them to the political domain (Schwartz et al., 2010).

The eight core political values studied in other cultures are as follows, as defined in Schwartz et al. (2014, p. 903): “Traditional morality: society should protect traditional religious, moral, and family values; Blind patriotism: people should support and never criticize their country; Law and order: government should forbid disruptive activities and enforce obedience to law; Free enterprise: government should not be involved in the economy; Equality: society should distribute opportunities and resources equally; Civil liberties: everyone should be free to act and think as they deem most appropriate; Foreign military intervention: nations should use military means to deal with international problems if necessary; Accepting immigrants: foreign immigrants contribute positively to our country.” These eight core political values have been validated in 15 countries (Schwartz et al., 2014) using an 18-item scale, which is used in the current study as a starting point of the exploration. It is possible that the eight-factor model described in the theory may not be validated with a Filipino sample, and the identification of a more valid structure of political values could be a starting point in re-engaging the study of political values in the Philippine context.

Values and Political Phenomena in the Philippines

As noted earlier, the construct of values has been referred to in studies on political behaviors and political developments in the Philippines; some of these studies are briefly reviewed in this subsection. In their review of Philippine political psychology research, Montiel and Chiongbian (1991) observe that values were the focus of research in relation to attempts to understand the political transitions from dictatorship and democracy after EDSA 1986. For example, a moral recovery program was proposed as part of social development efforts toward nation-building. Although much of the focus of the

program was on the “Filipino character,” some of the key goals explicitly refer to values, such as discipline, hard work, a sense of patriotism and national pride, among others (Licuanan, 1994). Although this program does not explicitly link values to specific political behaviors, the implication was that values held by Filipinos have an impact on the nation’s wellbeing, and that some values may require transformation in order to strengthen nation-building. A similar implication seems to be assumed in Enriquez’s (1992; 1994) proposals to construct an alternative value system of Filipinos. His proposed value system identified, among other values, *pakikibaka* (resistance) and social values of *karangalan* (dignity), *katarungan* (justice), and *kalayaan* (freedom), which can be considered to be explicitly political values. These attempts to articulate values that might be relevant in nation-building or in national social development took a more emic approach to studying values.

Montiel (1995) adopted similar emic approaches in her discussion of political conflict resolution in the Philippines. Her study indicated that smooth interpersonal harmony was one key characteristic, and that this is likely related to the Filipino value of saving face. Although their study did not explicitly refer to values, Montiel and Macapagal’s (2006) study on Christians’ and Muslims’ attributions of the Mindanao conflict identified contrasting sets of attributions that seem to implicitly assume distinct sets of values. In particular, attributions of marginalized Muslims tended to be associated with structural problems that implicitly refer to values of justice and self-determination, whereas attributions of the dominant Christian group tended to focus on person-centered factors that implicitly referred to weaker moral values.

There were some attempts to explore political values using etic approaches. A series of studies (Montiel, 1985; 1991) adopted an etic approach to explore values and changes in values of generations of Filipino student activists. The etic approach used Rokeach’s (1973) theory of values that relate to political orientation. Note that these studies, as well as the more emic studies, mostly refer to general values, and not to specific political values. Interestingly, in the review of political psychology research

in the Philippines, Montiel and Chiongbian (1991) also referred to some unpublished studies in the 1970s (Appleton, 1975; Sicat, 1970; Youngblood, 1972) that suggest that civics education in the Philippines tends to focus more on teaching the ideals of democracy and not underlying political values. These studies were noted in their discussion of political socialization among Filipinos, and seem to be invoked to explain the value system pervasive during the Martial Law period.

THE CURRENT STUDY

Although there were attempts to relate values to specific aspects of Philippine political phenomena, none of these explicitly defined specific core political values. As the earlier review indicates, core political values are useful constructs that can be utilized to understand specific political behaviors, yet there seems to be no published psychological research that explicitly relates core political values to political behaviors in the Philippines. Exploring core political values of Filipinos could also be done using approaches that assume that such values would be emergent from specific historical, cultural, socioeconomic, and political processes in particular Philippine communities. However, in this study, an etic approach is used to begin exploring core political values of Filipinos. In particular, the study has three aims: (a) to identify and validate the dimensions of political values of Filipinos using an existing theory and measure of political values, (b) to explore whether the dimensions of political values relate to basic beliefs about the social world or social axioms, and (c) to use dimensions of political values to identify clusters of individuals who share such values.

Note that the current study does not go so far as to establish how core political values defined in a foreign-developed theory are associated with specific political behavior of Filipinos. No political behaviors were measured in the study, and the study is currently limited to exploring the dimensions of such values and how these relate to social axioms. The attempt to look at how core political values are related to social axioms is motivated by the understanding that values and social axioms are linked in

important ways. Values are generally understood as being expressions of what people consider important goals to strive for, whereas social axioms are defined as generalized beliefs about the social world (Leung et al., 2002; Leung & Bond, 2004). The relationship between values and social axioms has often been seen in terms of the instrumental function of social axioms—that is, social axioms define the instrumentality of different social processes toward attaining important goals. Leung et al. (2007) expressed this relationship as follows: “Values provide the ‘what’ answer, in a sense that they define what one should pursue... Axioms provide the ‘how’ answer, because how one construes the social world bear on the strategies and actions adopted for goal achievement” (p. 94). The relationship between social axioms and values has focused on general value types, and the empirical evidence suggests that there are consistent meaningful relationships between value types and social axioms across cultures (Bond, Leung, Au, Tong, & Chemonges-Nelson, 2004; Leung et al., 2007). We aim to extend this analysis to core political values and social axioms. Note that like basic human values, social axioms are abstract and domain-general. Thus, our analysis has attempted to explore whether there are relationships between the more domain-specific political values and the more abstract social axioms.

Five social axioms are defined and each has specific instrumental functions that could relate to core political values in distinct ways. Two social axioms tend to be associated with more active goal-directed processes – reward for application and social complexity. Reward for application is the belief that goals will be achieved and difficulties will be overcome with persistent action, such as exertion of effort or application of knowledge; whereas, social complexity is the belief that behavior tends to change in varying contexts and that there are multiple factors and multiple pathways toward social outcomes (Leung et al., 2002). The instrumentality of both social axioms tends to be associated with the role of human agency in attaining social outcomes, although reward for application highlights the belief in systematic and persistent actions, while social complexity emphasizes the

multiplicity of factors and pathways in the process. In contrast, two other social axioms tend to emphasize external factors in their instrumentality – fate control and religiosity. Fate control is the belief that impersonal external forces (e.g., fate, luck) determine personal and social outcomes, and that individuals can influence these external forces; whereas religiosity is the belief that religious institutions and beliefs have beneficial roles in social life (Leung et al., 2002). As these beliefs emphasize external agents in the determination of social outcomes, the role of individual agency is more secondary, for example, in trying to influence fate or adhering properly to religious norms. The last social axiom is social cynicism, or a negative belief about people and social institutions. Social cynicism's instrumental function tends to involve more avoidant, self-protective, and competitive processes toward goal attainment. This study will explore whether the core political values have associations with specific social beliefs and their related instrumentalities.

Finally, the study attempts to identify clusters of participants who share similar profiles in terms of endorsement of the different core political values. The identification of such clusters could provide insights into how the Filipino population might be segmented in terms of the values they hold related to political outcomes and processes. Beyond just characterizing these clusters in terms of political values, the study will also determine whether the clusters endorse different social axioms.

METHOD

Participants

Participants were recruited via social media and invited to participate in an online survey. Participants had to be at least 18 years of age (preferably not older than 35), and residing in either Metro Manila or Metro Cebu and their surrounding cities and municipalities. Therefore, the sample was generally a young adult urban sample. There were 699 participants who indicated their informed consent to participate in the survey and who completed all the required scales. Their mean age was 23.41 years

($SD=4.72$). Majority were female (70.2%) and were working (52.2%), while the rest were still studying in different undergraduate and post-baccalaureate degree programs. The participants were asked to indicate their subjective social class rank (see measure below), and the mean rank was 4.50 ($SD=1.47$).

Instruments

MacArthur Scale of Subjective Social Status (Adler & Stewart, 2007). Participants were presented a ladder with 10 rungs that represented the different social statuses in Philippine society. The lowest rung (labeled 1) represented those who were worst off in society (with least money, least education, least respected jobs or no jobs) and those in the highest rung (labeled 10) were those who were best off (with most money, highest education, most respected jobs). Participants indicated where they believed they stood compared to others in Philippine society by clicking the numbered rung of their choice. In research in western countries, this subjective measure of social class correlates with objective indices of SES (Kraus, Côté, & Keltner, 2010), and reliably predicts outcomes associated with social class differences (Cohen et al., 2008).

Core Political Values Scale (Schwartz et al., 2014). The 18-item scale has been used to measure eight core political values (see introduction) and validated in 15 countries. Each of the political-value subscales comprised two or three items, for which the participants had to indicate their degree of agreement using a scale from 1 (*completely disagree*) to 5 (*completely agree*). The 18 items were presented in a different random sequence for each participant. No previous study has used this scale with a Filipino sample.

Social Axioms Survey II (Leung et al., 2012). The 40-item scale was used to measure endorsement of the five social axioms. Each item involved a statement about the relationship of two factors in the social domain; participants had to indicate their degree of agreement on a scale from 1 (*strongly disagree*) to 5

(*strongly agree*). The items were presented in a different random sequence for each participant. The version of the scale has been previously validated with Filipino samples but involving younger participants (Nalipay, Bernardo & Mordeno, 2016; 2017); the older version of the scale had been validated with Filipino samples of an age similar to those in the current study (Bernardo, 2004; 2013; Bernardo & Nalipay, 2016).

RESULTS

The first aim of the study was to identify and validate the dimensions of political values of Filipinos using an existing theory and measure of political values. To address this aim, the analytic strategy typically used in cross-cultural etic research was adopted; the same analytic approach was used in the first published study on the core political values (Schwartz et al., 2010). In particular, exploratory factor analysis was first conducted to determine the structure or dimensions of the construct, and this was followed by a confirmatory factor analysis to cross-validate the structure obtained in the exploratory analysis (Brown, 2006; Worthington & Whittaker, 2006). It is necessary to use independent sets of data for the cross-validation so that there can be a test of whether the previously obtained result is replicated with a new set of data. (Note that applying the two analyses on the same data is not cross-validation, particularly as exploratory and confirmatory factor analyses are closely related because they both apply the common factor model.) For this purpose, the total sample was partitioned into two complementary sets by randomly assigning each participant to either the exploratory or the confirmatory sample. The random assignment resulted in slightly unequal subsample sizes.

Exploratory Factor Analysis

The responses to the 18 items of the Core Political Values Scale of 348 (72.1% female; $M_{\text{age}}=23.35$, $SD=4.74$) randomly selected participants from the total sample were analyzed in an exploratory factor analysis procedure, using principal components analysis with oblique Promax rotation (with Kaiser normalization)

consistent with procedures of Schwartz et al. (2010; based on the assumption that core political values are correlated). Preliminary descriptive analyses indicate good sampling adequacy: Kaiser-Meyer-Olkin=.79; Bartlett's test of sphericity was significant, $\chi^2(153)=1184.63, p<.0001$. The Scree plot suggests only three factors instead of the eight factors measured on the original scale; the three factors accounted for a total of 40.34% of total variance. The pattern matrix and structure matrix were similar, so the pattern matrix was interpreted (this is summarized in Table 1). Factor loadings were at least .40 in their respective factors, and no factor item loads higher than .30 in the other two factors.

The first factor comprised all the eight items that measured *traditional morality, law and order, and blind patriotism*. Previous research (Schwartz et al., 2010; Schwartz et al., 2014) has shown that the three core political values are associated with the conservation dimension of basic human values (Schwartz et al., 2014); as such, we label this factor *conservation*. The label "conservative" was not used, as the meaning of conservative political values varies in different societies. Instead, the term "conservation" expresses the basic motivations associated with security, conformity, and tradition.

The second factor comprised all items that measured *free enterprise, foreign military intervention, and acceptance of immigrants*. In previous research (Schwartz et al., 2010; 2014) *free enterprise* and *foreign military intervention* were associated with the conservation dimension of basic human values, whereas *acceptance of immigrants* was associated with the opposite openness-to-change dimension, and in some samples with self-transcendence (Schwartz et al., 2014). The commonality among the items in this factor does not seem to be related to motivational directions of basic values. Instead, what seems common is an acknowledgement or appreciation of globalism in its broad ideological sense (James, 2006) and of its specific related policies such as increases in immigration, free trade, and military interventionism.

Table 1. Summary of Pattern Matrix of Exploratory Factor Analysis

Item	Factor 1	Factor 2	Factor 3
• It is extremely important to protect our traditional religious and moral values. (TM)	.70	-.12	.16
• Modern, permissive lifestyles are contributing to the breakdown of our society. (TM)	.62	-.06	-.06
• This country would have many fewer problems if there were more emphasis on traditional family ties. (TM)	.68	-.15	.19
• The government should forbid all protests that might turn violent. (LO)	.63	.08	-.07
• To guarantee the security of citizens, the government should restrict civil liberties. (LO)	.60	.22	-.19
• Police should have more powers to protect citizens. (LO)	.59	.08	.16
• It is unpatriotic to criticize this country. (BP)	.57	.21	-.10
• I would support my country, right or wrong. (BP)	.47	.13	-.02
• All public enterprises should be removed from government control and made private. (FE)	.19	.46	-.22
• The freer the market is from government interference the better. (FE)	.12	.45	.04
• Going to war is sometimes the only solution to international problems. (MI)	.02	.51	-.13
• Our country should join other democratic nations in sending troops to fight dangerous regimes. (MI)	.21	.41	.08
• People who come to live here from other countries generally make our country a better place to live in. (AI)	.04	.68	.16
• People who come to live here from other countries make our country's cultural life richer. (AI)	-.24	.70	.19
• If people were treated more equally in this country we would have much fewer problems. (EQ)	.22	-.10	.65
• Our society should do whatever is necessary to make sure that everyone has equal opportunities to succeed. (EQ)	.16	-.11	.69
• The most important thing for our country is to defend civil liberties. (CL)	-.12	.21	.59
• Individuals should be free to be and to believe whatever they want. (CL)	-.16	.16	.57
Eigenvalues	3.79	1.93	1.54
% of Variance	21.07	10.74	8.53

Legend: Category of items in the scale used by Schwartz et al. (2014): TM=traditional morality; LO=law and order; BP=blind patriotism; FE=free enterprise; MI=military intervention; AI=acceptance of immigrants; EQ=equality; CL=civil liberties.

Thus, the second factor is labeled *globalism*; the term “globalization” was not used so as to avoid associations with current discourses that emphasize market globalization and neoliberal economic ideologies.

The third factor comprised the remaining four items that assess *equality* and *civil liberties*. These two core political values are consistently shown to be associated with the self-transcendence dimension of basic human values (Schwartz et al., 2010; 2014), which expresses a concern for others instead of oneself. The stronger association with the value of universalism relative to benevolence underscores the concern for people outside one’s in-group and that they be treated fairly and equally in society. As such, this factor is labeled as *equal rights*.

The composite reliability of each factor was computed using an online calculator (Colwell, 2016) that applies Raykov’s (1997) formula: All factors were found to have good composite reliability (CR): conservation CR=.83, globalism CR=.71, and equal rights CR=.72.

Confirmatory Factor Analysis

To cross-validate the exploratory factor analysis results, data from the other 351 participants (68.4% female; $M_{\text{age}}=23.48$, $SD=4.71$) were analyzed using confirmatory factor analysis. A three-factor model was tested with each of the three factors identified in the exploratory analysis with their respective items. The three latent factors—conservation, globalism, and equal rights—covaried in the model; moreover, when the modification indexes indicated covariance, the error terms of selected items within a latent factor were covaried with each other. The fit indexes indicated an adequate fit between the three-factor model and the data: $\chi^2(123)=171.45$, $\chi^2/df=1.39$; CFI=.95; TLI=.93; IFI=.95; RMSEA=.03 [90CI: .02; .05].

As was done in the exploratory factor analysis, the composite reliability of the items in each factor was computed, but the CRs were not as good as with the previous analysis: conservation CR=.78, globalism CR=.52, and equal rights

CR=.52. The less than adequate CRs notwithstanding, the results of the exploratory and confirmatory factor analyses provide convergent evidence for the three factors signifying core political values of the Filipino sample.

Relationship with Social Axioms

The next analysis involved inquiring into possible relationships between core political values and social axioms. As discussed in the introduction, values and social axioms tend to be related in meaningful ways (Leung et al., 2007). It is assumed that values indicate the desired goals of individuals, whereas the social axioms indicate their beliefs regarding the processes for the attaining goals.

For this analysis, the complete sample was used and the descriptive statistics are summarized in Table 2. Moreover, the scores for the three core political values were centered on each participant's own mean value ratings to correct for individual differences in scale use; this centering procedure is commonly done when studying the relationships between value scores and other variables (Schwartz et al., 2010). For the main analysis, each core political value (centered scores) was regressed into the five social axioms, with age, sex, work status, and subject social class included in the model as control variables. But first, the zero-order correlations (also using centered scores for the core political values) were examined to check for multicollinearity. The results in Table 2 show mostly low correlations between core political values and social axioms. Table 3 summarizes the results of the regression analysis. It is important to note that for all three core political values, social axioms explained a significant portion of the variance (see significant ΔR^2).

Table 2. Summary of Descriptive Statistics for Core Political Value and Social Axioms

	Cronbach α	<i>M</i> (<i>SD</i>)	Correlations (<i>r</i>)						
			(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Conservation	.78	2.63 (.79)	-.68**	-.65**	.10**	-.17**	.19**	.27**	.40**
(2) Globalism	.59	2.34 (.63)		-.11**	.01	-.00	-.15**	-.07	-.26**
(3) Equal rights	.55	4.03 (.64)			-.14**	.24**	-.10**	-.30**	-.27**
(4) Social cynicism	.74	2.96 (.60)				.13*	-.00	.24**	.06
(5) Social complexity	.60	4.26 (.40)					.29**	.03	.02
(6) Reward for application	.80	2.34 (.47)						.10*	.27**
(7) Fate control	.80	2.82 (.73)							.37**
(8) Religiosity	.75	3.33 (.65)							

* $p < .01$, ** $p < .0001$

Table 3. Summary of Hierarchical Regression Analysis Results

	Conservation		Globalism		Equal rights	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Age	-.14***	-.11**	.04	.04	.13**	.08*
Sex ^a	.14***	.12***	-.12**	-.11**	-.04	-.03
Working ^b	-.07	-.05	.11**	.10*	-.02	-.03
Subjective social class	.08*	.08*	-.11**	-.11**	.01	.02
Social cynicism		.05		.07		-.11**
Social complexity		-.22***		-.07		.29***
Reward for application		.14***		-.06		.11**
Fate control		.15***		-.01		-.21***
Religiosity		.30***		-.18***		-.16***
<i>R</i> ²	.07	.28	.06	.09	.02	.21
<i>F</i>	12.55***	29.80***	11.89***	7.80***	2.81*	20.27***
<i>df</i>	4, 694	9, 689	4, 694	9, 689	4, 694	9, 689
ΔR^2		.21		.03		.19
$\Delta F(5, 689)$		40.72***		4.30**		33.71***

^a1 = male, 2 = female; ^b1 = student, 2 = working; * $p < .05$, ** $p < .01$, *** $p < .0001$

Among the three political values, social axioms explained the largest portion of the variance of conservation values. Three social axioms (reward for application, fate control, religiosity) were positively associated with the conservation political values, and in addition, social complexity was negatively associated with conservation. The results also show that endorsement of conservation was weaker among older participants in the sample, but higher among females and among those who report higher subjective social status. Social axioms explained a smaller, but still significant, portion of the variance of globalism. Only religiosity was significantly (negatively) associated with globalism. In contrast to conservation, globalism was more strongly endorsed by older participants, and less so by females and those who report higher subjective social status. Finally, all five social axioms were associated with equal rights, but only social complexity was positively associated with the political value. The results also show that endorsement of equal rights tended to be higher among older participants. The meaning of the relationships among the social axioms and core political values will be considered in the Discussion.

Cluster Analysis

The final exploratory analysis undertaken was to identify groups of participants who share similar patterns of endorsement of the core political values using cluster analysis. For this analysis, the two-step clustering procedure of the SPSS (v. 24) was used. The first step is the pre-cluster procedure using a sequential clustering approach (Theodoridis & Koutroumbas, 1999) to construct a modified cluster-feature tree (Zhang, Ramakrishnon, & Livny, 1996). The second step uses the agglomerative hierarchical clustering method and takes the results of the first step and fits them into the desired number of clusters (Zhang et al., 1996). The use of the auto-cluster procedure in this step automatically finds the optimal number of clusters.

Using the procedure, the complete sample was clustered based on the three core political values. The centered scores for the core political values were standardized before using these in

the cluster analysis. The results indicated that the optimal number of clusters was four; Table 4 summarizes the characteristics of each cluster using both the standardized scores and mean scores. The standardized scores for the three core political values of the four clusters were analyzed using MANOVA, and the results indicated significant differences across the groups for all three core political values, *Wilks' Lambda*=0.12, $F(6, 1388)=443.44$, $p<.0001$, $\eta_p^2=.66$. The means for core political values were also analyzed using MANOVA, and results also indicated significant differences across the groups for all core political values, *Wilks' Lambda*=0.12, $F(9, 2075)=226.16$, $p<.0001$, $\eta_p^2=.51$. For both analyses, the means were also analyzed using the Bonferroni test for post hoc pairwise comparisons of means (see Table 4 for results).

Participants grouped in Cluster 1 ($N=200$) reported the lowest endorsement of equal rights and higher endorsement of conservation and globalism. In terms of the standardized scores, this cluster was lower than the other three clusters in equal rights, although the mean score is in the midpoint of the scale (“agree somewhat”). The means for globalism and conservation were also near the midpoint, and higher than two other clusters. The participants in this cluster could be described as *conservative globalists*, and they can be contrasted from those in Cluster 4 ($N=100$), who could be described as *egalitarian globalists*. Those in Cluster 4 were also high on globalism, but differed from those in Cluster 1 because they were high in equal rights but low in conservation. In terms of standardized and mean scores, those in Cluster 4 were highest in equal rights and lowest in conservation; compared to the other clusters, there was the greatest contrast between equal rights and conservation.

Table 4. Summary of Differences in Core Political Values across Clusters

Core political values	Standardized centered scores (Z): <i>M (SD)</i>				<i>F</i> (3, 695)	η_p^2	Unstandardized scores: <i>M (SD)</i>				<i>F</i> (3, 695)	η_p^2
	Cluster 1	Cluster 2	Cluster 3	Cluster 4			Cluster 1	Cluster 2	Cluster 3	Cluster 4		
Conservation	0.28 ^b (0.51)	1.22 ^a (0.52)	-0.31 ^c (0.44)	-1.65 ^d (0.45)	777.54*	.77	2.90 ^b (0.65)	3.40 ^a (0.53)	2.32 ^c (0.52)	1.65 ^d (0.38)	249.82*	.52
Globalism	0.58 ^b (0.60)	-1.16 ^d (0.65)	-0.23 ^c (0.57)	1.18 ^a (0.78)	359.56*	.61	2.74 ^a (0.62)	2.07 ^b (0.50)	2.07 ^b (0.48)	2.60 ^a (0.58)	78.03*	.25
Equal Rights	-0.98 ^d (0.59)	-0.45 ^c (0.64)	0.65 ^b (0.56)	1.03 ^a (0.75)	375.41*	.62	3.55 ^d (0.67)	3.98 ^c (0.54)	4.28 ^a (0.46)	4.43 ^a (0.48)	85.02*	.27

* $p < .0001$; Note: Row means with different superscripts are statistically different from each other, as indicated by Bonferroni tests for post hoc pairwise comparisons of means.

Participants in Cluster 2 ($N=152$) were the highest in conservation (in standardized and mean scores) and low in the other two core political values—in fact, lowest in globalism. Those in the group clearly prioritize the conservation values, and could those be described as the *conservative* group. In contrast, those in Cluster 3 ($N=247$) were high on equal rights, and low in the other two core political values, also lowest in globalism. Those in this cluster prioritize equal rights more than any other political values, and could be described as the *egalitarian* group.

Looking at the four clusters, two (Clusters 1 and 2) could be characterized as high in conservation and the other two (Clusters 3 and 4) as high in equal rights. Of the two clusters high in conservation, one is also high in globalism; and similarly, of the two clusters high in equal rights, one is also high in globalism. So it seems that the more natural clustering of participants first distinguishes between endorsements of conservation vis-à-vis equal rights; the endorsement of globalism might be secondary in the clustering.

To further explore the characteristics of the cluster, the four clusters were also compared in terms of the social axioms scores, and these are summarized in Table 5. The observed relationships between social axioms and core political values might be reflected in the cluster differences. A MANOVA indicated significant differences in all social axioms across the four clusters, *Wilks' Lambda*=0.74, $F(15, 1908)=14.37$, $p<.0001$, $\eta_p^2=.09$, but that the effects are smaller compared to the group differences in political values.

Table 5. Summary of Differences in Social Axioms across Clusters

Core political values	M (SD)				F(3, 695)	η_p^2
	Conservative Globalists	Conservatives	Egalitarians	Egalitarian Globalists		
• Social cynicism	3.04 ^a (0.61)	2.98 ^{ab} (0.65)	2.94 ^{ab} (0.57)	2.82 ^b (0.55)	2.92*	.01
• Social complexity	4.14 ^c (0.47)	4.24 ^{bc} (0.35)	4.32 ^{ab} (0.36)	4.38 ^a (0.34)	11.22**	.05
• Reward for application	4.30 ^b (0.49)	4.50 ^a (0.42)	4.31 ^b (0.45)	4.21 ^b (0.52)	9.44**	.04
• Fate control	3.01 ^a (0.69)	2.97 ^a (0.76)	2.70 ^b (0.64)	2.46 ^c (0.76)	18.94**	.08
• Religiosity	3.42 ^b (0.61)	3.65 ^a (0.58)	3.29 ^b (0.57)	2.79 ^c (0.68)	42.73**	.16

* $p < .05$, ** $p < .0001$; Note: Row means with different superscripts are statistically different from each other, as indicated by Bonferroni tests for post hoc pairwise comparisons of means.

Note that because there are general differences in how each of the five social axioms is endorsed (e.g., reward for application tends to be the most highly endorsed social axiom among Filipinos), the characterization of the four clusters is based primarily on the results of the pairwise group comparisons, instead of just the means. In this regard, the conservative globalists endorsed fate control to a higher degree, but endorsed social complexity to a low degree compared to most other clusters. This is the opposite for the egalitarian globalists, who endorsed fate control to a lower degree but endorsed social complexity to a higher degree compared to most other clusters.

The contrast between these two groups that both value globalism might be related to their opposing endorsement of conservation and egalitarian political values. This contrast seems to also be reflected in the social axioms endorsed by the conservative and egalitarian clusters. Similar to the egalitarian globalist, the egalitarian group also endorsed fate control to a relatively lower degree and social complexity to a higher degree compared to some other clusters. And similar to the conservative globalists, the conservative group also endorsed fate control to a higher degree and endorsed social complexity to a lower degree compared to the other groups. The conservative group also endorsed religiosity more than other groups, which suggests the belief that religious institutions would play an important role in the attainment of the ideal political values. Note that religiosity, like fate control, also highlights the role of impersonal external forces. These cluster differences in social axioms, together with the results of the regression analysis relating social axioms to core political values, are considered in the Discussion.

DISCUSSION

The study was undertaken to begin re-engaging the construct of political values in the Philippine context, and it has three aims: (a) to identify and validate the dimensions of political values of Filipinos using an existing measure of political values, (b) to explore how the dimensions of political values relate to social

axioms, and (c) to identify distinct clusters of individuals that share political values.

The two-stage factor analytic procedure indicated that the eight-factor model of core political values may not be suited for the Filipino sample. Instead, a three-factor model might be more suited, with two factors representing distinct core political values with clear motivational directions. Before discussing the findings related to the three factors of core political values, we should consider the meaning of obtaining only three factors of core political values instead of eight. Typically, non-replication of a theoretical factor structure in another culture would suggest issues with the universality of the model (Watkins, 1989), but we should keep in mind the existing cross-cultural evidence for the eight-factor structure of the core political values (i.e., Schwartz et al., 2014). Technically, the three-factor solution means that for this Filipino sample, their responses on the various political values items tend to be related to only three latent factors, instead of eight. This could mean that the Filipino sample's responses may indicate that they do not conceptually differentiate among some of the original eight political values, but this could also mean that they do so but their understanding of some of the core political values tended to have greater overlap or relationships compared to the samples in previous studies. It is difficult to know exactly why only three factors were obtained instead of eight, but what the results suggest is that three factors can be interpreted meaningfully.

For example, the conservation factor represents a core political value that expresses motivations related to attaining and maintaining security, tradition, and conformity; this factor comprised items that represent law and order, traditional morality, and blind patriotism values in the original model (Schwartz et al., 2010). In contrast, the equal rights factor represents a core political value that expresses motivations related to self-transcendence, or promoting the welfare of other people, including those beyond one's immediate social circles; this factor comprised items that represent civil liberties and equality values in the original model.

The contrast between these two core political values is further supported by their relationships with social axioms and in the clustering of participants based on political value profiles. Both conservation and equal rights were positively associated with reward for application, which is consistent with previous research showing that reward for application was moderately related to both conservation and self-transcendent value dimensions (Bond et al., 2004). However, while conservation is positively related to fate control and religiosity but negatively related to social complexity, equal rights was negatively related to fate control and religiosity but positively related to social complexity. In addition, equal rights was negatively associated with social cynicism, which indicates a greater trust of people and social institutions as agents toward the attainment of their values. The opposing pattern of relationships suggests that the two core political values also tend to be associated with different beliefs regarding how to attain sociopolitical goals. Conservation, but not equal rights, is associated with beliefs about the role of impersonal external factors, whereas equal rights, but not conservation, is associated with beliefs regarding the need for multiple pathways that consider multiple factors.

Interestingly, the regression analyses indicate opposing relationships between age and the two core political values: The “older” participants tended to score higher in equal rights and lower in conservation. But we should keep in mind that the age of target participants was limited to 35 years; thus this age effect should be interpreted with caution. We could speculate by linking the result to social complexity beliefs. It is possible that the older participants who are already working and handling more adult responsibilities have a stronger belief in the need to consider multiple pathways and factors to attain social goals, compared to the younger participants who might still be in school and who might not yet have appreciation of such social complexity. But whether the participant was working or studying was not associated with either factor in the regression analysis. This speculative interpretation and alternative ones could be

investigated in future studies with more representative samples having a wider age range of participants.

The cluster analysis also identified two clusters of participants that were distinguished for being either high in conservation (conservative cluster) or high in equal rights (egalitarian cluster), and two clusters that also endorsed either value to a high degree but together with globalism (conservative globalists and egalitarian globalists). Both egalitarian clusters endorsed fate control to a relatively lower degree and social complexity to a higher degree compared to the two conservative clusters, further supporting the observed pattern of differences and associations between the two core political values of conservation and equal rights.

Globalism as a core political value, on the other hand, did not have a clear motivational direction (i.e., the component items point to different motivations). The common thread among the factor items is the endorsement of policies that tend to be associated with globalist ideologies. Indeed, as noted by Schwartz et al. (2010), the items (particularly those related to military intervention and acceptance of immigrants) might express political attitudes instead of actual political values. Globalism's associations with social axioms do not help in clarifying this factor, as only religiosity was related. When comparing the two clusters that also endorsed globalism, their profiles actually overlap with the other two clusters. These results suggest that globalism cannot be clearly defined or characterized based on the results of the current sample.

Thus, the overall results of this exploratory study suggest two possible core political values with distinct motivational directions, associated beliefs regarding attaining the desired social outcomes, and that may be used to identify groups of Filipinos. These two core political values of conservation and equal rights could be interpreted as reflecting the conservative-liberal dichotomy of values used by political scientists, but it is important to note that the two core political values defined in this study also reflect underlying motivational directions as well as beliefs about

how social outcomes are attained. The limited scope and assumptions of the study should caution against concluding that these two are the only core political values of Filipinos. The etic approach of the study limits the range of concepts within which core political values were explored, and it is possible that there are other types of core political values that are important for Filipinos. These other core political values could be revealed in studies that use a more emic approach. But it is important to ensure that the core political values identified in emic approaches are actually values (and not attitudes, beliefs, or concepts), are political (and not basic human values that apply across domains), and are core (i.e., they can account for a range of political attitudes and behaviors). Indeed, the goal of identifying Filipino's core political values needs to be a sustained effort that combines emic and etic approaches.

The identification of two possible core political values in this study takes a small but important step toward that direction. Taking these two core political values as a starting point, future research can begin inquiring into whether endorsement of either of the two values can explain specific political behaviors. In other countries where elections involve candidates from political parties with different ideologies and political programs, core political values have been shown to be useful explanatory constructs (Vecchione et al., 2013). Because elections in the Philippines do not typically involve strong party considerations (Holmes, 2017), exploring links between core political values and voting may not lead to clear patterns, but it might still be worth exploring. For example, studies could look into how the endorsement of conservation or equal rights is associated with political attitudes related to policies and positions of different candidates.

More generally, future research could study whether endorsement of core political values predicts a range of political and policy attitudes, or whether clusters of citizens based on core political values differ in terms of such attitudes. The contrasting core political values of conservation and equal rights could be seen as underlying the opposing positions related to the deaths resulting from the current Philippine government's war on drugs,

the reinstatement of the death penalty, the strong military response to the Marawi crisis, and openness to dissent or criticisms of government officials. One could surmise support for the aforementioned developments could be guided by the core political value of conservation, with its related basic motivations of security and conformity and negative association with social complexity beliefs. Perhaps those who strongly endorse conservation (like those in Clusters 1 and 2) perceive drug addicts, criminals, terrorist or rebel groups, and critics of the present administration as either going against the societal norms or the will of the people and as threats to security, who need to be dealt with in forceful and uncomplicated ways. On the other hand, those who are critical of the government's stands on the aforementioned issues could be guided by the core value of equal rights and its associated motivations of benevolence and universalism, and belief in complex pathways to social goals. One can see how those who strongly endorse equal rights (like those in Clusters 3 and 4) are concerned about how drug suspects are not given due process under a fair justice system, about how criminal are not given a chance to be rehabilitated, and about the welfare of families displaced during military operations in conflict areas. We can see how the construct of core political values can be useful in clarifying diverse political attitudes in this current particularly divisive period in Philippine society.

More broadly, research could also look into how core political values relate to engagement in political activities, to consumption of political information in social media, or to political activism. In the future, research could also inquire into factors that shape the development of these political values. Montiel and Chiongbian (1991) discuss the limits of civics education in nurturing abstract political values, which raises the question of what social and developmental processes might be more effective. Future research can also focus on similar processes that could point to important insights regarding how specific political values could be strengthened. Indeed, the process of nation-building would be well-served by efforts to find common ground related to core political values that may divide Filipinos and by

sincere programs to understand and attain the core political values shared by most Filipinos.

REFERENCES

- Adler, N.E., & Stewart, J. (2007). The MacArthur scale of subjective social status. *MacArthur Research Network on SES & Health*. Retrieved from <http://www.macses.ucsf.edu/Research/Psychosocial/subjective.php>
- Appleton, A.L. (1975). *Citizenship education and political socialization of Filipino school children in a provincial setting*. Unpublished doctoral dissertation, University of Texas.
- Barnea, M.F., & Schwartz, S.H. (1998). Values and voting. *Political Psychology, 19*, 17-40.
- Bernardo, A.B.I. (2004). Culturally-rooted beliefs and learning: Exploring the relationships among social axioms, achievement goals, and learning strategies of Filipino college students. *Philippine Journal of Psychology, 37*, 79-100.
- Bernardo, A.B.I. (2013). Hope grounded in belief: Influences of reward for application and social cynicism on dispositional hope. *Scandinavian Journal of Psychology, 54*, 522-528.
- Bernardo, A.B.I., Clemente, J.A.R., & Nalipay, M.J.N. (2016). What personal value types are associated with beliefs on the social value of religion? *Psychological Studies, 61*, 170-180.
- Bernardo, A.B.I., & Nalipay, M.J.N. (2016). Social axioms as social foundations of locus-of-hope: A study in three Asian cultural groups. *Personality and Individual Differences, 95*, 110-113.
- Berry, J.W. (1989). Imposed etics-emics-derived etics: The operationalization of a compelling idea. *International Journal of Psychology, 24*, 721-735.
- Bond, M.H., Leung, K., Au, A., Tong, K.K., & Chemonges-Nielson, Z. (2004). Combining social axioms with values in predicting social behaviours. *European Journal of Personality, 18*, 177-191.
- Brown, T. A. (2014). *Confirmatory factor analysis for applied research*. New York: Guilford.
- Caprara, G.V., Schwartz, S.H., Capanna, C., Vecchione, M., & Barbaranelli, C. (2006). Personality and politics: Values, traits, and political choice. *Political Psychology, 27*, 1-28.
- Cohen, S., Alper, C.M., Doyle, W.J., Adler, N., Treanor, J.J., & Turner, R.B. (2008). Objective and subjective socioeconomic status and

- susceptibility to the common cold. *Health Psychology*, 27(2), 268-274.
- Colwell, S.R. (2016). The composite reliability calculator. Technical Report, DOI:10.13140/RG.2.1.4298.088.
- Converse, P.E. (1964). The nature of belief systems in mass publics. In D.E. Apter (Ed.), *Ideology and discontent* (pp. 206-261). New York: Free Press.
- Enriquez, V.G. (1992). *From colonial to liberation psychology: The Philippine experience*. Quezon City: University of the Philippines Press.
- Enriquez, V.G. (1994b). *Pagbabangong-dangal: Indigenous psychology and cultural empowerment*. Quezon City: Akademya ng Kultura at Sikolohiyang Pilipino.
- Evans, G., Heath, A., & Lalljee, M. (1996). Measuring left-right and libertarian-authoritarian values in the British electorate. *The British Journal of Sociology*, 47, 93-112.
- Feldman, S. (2003). Values, ideology, and structure of political attitudes. In D.O. Sears, L. Huddy, & R. Jervis (Eds.), *Oxford handbook of political psychology* (pp. 477-508). New York: Oxford University Press.
- Goren, P. (2005). Party identification and core political values. *American Journal of Political Science*, 49, 881-896.
- Gunther, R., & Kuan, H.C. (2007). Value cleavages and partisan conflict. In R. Gunther, J.R. Montero, & H.J. Puhle (Eds.), *Electoral intermediation, values, and political support in old and new democracies: Europe, East Asia, and the Americas in comparative perspective* (pp. 255-320). Oxford: Oxford University Press.
- Holmes, R.D. (2017). The dark side of electoralism: Opinion polls and voting in the 2016 Philippine presidential election. *Journal of Current Southeast Asian Affairs*, 35(3), 15-38.
- Jacoby, W.G. (2006). Value choices and American public opinion. *American Journal of Political Science*, 50, 706-723.
- James, P. (2006). *Globalism, nationalism, tribalism: Bringing theory back in*. London: Sage.
- Judd, C. M., Krosnick, J. A., & Milburn, M. A. (1981). Political involvement and attitude structure in the general public. *American Sociological Review*, 46, 660-669.
- Kotzur, P.F., Torres, C.V., Kedzior, K.K., & Boehnke, K. (2015). Political consumer behaviour among university students in Brazil and Germany: The role of contextual features and core political values. *International Journal of Psychology*, 52(2), 126-135.

- Kraus, M.W., Côté, S., & Keltner, D. (2010). Social class, contextualism, and empathic accuracy. *Psychological Science, 21*(11), 1716-1723.
- Leung, K., Au, A., Huang, X., Kurman, J., Niit, T., & Niit, K.K. (2007). Social axioms and values: A cross-cultural examination. *European Journal of Personality, 21*, 91-111.
- Leung, K., & Bond, M.H. (2004). Social axioms: A model for social beliefs in multi-cultural perspective. *Advances in Experimental Social Psychology, 36*, 113-197.
- Leung, K., Bond, M.H., de Carrasquel, S.R., Muñoz, C., Hernandez, M., Murakami, F., ... Singelis, T.M. (2002). Social axioms: The search for universal dimensions of general beliefs about how the world functions. *Journal of Cross-Cultural Psychology, 33*, 286-302.
- Leung, K., Lam, B. C., Bond, M. H., Conway, L. G., Gornick, L. J., Amponsah, B., ... Zhou, F. (2012). Developing and evaluating the social axioms survey in eleven countries: Its relationship with the five-factor model of personality. *Journal of Cross-Cultural Psychology, 43*, 833-857.
- Licuanan, P.B. (1994). A moral recovery program: Building a people—Building a nation. In M.B. Dy (Ed). *Values in Philippine culture and education* (pp. 35-54). Washington, D.C.: Council for Research in Values and Philosophy.
- McCann, J.A. (1997). Electoral choices and core value change: The 1992 presidential campaign. *American Journal of Political Science, 41*, 564-583.
- Montiel, C. (1985). Values and value changes of former Filipino student activists. *Philippine Journal of Psychology, 17-18*, 55-72.
- Montiel, C. (1991). Factor analysis of ideological and generational differences in value orientation among Filipino student activists. *Philippine Journal of Psychology, 24*, 12-21.
- Montiel, C.J. (1995). Social psychological dimensions of political conflict resolution in the Philippines. *Peace and Conflict: Journal of Peace Psychology, 1*, 149-159.
- Montiel, C.J. (1997). Citizen-based peace-making in a protracted war: Two Philippine cases. *Peace and Conflict: Journal of Peace Psychology, 3*, 115-134.
- Montiel, C.J., & Macapagal, M.E.J. (2006). Effects of social position on societal attributions of an asymmetric conflict. *Journal of Peace Research, 43*(2), 219-227.
- Nalipay, M.J.N., Bernardo, A.B.I., & Mordeno, I.G. (2016). Social complexity beliefs predict posttraumatic growth in survivors of a natural disaster. *Psychological Trauma: Theory, Research, Practice, and Policy, 8*, 559-567.

- Nalipay, M.J.N., Bernardo, A.B.I., & Mordeno, I.G. (2017). Posttraumatic growth in survivors of a natural disaster: The role of the social axioms of religiosity, reward for application, and social cynicism. *The Journal of Positive Psychology, 12*, 342-353.
- Peffley, M.A., & Hurwitz, J. (1985). A hierarchical model of attitude constraint. *American Journal of Political Science, 29*, 871-890.
- Piurko, Y., Schwartz, S.H., & Davidov, E. (2011). Basic personal values and the meaning of left-right political orientations in 20 countries. *Political Psychology, 32*(4), 537-561.
- Raykov, T. (1997). Estimation of composite reliability for congeneric measures. *Applied Psychological Measurement, 21*, 173-184.
- Rokeach, M. (1973). *The nature of human values*. New York: Free Press.
- Schwartz, S.H. (2006). Basic human values: Theory, measurement, and applications. *Revue Française de Sociologie, 47*, 249-288.
- Schwartz, S.H., Caprara, G.V., & Vecchione, M. (2010). Basic personal values, core political values, and voting: A longitudinal analysis. *Political Psychology, 31*, 421-452.
- Schwartz, S.H., Caprara, G.V., Vecchione, M., Bain, P., Bianchi, G., Caprara, M.G., ... & Mamali, C. (2014). Basic personal values underlie and give coherence to political values: A cross national study in 15 countries. *Political Behavior, 36*, 899-930.
- Sicat, L.M. (1970). *The political attitudes of young Filipinos: A study in political socialization*. Unpublished doctoral dissertation, Massachusetts Institute of Technology.
- Theodoridis, S., & Koutroumbas, K. (1999). *Pattern recognition*. New York: Academic Press.
- Vecchione, M., Caprara, G., Dentale, F., & Schwartz, S.H. (2013). Voting and values: Reciprocal effects over time. *Political Psychology, 34*(4), 465-485.
- Vecchione, M., Schwartz, S.H., Caprara, G.V., Schoen, H., Ciecuch, J., Silvester, J., ... & Mamali, C. (2015). Personal values and political activism: A cross-national study. *British Journal of Psychology, 106*(1), 84-106.
- Watkins, D. (1989). The role of confirmatory factor analysis in cross-cultural research. *International Journal of Psychology, 24*(6), 685-701.
- Worthington, R., & Whittaker, T. (2006). Scale development research: A content analysis and recommendations for best practices. *Counseling Psychologist, 34*, 806-838.
- Youngblood, R.L. (1972). *The political socialization of high school students and the parents in the city of Manila*. Unpublished doctoral dissertation, University of Michigan.

Zhang, T., Ramakrishnan, R., & Livny, M. (1996). BIRCH: An efficient data clustering method for very large databases. *ACM SIGMOD Record*, 25, 103-114.