

# Assessing polling accuracy

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### ► **Global context:**

- Plenty recent examples of public doubting poll accuracy
- Efforts undertaken on "critical" elections to assess polling accuracy

### ► **Mexican Context:**

- Brief period of post-authoritarian electoral polling (2000-today)
  - 1990s marked increasing authoritarian period
- 2012 "Crisis of polling"
- No systematic assessment of pollster accuracy
  - Done by election
  - Done by candidate

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- ▶ Brief period of post-authoritarian electoral polling (2000-today)
  - ▶ 2006-2012: period of transition from authoritarian period
- ▶ 2012 "Crisis of polling"
- ▶ No systematic assessment of pollster accuracy
  - ▶ Only by election
  - ▶ Only by candidate

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## Shortcomings for multiparty settings

- ▶ Most methods rely on single-statistic
  - ▶ Mosteller (1949): **1-8**
  - ▶ Martin, Traugott & Kennedy (2005):  $A, A'_i$
  - ▶ Arzheimer & Evans (2014):  $B, B_w$
- ▶ Difficult to capture multiparty setting dynamics
  - ▶ different direction bias for different candidates
  - ▶ different biases across pollsters
  - ▶ important to address heterogenous measurement error across candidates as forecast by same pollster
- ▶ Much to be learned about pollster dynamics if unpacking measures...

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# Assessing polling performance in MX

## Single-statistic assessments

- Under standard single-statistic assessments we would conclude of electoral polls in Mexican presidential elections...

	Mosteller (1949)			Martin et al. (2005)			Arzheimer et al. (2014)	
Year	1	3	5	$\bar{A}'_{PRI}$	$\bar{A}'_{PAN}$	$\bar{A}'_{PRD}$	$\bar{B}$	$\bar{B}_w$
2006	-2.37	2.73	-3.88	.181	-.095	-.056	.129	.119
2012	4.05	3.07	1.76	.128	-.103	-.053	.140	.145

# "House effects" 2006-2012

## Modeling

- ▶ **Purpose:** estimate "house effects" for each polling firm by candidate and election
- ▶ Exploit all available survey information to separate noise from signal
  - i) Track vote intent for each candidate throughout the campaign
  - ii) Compute "systematic error" per candidate for each pollster
- ▶ **Data:** all *published* surveys throughout 2006/2012 presidential campaigns
  - ▶ publicly available repositories IFE & AMAI

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# "House effects" 2006-2012

## Kalman filter model

- State vector

$$y_{i[k]} \sim \text{Binomial}(\mu_{ij[k]t[k]}, n_k) \quad (1)$$

where

$y_{i[k]}$  proportion of voters supporting candidate  $i$ , given poll  $k$   
 $\mu_{ij[k]t[k]}$  reported support for candidate  $i$  by polling firm  $j$  at time  $t$ ,  
given poll  $k$   
 $n_k$  sample size of poll  $k$

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- ▶ Measurement equation

$$\mu_{ijt} = \text{logit}^{-1}(\alpha_{it} + \delta_{ij}) \quad (2)$$

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$\mu_{ijt}$  reported support for candidate  $i$  by polling firm  $j$  at time  $t$

$\alpha_{it}$  true support for candidate  $i$  at time  $t$

$\delta_{ij}$  "house effect" of polling firm  $j$  for candidate  $i$

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# "House effects" 2006-2012

## Kalman filter model

- ▶ Transition equation (reverse random walk)

$$\alpha_{i,t} | \alpha_{i,t+1} \sim N(\alpha_{i,t+1}, \mathbf{s}_i^2) \quad (3)$$

- ▶ Priors

- ▶  $\alpha_{iT}$  anchored on  $T$  at proportion of votes received by candidate  $i$
- ▶  $\delta_{ij} \sim N(0, 0.05)$
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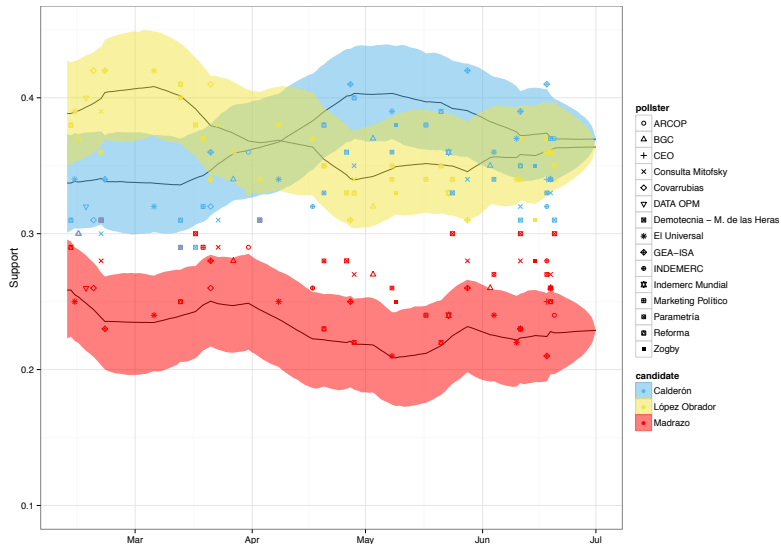
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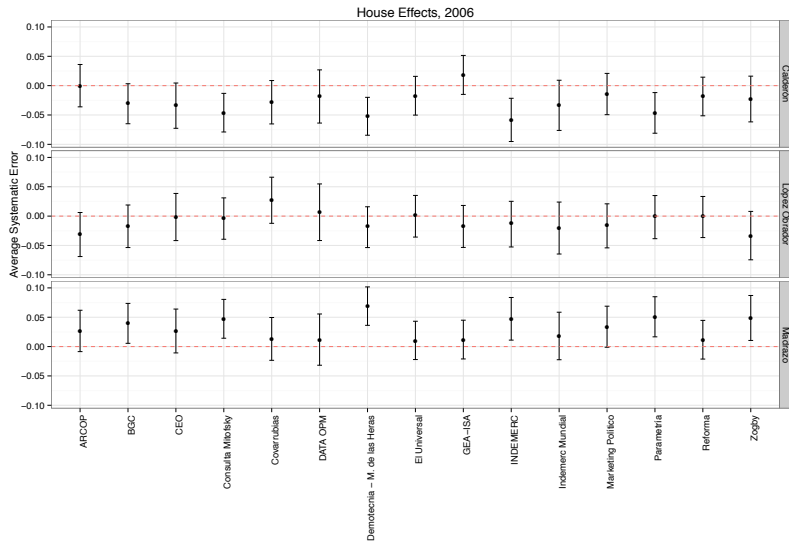
# 2006 Presidential election

## Tracking vote intention



# 2006 Presidential election

Estimated "house effects" - vote intent



# 2006 Presidential election

## Estimated "house effects" - vote intent

- ▶ 16 pollsters published 58 polls
- ▶ ALL (16) firms **accurately estimate** AMLO (PRD)
- ▶ Few (4) firms **underestimate** FCH (PAN)
  - ▶ including: Consulta-Mitofsky, Demotecnia, Indemerc, Parametría
- ▶ Few (6) firms **overestimate** RMP (PRI)
  - ▶ including: BGC, Consulta-Mitofsky, Demotecnia, Indemerc, Parametría, Zogby
- ▶ Many (9) firms estimate all candidates **accurately**:  
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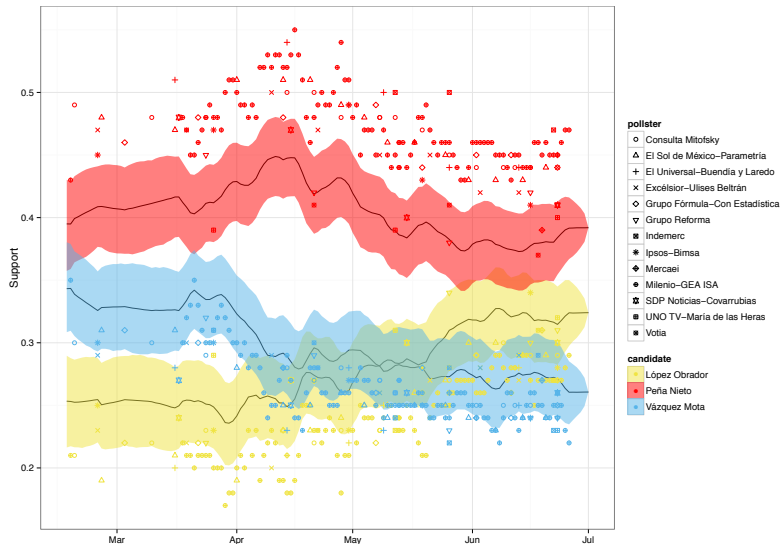
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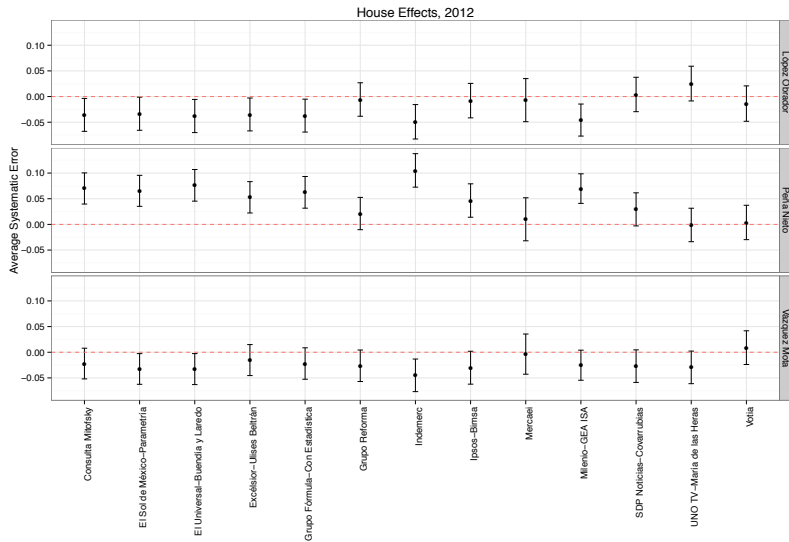
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## Estimated "house effects" - vote intent



# 2012 Presidential election

Estimated "house effects" - vote intent

- ▶ 13 pollsters published 183 polls
- ▶ Many (8) firms **overestimate** EPN (PRI)
  - ▶ except: Reforma, Mercaei, Covarrubias, María de las Heras, Votia
- ▶ Many (7) firms **underestimate** AMLO (PRD)
  - ▶ except: Reforma, IPSOS-BIMSA, Mercaei, Covarrubias, María de las Heras, Votia
- ▶ Few (3) firms **underestimate** JVM (PAN)
  - ▶ including: Parametría, Buendía & Laredo, Indemerc
- ▶ Few (5) firms estimate all three **accurately**:
  - ▶ Reforma, Mercaei, Covarrubias, María de las Heras, Votia

# 2012 Presidential election

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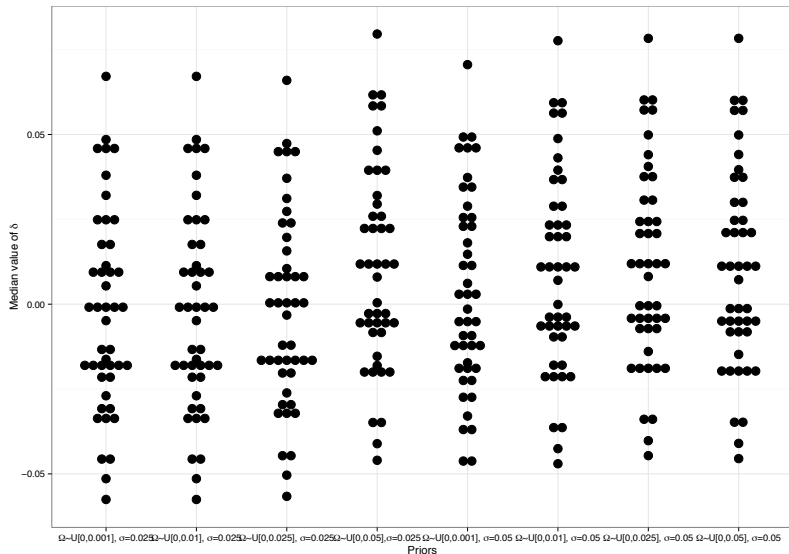
# Estimating "House Effects" of Mexican polling firms through time: the 2006 & 2012 Presidential Elections

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MPSA  
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# 2006 Presidential election

## Sensitivity analyses



# 2012 Presidential election

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