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**Forecasts of the 2012 U.S. presidential election based on
candidates' perceived competence in handling the most important issue**

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Abstract. The Big-Issue Model predicts election outcomes based on voters' perceptions of candidates' ability to handle the most important issue. The model provided accurate forecasts of the 2012 U.S. presidential election. The results demonstrate the usefulness of the model in situations where one issue clearly dominates the campaign, such as the state of the economy in the 2012 election. In addition, the model is particularly valuable if economic fundamentals disagree, a situation in which forecasts from traditional political economy models suggest high uncertainty. The model provides immediate feedback to political candidates and parties on the success of their campaign and can advise them on which issues to assign the highest priority.

Keywords. Election forecasting, model accuracy, economic perceptions, issue-handling competence, political economy models, Iowa Electronic Markets, IEM, prediction markets, FiveThirtyEight, PollyVote

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1. Introduction

The state of the economy is commonly considered a determining factor for the outcome of U.S. presidential elections. Voters reward incumbent party candidates when the economy is doing well and punish them otherwise (Tufté 1978). Since the late 1970s, economists and political scientists have built upon this idea and developed so-called political economy models for forecasting election results. These models use one or more economic variables, usually along with political variables. There is general agreement on the integration of political variables, such as the incumbent's popularity and the time he or his party has controlled the White House. The main difference among models lies in the selection of economic variables. Some authors rely on economic growth (measured in terms of GDP or GNP), others use perceptions of personal income (either retrospective or prospective), and still others measure job growth (see Holbrook 2010). Since economic indicators often correlate with one another, the selection of specific economic variables does not seem crucial. As a result, there has mostly been consensus among the different models' forecasts in historical elections.

When economic indicators disagree, however, uncertainty increases, as was the case at the outset of the 2012 U.S. presidential election. While income growth was at a historical low, leading economic indicators and perceived business conditions were on par with historical averages (Erikson and Wlezien 2012). In such a situation, forecasts from different political economy models diverge depending on the selection of the economic variables. Table 1 shows forecasts from fourteen models that were published in the October 2012 issue of *PS: Political Science & Politics*, plus Fair's model (2009). Fair's model is the "grandfather" of all presidential election forecasting models grounded on "fundamentals". All but one of these models use at least one economic variable among a set of other predictors in order to forecast the incumbent's two-party popular vote share several months prior to Election Day.¹ Based on these fifteen forecasts, any outcome seemed possible in the 2012 election. Eight models predicted Obama to win and seven models had him losing to Romney. The forecasts ranged from an almost eight-point victory for Obama to a six-point victory for Romney. On average, the models predicted a virtual tie in the popular vote, with a 0.2 percentage point lead for Romney. In reality, Obama won the election with a lead of four points and achieved 52.0% of the two-party vote.

The results suggest that one should be cautious with forecasts from political economy models if economic indicators disagree. In such situations, the models' implicit assumption

¹ The exception is the model by Norpoth and Bednarczuk (2012), which used three non-economic predictor variables: the candidates' performance in the primaries, the historical cycle of presidential election outcomes, and an adjustment for partisanship.

that voters can accurately observe the state of the economy and infer how these changes affect their future well being may not hold. In addition, political economy models are subject to other limitations, which arise from their focus on economic fundamentals as predictor variables. First, the use of such variables makes political economy models retrospective in nature. Most models lack prospective components and evaluations of the out-party, which makes them particularly less useful in open-seat elections.² Second, economic indicators can be affected by large measurement errors. Initial estimates of economic figures that are used to calculate the forecasts a few months prior to the election often differ widely from the revised figures that the forecasters use to calibrate their models. Third, the electorate may *perceive* the same economic figure differently, depending on the electoral context. For example, incumbents may strongly benefit from a GDP growth rate of three percent after a recession. However, the same growth rate may help them less in a booming economy. Fourth, due to the focus on economic variables, most models ignore non-economic issues.³ This is problematic because the economy is not the only issue of concern to voters. Depending on the electoral context, many other issues influence the voting decision. Oftentimes, non-economic issues may be even more important than economic ones. Fifth, political economy models provide little decision aid to those involved in political campaigns. See Graefe (2013) for a detailed discussion of these issues.

The *Big-Issue Model* (Graefe and Armstrong 2012) was developed in an effort to address some of these limitations. The model relies on *take-the-best*, a simple heuristic for choosing between alternatives based on a single piece of information. Take-the-best is particularly valuable in situations in which one variable is clearly more important than all other variables (Gigerenzer and Goldstein 1996).

The Big-Issue Model differs from traditional political economy models in that it does not use economic fundamentals as predictor variables. The model also does not solely focus on economic issues. Instead, the model uses a single predictor variable that measures people's perceptions of which candidate will better handle the most important issue facing the country. Through this variable, the model captures retrospective and prospective candidate evaluations, considers economic and non-economic issues depending on their importance in a particular election, and avoids measurement errors and misperceptions of economic

² Exceptions include the model by Norpoth and Bednarczuk (2012), which captures candidate evaluations through primary performance, and by Lockerbie (2012), who uses a question from the *Index of Consumer Sentiment* that asks people whether they think they will be better off financially, worse off, or about the same, in a year from now. While the latter is clearly a prospective measure, it does not link perceived economic conditions to the responsibility of the government. Finally, the models by Campbell (2012b) and Erikson and Wlezien (2012) are to some extent prospective, since they include information from trial-heat polls.

³ The exception is Hibbs (2012), who uses U.S. military fatalities in foreign conflicts as a second predictor besides growth of per capita real disposable income.

fundamentals. In addition, the model can provide quick advice on which issues candidates should assign the highest priorities on their campaign agenda.

The Big-Issue Model builds on Downs' (1957) classic model by assuming that voters are most interested in delivery (i.e., *who can do the job*). In addition, the Big-Issue model builds on the work of political psychologists who found that people use simple heuristics and cognitive shortcuts when deciding for whom to vote (Redlawsk 2004). With the focus on issue evaluations, the Big-Issue Model relies on one of the three variables of the valence politics model of individual voting behavior. Valence politics assumes that a person's vote choice is determined by partisanship, party leader images, and the candidates' (or parties') issue-handling competence (Clarke, Sanders, Stewart and Whiteley 2009). An in-sample comparison of rival models of electoral choice showed that the valence politics model did best in explaining individual vote choice in the 2008 U.S. presidential election. The model correctly "predicted" vote choice for 97% of respondents. However, a simple model based solely on the parties' perceived issue-handling competence also performed well and yielded 88% correct predictions (Clarke, Kornberg, Scotto, Reifler, Sanders, Stewart and Whiteley 2011).

This research note reviews the performance of the Big-Issue Model in forecasting the 2012 U.S. presidential election. In general, the model can be expected to provide accurate forecasts if there is one issue that is regarded as clearly more important than others (Graefe and Armstrong 2012; Gigerenzer and Goldstein 1996). Thus, the political environment of the 2012 election favored the Big Issue Model; the economy was the dominating issue during the whole campaign.

2. Materials and method

Starting early 2011, we collected polls from pollingreport.com that asked people which candidate they expected to do the best job in handling the issue that was seen as most important at that time (i.e., the economy).⁴ For example, "*Regardless of who you support, which (2012 presidential election) candidate do you trust to do a better job handling the economy—(Barack) Obama or (Mitt) Romney?*" (ABC News/Washington Post Poll, November 1-4, 2012). By Election Eve on November 5th of 2012, we had obtained a total of 61 polls. For each poll, we calculated the two-party support for Obama. This Big-Issue score

⁴ Monthly Gallup surveys that asked voters in open-ended questions to name the most important problem facing the country regularly found that economic issues were mentioned by 65% to 72% of respondents. In comparison, non-economic issues were mentioned by 38% to 46%. Source: <http://www.gallup.com/poll/1675/most-important-problem.aspx>

(S) represents the single variable in the vote equation of the Big-Issue Model: $V = 27.0 + 0.50 * S$, where V is the two-party popular vote share of the incumbent party's candidate.

This vote equation was derived by simple linear regression of V on historical Election Eve values of S, using data from the ten prior elections from 1972 to 2008.⁵ For details on the exact procedure see Graefe and Armstrong (2012).⁶ The first forecast of the Big-Issue Model was published at pollyvote.com on January 10, 2011, almost two years before the election. The forecasts were continuously updated whenever new polls were released. The complete data and calculations are available in the PSRM Dataverse.⁷

3. Results

Since its first release, the Big-Issue Model predicted Obama to win the popular two-party vote, except for a short period in late August when Romney was expected to gain 50.2% (vs. Obama at 49.8%).⁸ As shown in Figure 1, since late May 2012, more than half a year before the election, the forecast was within a narrow range of about two percentage points, with a maximum of 52.2% for Obama in mid-July.⁹ The final forecast calculated on Election Eve predicted Obama to gain 51.4% and thus, missed the final election outcome by 0.6 percentage points.

Figure 1 also shows the daily forecasts of three benchmark approaches: (1) the Iowa Electronic Markets (IEM) vote-share prediction market, (2) Nate Silver's *New York Times* blog FiveThirtyEight.com, and (3) PollyVote.com, which combines forecasts from different methods that use different data (Graefe, Armstrong, Jones and Cuzán 2014). The forecasts from the Big-Issue Model, FiveThirtyEight, and the PollyVote were stable and relatively close to each other for most of the forecast horizon. In comparison, the IEM forecasts were much more volatile from about mid-July to Election Day and tended to predict a large victory for Obama until two weeks prior to Election Day.

⁵ One reviewer made an interesting and well-founded suggestion to update the vote equation after each day. We tested this approach for the last 100 days prior to the election and found that it would have reduced the error of the current model by 6%.

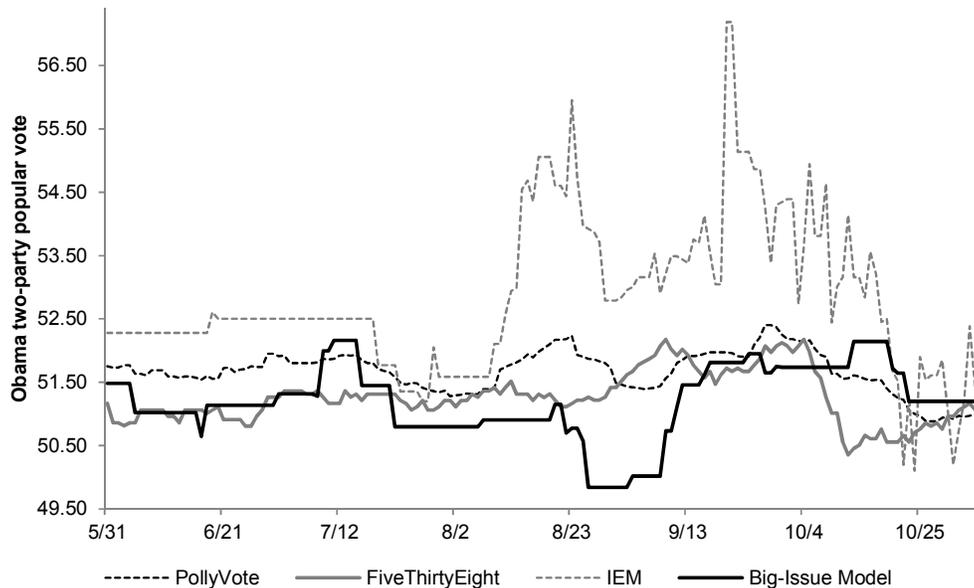
⁶ Instead of the three-day poll average in the original model specification, the 2012 Big-Issue Model used exponential smoothing to aggregate polls over time. The smoothing factor for weighting the most recent poll was 0.3, which is roughly equivalent to a six-day moving average.

⁷ <http://dx.doi.org/10.7910/DVN/22949.edu/dvn/dv/PSRM>

⁸ A possible explanation for this result is that Romney benefitted from the Republican convention, which took place from August 27 to 30. Candidates usually benefit from their conventions, since these events tend to unite the party, create favorable media coverage, and thus increase people's enthusiasm for their party and candidate (Campbell, Cherry, Wink1992). As a result, polls might have difficulties to accurately measure issue perceptions around conventions, since people might be strongly influenced by party identification and candidate evaluations. The forecasts seem to reflect this, as Figure 1 reveals a convention bump for Romney.

⁹ Figure 1 covers forecasts from May 31, 2012 to coincide with Nate Silver's first published forecast.

Figure 1: Daily forecasts of the Big-Issue Model and benchmarks
(from May 31st to Election Eve 2012)

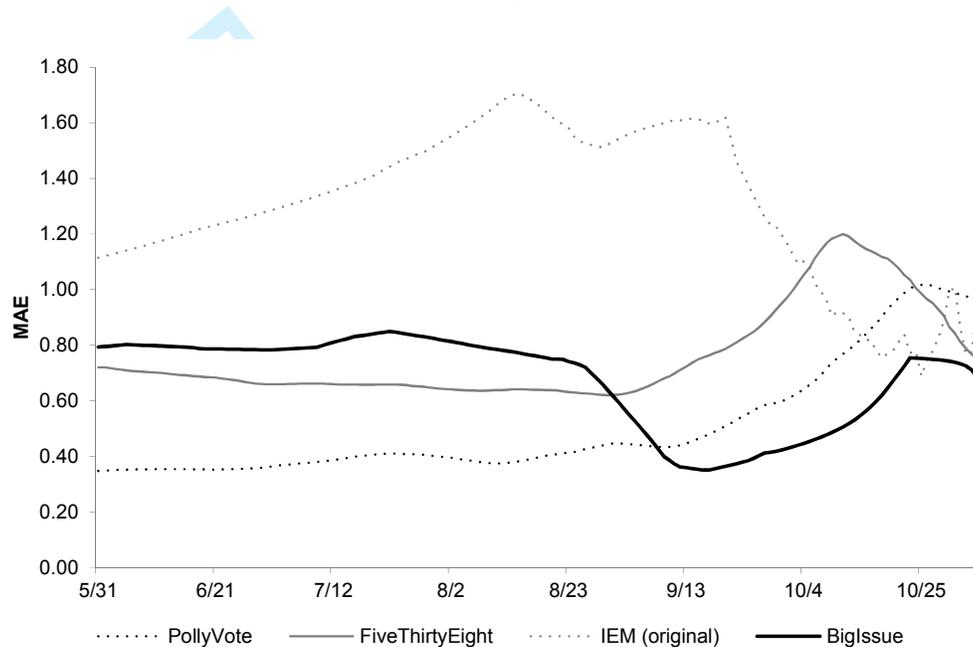


So how would one have done by simply relying on one of the four methods for each day of the five-month period? Figure 2 answers this question. At each point in time, Figure 2 shows each method's mean absolute error (MAE) for the remaining days in the forecast horizon. That is, each data point in the chart shows the average error that one would have achieved when relying on the method for the remaining days prior to Election Day. For example, across the last 50 days prior to the election (i.e., from September 17th to Election Eve), the MAE of the Big-Issue Model was 0.35 percentage points, compared to 0.48 for the PollyVote, 0.76 for FiveThirtyEight, and 1.60 for the IEM. That is, the Big-Issue Model reduced the errors of the PollyVote, FiveThirtyEight, and the IEM by 27%, 54%, and 78%, respectively. However, the advantage of the Big-Issue Model fades as the forecast horizon increases. Over the full 159-day period from May 31st to Election Eve, the respective errors were 0.79 for the Big-Issue Model, 0.35 for the PollyVote, 0.72 for FiveThirtyEight, and 1.11 for the IEM. That is, across the whole forecast horizon, the error of the Big-Issue Model was 29% below the respective error of the IEM, but 10% larger than the error of FiveThirtyEight, and more than twice the error of the PollyVote.¹⁰

¹⁰ FiveThirtyEight is the only approach that predicts the election outcome within each state. While this would generally also be possible with the Big-Issue Model, the model is currently limited to predictions of the national

A possible reason for the lower accuracy of the Big-Issue Model when making long-term forecasts is that issues play a less important role early in the campaign. Prior research has shown that party identification and candidate evaluations are at least as important as issue evaluations when making long-term forecasts. However, at around forty days prior to Election Day, which is about the time of the presidential debates, the importance of issues as a predictor of election outcomes increases sharply (Graefe 2013). This is also about the time when the forecasts of the Big-Issue Model became highly accurate and stable (cf. Figure 1).

Figure 2: Mean absolute errors of daily forecasts of the Big-Issue Model and three benchmarks across the remaining days of the forecast horizon.



Finally, one might want to compare the accuracy of the Big-Issue Model to the one-shot forecasts of political economy models. Table 1 reports the forecasts of the Big-Issue Model from the same day each of the fifteen political economy models was published. The Big-Issue Model provided more accurate forecasts than nine models and was less accurate than six models. On average, the Big-Issue Model's forecast error was 1.2 percentage points lower than the error of the typical political economy model, which corresponds to an error reduction of 52%. That is, if one had relied on the forecasts from the Big-Issue Model instead of the forecast of one of the political economy models, one would have reduced the error by more than half. In addition, the Big-Issue Model's error was 0.8 percentage points below the error of the combined forecast from the fifteen models, calculated 57 days prior to Election

popular vote. The extension of the Big-Issue Model to the state level is up to future research and is expected to improve accuracy given previous tests on the bottom-up approach (Armstrong 2006).

Day. This corresponds to an error reduction of 60%. It is interesting to note that, except for the model by Holbrook (2012), models that use both economic indicators and polls as predictor variables were among the most accurate. This result conforms to prior research, which showed that adding public opinion variables to models that are solely based on structural variables increases forecast accuracy (Erikson, Bafumi and Wilson 2001).

Table 1: Two-party popular vote forecasts of political economy models and the Big-Issue Model for the 2012 election

Forecaster	Name of model	Days prior to Election Day	Predicted two-party popular vote for Obama	Big-issue model forecast at same day	Error reduction due to Big-Issue Model
Jerome & Jerome-Speziari	State level political economy model	142	51.6	50.6	-1.0
Lockerbie	Expectations model	130	53.8	51.1	1.0
Klarner	State level presidential forecast model	114	51.3	52.2	0.5
Berry & Bickers	State level economic model	111	47.1	51.4	4.3
Fair	Economic voting model	102	49.5	50.8	1.3
Hibbs	Bread and peace model	102	47.5	50.8	3.3
Erikson & Wlezien	Leading economic indicators and the polls*	99	52.6	50.8	-0.5
Cuzan	Fiscal model I	97	46.9	50.8	3.9
Cuzan	Fiscal model II	97	45.5	50.8	5.3
Abramowitz	Time for change model*	69	50.6	49.8	-0.8
Lewis-Beck & Tien	Jobs model*	69	48.2	49.8	1.6
Lewis-Beck & Tien	Proxy model	69	52.7	49.8	-1.4
Holbrook	National conditions and incumbency*	67	47.9	49.8	1.9
Campbell	Trial-heat model*	57	52.0	50.7	-1.2
Campbell	Convention bump model*	57	51.3	50.7	-0.6
	Average of all 15 model forecasts	57	49.9	50.7	0.8

* Models that use economic indicators and polls as predictor variables.

- Forecasts ordered by days prior to Election Day.

- Source for political economy models is Campbell (2012a), except for the model by Fair, which was derived from fairmodel.econ.yale.edu. The forecast by Klarner was incorrect in Campbell's original table and thus corrected above.

- The error reduction is the difference between the absolute error of the political economy model and the absolute error of the Big-Issue Model forecast of the same day. Positive values indicate that the Big-Issue Model was more accurate, negative values indicate that the Big-Issue Model was less accurate.

4. Discussion

The 2012 U.S. presidential election was the first real test case for the Big-Issue Model to provide *ex ante* forecasts. The model provided more accurate forecasts than both the majority and the average of fifteen established political economy models. In addition, the model outperformed the PollyVote, FiveThirtyEight, and the IEM when making daily updated forecasts during the hot phase of the campaign. The Big-Issue Model was only less accurate than FiveThirtyEight and the PollyVote when making long-term forecasts.

This performance conforms to a prior analysis that showed that the model also provided competitive forecasts for historical elections. *Ex ante* forecasts from the Big-Issue Model for the three elections from 2000 to 2008 reduced the error of the typical of eight

established political economy models by five percent. In addition, the model outperformed the IEM in predicting who would win (but was less accurate than the IEM when predicting vote-shares). This performance was achieved even though the conditions for the 2000 and the 2004 elections were unfavorable to the Big-Issue Model. The reason is that during these elections, voters' perceptions of which issue was most important often changed (Graefe and Armstrong 2012). Not so in 2012. Throughout the 2012 campaign, economic issues overrode all other issues. As mentioned earlier, such a situation is favorable for the Big-Issue Model, as the model relies on the take-the-best heuristic (Gigerenzer and Goldstein 1996). In addition, the results suggest that the Big-Issue Model is particularly valuable in situations in which economic indicators disagree and thus paint an unclear picture of the state of the economy. In such situations, the theory that economic fundamentals provide a proxy for people's expectations of the state of the economy appears to be of limited value. Forecasts from traditional political economy models of the 2012 election outcome differed widely and suggested high uncertainty about the election outcome. Finally, the Big-Issue Model can be expected to provide valuable forecasts even if the conditions are not ideal. The reason is that the big-issue score likely captures information that goes beyond the candidates' competence in handling the most important issue. In particular, it is long known that issue evaluations are influenced by other factors such as partisanship and candidate evaluations (Asher 1992). For example, a large literature argues that voters' perceptions of the economy are influenced by partisanship (e.g., Wlezien, Franklin and Twigg 1997; Evans and Andersen 2006; Evans and Pickup 2010), although the direction of causality remains a matter of debate (Lewis-Beck, Nadeau and Elias 2008). The Big-Issue Model does not aim at contributing to this theoretical debate. Rather, part of the reason why the Big-Issue Model predicts well is that its explanatory variable serves as a proxy in picking up much information about the electoral context.

The Big-Issue Model adds valuable information to existing models, as it uses people's assessments of which candidate will have the most potential in effectively dealing with the most important problem facing the country to forecast election results. This is an advantage of the Big-Issue Model over political economy models, as it can provide rapid and inexpensive decision-making recommendations to those involved in political campaigns, especially in terms of which issues to prioritize on campaign agendas. Furthermore, the model can help candidates and parties acquire quick feedback on the effectiveness of their campaign strategies.

5. Conclusion

The accuracy problem in forecasting U.S. presidential elections has been solved in the past decade. For the past three elections, the combined forecast at PollyVote.com has provided highly accurate forecasts of the election outcome, starting months before Election Day. On average, the PollyVote's Election Eve forecasts missed the actual outcome by little more than half of a percentage point (Graefe, Armstrong, Jones and Cuzán 2013). It seems unlikely that individual models, such as the Big-Issue Model, can compete with the accuracy of a combined forecast in the long term. However, the model uses a different method and different data than established models and thus contributes to the accuracy of a combined forecast. Finally, one area that has received relatively little attention in election forecasting is the improvement of forecasts' ability to aid decision-making of parties, candidates, and voters. The Big-Issue Model is a step in this direction as it provides decision aid on which issues to emphasize in the campaign.

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