

## ABSTRACT

Title of thesis: THE DIMENSIONS OF PUBLIC OPINION ON ABORTION: CONCEPTUALIZING ATTITUDES ABOUT ABORTION IN THE 2006 ANES PILOT STUDY DATA IN TERMS OF THE GRAVITY OF THE DECISION AT SOCIAL AND INDIVIDUAL LEVELS

Diego Mantilla, 2007

Thesis directed by: Professor John Newhagen  
Department of Journalism

In the public arena, attitudes toward abortion are rivaled in intensity only by those toward homosexuality. However, measuring attitudes toward abortion is problematic, a fact acknowledged by the battery of questions addressing it in the ANES 2006 Pilot Study. The proposal for the 2006 ANES Pilot Study abortion questions says that issues of rape, incest, and the life of the woman are mixed in the wording of the standard ANES abortion question. Instead, seven abortion scenarios and a more detailed response set are proposed as a remedy. This work suggests, however, that even in the transformed state the problem of measuring attitudes about abortion still lacks conceptual clarity. It further suggests that the *pro-choice* and *pro-life* rhetoric frequently used to describe the two opposing positions on the issue represent little more than a linguistic gimmick intended to frame the discussion (see Iyengar & Kinder, 1985). Rather, medical, civil, and

social/cultural issues underlie the rhetoric of *choice* and *life* and represent discrete evaluative structures from which respondents may frame the issue.

Multidimensional scaling (MDS) analysis shows those issues can best be understood when arrayed on two dimensions based on the gravity of the decision to abort for the individual or for society.

THE DIMENSIONS OF PUBLIC OPINION ON ABORTION:  
CONCEPTUALIZING ATTITUDES ABOUT ABORTION IN THE 2006 ANES  
PILOT STUDY DATA IN TERMS OF THE GRAVITY OF THE DECISION AT  
SOCIAL AND INDIVIDUAL LEVELS

by

Diego Mantilla

Thesis submitted to the Faculty of the Graduate School of the  
University of Maryland, College Park in partial fulfillment  
of the requirements for the degree of  
Master of Arts  
2007

Advisory Committee:

Professor John Newhagen, Chair  
Professor Carl Sessions Stepp  
Professor Don Heider

## TABLE OF CONTENTS

List of Tables.....	iii
List of Figures.....	iv
Literature Review.....	1
Conceptualizing a Deeper Dimension.....	9
Data.....	18
Method.....	28
Result.....	33
Discussion.....	36
Appendix.....	42
References.....	45

## LIST OF TABLES

Table 1. Abortion Variables used in MDS Analysis.....	31
Table 2. Correlations between Attitudes toward Seven Abortion Scenarios.....	32
Table 3. Responses to Original ANES Abortion Question, 1972-1980.....	43
Table 4. Responses to Current ANES Abortion Question, 1980-2004.....	44

## LIST OF FIGURES

Figure 1. The ANES 2006 Pilot Survey Abortion Battery.....	11
Figure 2. The Genesis of Question Framing Underlying Attitudes about Legal Abortions.....	17
Figure 3.1. Distribution of Scores in the Cause the Woman to Die Scenario.....	19
Figure 3.2. Distribution of Scores in the Hurt Woman’s Health Scenario.....	21
Figure 3.3. Distribution of Scores in the Birth Defect Scenario.....	22
Figure 3.4. Distribution of Scores in the Non-Rape Incest Scenario.....	24
Figure 3.5. Distribution of Scores in the Rape Scenario.....	25
Figure 3.6. Distribution of Scores in the Financial Burden Scenario.....	26
Figure 3.7. Distribution of Scores in the Wrong Sex Scenario.....	27
Figure 4. Abortion Scenarios Arrayed on Dimensions of Individual and Social Gravity.....	34

THE DIMENSIONS OF PUBLIC OPINION ON ABORTION:  
CONCEPTUALIZING ATTITUDES ABOUT ABORTION IN THE 2006 ANES  
PILOT STUDY DATA IN TERMS OF THE GRAVITY OF THE DECISION AT  
SOCIAL AND INDIVIDUAL LEVELS<sup>1</sup>

## LITERATURE REVIEW

This work has two ends. First, using data from the latest ANES study it attempts to discover underlying dimensions that guide people's attitudes on abortion. Second, by unearthing those dimensions, the work suggests a theoretical framework for future surveys on this issue. To those ends, it begins by reviewing the relevant literature.

Abortion is at the heart of the debate on whether or not the United States is a polarized country. Various researchers have attempted to either demonstrate or disprove that, when it comes to abortion, the country is split into two camps. One line of research suggests that while the country has become less polarized over time on a number of issues, it has become more polarized around the issue of abortion (DiMaggio, Evans, & Bryson, 1996; Evans, 2003). Another line of research suggests that the polarization around abortion is exaggerated (Mouw

---

<sup>1</sup> Based on analysis of the American National Election Studies (ANES; [www.electionstudies.org](http://www.electionstudies.org)). THE 2006 ANES PILOT STUDY FULL RELEASE [dataset]. Stanford University and the University of Michigan [producers and distributors].

These materials are based on work supported by the National Science Foundation under grants SES-0535332 and SES-0535334, Stanford University, and the University of Michigan.

Any opinions, findings and conclusions or recommendations expressed in these materials are those of the author(s) and do not necessarily reflect the views of the funding organizations.

and Sobel, 2001; Fiorina, 2005; Fiorina and Levedunsky, 2006). Some of the discrepancies between these two lines of research can be ascribed to methods of analysis used and data sources. All researchers cited, however, use data from the American National Election Studies (ANES) to some extent.

DiMaggio, Evans, and Bryson use 23 variables from the ANES and also variables from another survey, the General Social Survey (GSS), to create scales that measure people's attitudes on a range of issues: crime, women's roles, sex education, race, feelings toward the poor, feelings toward conservatives, feelings toward liberals, etc. They also use two scales to measure attitudes on abortion: one drawn from ANES variables, another from GSS variables. DiMaggio, Evans, and Bryson try to measure if there has been polarization on issues over time, from 1972 to 1994. In order to do that, they use four statistical criteria: dispersion, bimodality, constraint, and consolidation; meaning respectively the degree of variance, the shape of the distribution, the association between attitudes on related issues (e.g. abortion and sex education), and the difference in attitudes by members of different groups of people (e.g. men and women). In other words, a highly polarized population would display a high degree of variance in its attitudes toward an issue and, at the same time, have a bimodal distribution. Also, in a highly polarized population, attitudes on one issue would be correlated with attitudes on another, related issue, and attitudes would be



correlated with the characteristics of individuals, for example, age and gender. DiMaggio, Evans, and Bryson conclude that, since the 1970s, there has been unequivocal increasing polarization on only one issue: abortion. Using the GSS abortion scales, which measure people's attitudes on six scenarios, they find increasing polarization within the American population as a whole. Using both the ANES and GSS scales, they find increasing polarization in abortion attitudes between liberals and conservatives. They also note, however, that this may be due to underlying uncertainty or sophistication in the population's attitudes. Stated differently, people's attitudes on abortion, while polarized, may be subject to nuanced judgments.

Mouw and Sobel (2001) use different methods to reach different conclusions. First, they find DiMaggio, Evans, and Bryson's findings "suspect." They say that ANES abortion measurements are ordinal, GSS measurements binary, and that DiMaggio, Evans, and Bryson's scales treat both abortion measurements as if they were interval measurements.<sup>2</sup> They write that "it is

---

<sup>2</sup> ANES has measured attitudes about the legal status of abortion with a single four-choice item since 1980: The item reads: I am going to read you a short list of opinions. Please tell me which one of the opinions best agrees with your view? You can just tell me the number of the opinion you choose.

- 1) By law, abortion should never be permitted.
- 2) The law should permit abortion only in cases of rape, incest, or when the woman's life is in danger.
- 3) The law should permit abortion for reasons other than rape, incest, or danger to the woman's life, but only after the need for the abortion has been clearly established.
- 4) By law, a woman should always be able to obtain an abortion as a matter of personal choice.

For a complete overview of the abortion questions in ANES see Appendix.

GSS asks respondents to say YES or NO (binary) to six abortion scenarios with a question posed in the following way: "Please tell me whether or not you think it should be possible for a pregnant woman to obtain a legal abortion if. . ."

misleading to treat ordinal data as interval data because the scores assigned to the categories are arbitrary-only the relative ranking of the categories is known” (Mouw and Sobel, 2001). They also point out that the ANES abortion measurement cannot be used in a continuous time series since 1972, because in 1980 the question was slightly changed. Then, taking into account the nature of the data, they propose an alternative method of analysis that consists of a cumulative probit model with variable cutoff points. Simply stated, they look at the probability of people taking extreme positions. Using the ANES abortion question from 1980 to 1994, they measure changes in variance as a proxy for polarization. They find little change and thus conclude that polarization over time on abortion has not occurred.

Evans (2003) repeats the method used by DiMaggio, Evans, and Bryson in 1996. While taking note of Mouw and Sobel’s comments, Evans argues for the validity of the method used by him and his co-authors in 1996 and expands the analysis it to include data up to 2002. However, he also acknowledges Mouw and Sobel’s objections to using the ANES abortion question in a continuous time series since 1972, because of the change in wording, and he does not discuss it further. He does look at polarization over time on the GSS abortion scale and finds, as in the 1996 paper, that polarization on abortion has increased with time.

Fiorina (2005) reviews the results mentioned above and takes a closer look at the GSS data, examining each of the abortion scenarios separately. He finds that while a certain level of polarization does exist on abortion, people's attitudes have been stable since 1970s. In his view, if polarization on abortion exists today, it is not greater or lesser than in 1973, the year of *Roe v. Wade*.

Fiorina and Levedunsky (2006) look at the ANES four-choice question and at the share of people in either political party who take their party's line on abortion (ANES asks people to identify their party preference on a seven-point scale, from strong Democrat to strong Republican). They find that, since 1980, the number of people who agree with their party's position has increased slightly. Also, a broader cultural-issue scale created by Fiorina and Levedunsky, which includes ANES questions on issues like school prayer and gays in the military, shows a substantial increase in the correlation between party preference and attitudes on cultural issues. Fiorina and Levedunsky look at this as evidence not of polarization, but of party sorting, that is, the alignment of liberals of conservatives along party lines. Instead of a sharply divided population, they see a population in which the parties have become more identified with extreme positions on cultural issues. This, in their view, differs from outright polarization because the number of independents may have remained the same, even though the partisans are more fiercely divided.

Looking at the different methods used and conclusions reached by various researchers, the difficulty in measuring people's attitudes on abortion becomes apparent. Part of the problem stems from the quality of the data itself.

As previously stated, ANES has measured attitudes about the legal status of abortion with a single four-choice item since 1980. In its 2006 Pilot Study, ANES replaced this item with seven questions, addressing abortion in seven different scenarios: (1) when the woman's life is in danger, (2) when the woman's health is in danger, (3) in case of rape, (4) in case of non-rape incest, (5) if the birth of the child would constitute a financial burden, (6) when there is the possibility of a birth defect, and (7) if the child will not be the sex the woman wants.

Zigerell, Barker, and Rice (2006), the authors of the proposed abortion questions included in the 2006 ANES Pilot Study, point out that issues of rape, incest, and the life of the woman are conflated in the wording of the standard ANES question asking when abortion should be legal that has been used since 1980. Their suggested seven questions detail specific scenarios leading up to the decision about when abortion should be legal, if ever. This, they hope, will at least isolate the conflating variables in the current question to specific question scenarios. Second, they recommend a more complex and nuanced response set

designed with the implicit intent of creating a continuous scale that would prove more analytically useful than the one used with the current question.

This work suggests, however, that even in the transformed form the problem of measuring attitudes about abortion still lacks conceptual clarity. Simple examination of the results of this experiment shows that the terms choice and life do not represent extremes on the same dimension. Further, MDS analysis suggests that there is yet a deeper conceptual structure based on the gravity of the abortion decision that underlies the proposed alternatives focusing on either the welfare of the woman or of the fetus. To begin with, it does not seem unrealistic to imagine that in a general sense many respondents could be for both choice and life at the same time. If this is the case, one important implication of the problem of measuring “true” attitudes about abortion may be complicated by the cross pressure driven by the simultaneous co-activation of valent emotional responses of the dimensions used to evaluate the efficacy of the procedure. Neither the current questions nor the suggested alternative are sufficiently conceptually grounded to make analysis meaningful.

In this sense, this work also suggests that past research into public opinion on abortion is somewhat hampered by the fact that surveys in general, and ANES in particular, tacitly perpetuate choice and life as extremes along a bipolar continuum. Their choices of questions on abortion implicitly assume the

presence of this bipolar continuum. Reality may be a little more complex. There may be a large degree of ambivalence in play, resulting from opposing emotions being activated simultaneously. Priester and Petty (1996) advanced a model for relating respondents' ambivalence to measures of dominant and conflicting reactions. Dominant reactions, whether positive or negative, are those that outnumber conflicting reactions in shaping respondents' attitudes toward an attitude object. Their model suggests ambivalence is a function of the interplay between these dominant and conflicting reactions. In the case of abortion, for example, one can easily visualize a case in which a respondent may have a number of negative reactions outweighing a lesser number of positive reactions toward abortion in a particular scenario, or vice versa. On a different scenario, where the context of abortion changes, the respondent's dominant and conflicting reactions may interact in a different way, producing a different attitude. It is this variability across different scenarios that this work tries to explain.

## CONCEPTUALIZING A DEEPER DIMENSION

The questions used in the ANES 2006 Pilot Study expand the response set to first ask respondents if they favor, oppose, or neither favor nor oppose abortion being legal. If respondents said they favor or oppose legal abortion they were asked how strongly they held their attitude. Those who responded neither, or don't know were then asked if they leaned toward, against, or did not lean abortion either way. Those who responded they favored legal abortion or leaned toward favoring it were further asked if the timing of the abortion made a difference. They were given three options, during the first trimester, the second trimester, or at any time of the pregnancy. A brief statement describing the viability of the fetus qualified the first and second trimester options. Figure 1 schematically represents the series of branching responses.<sup>3</sup>

These changes were intended to add a dimension of strength and wording to reflect the current state legal challenges to abortion laws, which focus on the issue of the viability of the fetus. An important outcome of this strategy is the creation of a 13-unit scale, where timing is nested within attitude strength, which is again nested within the respondents' expression of support or opposition. If

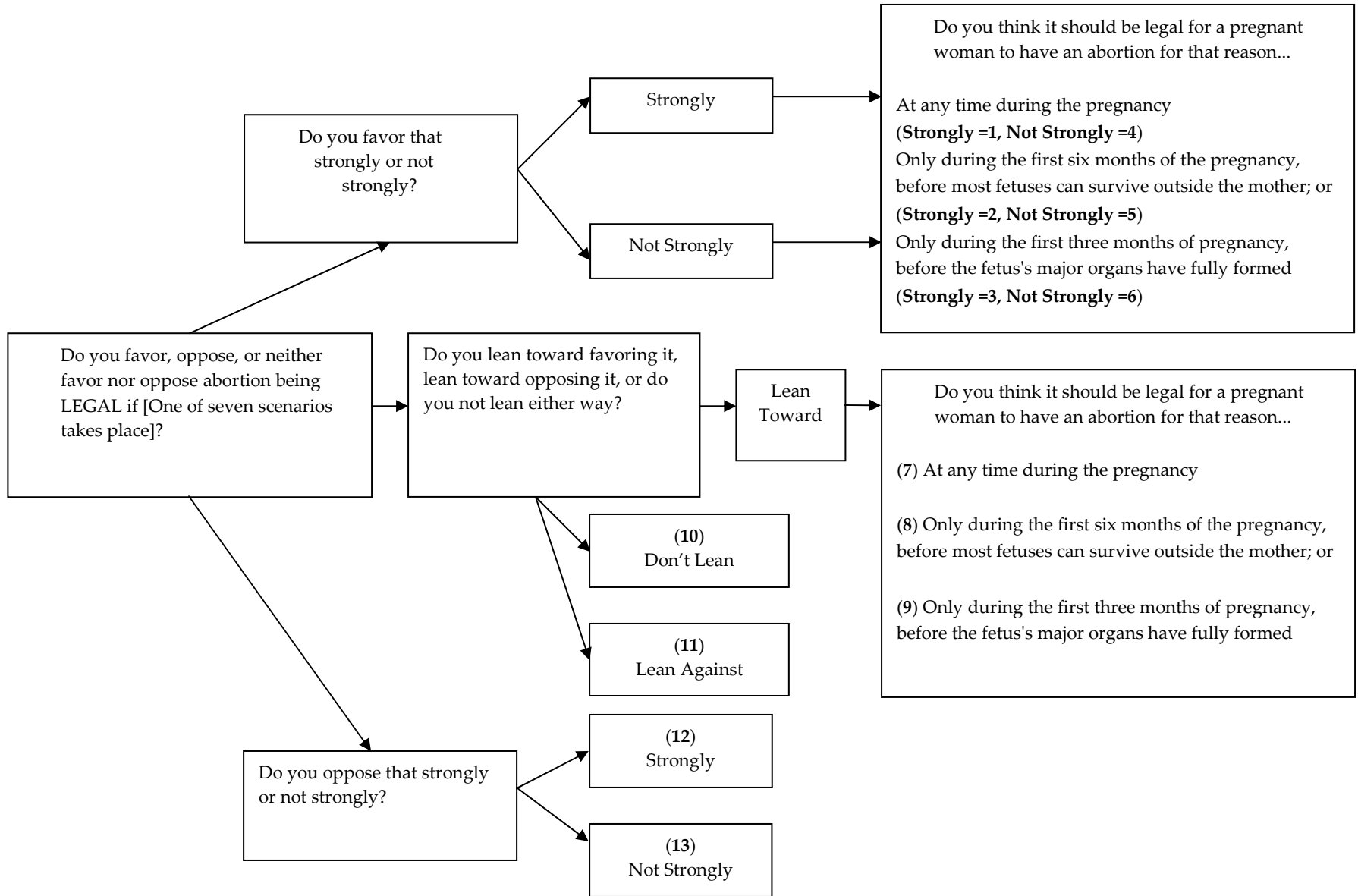
---

<sup>3</sup> The final version of the ANES 2006 Pilot data set includes summary variables for every five questions within a given scenario. These summary variables reflect the first two decision levels, favor-oppose, and strength, but do not include the final branch elaborating timing and viability. Hand coding is necessary to fully exploit the 13 possible responses across the levels of nesting.

the scale proves successful, it would expand analytical options not available using the current question.

A numeric value has been assigned to each of the 13 terminal responses on Figure 1 to help understand the complex set of nested options in the pilot data. The implications of the scale will be discussed after an examination of scenario wording.





**Figure 1**  
The ANES 2006 Pilot Abortion Battery Response Set

Zigerell, Barker, and Rice (2006) point out two important aspects of the way the current question is asked. First, it “conflates exceptions for rape, incest, and the life of the woman.” This is most apparent in the second option of the response set for the current question, which reads: The law should permit abortion only in cases of rape, incest, or when the woman’s life is in danger. Their point is well taken; either some overarching conceptual claim has to be explicated to warrant the selection of those three particular conditions being bound together in the same response option or separate questions should be asked to address each condition. The third option of the response set makes the issue even more problematic because it stipulates that rape, incest, or a danger to a woman’s life could be considered only if the need were clearly established. This implicitly suggests some unnamed agent, such as a panel of doctors or judicial officials would mandate the legitimacy of the procedure. Second, the proposal authors contend that the language of the current question is pitched toward pro-choice, or the issue of the woman’s civil control over her own body, rather than toward pro-life, which “highlights the fetal life facets of the debate.” The bias toward leading the respondent to frame the question in terms of a woman’s civil rights is best illustrated in the fourth option of the response set in the current question, which reads: By law, a woman should always be able to obtain an abortion as a matter of personal choice. These issues are not trivial because very

minor changes in a question's wording can have a profound impact on a survey's results (Kahneman & Tversky, 1984; Krosnick, 1999; Tourangeau, Rips, & Rasinski, 2000).

The remedy proposed in the 2006 Pilot Survey was to include sufficient questions to individually touch all possible bases elaborated in the current question. This resulted in a comprehensive set of seven different scenarios.<sup>4</sup> However, simply unpacking the wording of the current question still leaves some important conceptual issues open about why certain criteria are mentioned and others are not. Extrapolating from the proposing authors' observations two dimensions emerge; medical issues affecting either the woman or the fetus and a woman's civil rights. Yet an ever deeper third dimension, which might be called

---

<sup>4</sup> The wordings of the seven scenarios are:

Do you favor, oppose, or neither favor nor oppose abortion being LEGAL if staying pregnant could cause the woman to die?

Do you favor, oppose, or neither favor nor oppose abortion being LEGAL if staying pregnant could hurt the woman's health but is very unlikely to cause her to die?

Do you favor, oppose, or neither favor nor oppose abortion being LEGAL if the pregnancy was caused by sex the woman chose to have with a blood relative?

Do you favor, oppose, or neither favor nor oppose abortion being LEGAL if the pregnancy was caused by the woman being raped?

Do you favor, oppose, or neither favor nor oppose abortion being LEGAL if the fetus will be born with a serious birth defect?

Do you favor, oppose, or neither favor nor oppose abortion being LEGAL if the child will not be the sex the woman wants it to be?

Do you favor, oppose, or neither favor nor oppose abortion being LEGAL if having the child would be extremely difficult for the woman financially?

gravity and ranges in values from compelling need to expedience, is also implicitly embedded in the scenarios. According to this scheme the most compelling case would be if the birth caused the woman to die, while the most expedient case would be when the fetus was not the hoped for sex. The proposing authors state that the intent in the 2006 Pilot is to “incorporate both the female autonomy and fetal life dimensions.” However, this goal runs the risk of convoluting all three dimensions in question wording, response set wording, or both. This may be exacerbated if respondents simultaneously feel cross pressure, or different positive and negative emotion about the three dimensions within any given scenario, or if they feel the same emotion about opposing scenarios.

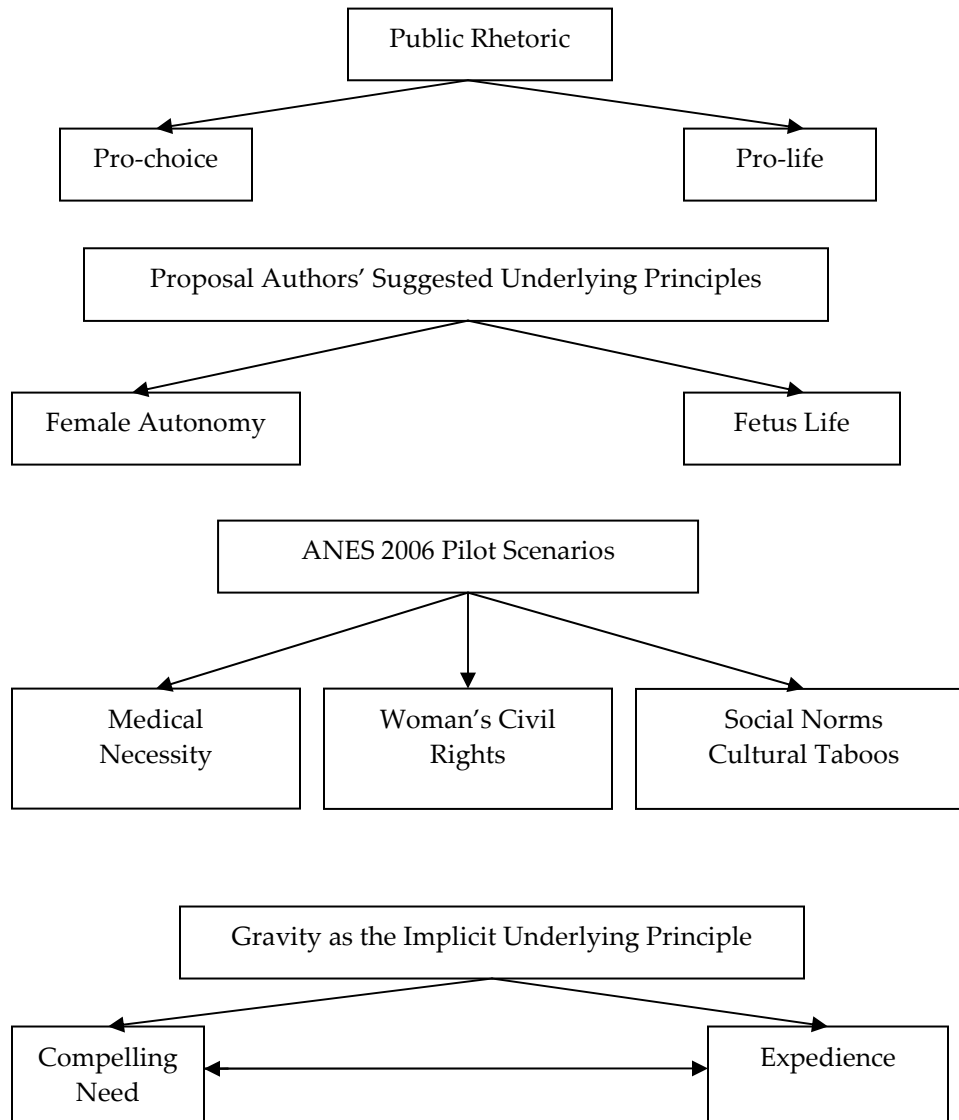
While the seven scenarios can be arrayed along a continuum, with one end representing compelling need and the other end representing expedience, the other two dimensions also have to be taken into account. The most compelling scenarios have to do with medical necessity, of either the woman or the fetus, while expedient scenarios suggest social sloth. Further, some scenarios near the center of a gravity continuum, such as incest, might be evaluated as the violation of strong cultural taboo, but also have medical implications (congenital defects) as well as a civil component (the likelihood that the female is young). The only scenario that directly addresses a woman’s civil rights is rape.

This conceptual complexity exposes a number of the scenarios to oppositional readings (Hall, 1980) and opens the door to the idea that respondents may become ambivalent. This ambivalence is also known as co-activation, when a person has positive and negative feelings activated at the same time, resulting in internal conflict. Cacioppo and Berntson (1994) explain that commonly used attitudes measures are bipolar rating scales, namely, measures that go from very positive to very negative on a one-dimensional scale. In a bipolar scale, it is assumed that negative and positive feelings are reciprocally activated. Cacioppo and Berntson suggest that attitudes are better measured on a bivariate (two-dimensional) plane, where positive and negative feelings can be activated reciprocally, non-reciprocally, or singularly. On a bipolar scale, non-reciprocally activated feelings cannot be measured without ambiguity, but they can be unambiguously measured on a two-dimensional plane, where one axis represents negativity, the other positivity, and a diagonal vector runs from minimal positivity and negativity to maximal positivity and negativity (Cacioppo and Berntson, 1994). It is a major thesis of this work that people's attitudes toward abortion may be activated non-reciprocally. For instance, in the case of incest a respondent might have positive feelings toward abortion due to feelings about protecting the woman and her potential child from long term medical and psychological suffering caused by congenital birth

defects. At the same time, the respondent could have negative feelings based on the violation of a deeply rooted cultural taboo. If this turned out to be the case, ambivalent or cross pressured respondents might migrate to the middle of the scale where they would be indistinguishable from “neutral” respondents posting the same scores. Figure 2 shows how abortion is frequently framed in public discussion, what proposing authors suggest as an alternative, and the possibility of a yet deeper dimension discussed here. Further down, a method will be proposed for discovering this underlying dimension, which is here labeled as gravity.

**Figure 2**

The Genesis of Question Framing Underlying Attitudes about Legal Abortions



## DATA

The most striking characteristic of the ANES 2006 Pilot Study abortion data is the irregularity and non-normality of all seven of the scenarios' distributions. The three scenarios dealing with medical issues, danger to woman's life, hurt woman's health, and birth defect, all show bimodal distributions (See Figures 3.1, 3.2, and 3.3). The two suggesting social sloth, financial hardship and wrong sex of child, show a pronounced skew toward strong opposition (See Figures 3.6 and 3.7). The remaining two scenarios, non-rape incest and rape, show some movement from strong support to qualified support, but little change in opposition (See Figures 3.4 and 3.5).

In order to better appreciate the bimodal nature of the distributions, the time factor (whether the abortion takes place in the first trimester, the second trimester, or at anytime) has been removed. That leaves a continuous five-point scale for each abortion scenario, from strong support to strong opposition. A closer look at the distribution of scores for each scenario suggests some deeper organizing principle may be at work:

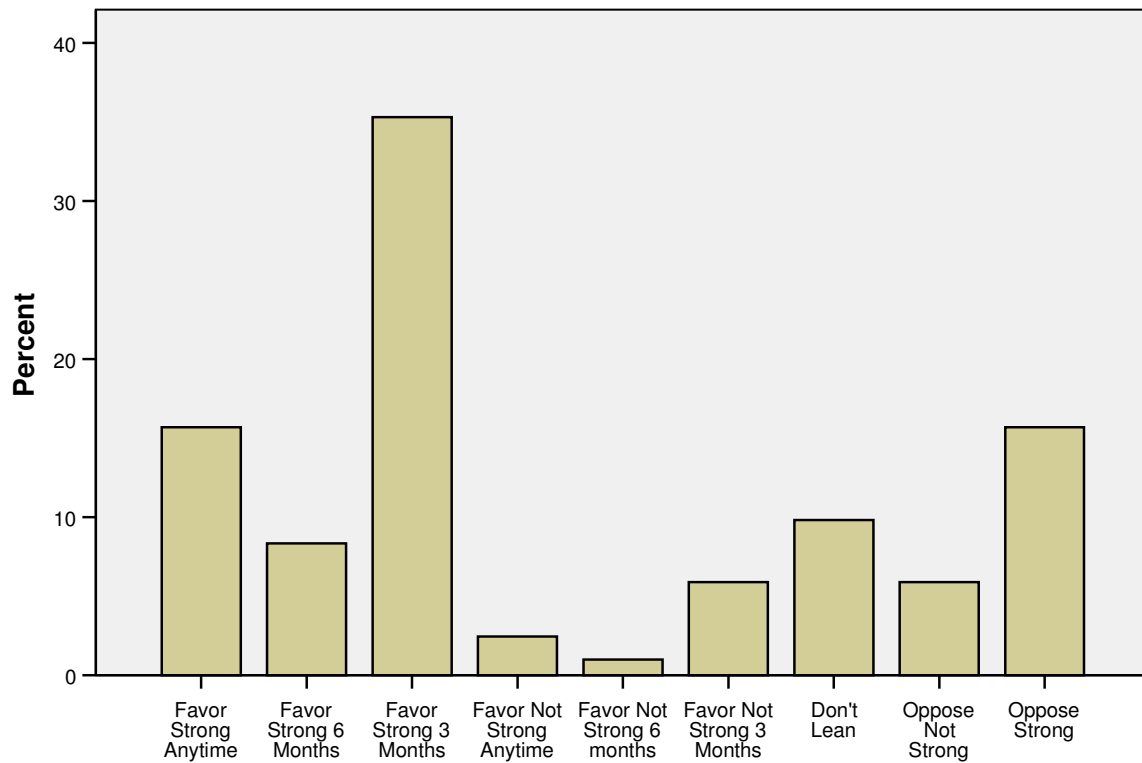
Figure 3.1, Cause woman to die: The most prominent response for this scenario is strongly favor, three months. The proposal authors suggest the inclusion of wording reflecting the development and viability of the fetus at the end of the first two trimesters of pregnancy brings the question into a more



contemporary context than the current question because the language reflects legal challenges to abortion in state courts. They suggest the inclusion of the wording on the grounds most respondents are probably not familiar with those distinctions.

**Figure 3.1**

Distribution of Scores in the Cause the Woman to Die Scenario



Given the variance between responses at the three trimester options, it appears that respondents were making the hoped for discriminations.

Figure 3.2, Hurt the woman's health: This scenario shows some migration to the center of the scale from both extremes when compared to the distribution of scores for the cause the woman to die scenario. This result reflects a certain amount of face validity because the scenario is less medically compelling than the first scenario. However, interpreting the migration is problematic, and the increase in responses in the favor, not strongly range could indicate respondent ambivalence due to a co-activation effect rather than neutrality or moderation.

Figure 3.2

Distribution of Scores in the Hurt Woman's Health Scenario

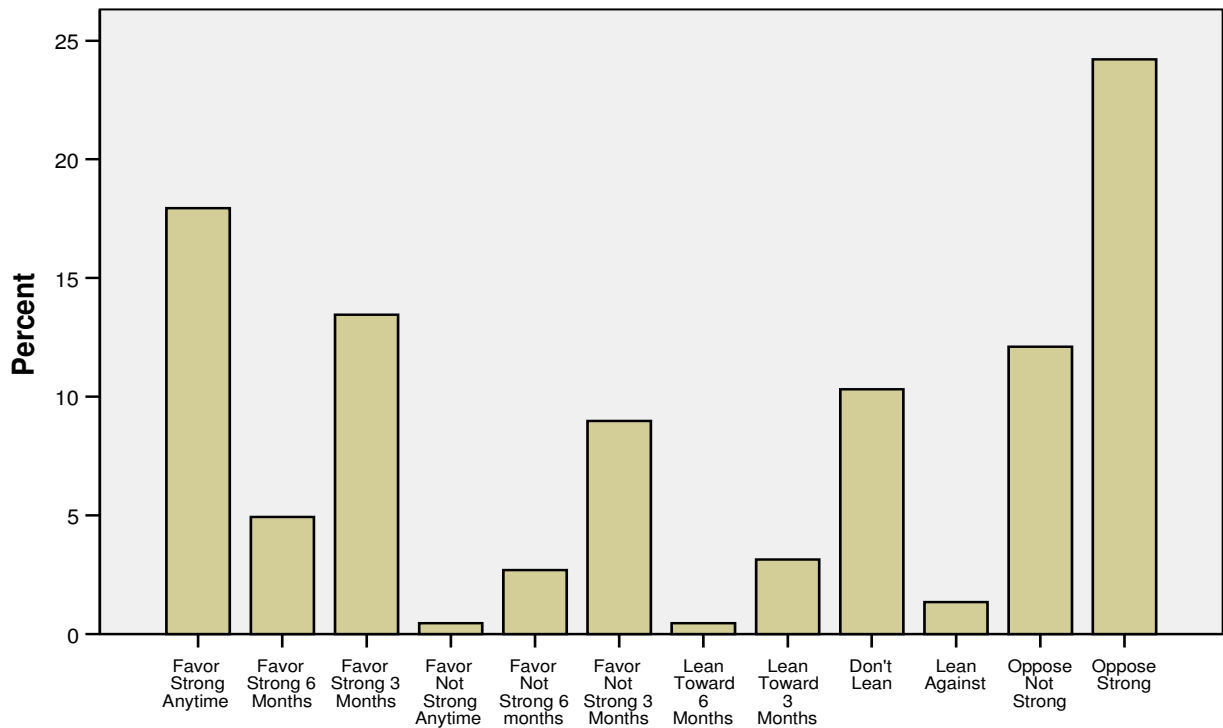
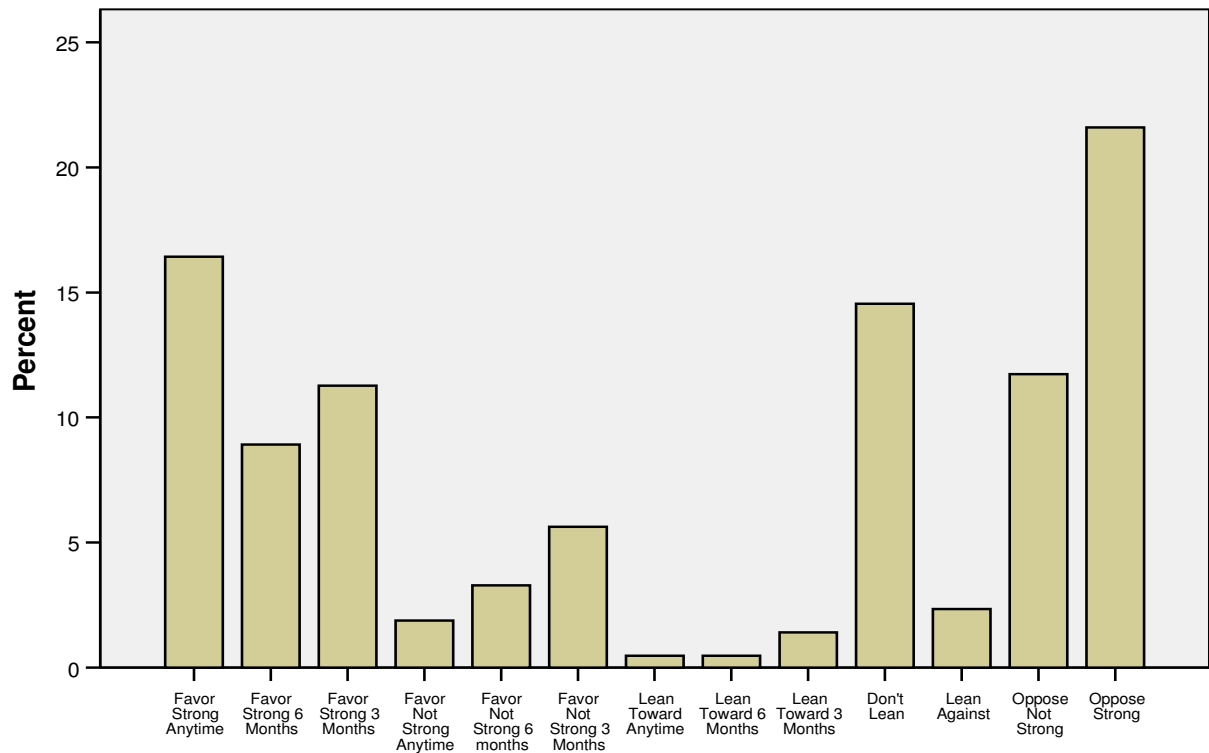


Figure 3.3, Birth defect: This scenario shows a pattern similar to the first two. Here, however, the implications of medical necessity focus on the fetus rather than the woman. At the same time a child with a birth defect could represent a substantial long-term burden on the mother as well.<sup>5</sup>

<sup>5</sup> In any case, this scenario lacks face validity. Screening procedures for birth defects such as Down Syndrome are not perfect and in the real world potential parents may be told there is, say, a 40 percent chance that the child will be born with some defect (but a 60 percent chance it will not). The prospect of such

Figure 3.3

## Distribution of Scores in the Birth Defect Scenario




---

a difficult decision is not fully reflected in the wording of this question. Other scenarios have similar problems with regards to their face validity to the degree they over simplify the real world decisions many women may face when making a decision about abortion.

Figure 3.4, Non-rape Incest: This scenario convolutes issues of medical necessity and social and cultural norms more than any other, and begs for investigation into the possibility of a co-activation effect. On the surface, it explicitly addresses the taboo on incest. However, some respondents might also take the possibility of congenital birth defects and their correspondent medical implications into account. Similarly, some respondents might also make the assumption that the female is young, and draw civil issues into the mix. It does appear, however, that the stigma of cultural taboo is salient with the oppose strongly category increasing from around 20 percent in other scenarios to nearly 40 percent.

Figure 3.4

Distribution of Scores in the Non-Rape Incest Scenario

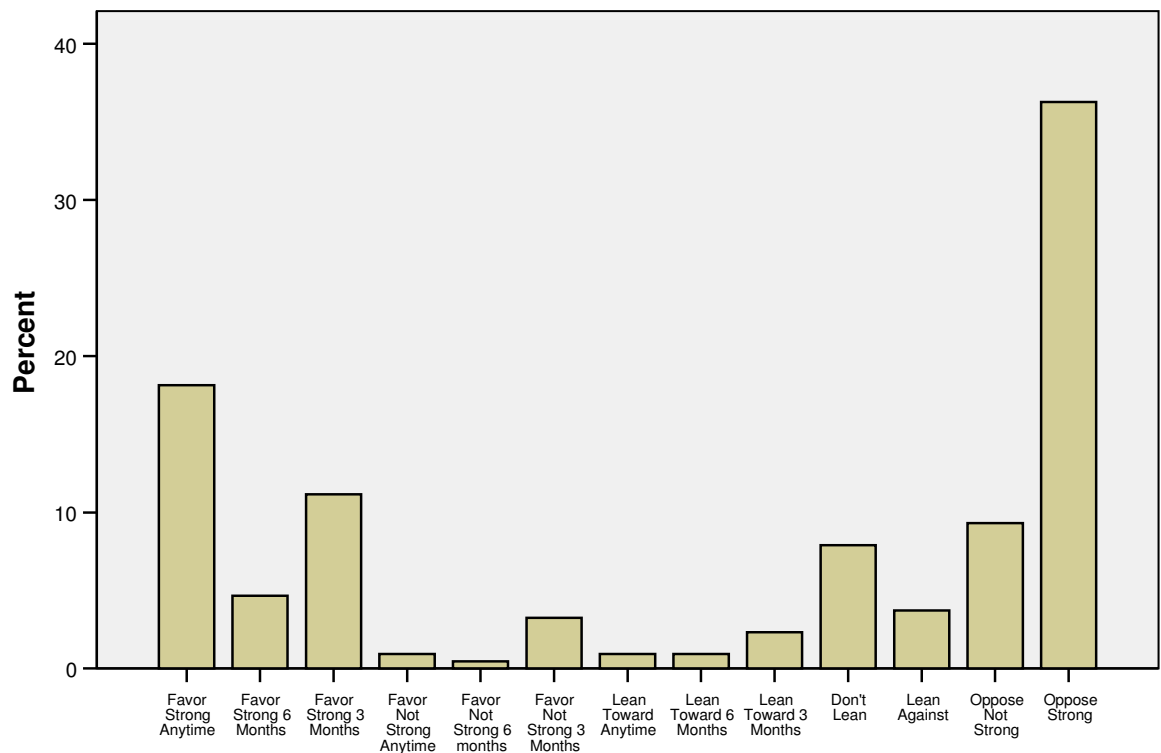


Figure 3.5, Rape: Rape stands out as the scenario most directly addressing the issue of a woman's civil rights. Here the respondent has no reason to believe that either the woman or the fetus is in medical jeopardy. Further, it could be argued that there is less social stigma attached to being a rape victim than was once the case. Rather, rape is considered to be nearly as heinous a crime as

murder, with sympathy attached to the victim rather than stigma. Thus, it ought not to be surprising that over 60 percent of respondents favor legal abortion at some time during the pregnancy.

It is important to note, however, that around 20 percent of respondents continue to strongly oppose abortion under any circumstance and rape is no exception. This feature of the scenario distributions will be discussed more at the conclusion.

**Figure 3.5**

Distribution of Scores in the Rape Scenario

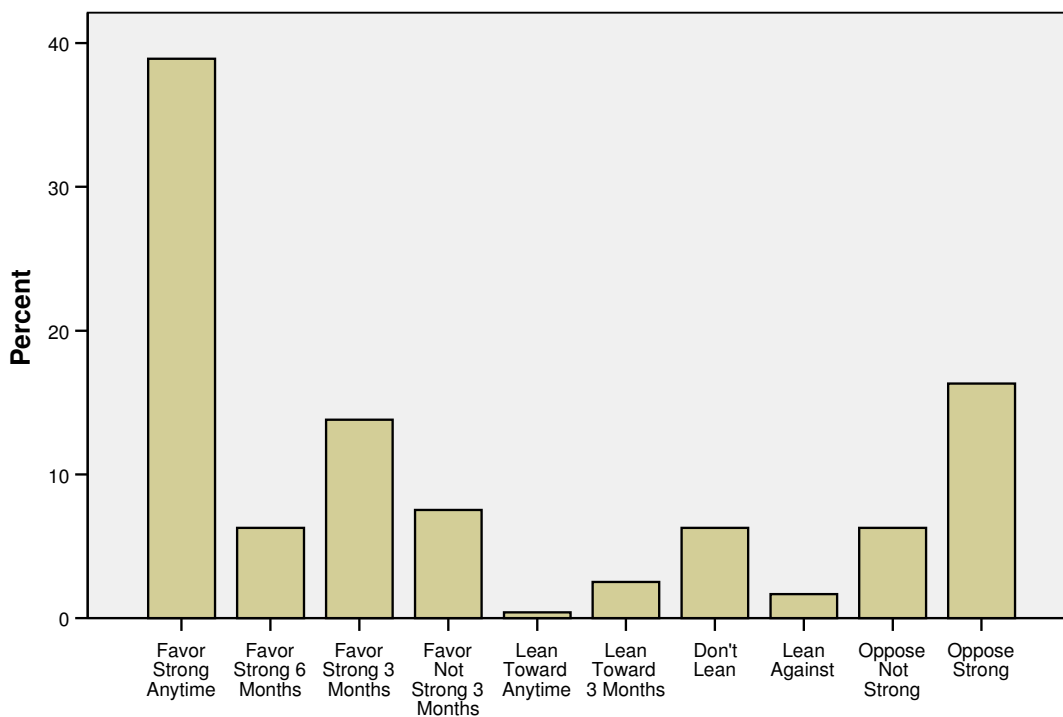
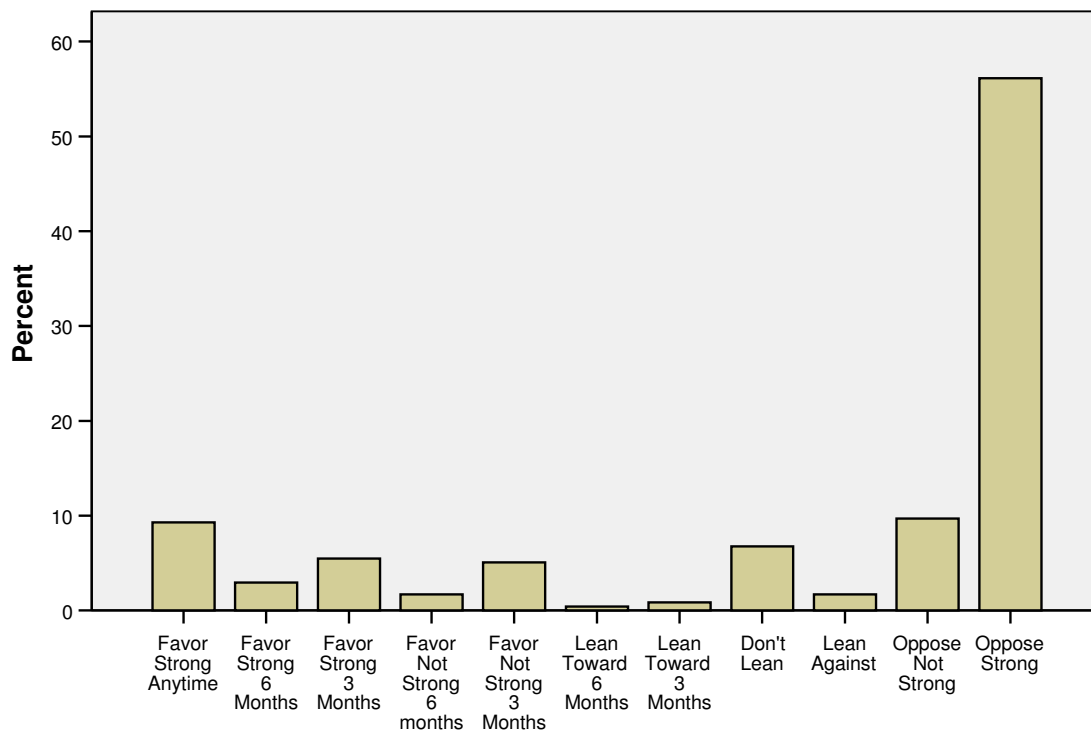


Figure 3.6 Financial Burden: It is reasonable to assume that many respondents would view an abortion motivated solely on the grounds of the financial burden on the mother to be an easy way out of a difficult situation and socially unacceptable. Data bear that out, with all categories of support registering very low levels and strong opposition surging to about 60 percent.<sup>6</sup>

**Figure 3.6**

Distribution of Scores in the Financial Burden Scenario



<sup>6</sup> At the same time the devil, so the saying goes, is in the details. If respondents were asked if abortion ought to be legal for a single mother of five from an economically disadvantaged group, the response pattern to the question might be much different.

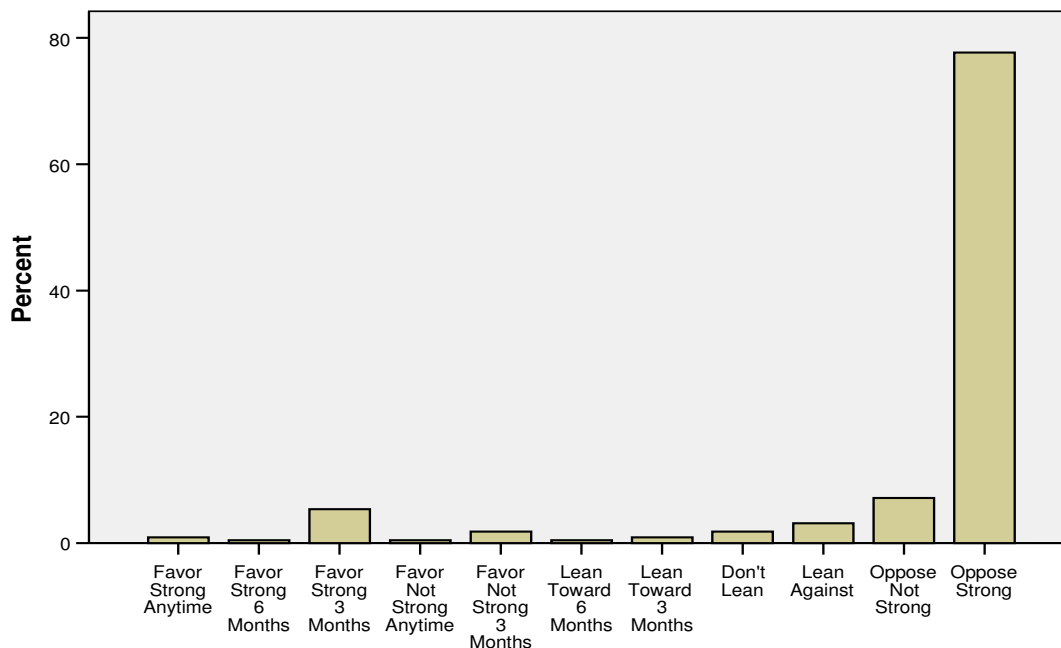


Figure 3.7 Wrong Sex of Child: Here it appears respondents deem the option of abortion based on the grounds that the sex of the fetus is not what was hoped for especially deplorable, where there is virtually no support for the procedure. Nearly 80 percent of respondents register strong opposition.

However, as with the previous scenario this question may be highly culturally specific; favoring male children is socially acceptable in many settings. China, for instance, recently adopted incentive programs to encourage the birth of female children precisely because a large number of female fetuses are being aborted.

**Figure 3.7**

Distribution of Scores in the Wrong Sex Scenario



## METHOD

In order to discover gravity as the underlying dimension of attitudes toward abortion, a secondary analysis of the ANES 2006 Pilot Study abortion data using multidimensional scaling (MDS) is conducted in this work. MDS maps on multiple dimensions the relationships between pairs of variables. The early MDS procedures, developed only for metric data (i.e. distances between cities), go back to the 1930s (Kruskal and Wish, 1978:22). The idea is to transform the relationships between pairs of variables (known as proximities) into distances that can be mapped in multidimensional space. Proximities ( $p$ ) and distances ( $d$ ) are related by a function  $f$ :

$$d = f(p).$$

Shepard (1962) expanded the MDS concept to non-metric measurements and showed an algorithm for transforming nonmetric proximities into distances. Nonmetric proximities can measure similarity or dissimilarity. This kind of procedure, known as ordinal MDS, only has to fulfill the condition that the rank order of the proximities be kept by that of the distances. In Shepard's algorithm, points are initially mapped with equal distance between them. For example, three points on two-dimensional space would be mapped in the shape of an equilateral triangle. Each point represents a variable, and the distance between two points the proximity between two variables. Then each point is moved

according to the guidance of a set of vectors, one vector for each of the other points. Going back to the three-point example, each point would navigate in space, being guided by two vectors, one for each of the other points. The points would continue moving until the rank order of the distances between them corresponded to the rank order of the proximities between the variables that are being mapped. In ordinal MDS, assuming that the proximities measure the similarity between variables, proximities and distances are related in theory by a monotonic function, such that

$$\text{if } p_{ab} > p_{bc}, \text{ then } d_{ab} \leq d_{bc},$$

where  $p_{ab}$  is the proximity (similarity) between variable  $a$  and variable  $b$ ,  $d_{ab}$  the distance between them,  $p_{bc}$  the proximity (similarity) between variable  $b$  and variable  $c$ , and  $d_{bc}$  the distance between them (Borg and Groenen, 2005:40).<sup>7</sup>

In the social sciences, where often only the rank order of data is considered meaningful, ordinal MDS provides a good tool to analyze the proximities (similarities or dissimilarities) between variables (Borg and Groenen, 2005:199). Correlations between variables are measures of similarity that can be

---

<sup>7</sup> A good way to understand ordinal MDS is to look at an example used by Shepard. He used data collected by Ekman (1954) on measured similarities of colors and did a secondary analysis using MDS. Using an IBM 7090 computer, Shepard wrote a program in FORTRAN to analyze Ekman's data. The data represented the perceived similarities between 14 spectral colors. In the first analysis, Ekman had explained the variance between them using factor analysis, reducing it to five factors. Shepard showed that the data could also be interpreted in a two-dimensional configuration that corresponded very closely to that of a circle.

used as proximities in this kind of analysis (Shepard, 1962; Borg and Groenen, 2005:6).

The seven scenarios in the ANES 2006 Pilot study were prepared for analysis by removing the part of the battery of questions that had to do with the time of the abortion. That left seven homogeneous variables that measured the respondent's feeling on a particular abortion scenario on a seven-point scale, from strong favor to strong opposition, with the option of not leaning to either side in the middle of the scale. The distributions in this scale are shown in Table 1. The Pearson correlation coefficients were calculated for all pairs of variables. The calculation yielded the matrix shown in Table 2.

**Table 1****Abortion Variables Used in MDS Analysis**

<b>Variable</b>	<b>Scale</b>							<b>N</b>
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	
Hurt Woman's Health	36.3	12.1	3.6	10.3	1.3	12.1	24.2	223
Cause Woman to Die	59.3	9.3	-	9.8	-	5.9	15.7	204
Non-Rape Incest	34.0	4.7	4.2	7.9	3.7	9.3	36.3	215
Rape	59.0	7.5	2.9	6.3	1.7	6.3	16.3	239
Birth Defect	36.6	10.8	2.3	14.6	2.36	11.7	21.6	213
Wrong Sex	6.7	2.2	1.3	1.8	3.1	7.1	77.7	224
Financial Burden	17.7	6.8	1.3	6.8	1.7	9.7	56.1	237

Values are percentages. Low scale numbers indicate support for abortion in each variable, high numbers opposition to abortion. The scale of the table is: (1) favor strong, (2) favor not strong, (3) lean toward, (4) don't lean, (5) lean against, (6) oppose not strong, (7) oppose strong. Source: ANES 2006 Pilot Study.

**Table 2**  
Correlations between Abortion Variables

		Hurt Woman's Health	Cause Woman to Die	Non-Rape Incest	Rape	Birth Defect	Wrong Sex	Financial Burden
Hurt Woman's Health	Pearson Correlation	1	.339(**)	.640(**)	.629(**)	.559(**)	.342(**)	.460(**)
	Sig. (2-tailed)		.001	.000	.000	.000	.000	.000
	N	223	98	90	118	109	113	123
Cause Woman to Die	Pearson Correlation	.339(**)	1	.516(**)	.623(**)	.369(**)	.195(*)	.316(**)
	Sig. (2-tailed)	.001		.000	.000	.000	.035	.001
	N	98	204	103	117	97	117	108
Non-Rape Incest	Pearson Correlation	.640(**)	.516(**)	1	.518(**)	.516(**)	.436(**)	.578(**)
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000
	N	90	103	215	115	107	103	125
Rape	Pearson Correlation	.629(**)	.623(**)	.518(**)	1	.476(**)	.174	.372(**)
	Sig. (2-tailed)	.000	.000	.000		.000	.064	.000
	N	118	117	115	239	109	114	126
Birth Defect	Pearson Correlation	.559(**)	.369(**)	.516(**)	.476(**)	1	.224(*)	.479(**)
	Sig. (2-tailed)	.000	.000	.000	.000		.016	.000
	N	109	97	107	109	213	116	104
Wrong Sex	Pearson Correlation	.342(**)	.195(*)	.436(**)	.174	.224(*)	1	.470(**)
	Sig. (2-tailed)	.000	.035	.000	.064	.016		.000
	N	113	117	103	114	116	224	128
Financial Burden	Pearson Correlation	.460(**)	.316(**)	.578(**)	.372(**)	.479(**)	.470(**)	1
	Sig. (2-tailed)	.000	.001	.000	.000	.000	.000	
	N	123	108	125	126	104	128	237

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

## RESULT

The correlation matrix, then, is a nonmetric measure of the similarity or closeness between the seven abortion scenarios. The data displayed is optimal for MDS analysis. Using ALSCAL the correlations were transformed into distances that could be mapped into a multidimensional solution. In practice, there is always a discrepancy between the transformed correlations and the distances determined by the monotonic function. Stress, a measure of fit, is obtained by calculating the normed sum-of-squares of the errors observed between the transformed correlations and the monotonic function, or, put otherwise, between the actual distances and the target distances (Borg and Groenen, 2005:37). It was deemed that the two-dimensional solution had the most explanatory power for the similarity between the abortion scenarios (see Figure 4). Stress for the two-dimensional solution is 0.095, which means that the fit is very tight.

Figure 4

Abortion Scenarios Arrayed on Dimensions of Individual and Social Gravity



The data suggest two axes: A vertical axis represents the gravity of the abortion decision to the individual woman. This scheme ranks scenarios from compelling need to expedience beginning with danger to the woman's life, followed by rape, and non-rape incest. Birth defect and woman's health scenarios are both ranked near the center of the scale and financial burden and wrong sex



of fetus scenarios are nearer the expedient end of the dimension. The horizontal axis represents social/cultural gravity. The birth defect and rape scenarios score highest for compelling need on this axis. They are followed by the woman's health and woman's life scenarios. The non-rape incest scenario is just over the center of the axis, with the financial burden and wrong sex scenarios located toward the expedience end.

Comparing the location of the scenarios in the four quadrants in Figure 3 with their frequency distributions reveals genuine attitude extremity for respondents on some of the scenarios, but also lends support to the idea other scenario's location may be due to cross pressure of ambivalence. Notice that in quadrant III, representing compelling need for both the social/cultural and the individual woman dimensions contains the woman's life and rape scenarios. This jibes well with the frequency distributions that show more support for legalized abortion for these two scenarios than any of the others. Similarly, the two scenarios showing the least support for legal abortion, financial burden and wrong sex, fall clearly within quadrant II representing expedience on both dimensions of gravity. Finally, the birth defect and woman's health scenarios both fall in quadrant I, representing compelling social/cultural need but individual expedience, while the non-rape incest scenario falls in quadrant IV, representing individual need, but social expedience. Quadrants I and IV both

represent a mismatch on the gravity dimensions and the frequency distributions for scenarios that are located within them also are most ambiguous.

## DISCUSSION

The battery of questions addressing legal abortion on the ANES 2006 Pilot survey indicate that polarization on the issue is real, but considerable migration can take place between support and rejection of procedure depending on the scenario in which the question is framed. The analysis here supports the proposal authors' objection to grouping rape, non-rape incest, and danger to the woman's life together. However, their approach, where scenarios are arrayed from the woman's concerns (choice) to the concerns of the fetus (life), does not to reveal the full underlying conceptual complexity of the issue.

The analysis here suggests that respondents take two things into consideration when addressing the various scenarios, the gravity of the decision for the society and cultural and the gravity of the decision for the individual woman. These two dimensions underlie attitudes toward each abortion scenario. When either compelling need or expedience coincide in both dimensions, there is strong agreement either for or against abortion being legal. For instance, there is strong support for legal abortions when scenarios focus on danger to the woman's life and rape. Notice that in this case one scenario is driven by medical necessity and in the other by issues of civil rights. Thus it is not the nature of the

scenario that makes the difference but its context, where a compelling need can be established at both the social/cultural and individual levels. The same case can be made at the other end of the spectrum for the financial burden and wrong sex scenarios, where respondents consider the option of abortion to be both socially and individually expedient.

Finally, it is interesting to note that the remaining three scenarios (danger to the woman's health, birth defect, and non-rape incest) lack the contextual commonality of the previous two examples and fall near the center of both dimensions and in quadrants where there is a mismatch between individual and social gravity. This ambiguity is reflected in the uneven distribution of responses and could represent cross pressure or the co-activation of both positive and negative feelings.

While considering social/cultural and individual conditions of gravity does yield considerable explanatory power in understanding views on the legality of abortion, there is one nagging exception. There appears to be a group representing about 20-25 percent the sample who refuse to budge from unconditional opposition to legal abortion under any circumstances. This group opposes legal abortion both when the woman's health and when the fetus itself may be damaged. This group may distort any analysis, regardless of any underlying conceptual structure present in the rest of the sample. It is certain to

confound the one dimensional approach ranging from the integrity of the woman to the integrity of the fetus, suggested by the proposal's authors. I also may make the two-dimensional MDS solution unstable, especially for the location of the ambivalent or cross pressured scenarios.

This final point bears on an important theoretical issue: Are these respondents' positions on abortion an attitude, a belief, or a conviction? Their unyielding opposition to the procedure under any conditions is contrasted by those who may favor legal abortion in some cases more strongly than others, depending on the gravity of scenario. Indeed, if the hard core opponents are eliminated from analysis a semblance of a normal distribution of scores does begin to emerge.

Religiosity might be one place to look for association with this opposition. The evangelical religious right and the Roman Catholic Church have, after all, taken a strong position in opposition to any form of intervention with a fetus at any time during its development, a fact reflected in their opposition to stem cell research. But, no statistical association could be found between the abortion scenarios using the 13-point response set developed in the 2006 pilot and religiosity variables in the 2004 wave of the ANES. This raises the scepter that there is a group of hard core opponents to legal abortion who do not address the

question in the same way as other respondents.<sup>8</sup> Of course Converse's (1964) seminal work on the nature of belief systems sets the stage for the idea that different cognitive strategies come into play when making attitude assessments. Some respondents – a minority of a population – have tightly constrained belief systems, that is, ideological systems in which idea elements are strongly correlated. For them, strong opposition on one issue reflects strong opposition on another. Other respondents – by far the majority of a population – lack the same ideological constraint. The body of research supporting that contention has only grown stronger as time has gone on (see especially Tourangeau, Rips, & Rasinski, 2000). However, an important assumption underlying this research is that a general theory of schematic association underlies them all. That is to say that some respondents may have more tightly constrained belief systems than others, but the underlying processes for all cognitive styles can be described by the same theory explaining the schematic representation of information.

However, the unequivocal opposition to abortion by from 20 to 25 percent of respondents, despite being presented with a wide range of alternative scenarios that invite at least some softening in position, suggests something

---

<sup>8</sup> Zigerell, Barker, and Rice (2007) report the abortion items are correlated to some items looking at religiosity also included in the ANES 2006 Pilot, but those relationships should be regarded with care. First, many of the correlations are weak or not significant at all. Second, comparison is problematic because of the sample selection process used in this wave of the survey. Sample size for the correlations they cite range around only 100 respondents and the samples are made up of different subgroups of respondents.

much stronger than an attitude schema, or even a religious belief. This disposition could be called a conviction, defined as a mental object resistant to and even isolated from surrounding associative networks. This suggests the emergence of an opinion object that is not accommodated by current paradigms of opinion and attitude research, and abortion may only represent the tip of the iceberg.

Unfortunately, this work says nothing about polarization over time, nor does it say whether polarization on abortion is correlated to ideology or party identification. Those are interesting questions and, perhaps, could be the subjects of further research.

This work traces the genesis of the conceptual framework surrounding the issue of legal abortion for the vernacular discussion of choice versus life to the 2006 ANES experimental scenarios describing medical, civil, and social/cultural elements, to two dimensions based on individual and social gravity. This final approach integrates the seven sometimes disparate scenarios into a more cogent framework.

However, an important caveat to consider concerns a group that might constitute up to a quarter of the population who do not appear to be processing attitude relevant information in the same way others do. If this is true describing

just how the group does organize convictions may present a substantial theoretical challenge in the research of attitude and opinion.

The traditional bipolar paradigm, ranging from pro-choice to pro-life, that currently dominates public discussion of abortion is far too simple. It does not fully take into account important contextual information that, for most people, is very influential in shaping attitudes toward abortion. Future surveys on abortion ought to take this into account.

Finally, if this is the case when it comes to abortion, that conflicting feelings can produce ambivalent responses, it could also be the case that other contentious issues may show the same pattern in survey responses, where seeming neutrality masks deep internal conflict.

## APPENDIX

## AN OVERVIEW OF THE ANES ABORTION QUESTIONS

ANES began asking questions on abortion in its 1972 survey. The first question was worded in the following way:

Which one of the opinions on this page best agrees with your view?

1. Abortion should never be permitted.
2. Abortion should be permitted only if the life and health of the woman is in danger.
3. Abortion should be permitted if, due to personal reasons, the woman would have difficulty in caring for the child.
4. Abortion should never be forbidden, since one should not require a woman to have a child she doesn't want (ANES, 2005).

That same question was asked until 1980. The distributions over the years in which the question was asked were as follow in Table 3.



**Table 3**

Responses to Original ANES Abortion Question, 1972-1980

(Percentage within Study Year)

<b>Year</b>	<b>Never Legal</b>	<b>Life and Health</b>	<b>Difficulty Caring</b>	<b>Never Forbidden</b>	<b>Don't Know/Other</b>	<b>N</b>
1972	11	46	17	24	3	2692
1976	11	44	16	26	4	2378
1978	10	43	16	26	4	2281
1980	10	44	18	27	3	1400

Source: ANES (2005).

In 1980 ANES changed the wording of the abortion question. The question introduced in 1980 said:

Which one of the opinions on this page best agrees with your view?

1. By law, abortion should never be permitted
2. The law should permit abortion only in case of rape, incest, or when the woman's life is in danger.
3. The law should permit abortion for reasons other than rape, incest, or danger to the woman's life, but only after the need for the abortion has been clearly established.
4. By law, a woman should always be able to obtain an abortion as a matter of personal choice. (ANES, 2005).

The new question was asked together with the original question in the 1980 study. Thereafter, until 2004, the new question asked alone.

Table 4 shows the distributions of the current ANES question from 1980 to 2004.

**Table 4**

Responses to Current ANES Abortion Question, 1980-2004

(Percentage within Study Year)

Year	Never Legal	Rape, Incest, Danger	Clear Need	Always Personal Choice	Don't Know/Other	N
1980	11	32	18	35	4	1604
1982	13	30	19	35	3	1398
1984	13	29	19	35	3	2237
1986	13	28	18	38	2	2166
1988	12	33	18	35	1	2025
1990	12	33	14	40	2	1963
1992	10	28	14	46	2	2470
1994	13	31	14	40	2	1770
1996	13	30	16	40	2	1710
1998	12	30	16	40	1	1271
2000	12	31	15	39	2	1798
2004	14	32	18	36	1	1058

Source: ANES (2005).

## REFERENCES

American National Election Studies (2005). *The ANES guide to public opinion and electoral behavior*. Retrieved October 6, 2007, from <http://www.electionstudies.org/nesguide/nesguide.htm>

American National Election Studies (2007). *2006 ANES Pilot Study questionnaire*. Retrieved October 6, 2007, from [http://electionstudies.org/studypages/2006pilot/2006pilot\\_questionnaire.htm](http://electionstudies.org/studypages/2006pilot/2006pilot_questionnaire.htm).

Borg, I., & Groenen P. J. F (2005). *Modern multidimensional scaling*. New York: Springer.

Cacioppo, J. T., & Berntson, G. G. (1994). Relationship between attitudes and evaluative space: A critical review, with emphasis on the separability of positive and negative substrates. *Psychological Bulletin*, 115(3), 401-423.

Converse, P. (1964). The nature of belief systems in mass publics. In D. Apter (Ed.), *Ideology and discontent* (pp. 206-261). New York: The Free Press of Glencoe.

DiMaggio, P., Evans J., & Bryson, B. (1996). Have Americans' social attitudes become more polarized? *American Journal of Sociology*, 102(3), 690-775.

Ekman, G. (1954). Dimensions of color vision. *Journal of Psychology*, 38, 467-474.

Evans, J. (2003). Have Americans' social attitudes become more polarized?—an update. *Social Science Quarterly*, 84(1), 71-90.

Fiorina, M. P. (2005). *Culture war? The myth of a polarized America* (Second ed.). New York: Pearson Longman.

Fiorina, M. P., & Levedunsky, M. S. (2006). Disconnected: the political class versus the people. In P. S. Nivola & D. W. Brady (Eds.), *Red and blue nation? : characteristics and causes of America's polarized politics, volume I* (pp. 49-71). Washington: Brookings Institution Press.

Hall, S. (1980). Encoding/decoding. In *Culture, media, language: Working papers in cultural studies, 1972-79* (pp. 128-138). London: Hutchinson.

- Iyengar, S., & Kinder, D. (1985). Psychological accounts of agenda-setting. In S. Kraus & R. Perloff (Eds.), *Mass media and political thought: An information processing approach*. Beverly Hills: Sage Publishing.
- Kahneman, D., & Tversky, A. (1984). Choices, values, and frames. *American Psychologist*, 39(4), 341-350.
- Krosnick, J. A. (1999). Maximizing questionnaire quality. In J. P. Robinson, P. R. Shaver & L. S. Wrightsman (Eds.), *Measures of political attitudes* (pp. 37-57). San Diego, CA: Academic Press.
- Kruskal, J. B., & Myron W. (1978). *Multidimensional scaling*. Newbury Park, CA: Sage.
- Mouw, T., & Sobel M. (2001). Culture wars and opinion polarization: the case of abortion. *American Journal of Sociology*, 106(4), 913-943.
- Priester, J.R., & Petty R.E. (1996). The Gradual Threshold Model of Ambivalence: Relating the Positive and Negative Bases of Attitudes to Subjective Ambivalence. *Journal of Personality and Social Psychology*, 71(3), 431-449.
- Shepard, R. N. (1962), The analysis on proximities: Multidimensional scaling with an unknown distance function. *Psychometrika*, 27, 125-140, 219-246.
- Tourangeau, R., Rips, L. J., & Rasinski, D. (2000). *The psychology of survey response*. Cambridge: Cambridge University Press.
- Zigerell, L. J., Barker, D., & Rice, H. (2006). *2006 NES Pilot Proposal Abortion Questions*. The American National Election Studies (ANES; [www.electionstudies.org](http://www.electionstudies.org)).
- Zigerell, L. J., Barker, D., & Rice, H. (2007). *ANES 2006 Pilot Report: Abortion Items*. The American National Election Studies (ANES; [www.electionstudies.org](http://www.electionstudies.org)).