

U.S. Women's Movements and Public Opinion: Examining the Chicken and Egg Question

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Abstract: In this paper we examine the inter-relationship between public opinion, feminist and anti-feminist activities in the United States between 1945 and 1985. The social movement literature suggests that movements and countermovements as well as movement events and public opinion are deeply entwined. Political protest can alter the mass public's attitudes on a particular issue by providing crucial information about problems that exist in what might otherwise have been an underdeveloped issue area. On the other hand, changes in mass political attitudes are an important precursor to the rise of political protest. In this paper, we examine the endogeneity of two sets of variables using Granger causality: movement and countermovement actions as well as between public opinion and movement events using both yearly and quarterly data, as well as focusing on the specific campaigns concerning abortion and Equal Rights Amendment. We find evidence for an endogenous relationship between movement and countermovement events when we look at the abortion and ERA campaigns at the quarterly level. We also find that movement effects appear to lead public opinion. However, we find mixed evidence that public opinion leads movement events; only in the case of the campaign for the Equal Rights Amendment does public opinion lead movement events. We argue the results have implications both for how empirically we should measure social movement activity as well as for our theoretical understanding of social movements.

Introduction

A fundamental issue in the examination of democracy is how the preferences of the general public determine public policy (Page and Shapiro 1983). One major concern for scholars of democracies is the degree to which elites in some way determine public policy themselves (either directly or through manipulation of public opinion) or whether policies reflect the independent preferences of the mass public. For social movements and the scholars who study them the issue is often less a question of public opinion but of whether social movements themselves can influence the public agenda. In recent years many analyses have either controlled for public opinion as they explored social movement outcomes or examined the intersection of social movement action and public opinion. Underlying these analyses is the assumption that public opinion and social movement activity are independent of each other.

We argue here that the relationship between social movement activity and public opinion is potentially very complex, and that before we can explore connections between public opinion, policy outcomes, and social movement events, we must first examine the endogeneity of all social movement actions and public opinion. Indeed, there are good reasons to believe that social movement activity – both pro and contra-- and public opinion are deeply intertwined. In this paper, we focus solely on the relationship between social movement activity and public opinion. We develop the logic behind why we would believe that social movement activity might affect public opinion and simultaneously why public opinion might affect social movement events, drawing on both the social movement literatures and on the literature on the dynamics of public opinion and argue for the necessity of examining movement and countermovement activity jointly. We then review the dyadic ratio algorithm, a statistical technique that allows us to combine multiple survey questions into a single measure developed by James Stimson. We use this technique to overcome many of the data challenges traditionally associated with the measurement of public opinion about social movements, developing time series measure of public opinion regarding gender expectations. Finally, we then examine the interconnection of public opinion with social movement activity using data from the U.S. women's movement.

The Literature on Social Movement Action and Public Opinion

As the interest in explaining social movement outcomes has risen in recent years, social movement scholars have increasingly come to include public opinion at least as a control variable in their models (Agnonne 2007; Costain and Majstorovic 1994; McAdam and Su 2002; Soule and Olzak 2004). Much of this is a result of Paul Burstein's continued implorations that public opinion be included (Burstein 2006, 1999; Burstein and Linton 2002). Most commonly, public opinion is seen as an alternative variable to social movement activity (see for example Costain and Majstorovic 1994). In this view, public opinion exists outside of social movement action (perhaps perceived as the action of a smaller minority of the population). To understand if social movements have any effect then, public opinion's effect on policy must be controlled.

Other authors have argued that the effect of these two independent variables may be more complex. Thus, Agnonne (2007) and Guigni (2004) have found that public opinion and social movement activity interact in effecting outcomes. Agnonne calls this the amplification effect and argues that public opinion's only effects are when events occur or when it is an election year. Guigni finds few effects of social movement activity on opinion but does find some empirical evidence that public opinion and social movement events work jointly to influence political outcomes.

Social movement scholars have not often examined public opinion as an outcome measure to be influenced by social movement activity, although many movements seek as part of their goals change in societal attitudes and norms. Political protest can alter the mass public's attitudes on a particular issue by providing crucial information about problems that exist in what might otherwise have been an underdeveloped issue area.¹ This might imply both a change in public

¹ For example, studies of cycles of protest present some important hypotheses regarding the connections between public opinion and protest, arguing that public opinion of movements is affected by the violence of protestors and the repressive nature of the State. Excessive repression particularly early on can bring public sympathy for social movements and outrage against the position of authorities (McAdam 1996, 352; Koopmans 1993, 640). This initial public sympathy causes the State to change its repressive tactics and increasingly facilitate more demonstrative forms of social movement action. Cycles of protest theories also posit the rise of increasingly radical or violent action forms at the end of cycles of protest, which may reduce public support for the movement (see for example Tarrow 1989a 8, 54). Thus, we would also expect the use of violence by social movement activists to reduce support for movement issues within the mass public. However, the U.S. women's movement experienced little clear

opinion in favor of the social movement activists but also a reduction in the standard deviation associated with mass public answers to the questions. Guigni (2004) is one of the few social movement scholars to examine this hypothesis which he labels “the indirect effect” of social movement activity on outcomes –that is, events influences public opinion which in turn changes outcomes. However, he finds little evidence of this “indirect effect” since he finds that social movement events have very little effect on public opinion.² In all of these cases, the focus has been on social movement activity from one side of the issue; none of the scholars have examined the effects of both movement and countermovement events.

Surprisingly no scholar has examined specifically whether public opinion is itself a direct cause of social movement activity, although several studies of individual movements suggest changes in opinion occurring before mobilization of the movement. The idea that public opinion can create social movement activity is not new. Initial theories of collective behavior that ignored the effects of organizations essentially assumed protest to be the direct result of individual attitudes (Smelser; Kornhauser; Gurr). For Gurr, for example, people rebel only once they acknowledge the existence of a grievance and feel that it is unjust.

While later social movement scholars have focused on other factors that create mobilization (e.g. organizations, political opportunities, frames or collective identity), a necessary precondition for protest acknowledged by all social movement scholars is that the grievances already exist. Indeed, as Meyer (2006:28) notes in discussing the antinuclear movement in the United States, “the broad movement was preceded by the development of a grievance.” Although such grievances are widespread, social movement scholars believe that only a small proportion of the people holding those grievances will actually participate in the movement, and such participation is conditioned by the individual’s characteristics (Dalton 1996; McAdam 1988; Inglehart 1989) as well as characteristics of the movement and the political environment (McAdam 1982; Meyer

repressive tactics by the state and also engaged in few violent actions themselves. Of the 1826 events in the Rosenfeld and Ward data set only 5, or ¼ of one percent, involved any form of violence. So we cannot test cycles of protest theories here.

² However, as Guigni (2004) himself admits, the limited availability of measures of public opinion greatly reduce the time periods and movements for which he has data.

2006). If support for social movement values is both a precondition of social movement activity and widespread (that is reflecting the beliefs of a large proportion of the mass public), we would then expect aggregate public opinion to reflect movement values *before* the onset of social movement events. In this case, as Guigni (2004: 196) notes, social movement activism is a visible manifestation of wider public opinion, with “a minority of more committed people act on behalf of a silent majority of concerned citizens.” Given what we know about the low levels of political participation of the mass public (Verba, Brady and Schlozman; Verba, Nie and Kim), it would not be at all surprising if social movement activity on many issues occurred as a result of much wider shifts in public opinion.

On the other hand, it is possible that the grievances that mobilize social movement activity might be limited to such a few that it does not have a large effect on the aggregate opinion of the mass public. Another reason we might expect mass public opinion to influence social movement activity is that it may take the form of important contextual variables. In particular, many authors have argued that cultural opportunities are important for the mobilization of social movements (Banaszak 1996; Jenson 1987; Gamson and Meyer 1996). To the extent that cultural norms are reflected in mass public opinion, we might expect these cultural changes to create conditions that increase the level of social movement activity. For example Andersen (2005: 140) writing about the gay rights movement in the United States noted that cultural shifts were important precursors to the success of the gay rights movement fight against sodomy laws, a fight that preceded the more recent political mobilization around issues of marriage.

Thus, within the social movement literature there is support for the hypothesis that changes in public opinion cause social movement activity and that social movement activity creates change in public opinion. Indeed, Guigni (2004: 196) acknowledges both possibilities of this chicken and egg problem but claims that “it is not possible here to decide in favor of one or the other.” It is precisely this chicken and egg question that this paper seeks to address. Using the time series method of Granger causality tests, we explore the degree to which public opinion influences movement activity or this activity influences public opinion.

Countermovements. The above discussion of the sequencing of public opinion and movement activity as well as the recent studies of the effect of social movement events and public opinion

on outcomes is also incomplete because they assume only one type of social movement activity on the issue. However, in many cases social movements engender countermovements that are also active and attempt to influence both public opinion and political outcomes (Zald and Useem; Staggenborg and Meyer; etc.). While studies have focused on the effect of the initial social movement on outcomes controlling for public opinion, these same studies rarely include measures of countermovement events (but see Soule et al 1999 and Olzak 2004) although this would also seem to influence political outcomes as well as public opinion.

Just as there is a chicken and egg problem with public opinion and protest, so too is the interaction between movements and countermovements are complex. On the one hand, movements may beget countermovements, although their rise depends also on available political opportunities and resources (see Lo 118-119; Meyer and Staggenborg 1996; Zald and Useem). In particular, when movement activity creates some initial success or when it is seen as particularly large or noteworthy thereby constituting a critical event in the political system (Meyer and Staggenborg 1996:1638), new grievances are generated among those who prefer the status quo. At the same time, those who oppose the movement also learn from the movement which by creating initial success or critical events demonstrates that protest may be an important tool for influencing both the public and policy. As a result, countermovement events follow from movement events.

However, countermovements also exert considerable influence on the activities of the initial social movement. Movements respond to the activities of countermovements by mobilizing supporters and continuing visible actions both for strategic reasons – to counter the influence of the countermovements – and because the countermovements often raise fears among movement activists that hard-gotten gains will be lost. Thus, as Rosenfeld and Ward (1991: 485) point out “having a ‘solid opponent’ can also have positive effects by encouraging membership and activity.” (See also Freeman 1983a; Gamson 1975:128; Staggenborg 1989). Especially if countermovements achieve visibility or some form of success, movements are more likely to mobilize. For example, after anti-abortion groups pressured sponsors to boycott a prime-time show that portrayed the main character having an abortion, the National Abortion Rights Action

League picketed and boycotted the sponsors who had bowed to such pressure (Staggenborg 1991:71).

Given the endogenous relationship of movement and countermovement, it is unlikely that movement activity alone would determine policy outcomes or the attitudes of the larger public. As Jasper and Poulsen (1993) argue, it is likely to be the sum total of movement and countermovement activity that determines both public opinion and movement outcomes. Even when mobilization is yielding significant results, countermovement mobilization resulting from this initial mobilization can halt further success (Jasper and Poulsen 1993: 644). We would expect that “countermovements could have negative effects on the movement's ability to convince the neutral bystander and authorities of the reasonableness of change.” (Rosenfeld and Ward 1991: 485: see also Zald and Useem 1987) Thus, what matters is not just the amount of mobilization but mobilization and countermobilization together.

The literature on social movements, public opinion, and policy outcomes thus suggests highly endogenous relationships between movement events for and against particular movement goals and public opinion and between movement and countermovement activity. However, empirical tests of these models have largely ignored the endogeneity issues of movement activity and public opinion, and have focused mostly on movement events without incorporating countermovement events. Below, we begin the process of unraveling these intertwined variables using techniques employed in research on the dynamics of aggregate public opinion.

The Literature on Public Opinion Dynamics

While our major interest is the relationship of social movement activity to public opinion, numerous scholars of U.S. public opinion have also sought to explain why public opinion changes over time (Carmines and Stimson 1989; Erikson, MacKuen, and Stimson 2002; Stimson 1991; Page and Shapiro 1992, 1983). Several authors focus on the influence of elites on public opinion. For Carmines and Stimson (1989) the position of elites in Congress are a greater influence on the mass public's attitudes towards race than vice versa (see also Costain and Majstorovic 1994). On the other hand, Kellstedt (2003) and Zaller (1992) argue that changes in

attitudes in the mass public develop largely because of changes in the media representation of events. Page and Shapiro (1983) raise the issue of whether the relationship between public opinion and policy is reversed from the normal causal ordering of public opinion affects policymakers. They look simply at whether policy is moving in the same direction as opinion and find that 1/3 of the policies don't match public opinion shifts. They note that in a majority of the cases it cannot be ruled out that policy shifted *before* opinion. Indeed they say that "policy may affect opinion in close to half the cases of congruence between opinion and policy." (p. 187).

Yet, these scholars have done little exploration of the role of social movements. The closest to address the topic are Page and Shapiro (1992: 361) who in *The Rational Public* argue that social movements "lead opinion mainly by drawing attention to problems and articulating goals". In their view this gets people interested in the issue and leads them to think about the issue and seek new information. They also argue that social movements "tend to stimulate research and encourage the writing of books, articles and commentary" (Page and Shapiro 1992: 361). In their view then, social movements increase salience but shouldn't necessarily affect the direction of the issue.

Hypotheses

Thus, from the literature on social movements and public opinion dynamics we pull the following four hypotheses:

H1. As support for feminism among the mass public increases, the net amount of social movement activity in support of feminism also increases.

H2. As the net amount of feminist events over antifeminist events increases, so does support for feminism in the mass public.

H3. As movement events increase, countermovement events also increase.

H4. As countermovement events increases, so does movement activity.

In the sections which follow, we discuss in detail the measures we use for public opinion and movement activity and the processes we use to analyze the data. We then report results for

protest around the U.S. women's movement, looking at both feminist and anti-feminist events as well as pro- and anti- events in both the abortion campaigns and the campaigns to adopt an Equal Rights Amendment.

Data and Measures

To examine the interconnection of public opinion and movement activity over the long period we need measures of public opinion on the issues of each movement over long time periods as well as measures of movement and countermovement events over the long term.

Movement Activity. Because the measurement of movement events is much more developed within the social science literature, we will not dwell long on the issues underlying the data we use here.³ While we know that newspapers are a biased sample of all political events (see McCarthy et al. 1994, 1998; Olzak 1989), that is of little concern in this research because we are exploring the effect of movement activity on public opinion. In order for these events to influence the mass public, information about the movement activity must reach them. Since few are likely to be actual bystanders at demonstrations (and even such bystanders have only limited experiences), mass media is the means by which most of the public *experience* social movement activities.

Moreover, we utilize an existing movement event data set taken from the New York Times by Rosenfeld and Ward.⁴ In this case they coded all articles that were related to the women's movement from 1956 through 1992. This includes all events considered to be related to the women's movement as well as actions and legislation that could be considered anti-feminist.⁵ In the analysis below, we include only those events that are public actions; this includes campaigns, public statements, and mass actions. We use Rosenfeld and Ward's coding of the events as

³ For an extensive treatment of protest event data see Koopmans and Rucht 2002.

⁴ These data have been used in a number of previous analyses of the women's movement including Minkoff 1997; and Rosenfeld and Ward 1996, 1991; and Soule et al. 1999.

⁵ Here, we use the terms women's movement and feminist movement as synonyms although there is a literature in the United States that uses the term women's movement to include all movements done by women for women, which would in this case include conservative or anti-feminist movements. See Beckwith 2000.

either pro- or anti-feminist to separate feminist and anti-feminist events. We use these two types of events to look at the relationship of the women's movement to anti-feminist movements, and to look at the net effect of social movement activity on public opinion. For the later analysis, we create a variable by subtracting the number of anti-feminist events from the number of pro-feminist events. This net event variable is positive when there are more feminist than anti-feminist events and negative when there are more anti-feminist events than feminist events. It is an indicator of whether feminist or anti-feminist events are dominating the public sphere.

Figure 1 depicts the number of pro-feminist events, anti-feminist events and our public opinion measure of gender attitudes annually between 1956 and 1992. The scale for the events data is located on the left hand side of the figure and the scale for the public opinion data is located on the right hand side of the figure. We will discuss the public opinion measure in more detail shortly, but focusing just on the events we observe only moderate feminist activity at the start of the time period; only a few events occur during the years between 1956 and 1965. We see a slight increase in the number of feminist events each year starting in 1966. Then in 1970 the number of feminist events rises significantly, peaking in 1975 with 125 feminist events. Throughout the 1980s and 1990s, the number of feminist events each year slowly declines. Figure 1 also shows that anti-feminist events are rarer than feminist events; there are few anti-feminist events until the large increase in feminist events observed in 1970. Anti-feminist events peak significantly after the peak in feminist events; the largest number of anti-feminist events occurred in 1980 with 31 events. After its peak in 1980, anti-feminist events also decline through the 1980s and 1990s. For the most part feminist events outnumber the anti-feminist events throughout the entire time period. Only in 4 years early in the series (1957, 1958, 1964, and 1965) do anti-feminist events outnumber feminist events.

Additionally, we look at events related to specific campaigns⁶ of the women's movement around abortion and the Equal Rights Amendment. Figure 2 depicts events of the pro-choice events, anti-abortion events, and the public opinion measure of abortion attitudes annually between 1962

⁶ A campaign is defined as "a social movement's goal-specific, organized challenges to a target" and has four components 1) goals 2) tactics 3) strategy and 4) mobilization for identifiable action (Beckwith 2008).

and 1992. Similar to Figure 1, the scale for the events data is located on the left hand side of the figure and the scale for the public opinion data, which we will discuss momentarily, is located on the right hand side of the figure. A campaign of public events did not occur around the issue of abortion until 1968 when we observe the first pro-choice event. After this point, pro-choice movement activity increases throughout the 1970s, peaking in 1977 with 16 events. Throughout the 1980s and 1990s the number of pro-choice events slowly declines. Anti-abortion activity started the same year as the pro-choice events (1968). However, the number of anti-abortion events peaks one year after the pro-choice activity in 1978 with 5 events. Overall we observe fewer anti-abortion events than pro-choice events; there are only three years in which there is more anti-abortion activity than pro-choice activity (1976, 1978, and 1982). Interestingly, two of the years where anti-abortion activity outnumbers pro-choice activity are the years immediately before and after the peak in pro-choice activity.

The final campaign of the women's movement we examine is the battle over the Equal Rights Amendment. Figure 3 illustrates the number of pro-ERA events, and anti-ERA events, and the public opinion measure of ERA support events each year between 1956 and 1992. Once again, the scale for the events data is located on the left hand side of the figure and the scale for the public opinion series is located on the right hand side of the figure. Pro-ERA activity was moderate but sporadic at the start of the series. Starting in starting in 1970 we observe a substantial increase in the number of pro-ERA activity which peaks in 1978 and then declines throughout the 1980s and 1990s. Anti-ERA events are very limited in the 1950s and 1960s, but increase sustainably in 1970s as the pro-ERA activities increase, peaking in 1975, a few years after anti-ERA activity. After the mid 1980s the number of anti-ERA events quickly decline and anti-ERA activity becomes rare.

There are striking similarities in the movement of events across Figure 1, Figure 2 and Figure 3. Generally speaking, the majority of the activity, both pro and anti movement, occurs in the 1970s. Additionally, the number of pro and anti events appear to be closely related, suggesting support for our hypotheses about the relationship between movement and counter-movement activity. More rigorous testing of these hypotheses will be carried out shortly. But now we turn our attention to measuring public opinion.

Measuring Aggregate Public Opinion. The incorporation of public opinion into studies of social movements and the rigorous testing of the relationship between public opinion and social movements has been hindered by the availability of public opinion data. Questions relating to social movements are not asked very often. And when they are asked they are usually asked on an inconsistent basis or with multiple years between each observation. As a result, social movement scholars often end up using the questions that are most convenient even though they are not always the best choices to measure opinion about the movement. To overcome these obstacles we use the algorithm developed by James Stimson that allows us to combine multiple public opinion series together into a single measure.

Surveys of mass opinion have several problems that make it difficult to connect these data with event data. One major problem is that questions related to movement issues tend not to be asked consistently over time. This is particularly true for social movement issues; questions about social movements or social movement issues appear only sporadically in public opinion polls and are rarely part of the core political questions asked by survey researchers. Question wording also tends to change over time making the construction of time series difficult. Additionally, the timing of social movement events and the administration of relevant survey questions do not also coincide in a timely fashion; making it difficult to assess any connection between movements and public opinion. These cause problems for researchers who wish to combine public opinion data with social movement data since it is rare to get long relevant series. The solution has tended to be analyses that eliminate many years or cases because there is no data or that interpolate between time points (McAdam and Su 2002; Soule and Olzak 2004).⁷

When long-term series of public opinion on social movement issues do exist, they are usually built from a single question, which fails to capture the complex nature of public opinion surrounding many social movements. For example, McAdam and Su (2002) study of the effect of movement events on congressional votes about the Vietnam war utilized the question: "In

⁷ The problems become especially serious as scholars attempt to compare movements or countries. For example, Guigni (2004) -- who sought to examine how the environmental, peace and antinuclear movement affected policy in the United States, Switzerland, and Italy -- was forced to drop the Italian environmental and anti-nuclear movements and the Swiss peace movement from his analysis when he tried to incorporate public opinion into his models because no questions were repeated on a consistent basis.

view of developments since we entered the fighting in Vietnam, do you think the U.S. made a mistake in sending troops to fight in Vietnam?" to measure public opinion against the war. Similarly, when studying state level ratification of the Equal Rights Amendment, Soule and Olzak (2004) rely on the question "Some people feel that women should have an equal role with men in running business, industry and government. Others feel that women's place is in the home. Where would you place yourself on this scale or haven't you thought much about this?" to gain insight into potential public support of an Equal Rights Amendment. While these questions both capture one aspect of the movements' goals, they tend to reflect only limited aspects. When measuring complex phenomena that might have multiple dimensions – as is the case of a movement's agenda – multiple indicators provide a more valid and reliable measure. However, it is difficult to find long running series with such questions; indeed, in both cases, the authors were forced to interpolate between data points. For other movements, no single question reappears enough over an extended period of time to allow dynamic analysis. Thus, it is difficult to create indicators of public opinion using the normal means of creating indices from single questions.

One solution to this problem is the dyadic ratio algorithm (Stimson 1991 Chapter 3 and Appendix A; Stimson 2004) developed by James Stimson which utilizes the logic of principle components factors analysis to combine multiple public opinion series together by extracting their shared variance. The dyadic ratio algorithm has a number of advantages in creating an index of public opinion. First, it allows us to put together a single continuous series out of the number of opinion questions, none of which is consistently asked over the entire period. Second, because we can use questions which are not asked in every time period, we can incorporate in our measure a wider range of questions that reflect movement goals. The advantage is that this reduces the bias associated with any specific individual question.

Stimson's dyadic ratio algorithm uses questions that appear at least twice in the time period under study. However, there is no requirement that the questions occur at regular intervals. Additionally, each question must overlap in time with some other question, but all of the questions used in the index do not need to overlap (that is, have parallel structure) or appear in

the same time periods.⁸ The algorithm does this by making several assumptions. First and foremost, the questions used to create the series are measuring an underlying latent trait that is expressed as their shared variance. In our case we use the technique to measure the underlying attitudes about gender roles.⁹

Hundreds of different survey questions have been asked about the roles and expectations of men and women in the family, workplace, politics, and society. However combining these questions into a single measure is not simple. The questions are not asked on a consistent basis; in some years no questions are asked, in other years multiple questions are present, and in no year are all the questions asked. This missing data poses a serious problem for traditional methods of analysis, such as principle component analysis, which is usually used to estimate shared variance. However, James Stimson's dyadic ratio algorithm overcomes these very problems.

It does so by analyzing the covariance across ratios of change calculated for each individual question, conditional on an established baseline. Stimson's algorithm produces a single time series that captures the relative change among each of the individual questions by analyzing shared variation in this change relative to a baseline year. Specifically, we begin with a series associated with a single question and select a baseline year, t , and arbitrarily rescale the observation in that baseline year to 100. We can then use these observations to compute the ratio of change within each question for any other time point:

$$Question_{\{i,t-k\}} = 100 * \left(\frac{Question_{\{i,t\}}}{Question_{\{i,t-k\}}} \right)$$

While the series is converted to a ratio of change, the process simply rescales the data, leaving the meaning otherwise unchanged. This is carried out for each individual question series moving backwards in time.

⁸ Although we can have more confidence in the final measure if the underlying series that create the measure are more uniform, that is are asked at regular intervals, and with greater frequency.

⁹ Additionally, the algorithm has been used to measure racial policy preferences (Kellstedt 2003).

If we had observations for every single question during each year and no missing data, the series would simply be a weighted average of these change ratios of the survey questions. But what about the series that do not have observations in the baseline year? A different baseline is selected for each of these series, the series are rescaled and the ratios calculated. This routine is carried out until there are ratios for each question series in all years. The new baselines are then calibrated to the original baseline, using information about the relationship between the original baseline series and the new series.

$$Genderattitudes_t = \frac{\sum_{i=1}^N \sum_{j=1}^Z \frac{Question_{ij}}{Question_{ib}} * Metric_b}{n}$$

Where $i = 1$, n is all available questions for period t ; $j = 1$, z is all available dyadic comparisons for issue i ; b is the base period for the recursive metric generation; and $Metric_b$ is the value of the metric for period b .

The result is that each of the individual question series is rescaled to share the same metric. The whole process is repeated moving forward in time, giving more weight to the questions that are asked more frequently because those ratios are used more often in the process. The final series produced by the algorithm is essentially a weighted average of each of the individual question series.¹⁰

Thus, the Stimson measure has a couple of advantages. First it allows us to get at the long term change in mass public opinion that individual questions or traditional indices of individual questions cannot because they are not asked consistently over time. Indeed, although the estimates become less reliable when the data is sparse (Stimson 1991), the dyadic ratio algorithm allows us to use those few questions *that might appear before the rise of a movement to measure public opinion prior to a movement's onset*. Second, the measure is designed to capture change over time and as such it is much less affected by issues of bias in the question wording (or for

¹⁰See Stimson (1991) where he explains that logic and mathematics behind the algorithm. Estimating the series is made very simple by using the WCALC software developed by James Stimson. The software and instructions can be found at: <http://www.unc.edu/~jstimson/resource.html>.

that matter of the polling firm itself). By gaining a longer time series of public opinion, we are then able to really explore the interaction between public opinion and movement activity. This interconnection is particularly important in the case of the U.S. women's movement because changing peoples' perceptions of women's roles (i.e. raising consciousness) was a major goal of the movement itself.

Survey questions pertaining to roles and expectations of men and women were collected from *iPoll* and the National Election Studies.¹¹ In total there are 205 questions used to calculate our measure of public opinion. Two types of survey questions were included: a) those measuring attitudes towards women's roles and status and b) those designed to capture attitudes towards policies supported by the women's movement. Questions about the role of women and men in society spanned many different topic areas, such as the workplace, family, politics, and military. Policy questions are included when support for the policy indicates greater support of the changing roles and opportunities for women or men. These programs and policies included maternity and paternity leave, Title IX, the Equal Rights Amendment and affirmative action.¹²

The combination of public opinion questions results in a single time series tapping the latent concept of progressiveness of gender attitudes. We refer to this measure as *gender attitudes*. Figure 1 displays the gender attitudes series in addition to pro- and anti-feminist events. The scale for the public opinion series is located on the right hand side of the figure. Overall gender

¹¹ More information on Roper and *iPoll* is available at their web site: <http://www.ropercenter.uconn.edu/> Questions were collected from eight Roper-defined categories: women, men, equality, work, family, rights, abortion and sex. *iPoll* archives most major surveys in the United States with one exception, the National Election Studies. Some years of the National Election Studies are archived at *iPoll*. However, at this time their archive is not complete. I identified relevant questions in each version of the NES from 1952 to 2004 and calculated the marginals for these questions. All questions were coded in a direction so that higher scores reflect more progressive gender attitudes. I define these as responses that indicate equality between men and women or minimize the differences between the sexes. This coding choice reflects the types and topics of the survey questions that were asked over the past fifty years, which were reflective of a liberal feminist standpoint. Questions from other standpoints were not asked multiple times or with the same question wording.

¹² Only Affirmative Actions that referenced gender were included.

attitudes became more progressive between 1956 and 1992.¹³ However, there is also movement around this progressive trend, as attitudes turn more conservative during certain time periods. Gender attitudes appear to be more progressive in the early 1950s than we would expect, but this may be due to the lower number of survey questions that comprise the measure in this earlier time period (Stimson 1991). The increase in more progressive gender attitudes starts around 1954 and proceeds fairly steadily through the entire length of the series. Additionally, attitudes tend to grow less progressive at the end of the series in the 1990s.

Additionally, we used the algorithm to estimate public opinion series for the two specific campaigns that we investigate here: abortion and the Equal Rights Amendment. Figure 2 depicts public attitudes about abortion annually between 1962 and 2003 along with the pro-choice and anti-choice events. We see an increase in the progressiveness of attitudes during the 1960s and 1970s, but then attitudes regarding abortion levels off in the 1980s through the mid 1990s. While we observe some movement in abortion attitudes, overall attitudes regarding abortion are relatively stable over this 50 year period. Figure 3 illustrates attitudes toward the Equal Rights Amendment between annually between 1975 and 1992 and the pro-ERA and anti-ERA events. Throughout the 1970s and 1980s we see attitudes grow increasingly more supportive of the Equal Rights Amendment, after which attitudes about the ERA level off and change very little for the rest of the time period.

Modeling the Series

Untangling the relationship between public opinion and events of the women's movement requires that we make several choices regarding the modeling of each variable or time series. First, we standardize the public opinion and event data by calculating the Z-scores for each series.¹⁴ The use of Z-scores provides a way of examining how far away a measure in a particular year is from its overall mean and it puts both measures on a standard metric. Stimson,

¹³ The metric of the series is artificial, meaning there is no substantive meaning behind the fact that gender attitudes in 1994 was 51.7 points; rather, we can say that attitudes towards women in 1994 were slightly more progressive than in 1990 (50.3).

¹⁴ Z-score standardization was calculated by subtracting the mean on each measure and dividing by the standard deviation.

for example, argues that “the virtue of standardization is that it forces measures to discriminate within series over time rather than between series.” (Stimson 1991, 54). Standardizing the series also places both the series on the same metric allowing for easier comparison. Additionally, standardizing the series transforms these series to theoretically range from negative infinity to infinity, thus adhering to the common assumptions in time series analysis.

The second decision that we make is to model all variables as changes over time. The statistical theories that underlie many time series methods, including the Granger Causality tests we use in this paper, assume that the time series of each variable stationary.¹⁵ Exploratory analysis of the data indicates that several of our variables are not stationary. For consistency across all the time series and to correct potential problems due to non-stationarity we use the first difference, or changes, to conduct our analysis.¹⁶ In sum, the time series we use for our analysis represent changes in the z-score; however, for ease of discussion we will just refer to them by untransformed titles.

Finally, we conduct our analysis on both annual and quarterly data, except for our analysis of the Equal Rights Amendment campaign. Public opinion data on the Equal Rights Amendment is only available for 24 years, providing too few observations to carry out rigorous analysis with

¹⁵ The best tool to formally tests for stationarity is the Augmented Dickey Fuller tests, which we performed on all the standardized z-score series. The null hypothesis of an Augmented Dickey Fuller tests is that the series contains a unit root. Table A1, located in the appendix, summarizes the results from all the tests and reports the t-statistic and the probability rejecting the null hypothesis. We are able to reject the null for six of the variables: feminist events, anti-feminist events, pro-choice events, anti-ERA events, net ERA events, and the abortion attitudes series. These six variables do not contain a unit root and are stationary in nature. However we cannot reject the null that five series contain a unit root: net feminist events, anti-abortion events, pro-ERA events, gender attitudes, and ERA attitudes. The most common remedy for non-stationary variables is to take the first difference of the series. In the case of the five variables where we are unable to reject the hypotheses that they have a unit root, taking the first difference solves the problems with stationarity and after taking the first difference, we can reject the null hypothesis (that there is a unit root) with the Dickey Fuller test for all five variables. However this leaves us with some variables that are in levels and some that are differenced. This situation potential poses problems for estimation of models and definitely complicates interpretation. For that reason, we chose to use the first difference of all the variables that we examine.

¹⁶ Freeman (1993) cautions us about looking at the first difference with the granger causality tests, because the process of differencing the series erases the long-run dynamics of the series. As Freeman explains this choice could result in eliminating the very dynamics that we are interested in modeling.

yearly data. Thus our analysis of the Equal Rights Amendment campaign is carried out on quarterly series, which provides us with enough observations to examine the relationship between public opinion and social movement events.

Examining Endogeneity using Granger Causality. In the analysis below we examine the dynamic relationships between social movement events and public opinion. Are they exogenous? Does public opinion drive movement activity, while having little influence on the number of events? Or are both variables endogenous, public opinion influencing the number of events and the social movement activity shaping public opinion? Additionally, we explore the dynamics between movement events and counter movement events.

To understand the flow of directional arrows we employ Granger causality tests. Granger causality ask the basic question: After controlling for its own history, how does the history of another variable contribute to our ability to predict the current (and future) values of itself? If X can contribute significantly to the variance in Y even after controlling for the history of Y, then X Granger causes Y. If the reverse is true, Y also Granger causes X (Freeman 1983, Granger 1980). In this case, there is evidence of endogeneity and the analysis cannot rule out the possibility that causality runs in both ways if X Granger cause Y but Y does not Granger cause X then there is evidence for causality from X to Y (Freeman 1983, Granger 1980). It should be noted that Granger causality tests measure temporal ordering and information content (does the addition of X help explain Y). Granger causality tests do not measure causality in the common sense of the term.

Granger causality tests were designed to tackle the very question of endogeneity between time series variables. Freeman (1983) explains that “tests for Granger causality are useful in that they offer qualitative characterizations of the relationships under study” (329). Beyond describing the dynamic relationship between two time series variables there are also important issues if exogeneity between two variables is falsely assumed. As we noted above, extant research on the role of public opinion and social movements treat the two variables as exogenous. This is an assumption could lead to the misidentification of models and inconsistent parameter estimates (Freeman 1983).

Estimation of Granger causality tests is relatively straight forward. The most common way to estimate Granger causality tests is to use a bivariate system of autoregressive distributed lag models. This model allows us to control for the influence past values of a variable on its current value, while adding in additional explanatory variables. The Granger causality test is then a joint significance test of the β 's.¹⁷

The most complicated issue with estimating Granger Causality tests is the appropriate specification of the lag lengths. Too few lags and we are not controlling for enough of the past history of the series, resulting in biased estimates (Freeman 1983; Jones 1989; Thornton and Batten 1985). If an insufficient number of lags are specified serial correlations may produce artificially significant results (Freeman 1983). Too many lags and our estimates become inefficient, meaning results could appear insignificant when the relationship actually exists (Jones 1989; Thornton and Batten 1985). Unfortunately, statistical tests to determine proper lag lengths are highly sensitive to the data and do not provide us with much guidance (Jones 1989; Thornton and Batten 1985). We err on the side of caution and believe that too many lags are probably better than too few lags. For the yearly data we estimate Granger causality tests with both 2 and 4 lags and on the quarterly data we estimate the tests with 4 and 8 lags. Given that the time series variables we are investigating are actually the first difference and as a result are not very time persistent, we feel confident that this number of lags should adequately account for the influence of past values.

Examining the U.S. Women's Movement

The relationship between the women's movement and public opinion is of particular importance because one of the most important goals of the women's movement was wholesale changes in the attitudes of the public towards women. As Jo Freeman wrote in 1969:

¹⁷ We use EVIEWS 6.0 to estimate our granger causality tests. EvIEWS runs bivariate regressions in the following form:

$$y_t = \alpha_0 + \alpha_1 y_{t-1} + \dots + \alpha_l y_{t-l} + \beta_1 x_{t-1} + \dots + \beta_l x_{t-l} + \epsilon_t$$

and

$$x_t = \alpha_0 + \alpha_1 x_{t-1} + \dots + \alpha_l x_{t-l} + \beta_1 y_{t-1} + \dots + \beta_l y_{t-l} + \epsilon_t$$

Where the F-statistics are the Wald statistics for the joint hypothesis: $\beta_1 = \beta_2 = \dots = \beta_l = 0$. The null is that x does not Granger Cause y in the first equation and the y does not Granger cause x in the second equation (EVIEWS User Guide 2004).

One of the primary goals of the movement is to break down discriminatory structures and sexual stereotypes. The new feminists feel that men and women should share the privileges and responsibilities of work, home and children. Each person should be free to choose the extent of his or her participation in both domestic and economic spheres. To do this requires changes in the social structure and changes in people's ideas about what women can and should do.

Hence a major goal of the women's movement is to alter public opinion about the role of women and a number of events in the late 1960s and early 1970s were focused on raising consciousness and questioning typical attitudes about women's roles and their unequal treatment. From the women's liberation movement came protests like that of the Atlantic City Beauty Pageant in 1968 and 1969 which were designed to show that the public's emphasis on women's bodies were detrimental to women. From what Jo Freeman terms the older women's movement organizations – such as the National Organization for Women -- came events like the Women's Strike for Equality on August 26, 1970 (on the 50th anniversary of women obtaining the vote) which protested inequalities in the social and economic position of women in 40 cities across the nation, including a demonstration of about 50,000 in New York City. Thus, if we are interested in studying the outcomes of women's movement events, one desired outcome that needs to be examined is the degree to which opinions about women's gender roles as well as attitudes towards issues such as equal rights for women changed.

The analysis below examines these issues in two steps. First, we examine the issue of endogeneity between movement and countermovement protest activity. Understanding the interconnection of movement and countermovement helps explain the need for a measure of “net” feminist activity. Second, we utilize our measure of net feminist activity to gain a better handle on the relationship between movement events and public opinion. In each of these sections, we examine events related to the women's movement and public opinion, but also focus in specifically on the issues of abortion and the Equal Rights Amendment since these have been the focus of considerable literature (see for example Staggenborg; Meyer and Staggenborg; Berry; Mansfield; Boles).

The Relationship of Feminist and Anti-Feminist Events.

Social movement events rarely exist in isolation; rather, there is a complex relationship between movements and counter-movements. To gain a better understanding of this relationship we begin by examining the causal links between the feminist events and anti-feminist events presented in Figure 1. Table 1 reports the results for the Granger causality tests for the transformed feminist and anti-feminist event series, using both years and quarters as the unit of analysis. As discussed above Granger causality tests are sensitive to lag length specifications, thus we report the results for 2 and 4 lags for the yearly series and 4 and 8 lags for the quarterly series. First looking at the yearly data, feminist events appear to have little influence on the activities of anti-feminists. While for the two year lag structure, anti-feminist activities appear to cause changes in the feminist event series, the lack of any similar finding when tested in the yearly data with a four year lag suggests that this result may be a function of bias.

However, the quarterly data show much more evidence that movements and countermovements react to one another. While movements often play out over decades, they are not likely to wait for a long period of time before responding to the activity of their opponents. Thus the yearly counts of movement activity could miss dynamic responses occurring at a much faster frequency. To see if this is the case we also conduct the Granger causality tests on quarterly data. The quarterly tests do reveal that feminist activities drive anti-feminist activity (with an 8 lag specification). On the other hand, there is no significant relationship running in the other direction; anti-feminist activity does not Granger cause changes in feminist events. Thus, while we do see feminist movements reacting to anti-feminist activity, we conclude that there does not appear to be an endogenous relationship between feminist and anti-feminist series overall.

However, the variables representing movement and countermovement events measure activities across the multitude of topics that the women's movement addresses. Thus true relationships between movement and countermovement events on specific topics could become muddled when aggregated across topics, obscuring the dynamic relationship between movement and counter-movement. For instance, say in one quarter the feminist movement holds a protest to gather support for the passage of the Equal Rights Amendment. We would expect that the anti-feminist movement would counter with an event opposing the Equal Rights Amendment. However, because these series also contain information about events regarding abortion,

workplace equality, violence against women and other issues, the specific response may be lost among other campaigns that have their own dynamic. Because of this potential issue, we focus on the dynamic relationship between movement and counter-movement revolving around two important campaigns of the women's movement: abortion and the Equal Rights Amendment. The bottom half of Table 1 reports the Granger causality tests between the pro-choice and anti-abortion movement and the pro-ERA and anti-ERA movements. The Granger causality tests on the yearly pro-choice and anti-abortion series suggest a causal arrow running from pro-choice events to anti-abortion events, but in the yearly data there is no evidence that the causal arrow runs in the opposite direction between anti-abortion events to pro-choice events. On the other hand, the quarterly analysis of the pro-choice and anti-abortion events demonstrates a complex endogenous relationship, with events of the pro-choice movement causing the activities of the anti-abortion movement, and the anti-abortion movement influencing the activities of the pro-choice movement. Similarly, we find an endogenous relationship between the pro-ERA movement and the anti-ERA movement using only quarterly data.

Overall there is support for hypotheses 3 and 4, which argues that movements and counter-movements do not act independently. While we did not find support for these hypotheses when examining the general feminist and anti-feminist data, strong endogenous relationships were detected when we look at specific campaigns surrounding the abortion and ERA campaigns that composed the feminist movement and the anti-feminist counter-movement. We will return to the implications of these findings in the discussion and conclusion sections.

Examining the Endogeneity of Public Opinion and Protest?

With a better understanding of the relationship between movement and counter-movement activity, we now turn our attention to the dynamic relationship between movement events and public opinion. To capture the potential overall effect of the social movement activity, including both movement and counter-movement events, on public opinion we use a measure of net events calculated by subtracting the number of counter-movement events from the number of movement

events.¹⁸ Our measure of public opinion was created using Stimson's algorithm to combine multiple survey questions together to create a single series reflecting the progressiveness of gender attitudes.

The top portion of Table 2 reports the results of the Granger causality tests between net feminist events and gender attitudes on both annual and quarterly data. The test results from the yearly data indicate that movement events explain changes in public opinion; this is true regardless of whether we use a 2 or 4 year lag. On the other hand, public opinion appears to have no effect on the net number of movement events. As was the case with the movement and counter-movement time series, we also explored whether public opinion's lack of effect on protest events was a result of observing the data on a yearly basis. One possibility is that the effect of public opinion on social movement events may happen more quickly; if a social movement organization senses that public opinion is shifting they are unlikely to wait over a year before staging an event. Our quarterly data helps address this potential problem because we are able to observe relationships that have a faster dynamic than with the yearly data. However, we find similar results with the net number of events helping explain variation in public opinion, but public opinion failing to explain the net number of protest events. The lack of a relationship between public opinion and net feminist events in both the quarterly and yearly data suggest that across all feminist issues, the timing of social movement events are not driven by changes in public opinion. It seems unlikely that social movements react even more quickly (i.e. within days or weeks) to changes in public opinion given that there are not easily obtainable daily or weekly measures of public opinion. However, as was the case in the previous section, these data reflect an aggregation of a number of potential feminist issues. We might expect different results if we focus on specific feminist campaigns.¹⁹

¹⁸ The series is transformed into its z-score and then the first differences is taken after the untransformed movement events series and untransformed counter-movement events.

¹⁹We also conducted Granger causality tests using time series of the feminist events and anti-feminist events series relationship with public opinion. With the yearly data, feminist events helps explain changes in public opinion, regardless of the lag specification (F-stat on the 2 year lag is 6.67 and significant at the 0.004 level, F-stat on the 4 year lags 4.99 and significant at the 0.005 level). The yearly data indicates an endogenous relationship between feminist events and public opinion with a significant F-stat on with the 4 lag specification (2.35, significant at the

The bottom portion of Table 2 reports the results of Granger causality tests between the net events of two campaigns of the women's movement -- abortion and the ERA -- and public opinion on those issues. The Granger causality tests show no evidence that abortion attitudes influences net events of the abortion movement or vice versa. The lack of the relationship is actually not that surprising given that abortion attitudes are deeply tied to religious beliefs (Cook, Jelen, Willcox 1992; Wilcox 1992) and have not shown much change over time (Bolzendahl and Myers 2004).²⁰

In the case of the Equal Rights Amendment campaign, Granger causality tests indicate that changes in attitudes about the ERA explain some of the variance in changes in the net number of ERA events. This is true regardless of whether we look at 4 or 8 quarter lags. However, in contrast to what occurred when we looked at net feminist events, the net number of ERA events do not help explain attitudes regarding the ERA.²¹ Hence, the case of the Equal Rights Amendment appears to be significantly different to what we found in the case of both the case of abortion and the case of the women's movement as a whole. We examine these differences in the discussion and conclusions below.

0.08 level). The relationship between feminist events and public opinion with the quarterly data revealed no significant relationships between public opinion and feminist events. The relationship between anti-feminist events and gender attitudes is similar, demonstrating a significant relationship between anti-feminist events and public opinion in the yearly data (F-stat 3.17 in the 2 lag specification, significant at the 0.05 level and F-stat of 4.25 with the 4 lag specification and significant at the 0.01 level), but not a significant relationship running in the opposite direction between public opinion and anti-feminist events in the yearly data. There is no significant relationships between anti-feminist attitudes and public opinion in the quarterly data; however at the 8 lag the relationship between public opinion and anti-feminist events is significant (F-stat of 3.03, significant at the 0.004 level).

²⁰ Looking at the relationship between pro-abortion events and public opinion, we find that pro-abortion events help explain attitudes on abortion in the yearly data (F-stat for 2 lags 4.12 and significant at the 0.03 level and the F-stat at 4 lags 2.96 significant at the 0,05 level). The causal arrow does not run in the opposite direction, no significant relationships were uncovered between abortion attitudes and pro-choice events. Similarly to the pro-abortion and public opinion, with the 4 lag specification of the yearly data we find a significant relationship between anti-abortion events and abortion attitudes (F-stat 2.85, 0.06 level of significance).

²¹ With a 4 lag specification attitudes about the ERA help explain variation in Pro-ERA events (F-stat 3.33, significant at the 0.02 level). The relationship is not significant in the 8 lag specification but this may be a result of inefficiencies resulting from the larger number of lags. Anti-ERA events show a significant relationship with ERA attitudes in the 8 lag specification (F-stat 4.39, significant at the 0.001 level).

Discussion

What can the above analysis tell us about the complex relationship between movements and countermovements and between public opinion and movement events? The analysis above speaks not only to the issue of causal order but also to the methods that we use to examine social movement events as well.

First of all, our analysis shows that the actions of countermovements are endogenously related to the actions of movements. This suggests that the social movement literature, much of which has occurred at the descriptive level, that indicates that movements react to countermovements and vice versa may indeed be correct. While Granger causality analyses do not actually test causality, the test does allow us to conclude that movements and countermovement may be reacting to each another. Important here is that the time frame of the endogeneity is very quick compared to the time frame usually used to measure movement actions. We found this endogenous relationship only when we moved to the quarterly level of analysis. Moreover, these effects were found only when we looked at specific movement campaigns and not for movement events as a whole. This suggests that the reactive character of movements may happen in relationship to specific issue campaigns. Yet, most social movement event data is analyzed at the level of the movement as a whole. Our findings suggest that social movement researchers will need to move to the level of political campaigns to understand movement-countermovement dynamics.

Second, we did not find the same endogenous relationship when looking at the connection between public opinion and net movement events. Rather, events help explain changes in public opinion when holding constant the past history of public opinion, but the reverse is not true. When we looked at how public opinion explained changes in net movement events given the past history of those events we found a much more nuanced story. Public opinion did not explain changes in net movement events both for the movement as a whole and when we looked at the abortion issue campaign; it was however significant when we examined the campaign for an Equal Rights Amendment. There, changes in attitudes towards the ERA had a strong effect on movement events using quarterly data. Unfortunately, we cannot tell if the ERA campaign is unique. On the one hand, there are potential explanations for the lack of other effects. In the

case of the controversy over abortion, we have reason to expect that attitudes would not influence events since the stability of abortion attitudes has been well established. The movement-wide data may also be aggregating too many issue campaigns to show a clear influence of public opinion on events (as was the case when we looked at movement-counter-movement effects).

On the other hand, it may be that the campaign for the Equal Rights Amendment was different from other feminist movement campaigns. While there is nothing in the extant literature to suggest that this was so, the importance of extensive campaigns to convince state legislatures to adopt the amendment may have led public opinion changes to play a larger role in movement events. In any case, the different findings suggest that the endogeneity of opinion and movement activity may vary depending on the circumstances of specific movements or specific issue campaigns. Additionally, these findings highlight the need that future research on public opinion and social movement events first engage in this sort of analysis to ensure proper model specification.

Third, there were substantial differences of the effect of events on opinion depending on the level of specificity and the specific issue. We did see that overall the women's movement activity had an effect on gender attitudes. However, we found no sign that abortion attitudes were affected by movement and counter-movement activity on the issue of abortion, although this has been one of the more visible gender issues. As we suggested above, the lack of findings is not surprising given the public opinion literature on abortion which has found great stability in abortion attitudes. While overall, we might conclude that there is a stronger effect of movement events on public opinion than vice versa, these findings suggest that we need to explore this endogenous relationship in other contexts as well to gain a fuller understanding of when we might find such relationships.

Granger causality tests are helpful in providing us with a basic understanding of the relationship between two series, mainly the causal ordering of those series. This causal relationship is interesting in and of itself, but it also is extremely important to insure proper model specification. However, Granger causality is limited in what it can tell us about dynamic relationship between the two series. For example, how large of an impact on public opinion does a movement event

have? Do movements and countermovements respond equally to one another? These questions, along with determining the role other variables play in these relationships are best answered using multivariate time series models.

Finally, this study shows that the unit of time that researchers use in their studies is very important. The dynamics of social movements may not occur at the rate in which we normally observe them. Almost all studies of social movement studies over time are conducted using the year as the unit of analysis. But this study shows that the time unit on which activity is happening makes a difference. In the case of the Equal Rights Amendment, we saw attitudes affecting events when we used quarterly time units (although here we did not have enough yearly event data to analyze). And we saw movement/countermovement actions and reactions unfolding when we used quarters as the unit of analysis. Thus, relying on the year as the unit of analysis may miss important dynamics occurring in the social movements. We were able to explore issues of the unit of analysis because all of our variables could be measured at the quarterly level (in the case of public opinion, only with the help of Stimson's dyadic ratio algorithm), but in many situations that is not always possible. The work here suggests that we must take care when interpreting non-findings at one level of time to mean a non-relationship. Additionally, these findings suggest that as we consider our multivariate findings, we need also to consider how the unit of time aggregation affects those findings.

Conclusions

Previous research has assumed the underlying dynamic relationship between public opinion and social movement. We find that the dynamic relationships between social movements and public opinion are highly dependent on the social movement and even the campaign within that social movement. The contingent nature of these results suggests that we need to further theorize about the connection between public opinion and social movement activity, and that future research employing social movement event data and public opinion needs to test their assumptions about the relationship between the two variables before including these variables in wider causal models.

The analyses here also show strong endogeneity between movements and countermovements, particularly as we move to the level of particular issue campaigns. Although descriptive

analyses of the abortion campaign in the United States had suggested such endogeneity, to our knowledge this is the first article to show a statistically significant endogenous relationship between movement and countermovement events. In our study we find strong endogeneity between pro-choice and pro-life events and between pro- and anti-ERA events when we look at quarterly data. While countermovements have been greatly acknowledged in looking at the U.S. women's movement, their role has not been explored much in looking at other U.S. social movements, or in examining social movements in other places. Our initial analysis suggests that social movement event data should be used to explore not just outcomes but also how movements interact with their counterparts.

Finally, we hope that this study encourages the use of the dyadic ratio algorithm for gathering public opinion data about social movements. One issue for the study of public opinion and social movements has been the limited nature of polling on social movement issues. Social movement scholars have been limited to single questions to explore social movement opinion and have often had to drop cases or interpolate data to gain even yearly data. The dynamic ratio algorithm created by Stimson provides opportunities for scholars to create better measures of opinion, without losing valuable time periods. Indeed, without the algorithm we would have been unable to create the quarterly data that in this analysis indicated the strong connection between movement and countermovement. We believe the use of this ratio will greatly advance the study of social movements and public opinion.

Figure 1: Feminist Events, Anti-Feminist Events and Gender Attitudes, Annual 1956-1992

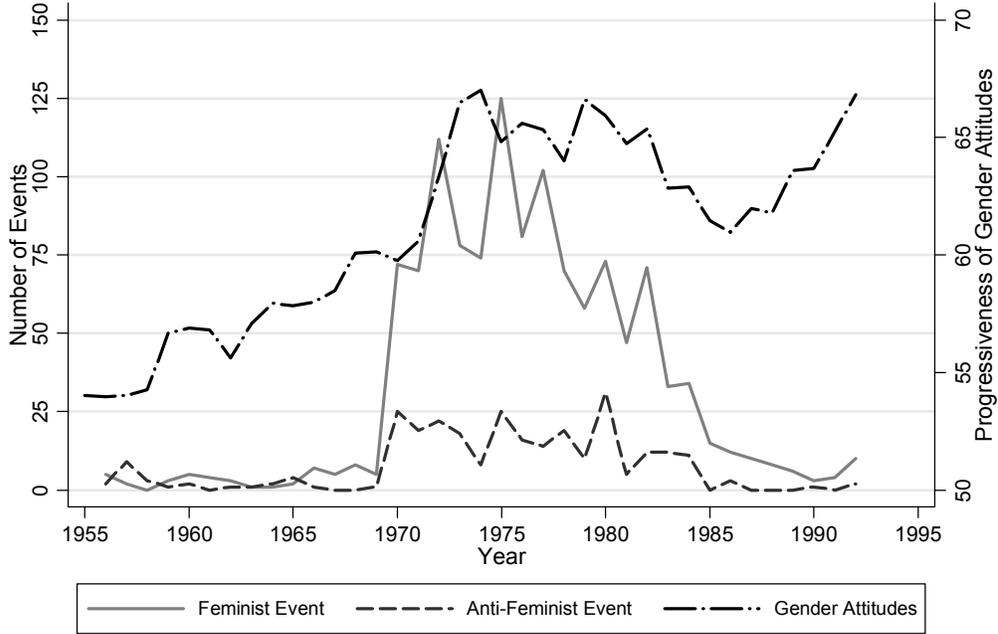


Figure 2: Pro-Abortion Events, Anti-Abortion Events and Abortion Attitudes, Annual 1962-1992

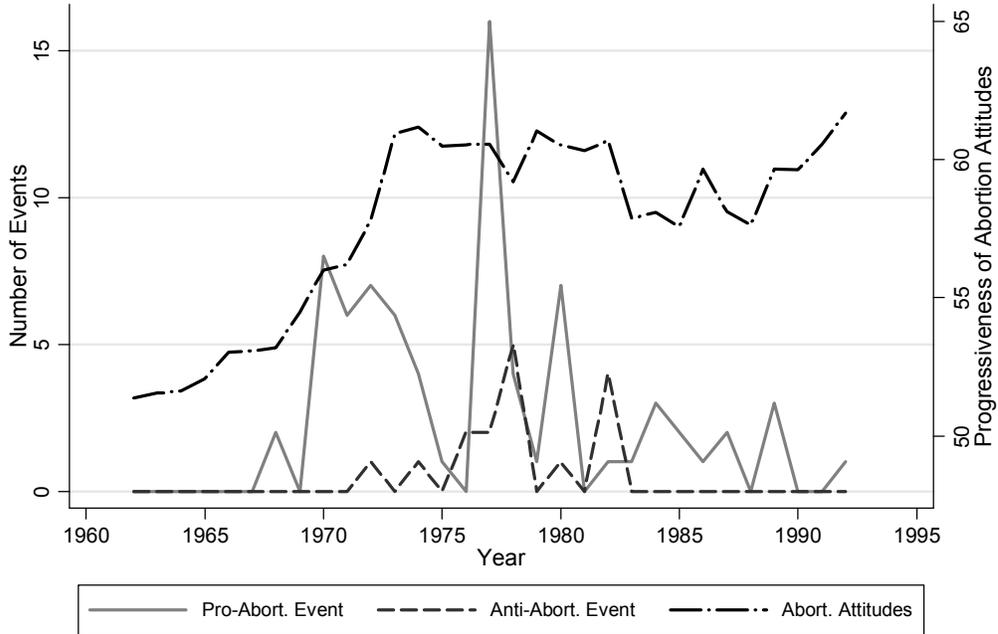


Figure 3: Pro-ERA Events, Anti-ERA Events, and ERA Attitudes, Annual 1956-1992

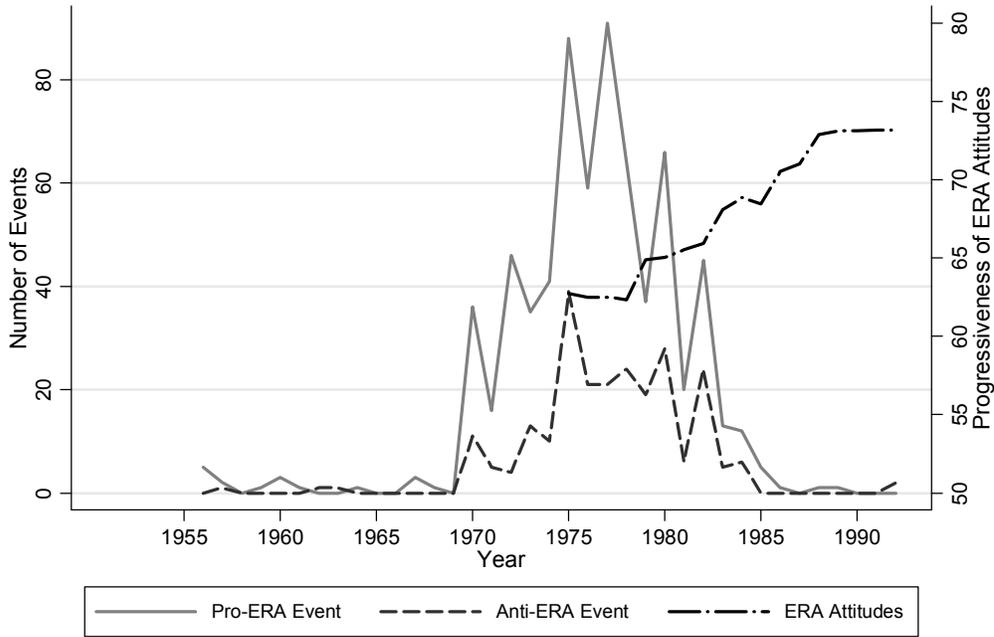


Table 1. Granger Causality Tests of Movement and Counter Movement Events, F-Statistics

	Yearly		Quarterly	
	2 lags	4 lags	4 lags	8 lags
Feminist Events → Anti-Feminist Events	1.73 (0.19)	1.28 (0.31)	1.76 (0.14)	2.5 (0.02)
Anti-Feminist Events → Feminist Events	4.4 (0.02)	1.30 (0.30)	0.55 (0.70)	1.55 (0.15)
Pro-Abortion Events → Anti-Abortion Events	2.60 (0.09)	4.06 (0.01)	7.2 (0.000)	2.64 (0.01)
Anti-Abortion Events → Pro-Abortion Events	0.07 (0.93)	0.15 (0.96)	2.37 (0.06)	4.05 (0.000)
Pro-ERA Events → Anti-ERA Events	---	---	3.91 (0.005)	4.33 (0.000)
ERA Events → Anti-ERA Events	---	---	9.90 (0.000)	4.00 (0.000)

Number of Observations: yearly with 2 lags: N= 34, yearly with 4 lags: N= 32, quarterly with 4 lags: N= 143, and quarterly with 8 lags: N= 139

Level of significance in parentheses, tests significant at the .1 level and above are in bold

Table 2. Granger Causality Tests of Net Events and Public Opinion, F-Statistics

	Yearly		Quarterly	
	2 lags	4 lags	4 lags	8 lags
Net Feminist Events → Gender Attitudes	5.16 (0.01)	4.54 (0.008)	1.88 (0.12)	1.79 (0.09)
Gender Attitudes → Net Feminist Events	0.56 (0.58)	1.89 (0.15)	1.79 (0.14)	0.93 (0.49)
Net Abortion Events → Abortion Attitudes	0.97 (0.39)	1.69 (0.20)	1.08 (0.37)	0.62 (0.76)
Abortion Attitudes → Net Abortion Events	0.57 (0.58)	1.10 (0.39)	0.54 (0.71)	0.69 (0.69)
Net ERA Events → ERA Attitudes	---	---	1.53 (0.21)	1.19 (0.34)
ERA Attitudes → Net ERA Events	---	---	2.45 (0.06)	2.26 (0.04)

Number of observations for net events and gender attitudes: yearly with 2 lags: N= 34, yearly with 4 lags: N= 32, quarterly with 4 lags: N= 143, and quarterly with 8 lags: N= 139

Number of observations for net abortion events and abortion attitudes: yearly with 2 lags: N= 28, yearly with 4 lags: N= 26, quarterly with 4 lags: N= 119, and quarterly with 8 lags, N= 113.

Number of observations for net ERA events and ERA attitudes: quarterly with 4 lags: N= 66, and quarterly with 8 lags: N= 62.

Level of significance in parentheses, tests significant at the .1 level and above are in bold

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Appendix

Table A1. Summary of Augmented Dickey Fuller Tests

	t-stat	probability
Feminist Events	-2.2	0.03
Anti Feminist Events	-1.7	0.08
Net Feminist Events	-1.3	0.18
Pro Abortion Events	-4.7	0.00
Anti Abortion Events	-1.5	0.13
Net Abortion Events	-5.63	0.000
Pro ERA Events	-1.6	0.11
Anti ERA Events	-1.8	0.07
Net ERA Events	-4.1	0.0001
Gender Attitudes (quarterly)	-1.3	0.60
Abortion Attitudes (quarterly)	-2.3	0.0218
ERA Attitudes* (quarterly)	-1.9	0.66

*Model specified with a trend and constant.

Null Hypothesis: Series contains a unit root

All series have been standardized

Lag length determined with the Schwartz information criteria

Table A2. Granger Causality Tests of Net Events and Public Opinion, F-Statistics

	Yearly		Quarterly	
	2 lags	4 lags	4 lags	8 lags
Feminist Events → Gender Attitudes	6.67 (0.004)	4.99 (0.005)	1.29 (0.28)	1.74 (0.10)
Gender Attitudes → Feminist Events	0.66 (0.52)	2.35 (0.08)	1.48 (0.21)	1.14 (0.34)
Anti-Feminist Events → Gender Attitudes	3.17 (0.05)	4.25 (0.01)	0.25 (0.91)	0.60 (0.78)
Gender Attitudes → Anti-Feminist Events	0.26 (0.78)	0.72 (0.59)	1.13 (0.35)	3.03 (0.004)
Pro-Abortion Events → Abortion Attitudes	4.12 (0.03)	2.96 (0.05)	1.63 (0.17)	0.84 (0.57)
Abortion Attitudes → Pro-Abortion Events	0.81 (0.46)	0.76 (0.56)	0.99 (0.41)	0.67 (0.71)
Anti-Abortion Events → Abortion Attitudes	0.05 (0.95)	2.85 (0.06)	0.92 (0.45)	0.76 (0.64)
Abortion Attitudes → Anti-Abortion Events	0.23 (0.80)	1.03 (0.42)	1.51 (0.21)	1.16 (0.33)
Pro-ERA Events → ERA Attitudes	---	---	1.44 (0.23)	1.64 (0.14)
ERA Attitudes → Pro-ERA Events	---	---	3.33 (0.02)	1.56 (0.16)
Anti-ERA Events → ERA Attitudes	---	---	1.29 (0.28)	4.39 (0.001)
ERA Attitudes → Anti-ERA Events	---	---	1.90 (0.12)	1.01 (0.44)

Number of observations for net events and gender attitudes: yearly with 2 lags: N= 34, yearly with 4 lags: N= 32, quarterly with 4 lags: N= 143, and quarterly with 8 lags: N= 139

Number of observations for net abortion events and abortion attitudes: yearly with 2 lags: N= 28, yearly with 4 lags: N= 26, quarterly with 4 lags: N= 119, and quarterly with 8 lags: N= 113.

Number of observations for net ERA events and ERA attitudes: quarterly with 4 lags: N= 66 and quarterly with 8 lags: N= 62.

Level of significance in parentheses, tests significant at the .1 level and above are in bold.