PASO to Presidency: Forecasting the 2023 Argentine Elections with Expert-Based Probabilistic Models

1. ***Introduction***

Presidential elections in Argentina are preceded by a unique institutional arrangement: the *Primarias Abiertas, Simultáneas y Obligatorias* (PASO). Introduced in 2009 (Law 26.571), the PASO are mandatory, nationwide primaries where all citizens participate to select candidates within each party coalition. Unlike primaries in other countries, the PASO serve both as a mechanism of intra-party selection and as a first, large-scale electoral test of the relative strength of competing forces [1].Because of their compulsory nature and proximity to the general election, PASO outcomes provide a valuable—but also destabilizing—source of information for political actors, financial markets, and voters alike. Unexpected results of the 2019 PASO triggered sharp financial instability, including a steep devaluation of the Argentine peso and a sudden fall in asset prices.

The predictive power of PASO results has been extensively debated in both academic and applied political analysis. On the one hand, scholars highlight that PASO outcomes can be treated as a highly informative "first-round" election that strongly conditions voter expectations and campaign strategies (Bonvecchi & Simison, 2013). On the other hand, critics argue that such elections may be normatively unnecessary, as they often reveal enough information to anticipate the general election result, raising questions about whether the costs—in terms of political polarization and market volatility—outweigh the institutional benefits [2].

The aim is to evaluate the extent to which PASO elections provide sufficient predictive power for anticipating the final presidential outcome. This study combines PASO results with expert-elicited transition matrices and large-scale Monte Carlo simulations to forecast both the first-round and potential runoff (*ballotage*) outcomes of the 2023 Argentine presidential election. We contribute both methodologically, by demonstrating how expert knowledge and probabilistic modelling can refine electoral forecasts, and substantively, by assessing whether PASO elections are indeed a necessary democratic step or whether they generate unnecessary political and economic instability.

2. ***Methodology***

We combined survey-based expert knowledge with probabilistic modelling in order to project electoral outcomes from the PASO to the general election and, subsequently, to the runoff (*ballotage*). 47 experts was convened, comprising academics, journalists, consultants, and practitioners with diverse ideological perspectives and professional backgrounds. Each expert was asked to estimate how voters from different candidates in the PASO would redistribute their preferences in subsequent electoral stages. These estimates were aggregated into a transition matrix, where each cell represents the probability that a voter of candidate *i* in the PASO would support candidate *j* in the general election or runoff. To account for heterogeneity and uncertainty in expert opinions, both the mean and the standard deviation of the estimated vote transfers were calculated.

Using the transition matrix, we generated synthetic electoral scenarios through large-scale Monte Carlo simulations. 250,000 simulations were performed, each producing a potential distribution of vote shares across candidates in the first-round presidential election. This stochastic approach allows the propagation of uncertainty inherent in both voter behaviour and expert estimates. The simulations yield a probability distribution for each candidate's electoral performance, enabling probabilistic forecasts of victory, likelihood of runoff occurrence, and expected runoff pairings. The modelling process was implemented in R, and a Shiny application (https://urbant.shinyapps.io/vote/) was developed in parallel to allow interactive exploration of scenarios under different assumptions. This tool enables users to adjust expert-informed transition probabilities and immediately observe the implications for electoral forecasts, bridging the gap between academic modelling and applied political analysis.

3. ***Results***

The simulation results indicate that a runoff (ballotage) was by far the most probable electoral outcome. Across 250,000 scenarios, the probability of a second round was estimated at 81%. Within these, the most likely configuration was a Massa–Milei runoff (65%), followed by a less likely Massa–Bullrich runoff (18%). The simulations also suggested that Sergio Massa was the only candidate with a non-negligible probability (10%) of winning outright in the first round, while neither Javier Milei nor Patricia Bullrich exhibited significant chances of securing an outright victory.

In terms of expected vote shares, the aggregated simulation distributions positioned Massa as the frontrunner with an average of 34%, followed by Milei with 29%, and Bullrich with 23%. Standard deviations highlight differing levels of uncertainty: Milei's support exhibited relatively low dispersion ($\sigma \approx 3.4\%$), while Massa and Bullrich showed broader variability ($\sigma \approx 5\%$). These results confirm that Massa entered the general election as the candidate with the highest baseline of support, yet without sufficient margin to avoid a runoff under most plausible scenarios.

The first-round simulations positioned Massa as the most likely frontrunner, but not strong enough to secure an outright victory, making a runoff scenario the modal outcome (81%). To assess the runoff dynamics, a similar simulation framework was applied to the *ballotage* stage.

Using the expert-informed transition matrices, 250,000 simulations were generated for a hypothetical Massa–Milei runoff. The results demonstrate that Milei emerged as the winner in over 65% of the scenarios. The simulation distributions reveal a consistent average advantage for Milei, who obtained 51.5% of simulated vote shares compared to 48.5% for Massa. The difference in means is statistically significant ($t = 359.56$, $p < 2.2e\text{-}16$), with a 95% confidence interval. These findings highlight not only the likelihood of a Milei victory in the runoff, but also the relatively narrow margin separating the two candidates. The probability distributions show overlapping support bases, confirming that small shifts in voter preferences or turnout could have altered the outcome. Nonetheless, the simulations strongly suggest that Milei held a structural advantage heading into the second round.

4. ***Discussion***

The results of this study reinforce the high predictive power of PASO elections when combined with expert-informed probabilistic modeling. These findings illustrate that PASO outcomes, when coupled with expert assessments of vote transfers, reveal the central contours of electoral competition well before the general and runoff elections take place.

From a methodological standpoint, the integration of expert surveys, transition matrices, and Monte Carlo simulations offers a flexible, agnostic and powerful tool for electoral forecasting in fragmented multiparty systems. The capacity to generate full probability distributions, rather than single deterministic forecasts, provides a nuanced picture of uncertainty and electoral volatility.

At the same time, the study raises broader normative and institutional concerns. If PASO outcomes already provide sufficient information to anticipate the trajectory of the presidential race—including both the likely runoff configuration and the expected winner—then the necessity of holding the PASO in their current form warrants re-examination. Beyond their democratic function as open primaries, PASO results have repeatedly induced significant political and economic instability, as seen in both 2019 and 2023. By effectively functioning as a first-round election, PASO not only reduce the informational uncertainty of voters but also amplify financial volatility by signalling potential shifts in government and policy.

[1] A. Gallo, 'Promesas, expectativas y resultados a diez años del debut de las PASO', *Elecciones*, vol. 20, no. 22, pp. 339–372, Dec. 2021, doi: 10.53557/Elecciones.2021.v20n22.10.
[2] S. Levitsky and M. V. Murillo, 'Lessons from Latin America: Building Institutions on Weak Foundations', *jod*, vol. 24, no. 2, pp. 93–107, Apr. 2013, doi: 10.1353/jod.2013.0031.