Proceedings of the 10th International Conference on Economic Management and Green Development
DOI: 10.54254/2754-1169/2026.38185

Can Short-Term Economic Fluctuations Stimulate Identity-Based Rights Movements? — Evidence from the United States

Zerui Zhang

University of Liverpool, Liverpool, UK
3263182347@qq.com

Abstract. The social movement literature has long debated whether deteriorating economic conditions drive social movements, but empirical evidence remains inconclusive, and evidence concerning identity-based rights movements is particularly scarce. This study examines whether short-term economic fluctuations help explain changes in the frequency of contemporary identity-based rights movement activity, using the United States as the research setting and focusing on feminist, racial justice, and LGBTQ+ movements. The study conducts dynamic regression analysis using first differences, lagged dependent variables, monthly seasonal control variables, and Newey-West heteroskedasticity and autocorrelation robust standard errors. The results show that social movement activity tends to be followed by a decline in activity frequency after periods of high-frequency activity, with significant seasonality; for example, August 2020 and August 2021 marked the beginning of two-month declines. Meanwhile, none of the short-term economic change factors exhibited statistically significant associations. These findings contribute to a broader macro-level understanding of identity-based rights movements.

Keywords: Social Movements, Identity-Based Rights, United States, Short-Term Economic Fluctuations, Emotions

1. Introduction

Research on the impact of socioeconomic conditions on social movements is well established. In recent years, some studies have argued that, in the context of economic conditions at the individual level, personal feelings of dissatisfaction are not significantly associated with actual participation in protest actions, and have also examined the influence of mixed combinations of psychological patterns under different economic conditions on whether individuals participate in social movements [1]. Existing research generally suggests that feelings of dissatisfaction can stimulate political protest, while also indicating a close relationship between economic factors and the frequency of social conflict [2, 3]. Therefore, this study examines whether short-term fluctuations in economic factors affect the frequency of social movements, particularly in the distinctive category of so-called "identity-based rights" movements. In order to explore whether short-term economic changes have a decisive influence on the triggering mechanism of identity-based rights movements, we take as the

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DOI: 10.54254/2754-1169/2026.38185

main objects of observation civic activities in the United States from 2017 to 2026 that contain keywords related to feminism, race, and LGBTQ+. Through regression analysis of these activities against data on U.S. economic conditions, we examine whether short-term economic changes are core triggering factors for identity-based rights movements. This study can help us understand whether, in regions where the procedures and processes of identity-based rights movements are relatively mature, short-term economic changes serve as a major factor affecting the frequency with which movements are triggered. This study also provides a macro-level perspective on whether identity-based rights movements in the United States are by-products of a rapid national economic downturn.

2. Case selection: the United States context

This study addresses the research question by examining selected economic indicators and data on identity-based rights movement activities in the United States from October 2017 to March 2026. In considering the emergence of non-violent social movements, factors such as the channels through which mobilization takes place, the maturity of mobilization procedures, and the broader social and institutional framework are all important. For example, individuals living in relatively democratic environments may be more likely to participate in political activities when they perceive themselves to be threatened by a crisis [4]. However, this relationship is not universal and should be considered in light of the relevant laws and regulations of different countries. Taking these factors into account, the United States provides a suitable case for this study. Therefore, the conclusions of this study are primarily applicable to this particular institutional and mobilization environment and should not be directly generalized to other countries.

The study focuses on the United States, taking into consideration both the increasing prominence of identity-based rights issues within the Democratic Party's core political agenda after 2017 and the relatively comprehensive availability of relevant databases. The analysis primarily uses monthly time-series data covering the period from October 2017 to March 2026. The dependent variable, COREEVE, measures the number of identity-based rights activities, including feminist, racial justice, and LGBTQ+ movements, and serves as an indicator of the frequency of such activity. Preliminary descriptive statistics indicate substantial variation in social movement activity. The monthly mean of COREEVE is approximately 89 events, with a median of approximately 35 and a maximum of 732. The substantial differences among the mean, median, and maximum indicate a highly skewed distribution, with several pronounced peaks in movement activity.

The independent variables include CORECPI, which measures inflation excluding fluctuations in food and energy prices and is used to capture changes in underlying price pressures. UNRATE represents the U.S. unemployment rate and serves as an indicator of labor-market pressure. Higher unemployment may contribute to a sense of relative collective deprivation, which may make individuals more likely to engage in non-institutional activities to express opposition [5]. As shown in Table 1, one observation is missing for October 2025. Since complete observations are available for the two adjacent months, linear interpolation was subsequently used to impute the missing value. UMCSENT measures consumer sentiment and captures consumers' subjective perceptions of economic conditions. Consumer sentiment is generally considered to be closely associated with subsequent behavioral responses, including participation in protest activities [6]. PI represents personal income, while PPIACO measures producer prices and provides an additional indicator of price pressures within the economy.

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Table 1. Descriptive statistics of variables

Variable	N	Mean	Variance	Min	Max	p25
COREEVE	102	89.29412	19976.17	1	732	10
CORECPI	102	3.437021	1.91805	1.388292	6.544835	2.392597
UNRATE	101	4.556436	3.521283	3.4	14.8	3.7
UMCSENT	102	76.04804	256.6259	50	101.4	62.8
PI	102	21726.8	9479656	16930.8	26739.9	18591.4
PPIACO	102	232.3435	862.4632	185.5	280.251	200.3

3. Model testing and analysis

3.1. OLS regression

First, a simple OLS regression was conducted for all variables as an initial assessment of their relationships. The results indicated a strong positive correlation between PI and PPIACO (r = 0.859). This finding was further confirmed by the VIF analysis, with PPIACO having a VIF value of 20.65, indicating severe multicollinearity. A comparison of PI and PPIACO suggested that PPIACO provided limited additional explanatory power to the model. Therefore, PPIACO was temporarily excluded from the model. After its removal, the regression analysis was repeated and the VIF values were recalculated, with no evidence of severe multicollinearity detected.

3.2. Stationarity

Since the dataset consists of monthly time-series observations, the Augmented Dickey–Fuller (ADF) test was employed to assess the stationarity of the variables. The results showed that all variables were non-stationary in levels. The largest MacKinnon approximate p-value was 0.9418 for personal income, while the smallest was 0.2523 for the unemployment rate; both were substantially above the 5% significance level. Therefore, all variables were considered for first differencing, followed by a second round of stationarity tests. After first differencing, all variables except CORECPI (p = 0.1477) were stationary at the 5% significance level. In addition, to reduce the influence of extreme observations and to measure social movement activity in relative rather than absolute terms, the dependent variable was transformed into the first difference of its logarithm: $\Delta \ln(\mathrm{COREEVE}_t)$. This measure can be approximately interpreted as the monthly percentage change in the intensity of social movement activity.

3.3. Dynamic specification

Correlation diagnostics revealed significant serial dependence in changes in social movement activity, with the first-order autocorrelation coefficient of $\Delta \mathrm{COREEEVE}$ being approximately −0.443. This suggests that unusually large increases in social movement activity may be followed by short-term changes in the opposite direction. Accordingly, lagged dependent variables were incorporated into the regression model. Models containing first-, second-, and third-order lags were compared. The first two lag terms were statistically significant, whereas the third-order lag did not exhibit continued statistical significance. Therefore, the preferred specification includes the first two lags of $\Delta \ln(\mathrm{COREEVE}_t)$.

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In addition, social movement activity is often considered to exhibit seasonal patterns due to recurring political activities and holidays. Monthly dummy variables were therefore introduced to account for seasonal variation [7]. A joint test of the monthly indicators produced $F(11, 76) = 8.96$, $p < 0.001$, providing strong evidence of systematic monthly seasonal variation.

3.4. Estimation and robust inference

The final dynamic regression model was estimated using Newey–West standard errors with a bandwidth of 12 months. This approach provides consistent standard errors in the presence of both heteroskedasticity and autocorrelation and is therefore appropriate for the monthly time-series structure of the data. The final multiple regression model is specified as follows:

$$Y_t = \alpha + \beta_1 Y_{t-1} + \beta_2 Y_{t-2} + \gamma_0 CPI_t + \gamma_1 CPI_{t-1} + \gamma_2 CPI_{t-2} + \gamma_3 CPI_{t-3} \quad (1)$$

$$+\delta U_t + \theta S_t + \lambda PI_t + \sum_{m=1}^{11} \mu_m Month_{m,t} + \varepsilon_t$$

where Y_t, Y_{t-1}, and Y_{t-2} represent the monthly changes in social movement activity in the current month, the previous month, and two months prior, respectively; that is, $\Delta\ln(\text{COREEEVE}_{t-i})$, i = 0,1,2. CPI_{t-i}, i = 0, 1, 2, 3, represents current and lagged changes in core CPI over the preceding three months, allowing the analysis to examine potential short-term dynamic and lagged effects of core CPI. U_t, S_t, and PI_t denote the first differences of the unemployment rate, the University of Michigan Consumer Sentiment Index, and personal income, respectively. Finally, $\sum_{m=1}^{11} \mu_m \text{Month}_{m,t}$ captures monthly fixed effects to examine whether short-term changes in identity-based rights movement activity exhibit seasonal patterns.

4. Result

Table 2. Dynamic regression results with newey-west standard errors

Variable	Coefficient	Newey-West SE	p-value
L1.dlgCOREEVE	−0.578	0.056	<0.001
L2.dlgCOREEVE	−0.338	0.129	0.011
dCORECPI	−0.145	0.548	0.792
dUNRATE2	−0.094	0.086	0.279
dUMCSENT	0.022	0.028	0.448
dPI	−0.000058	0.000106	0.586
R^2	0.596		
Adjusted R^2	0.491		
Observations	98		
F-statistic	F(20,77) = 52.13		<0.001
Month dummies (joint test)	F(11,77)=10.73		<0.001
SE type	Newey-West HAC (12 lags)		

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Table 3. Estimated monthly seasonal effects

month	Variable	coefficient	t	p-value
2	-2.428877	0.7958239	-3.05	0.003
3	-1.361366	0.3574332	-3.81	0
4	-1.664591	0.9018822	-1.85	0.069
5	-1.8836	0.6788194	-2.77	0.007
6	-2.153293	0.6159801	-3.5	0.001
7	-1.886312	0.6793988	-2.78	0.007
8	-0.9975392	0.8307968	-1.2	0.234
9	-1.933072	0.6785296	-2.85	0.006
10	-1.944157	0.4612092	-4.22	0
11	-1.267417	0.8372935	-1.51	0.134
12	-2.146016	0.6213779	-3.45	0.001

The final Newey–West estimates indicate strong short-term persistence in social movement activity. The dynamic regression results further demonstrate significant short-term dynamics in collective action. As shown in Table 2, the model is jointly statistically significant ($F(20, 77) = 52.13$, $p < 0.001$), with an R^2 of 0.596 and an adjusted R^2 of 0.491, indicating that the model explains approximately 59.6% of the in-sample variation in the growth rate of movement activity.

The first-order lag of $\Delta\ln(\mathrm{COREEEVE})$ has a coefficient of -0.578 ($p < 0.001$), while the second-order lag has a coefficient of -0.338 ($p = 0.003$). Both coefficients are negative and statistically significant. This may indicate that increases in social movement activity during this period were more likely to be followed by declines in related activity during the subsequent one to two months. This finding may be related to the tendency of contemporary movements to experience rapid decay under the influence of social media [8]. Although social movements have traditionally been considered to exhibit a degree of contagion or diffusion , such effects appear to be most prominent during the initiation and development stages of a movement [9]. The findings of this study suggest that, under contemporary conditions, rapid decay may instead become the dominant pattern during the later stages of a movement.

By contrast, none of the economic variables exhibited statistically significant contemporaneous effects in the model. Neither the contemporaneous change in core CPI nor its first-, second-, and third-order lags were statistically significant. Changes in the unemployment rate ($p = 0.424$), consumer sentiment ($p = 0.437$), and personal income ($p = 0.750$) were likewise not statistically significant. Therefore, after controlling for the endogenous dynamics of movement activity and seasonal factors, this study finds no evidence that short-term changes in these economic indicators significantly explain contemporaneous fluctuations in the growth rate of identity-based rights movement activity. As shown in Table 2, the monthly dummy variables are jointly significant ($F(11, 77) = 10.73$, $p < 0.001$), indicating significant monthly seasonality in social movement activity. Furthermore, as reported in Table 3, relative to January, movement activity growth is significantly lower in February, March, May, June, July, September, October, and December. April is marginally significant at the 10% level, while the differences for August and November are not statistically significant. These results indicate that participation in social movements is not evenly distributed throughout the year, potentially reflecting the influence of scheduled political activities, holidays, and other recurring temporal factors.

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5. Diagnostic tests and robustness

Table 4. Diagnostic tests for the final regression model

Test	Statistic	p-value
Breusch–Pagan/Cook–Weisberg	$X^2(1) = 2.23$	0.135
Portmanteau Q test (12 lags)	$Q(12) = 9.522$	0.658
Mean VIF	2.1	—
Maximum VIF	2.73	—

To assess the suitability of the final dynamic regression model, this study further conducted diagnostics for heteroskedasticity, residual serial correlation, and multicollinearity. As shown in Table 4, the Breusch–Pagan/Cook–Weisberg test yielded $X^2(1) = 2.23$, $p = 0.1352$. Therefore, the null hypothesis of constant variance in the residuals cannot be rejected, and no significant heteroskedasticity problem was identified. Furthermore, the residual correlogram showed that the residual autocorrelation coefficients over the first 12 lags were generally small, while the p-value of the Portmanteau Q test was 0.6578. Thus, the null hypothesis of no serial correlation in the residuals cannot be rejected. The Variance Inflation Factor (VIF) was also calculated. The results showed that the model had a mean VIF of 2.10, with the VIF of all explanatory variables below 3 and the highest value being 2.73, which is clearly below the commonly used threshold of 5. Therefore, the VIF results provide no evidence of serious multicollinearity in the final model. Overall, the residuals of the final model did not exhibit significant heteroskedasticity, serial correlation, or multicollinearity. Although the diagnostic results did not indicate serious residual problems, given the potential for heteroskedasticity and serial correlation in monthly time-series data, this study nevertheless uses Newey–West HAC robust standard errors for final statistical inference.

6. Discussion

The monthly effects can be interpreted through the lens of resource mobilization theory. This study finds that, relative to January, social movement activity growth is significantly lower in most months, indicating clear temporal dependence in social movement participation. This may suggest that the transformation of social grievances into collective action depends not only on individuals' subjective dissatisfaction but also on the availability of participation opportunities and mobilization conditions across different months. The findings provide mixed evidence regarding the relationship between short-term economic conditions and social movement activity. The most prominent and consistent feature of the data is the dynamic nature of social movement activity itself. The significant negative first- and second-order lag effects indicate that periods of unusually high activity in identity-based rights movements tend to be followed by short-term declines in activity. This pattern may reflect temporary mobilization, event-clustering effects, or a tendency toward rapid decay during the later stages of movements in the contemporary environment, where social media serves as a major organizational and mobilization medium.

Evidence concerning the role of short-term economic conditions is more limited. Core indicators such as the unemployment rate and core CPI show no statistically significant short-term association with social movement activity. This may be related to the important role of collective emotions in shaping individuals' decisions to take action [9]. In particular, anger appears to be more strongly associated with collective action than fear, while economic changes may be more likely to generate

DOI: 10.54254/2754-1169/2026.38185

feelings of fear than the anger associated with political events that directly challenge individuals' identities [10]. This may indicate that dissatisfaction with economic conditions does not immediately increase individuals' willingness to participate in identity-based rights movements. Alternatively, compared with other factors not included in the model—such as political events, highly salient local or international news with strong diffusion effects, and the organization and planning of relevant groups—the economic variables considered in this study may have a relatively limited influence on identity-based rights movements or may not constitute their core driving forces.

In particular, from the perspective of unemployment, the findings are consistent with the view that the relationship between unemployment and protest activity is relatively weak [11]. One possible explanation is that, when unemployment is high, unemployed individuals may continue to prioritize employment as their primary source of income. Consequently, they may devote more time and energy to job seeking, leaving fewer resources for political participation. These findings should be interpreted as statistical associations rather than evidence of causal relationships. Moreover, although short-term economic fluctuations were not statistically significant in this study, economic changes may still exert an influence on identity-based rights movements over the medium or long term.

7. Conclusion

The time-series estimates indicate that identity-based rights movements exhibit significant short-term dynamic adjustment. Both the first- and second-order lag terms are significantly negative, suggesting that following periods of relatively high movement growth, subsequent activity levels tend to decline. At the same time, the joint significance of the monthly dummy variables indicates clear monthly seasonality in movement activity.

By contrast, after controlling for the internal dynamics and seasonal effects of movement activity, short-term changes in core inflation, unemployment, consumer sentiment, and personal income do not reach statistical significance. Therefore, this study finds no evidence that major economic indicators significantly explain short-term growth in identity-based rights movement activity.

However, the sample covers only monthly observations in the United States from October 2017 to March 2026 and focuses primarily on short-term effects. The findings should therefore not be generalized directly to other countries, time periods, or longer-term economic effects. Future research could extend both the temporal and geographical scope of the analysis to examine the stability and cross-regional applicability of the relationship between economic shocks and social movements. Future studies could also distinguish more carefully between different types of identity-based rights movements to investigate whether their responses to economic conditions differ across movement categories.

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