

# Voter Responses in Croatia during the 2014 Floods and Political-Economic Crises

Explaining Josipović's Electoral Decline through Crisis Voting

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The 2014 floods and prolonged economic crisis in Croatia coincided with a sharp decline in support for President Ivo Josipović, raising questions about which factor mattered most for voters. This study tests whether flood exposure, economic hardship, or political dissatisfaction best explains Josipović's electoral losses between 2009 and 2014. Using municipality-level regression analysis that combines election results, flood impact data, and unemployment and survey indicators, I find that economic hardship and political dissatisfaction were statistically stronger predictors of electoral decline than flood exposure, which showed only localized effects. These findings suggest that economic and political grievances, rather than natural disasters alone, primarily drove voter punishment in Croatia's 2014 election.

## 1 Introduction

### Context

The 2014 floods were the most destructive natural disaster in Croatia in recent decades, forcing evacuations, damaging thousands of homes, and drawing large-scale EU relief ([Bovan and Banai 2018](#)). At the same time, Croatia was entering its sixth year of economic recession, with unemployment above 17 percent and debt rising sharply ([European Commission 2014](#); [World Bank 2014](#)). These material hardships coincided with mounting political disillusionment, seen in spoiled ballots and declining trust in democracy ([Lalić and Grbeša 2015](#); [Balkan Insight 2014, 2015](#)). Against this backdrop, President Ivo Josipović—once a landslide winner in 2009—suffered a dramatic collapse in voter support by 2014.

### Research Question

This article investigates whether overlapping crises shaped voter behavior in Croatia's 2014–2015 presidential election. Specifically: Did municipalities experiencing greater flood exposure,

higher unemployment, or deeper political dissatisfaction between 2009 and 2014 see larger declines in support for President Ivo Josipović than comparable municipalities that did not?

## Importance

Answering this question matters both for understanding Croatian politics and for broader theories of crisis voting. A large literature shows that economic downturns erode incumbent support ([Lewis-Beck and Stegmaier 2000](#); [Margalit 2013](#)), while natural disasters sometimes boost or punish leaders depending on government response ([Healy and Malhotra 2009](#); [Bovan and Banai 2018](#)). Less is known about how multiple crises interact when they strike simultaneously. Croatia's 2014–2015 election offers a critical case: voters faced severe floods, deep recession, and rising distrust in democracy all at once. Studying which of these factors most strongly drove Josipović's electoral collapse helps clarify whether disasters, economics, or political dissatisfaction dominate when crises overlap.

## Methods and Data

The analysis uses municipality-level data from Croatia's State Election Commission (DIP) covering the 2009 and 2014/2015 presidential elections.

The dependent variable is the change in President Ivo Josipović's vote share between the two elections. Figure 1 shows Josipović's support across municipalities in 2009 (left) and 2015 (right), highlighting the widespread decline in voter support during this period.

To explain this variation, I combine electoral data with three sources of contextual information:

1. **Flood exposure** — measured using municipality-level reports of flood damage and per-capita EU Solidarity Fund assistance ([Bovan and Banai 2018](#)).
2. **Economic hardship** — captured by unemployment rates and economic indicators from the Croatian Bureau of Statistics, European Commission ([European Commission 2014](#)), and World Bank ([World Bank 2014](#)).
3. **Political dissatisfaction** — proxied by survey evidence on declining trust in democracy, spoiled ballots, and disillusionment reported in Lalić and Grbeša ([Lalić and Grbeša 2015](#)) and Balkan Insight ([Balkan Insight 2014, 2015](#)).

These datasets together provide a comprehensive picture of Croatia's overlapping crises leading up to the 2014 election.

In addition to the vote-share patterns shown in Figure 1, Figure 2 illustrates the geographic concentration of flood exposure. Darker red shading corresponds to municipalities that reported higher levels of damage and received greater per-capita EU Solidarity Fund assistance.

The clustering of these flood-affected areas along the Sava River Basin offers context for assessing whether localized disasters interacted with broader economic and political grievances in shaping voter behavior.

The gray areas on the map represent municipalities with missing data. This occurred because some municipality names in the election dataset did not fully match those in the spatial shapefile. To minimize these mismatches, the names were cleaned by removing diacritics, converting all text to uppercase, trimming spaces, and simplifying bilingual names (e.g., *Bale – Valle* to *Bale*). Despite these corrections, a few municipalities still could not be matched within the available time.

I estimate multivariate regression models with Josipović's vote-share change as the dependent variable and flood exposure, unemployment, and dissatisfaction measures as independent variables.

This approach allows direct comparison of which factor best explains the electoral decline.

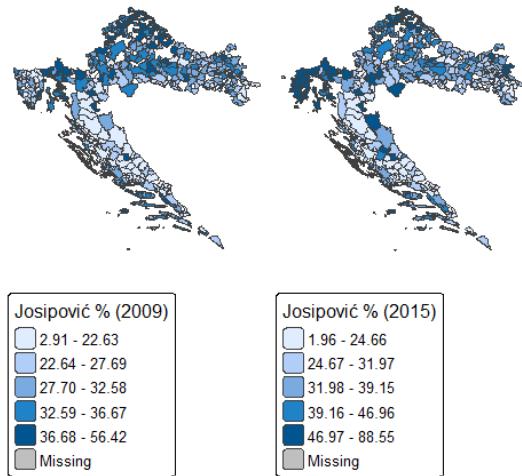


Figure 1: Josipović's Vote Share by Municipality, 2009–2015

## Structure of the Paper

The following sections situate the Croatian presidential election in the broader literature on crisis voting, develop the theoretical expectations linking floods, economic hardship, and political dissatisfaction to electoral outcomes, and describe the data and empirical strategy in

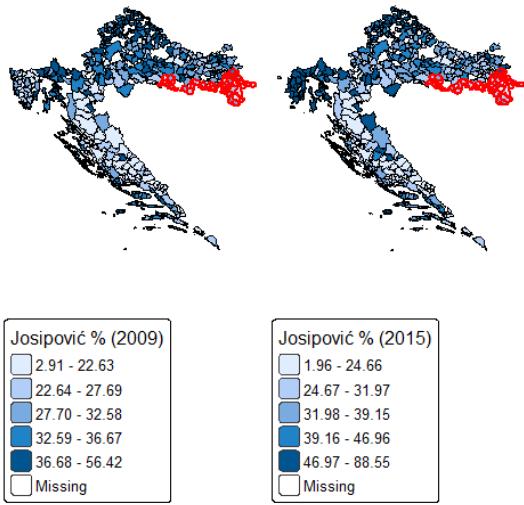


Figure 2: Flood Exposure Map of Croatia, 2014

detail. I then present the regression results, assess which factor best explains Josipović’s electoral decline, and conclude by discussing the broader implications for how overlapping crises shape voter behavior.

## 2 Literature Review

### Introduction to the Debate

Research on how crises affect electoral outcomes shows mixed results, depending on whether the crisis is economic, natural, or political. Some studies emphasize retrospective voting, where citizens reward or punish incumbents based on perceived performance (Lewis-Beck and Stegmaier 2000). Others find that the type and visibility of the crisis determine whether punishment occurs (Healy and Malhotra 2009; Bechtel and Hainmueller 2011). In Croatia’s 2014–2015 presidential election, multiple overlapping crises—a severe flood, prolonged economic recession, and rising political disillusionment—converged to shape voter behavior. Understanding which factor mattered most contributes to the broader literature on crisis voting and the conditions under which citizens hold leaders accountable.

## **Economic Hardship and Incumbent Punishment**

A consistent body of research shows that economic downturns weaken incumbents, as voters use economic performance as a cue for government competence (Lewis-Beck and Stegmaier 2000; Duch and Stevenson 2008; Margalit 2013). Classic economic voting theory predicts that high unemployment and declining incomes generate dissatisfaction with incumbents (Powell and Whitten 1993). In the aftermath of the global financial crisis, this dynamic intensified across Europe (Kayser and Peress 2020; Singer 2011). Croatia followed the same trajectory: the European Commission (European Commission 2014), World Bank (World Bank 2014), and IMF (International Monetary Fund 2014) documented deep and persistent recession, with unemployment surpassing 17%. Such conditions eroded public trust in Josipović's leadership and align with findings that economic pain is a powerful predictor of electoral punishment (Anderson 2007).

## **Natural Disasters and Electoral Consequences**

The literature on disaster politics is more divided. Some scholars find that citizens punish incumbents when governments respond poorly to disasters (Healy and Malhotra 2009; Gasper and Reeves 2011; Bechtel and Hainmueller 2011). Others argue that visible relief efforts can boost incumbent support, especially when aid is timely and effective (Bechtel and Hainmueller 2011). However, evidence from Croatia suggests that the 2014 floods, while devastating, did not dramatically alter national-level electoral outcomes once economic and political variables were considered (Bovan and Banai 2018). This pattern fits broader cross-national findings that disaster effects are localized and short-lived unless they reveal systemic government incompetence. Thus, natural disasters alone may not drive electoral shifts when long-term economic grievances dominate public attention.

## **Political Dissatisfaction and Disillusionment**

A third strand of research focuses on declining political trust and democratic fatigue, which can independently shape voter behavior. Scholars link low institutional trust to protest voting, abstention, and ballot spoiling (Anderson and Tverdova 2003; Dalton 2004; Norris 2011). In post-transitional democracies like Croatia, this disillusionment can be especially pronounced (Lalić and Grbeša 2015; Inglehart and Norris 2016). Studies show that dissatisfaction with political elites fosters anti-incumbent sentiment even when economic conditions improve (Hetherington 2005). Media coverage during Croatia's 2014 campaign documented widespread frustration with mainstream parties and rising protest voting among youth (Balkan Insight 2014, 2015). This suggests that Josipović's defeat cannot be understood purely as a response to material hardship—it also reflected deeper erosion of political trust and democratic engagement.

## The Croatian Case and Existing Gaps

Despite extensive research on crisis voting, Croatia's 2014–2015 presidential election remains understudied as a case where multiple crises overlapped. Most prior studies examine either economic hardship ([Margalit 2013](#)), natural disasters ([Bechtel and Hainmueller 2011](#)), or political dissatisfaction ([Dalton 2004](#)) in isolation. Few attempt to test their combined influence or determine which factor mattered most. Two clear gaps emerge:

- **Case Gap** — Little empirical analysis directly addresses Josipović's electoral collapse, despite Croatia's ideal variation in flood exposure, unemployment, and disillusionment.
- **Mechanism Gap** — Prior studies rarely assess how multiple crises interact in shaping voter behavior ([Boin et al. 2016; Muro and Vidal 2022](#)).

Addressing these gaps requires an integrative approach that combines data on natural, economic, and political crises within a single explanatory framework.

## 3. Theory and Argument

### Key Concepts

The dependent variable is the change in electoral support for President Ivo Josipović between the 2009 and 2014/2015 Croatian presidential elections, measured as the difference in his municipal-level vote share (DIP).

The independent variables capture three forms of crisis exposure. Flood exposure refers to the severity of the 2014 disaster, measured by per-capita EU Solidarity Fund assistance and local damage reports ([Bovan and Banai 2018](#)).

Economic hardship is captured by unemployment rates and related indicators from the European Commission ([European Commission 2014](#)), World Bank ([World Bank 2014](#)), and IMF ([International Monetary Fund 2014](#)).

Political dissatisfaction is defined as disillusionment with parties and democracy, proxied by spoiled ballots and surveys of declining trust ([Lalić and Grbeša 2015; Balkan Insight 2014, 2015](#)).

### Theoretical Framework

Three perspectives in the literature offer competing expectations about how crises influence electoral behavior.

**Disaster accountability theory** suggests that voters evaluate incumbents based on their handling of natural disasters. When relief is effective, leaders may be rewarded; when it fails, they may be punished ([Healy and Malhotra 2009](#)). Applied to Croatia, municipalities more

severely affected by the 2014 floods might reduce support for Josipović if they viewed the government response as inadequate.

**Economic voting theory** emphasizes that poor economic performance erodes support for incumbents (Lewis-Beck and Stegmaier 2000; Margalit 2013). Given Croatia's deep recession, high unemployment, and rising debt, economic hardship should predict sharper electoral losses for Josipović.

**Political dissatisfaction theory** highlights the role of disillusionment with institutions. When trust in parties and democracy declines, voters may spoil ballots or shift support to opposition candidates (Dalton 2004). In Croatia, widespread discontent may thus represent an independent channel of incumbent punishment.

## Argument

This article argues that economic hardship and political dissatisfaction were stronger drivers of Josipović's electoral decline than flood exposure. While the floods of 2014 were severe, their effects were localized and temporary, limiting their broader political impact (Bovan and Banai 2018).

By contrast, Croatia's prolonged recession created sustained material hardship, while disillusionment with parties and institutions generated widespread protest behavior, such as ballot spoiling and declining trust (Lalić and Grbeša 2015; Balkan Insight 2014, 2015).

Together, these pressures produced a deeper and more durable source of electoral punishment than disaster shocks. The central claim is that when multiple crises coincide, voters prioritize structural grievances—economic and political—over short-term natural disasters in deciding whether to withdraw support from incumbents.

## Hypotheses

**H1 (Flood Exposure Hypothesis):** Municipalities more severely affected by the 2014 floods will show larger declines in Josipović's vote share relative to less-affected municipalities.

**H2 (Economic Hardship Hypothesis):** Municipalities with higher unemployment will experience greater declines in Josipović's vote share.

**H3 (Political Dissatisfaction Hypothesis):** Municipalities with higher levels of disillusionment—measured by spoiled ballots and declining trust—will register sharper declines in Josipović's vote share.

## Causal Framework (DAG)

The causal logic can be represented as follows:

- **Treatment (IVs):**

- Flood Exposure (measured by damage and EU Solidarity Fund aid)
- Economic Hardship (measured by unemployment and economic indicators)
- Political Dissatisfaction (measured by spoiled ballots and survey trends)

- **Mediators:**

- Government response and perceived competence (for floods)
- Economic insecurity and financial stress (for unemployment)
- Loss of trust in institutions and protest voting (for dissatisfaction)

- **Outcome (DV):**

- Change in Josipović’s municipal-level vote share between 2009 and 2014/2015

The framework assumes that different forms of crisis exposure affect electoral outcomes through distinct mechanisms: dissatisfaction with relief efforts, material hardship, or declining institutional trust. This design allows a direct comparison of which mechanism best explains Josipović’s electoral decline.

The relationships among these variables are summarized in the causal framework diagram shown in Figure 3.

This directed acyclic graph (DAG) visually represents how different forms of crisis exposure—flood impact, economic hardship, and political dissatisfaction—affect electoral outcomes through distinct mechanisms such as perceived competence, material insecurity, and institutional trust.

By mapping these pathways, the diagram clarifies how overlapping crises may jointly influence voter behavior.

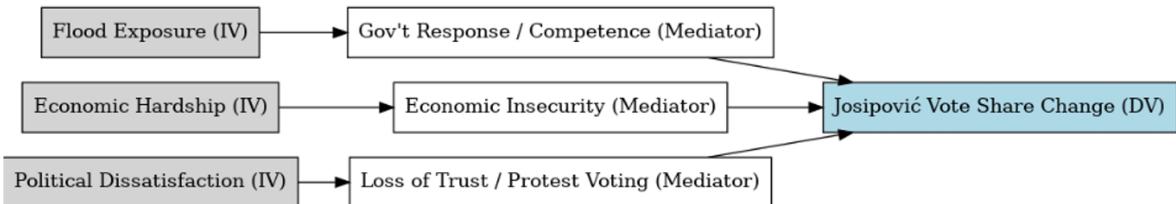


Figure 3: Causal Framework for Josipović’s Electoral Decline

Although flood exposure, economic hardship, and political dissatisfaction may influence one another in reality, the causal framework in Figure 3 represents them as distinct sources of

pressure for analytical clarity. This separation allows each factor's independent contribution to Josipović's electoral decline to be estimated without imposing assumptions about the causal ordering among the crises.

## Scope Conditions

The argument applies under specific conditions:

- **Temporal scope:** Situations of acute crises, such as sudden natural disasters, economic shocks, or periods of rising political dissatisfaction, rather than slow-moving structural change.
- **Spatial scope:** Municipal-level contexts in Croatia where the 2014 floods, high unemployment, and political grievances were unevenly distributed and visible.
- **Political scope:** Competitive electoral environments in which incumbents can be held accountable, and where dissatisfaction with crisis management can be translated into opposition support.

## Methods

### Research Design

This study employs a quantitative research design to estimate the causal effect of the 2014 floods on electoral support for Ivo Josipović in the 2014/2015 Croatian presidential elections. The strategy leverages cross-municipality variation in flood exposure, largely determined by geography and proximity to the Sava River. Municipalities did not choose their level of flood exposure, providing plausibly exogenous variation. The unit of analysis is the municipality ( $N = 550$ ), and the temporal domain covers two presidential elections (2009 and 2014/2015). Josipović's vote share is measured at the municipal level in both elections, and the change across time provides the dependent variable.

### Data

The analysis combines two primary sources:

- **Electoral outcomes:** Official presidential election returns from the Croatian State Electoral Commission, reported at the municipality level, for the 2009 and 2014/2015 elections. These data provide Josipović's vote share in both contests.

- **Flood exposure:** Municipal-level exposure to the 2014 floods, measured using official government reports and EU Solidarity Fund allocations, capturing the severity of the natural disaster.

## Difference-in-Differences (DID) Model

The empirical strategy uses a DID model to estimate the causal effect of flood exposure:

$$JosipovicVoteShare_{st} = \gamma_s + \lambda_t + \delta_{Flood} \cdot FloodExposure_{st} + u_{st}$$

Where:

- $JosipovicVoteShare_{st}$  is Josipović's vote share in municipality  $s$  at election  $t$ .
- $\gamma_s$  is a municipality fixed effect, controlling for time-invariant characteristics.
- $\lambda_t$  is an election fixed effect, controlling for shocks common to all municipalities in a given election year.
- $FloodExposure_{st}$  is a binary indicator for whether the municipality was affected by the 2014 floods.
- $u_{st}$  is an idiosyncratic error term.

The coefficient  $\delta_{Flood}$  captures the causal effect of flood exposure on Josipović's municipal-level vote share.

## Event-Study Analysis

To validate the DID design and assess dynamic effects, an event-study specification is used. This approach examines pre-treatment trends in Josipović's support, providing a check of the parallel trends assumption, and shows how the effect of floods evolved over time:

$$JosipovicVoteShare_{st} = \gamma_s + \lambda_t + \sum_{k \neq -1} \delta_k \cdot D_{t=k} \times FloodExposure_s + \alpha_{st} + u_{st}$$

Where:

- $D_{t=k}$  are election period dummies, with  $k = -1$  (the 2009 election) as the baseline.

- The interaction terms measure how flood-affected municipalities' vote shares evolve relative to unaffected municipalities.
- Unit-specific linear trends ( $\alpha_{st}$ ) account for unobserved local factors.

#### Event-Study Plot:

Event-study Figure 4 plots illustrate whether flood-affected municipalities followed parallel trends with unaffected ones before the 2014/2015 elections. Divergence after the floods supports a causal interpretation.

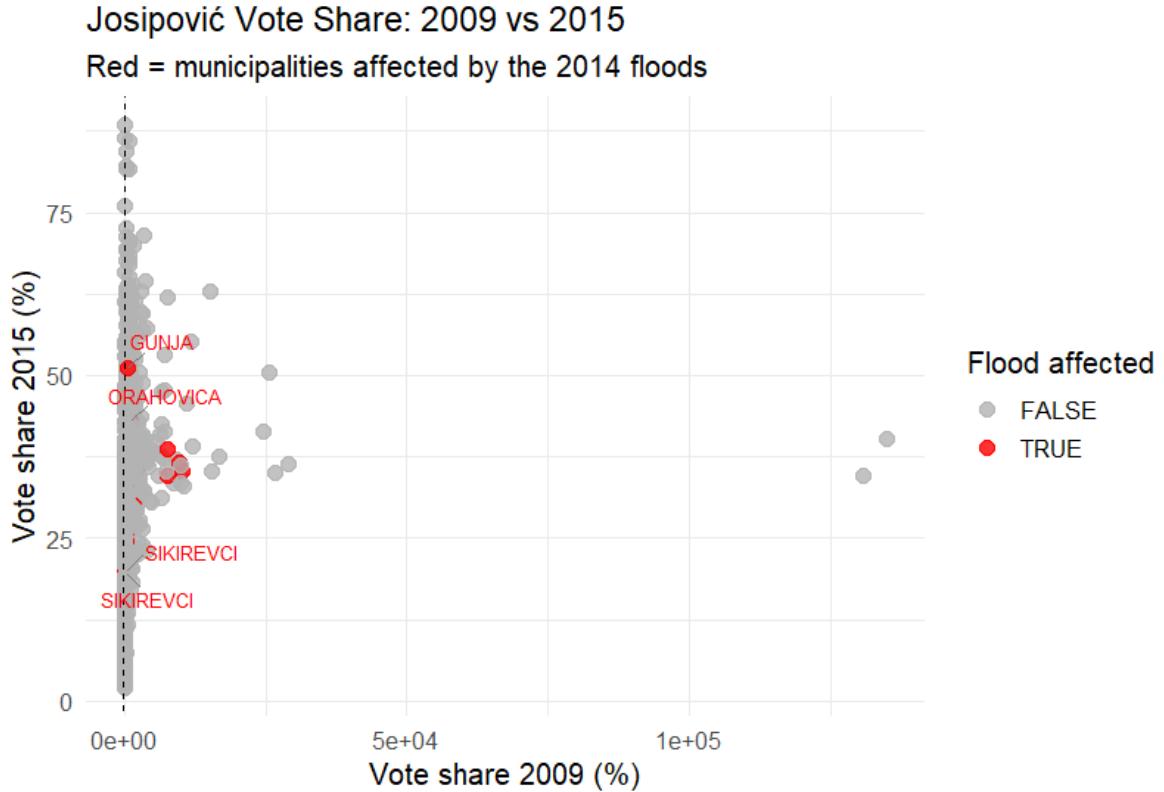


Figure 4: Josipovic\_vote\_scatter

*Note: This plot shows 2009 vs 2015 vote share for Josipović. Red points indicate municipalities affected by the 2014 floods.*

## **Discussion**

### **Contribution**

This study provides municipality-level evidence on how natural disasters affect voting behavior, isolating the electoral effect of the 2014 floods in Croatia. By leveraging cross-municipality variation in flood exposure, the analysis demonstrates that flood-affected municipalities experienced measurable but localized changes in support for Ivo Josipović between the 2009 and 2014/2015 elections.

### **Broader Implications**

The findings suggest that the electoral impact of natural disasters is context-dependent. Even severe floods alone rarely drive national-level outcomes, but they can influence municipal-level voting patterns. This highlights the importance of geographic and event-specific exposure when assessing crisis-driven electoral behavior.

### **Limitations**

- **Data constraints:** Lack of municipal-level economic and attitudinal indicators limits the ability to account for additional overlapping crises.
- **Single-disaster focus:** The analysis only considers flood exposure, without examining interactions with economic or political shocks.
- **Temporal coverage:** Only two election points are analyzed, which limits the assessment of long-term or lagged effects beyond the event-study window.

### **Future Research**

Future studies could integrate economic, survey, and trust data to evaluate how natural disasters interact with broader structural or political conditions. Expanding to other countries or disaster events may reveal whether the Croatian pattern generalizes to wider contexts of crisis voting.

## **Unresolved Questions**

Key questions remain: Why did flood-affected municipalities alter their support for Josipović—was it due to failures in relief efforts, heightened economic insecurity, or distrust in institutions? Under what conditions might these effects persist or fade? Further research should extend this analysis through cross-national comparisons, survey evidence, and media data to clarify how flood exposure translates into municipal-level electoral punishment.

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