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Fleeing a Lame Duck: Policy Uncertainty and Manufacturing Investment in US States[†]

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It is found that electorally induced policy uncertainty decreases manufacturing investment in US states. In a state with average partisan polarization, the elasticity of election-year investment to a specific measure of policy uncertainty is −0.027. When the incumbent governor is term limited, there is greater uncertainty over the outcome, providing an instrument to demonstrate this effect is causal, not simply coincidental. Moreover, manufacturing investment does not rebound following the election. Rather, own-state uncertainty is associated with a large and significant coincident rise in neighboring states' investment. These findings suggest that policy uncertainty at the subnational level drives investment to alternate sites. (*JEL* D25, D72, E22, G31, L60, R11)

In the years since the Great Recession, US corporate profits have soared but business fixed investment remains depressed. This divergence has important implications for both cyclic recovery and long-run growth. One influential explanation focuses on the role of increased uncertainty (Baker, Bloom, and Davis 2016). Greater uncertainty about energy prices, exchange rates, interest rates, environmental regulation, financial regulation, minimum wages, or any number of other political and economic variables increases uncertainty over the profitability of long-term investment projects raising the hurdle rate and reducing the number undertaken as firms "wait and see," delaying investment until the resolution of uncertainty (see Stokey 2016 for a recent example and Dixit 1992 for a detailed review). Nonetheless, there are no perfect measures of generalized uncertainty, and research has not yet come to a consensus on the strength of the connection between uncertainty and investment at either firm or aggregate levels.

Using an annual panel of data from US states spanning 1967–2004[1], we relate state-specific manufacturing investment to the policy uncertainty stemming from close elections for governor. Because state governors exercise considerable influence over legislation and considerable discretion over regulation and permitting and because the state-level policies relevant to business investment vary

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[1] The end date of the panel is limited by the availability of the longest single panel of state-level party polarization scores. We have verified our results using a more recent polarization measure available for 1990–2012.

Table 1—Classifying the Absence of an Incumbent Governor

	1967–2004			1990–2012
		Legislative professionalization		
	Total	High	Low	Where DIME available
[1] Death/incapacitated	4	3	1	1
[2] Term limited	119	49	70	58
[3] Resigned to assume appointed office	5	2	3	3
[4] Resigned to run for higher office	17	6	11	9
[5] Recalled	1	1	0	1
[6] Resigned for other political or personal reasons	0	0	0	1
[7] Chose not to seek reelection	66	34	32	32
Instrument [1]–[3][a]	126	52	74	61
Total number of gubernatorial elections	508	244	264	222

[a] Does not equal the sum of rows 1–3 because some incumbents satisfied multiple categories.

systematically by party (Potrafke 2017), uncertainty over the partisan affiliation of the future governor is a source of political risk to firms considering investment. But voters' response to the state of the economy constitutes a clear threat of endogeneity to any estimate of the effects of political uncertainty on investment. Usefully, by removing the electoral advantages of incumbency, the lack of an incumbent in a race due to term limits raises uncertainty over the outcome of the election and thence subsequent policy, providing an instrument that allows us to estimate causal effects.

We have collected data on the actions of the incumbent governor during all gubernatorial elections during our sample period (see Table 1). Naturally, many incumbents do not run for reelection. We focus on those reasons that seem plausibly exogenous: death or incapacity while in office or ineligibility to run due to term limits. The latter makes up the vast majority of our cases. As of this writing, governors of 36 states are subject to term limits. As a result of variety in term lengths, term limits, the election-year cycle, and the electoral fortune of incumbents, the incidence of term-limited incumbents is extremely diffuse. In other words, term-limited governors do not appear in a fixed collection of states with a regular periodicity. We discuss the instrument in detail in Section IIID and show that the incumbent's predicted vote share is always above 50 percent, no matter how bad the economy, thus ensuring that the loss of the incumbent makes the election more competitive.[2]

Our measure of policy uncertainty is the product of two pieces. The first piece is a state-and-year-specific measure of the distance between the local Republican

[2] We thank an anonymous reviewer for pointing out that if the incumbent's party were sufficiently unpopular, the lack of an incumbent might make the election less competitive and more certain.

and Democratic parties (see Berry et al. 1998 for a description). These are a general measure of the policy stakes of the election. The second piece is a gauge of electoral uncertainty, which we measure as a log transformation of the ex post electoral margin. The product is thus a measure of the difficulty in predicting the postelection economic policy stance of the governor's office. We then instrument using exogenous open races as described.

In our baseline specification, we find that in a state with average partisan polarization, in the calendar year of a gubernatorial election, the elasticity of manufacturing investment to our measure of policy uncertainty is −0.027. Both the significance and magnitude of this result are robust to various controls, measures, and estimators. We then split the sample and find that the result is heavily concentrated in states with professionalized legislatures.[3] This fits with previous findings that members of professionalized legislatures enable rather than inhibit implementation of a governor's legislative agenda (Woods and Baranowski 2006; Dilger, Krauss, and Moffett 1995; Ferguson 2003).

Surprisingly, we find that manufacturing investment does not rebound following the resolution of uncertainty. This is at odds with current models of wait-and-see investment (e.g., Bizer and Judd 1989 or Stokey 2016) because such models deal with closed rather than open economies and thus do not admit the possibility that the investment is flexible in location as well as time. We show that election-year investment in neighboring states rises when own-state uncertainty rises. Likewise, own-state investment rises when average neighboring-state uncertainty rises. Thus, we have an instance where investment under uncertainty is not so much "wait-and-see" as "flight-to-certainty."

We are not the first to contend with the difficulty of reliably measuring aggregate uncertainty by focusing on electoral uncertainty. Canes-Wrone and Park (2012) look at ten OECD countries and find that uncertainty over electoral outcomes is associated with a decline in private fixed investment. Julio and Yook (2013) find that irreversible FDI flows tend to fall prior to elections, especially in countries with a history of policy reversals. In the United States, Canes-Wrone and Park (2014) find a decline in the quantity of home sales in advance of closely contested gubernatorial elections. By focusing on the differences between party platforms and the uncertainty over electoral outcomes, we focus on a source of uncertainty that is closely linked to policy, likely to impact a broad set of firms, and whose longitudinal variation can be reliably instrumented to deliver exogenous variation.

The next section explains the economic relevance of governors. Section II lays out our methods including the construction of electoral and policy uncertainty, the econometric specification, and the choice of estimator. Section III presents both the baseline results and a look at the effects of legislative professionalism. Section IV concludes with a note on the broader applicability of the results.

[3] While professionalization is strongly correlated with state income per capita, we have found, either by controlling for the latter or by splitting the sample, that the effect is associated with professionalization rather than real state per capita income.

I. The Economic Relevance of Governors

By focusing on US states rather than countries, we limit the extent of unobserved institutional heterogeneity, improve the comparability of the data, enable a larger sample than would be available in a cross-country setting, and facilitate the search for a valid instrument. But are governors sufficiently consequential to firms' investment choices?

US states control a wide variety of relevant policies. State legislation bears on corporate profit taxes, environmental regulations, minimum wage laws, product and workplace safety regulations, labor union organization, the corporate share of benefits payments, job training and education of the local workforce, local infrastructure development, and more. Business advocacy groups write and behave as though state policies are important to their membership and several organizations construct business climate indices ranking the relative hospitality of each state to the interests of a hypothetical representative firm.

The identity and partisan affiliation of the governor are relevant to these policies. Governors not only play a role in shaping legislation, they also exercise discretion in the implementation of regulations and negotiate special packages to attract prominent firms. Governors have direct control over the identity and tenure of regulators whose behavior determines the pace of permitting and thence investment. Governors play a key role in wooing marquee investments from large firms which may in turn have spillover effects. As a result, changes in the identity of the governor can result in abrupt changes in policy. Moreover, firms and industry groups contribute a great deal of money to gubernatorial candidates, and these contributions tend to be consistently directed toward one party or the other. See Falk and Shelton (2017) for a fuller discussion of these issues.

It is a commonly held view that legislatures and governors are opposing centers of power and thus gubernatorial power must be less relevant in states with strong, professional legislatures. However, Woods and Baranowski (2006) note that professional legislators have more resources at their disposal but are also more career oriented in their choice of activities. Because oversight receives relatively little credit compared to legislative activity, professionalized legislatures tend to spend more time introducing and passing laws (Woods and Baranowski 2006) and less time overseeing the gubernatorial administration of laws, a conclusion that draws support from legislators themselves (Elling 1992, Baranowski 2001). As a result, the executive branch is, counterintuitively, relatively less constrained as the legislature professionalizes.

II. Methods

Our dataset is an annual panel of US states spanning from 1967 to 2004. Our sample period begins in 1967 with the availability of data on legislative professionalism and ends in 2004 with the end of the longest continuous panel of state party ideology scores from which we calculate policy differences between parties. However, we also conduct two robustness checks: one using unemployment, which limits the sample to 1976–2004, the other using a more

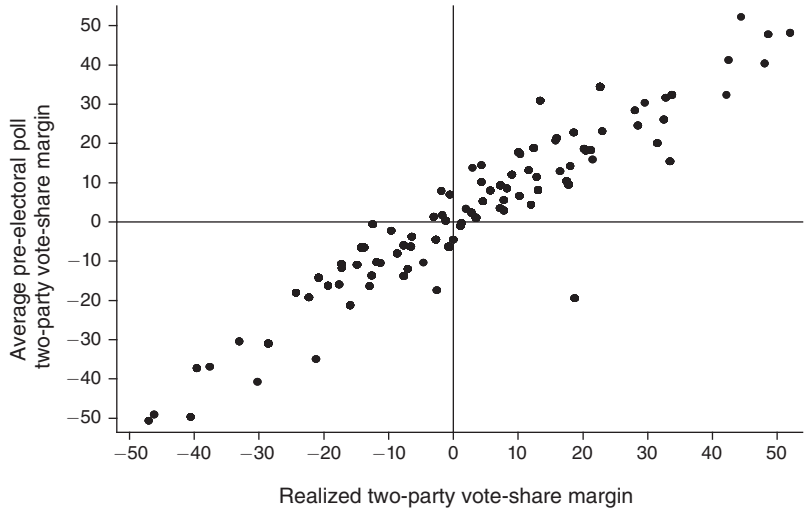

FIGURE 1. EX POST AND EX ANTE MEASURES OF ELECTORAL UNCERTAINTY

recent measure of state party ideology that runs from 1990–2012. We summarize the most important variables in the Appendix.

A. *Measuring Ex Ante Uncertainty*

While the option value of waiting before investing depends on the perceived level of policy uncertainty in the period leading up to an election, we do not have good direct measures of this ex ante uncertainty. Instead, we use the realized two-party vote share of the gubernatorial candidates, assuming that elections which were close ex post were perceived to be uncertain ex ante. We take the difference between the winner and the second place finisher, termed vote margin, as a raw measure of the closeness of the election.

We validate our ex post measure using an ex ante measure. By searching the political news website *Real Clear Politics*, we have compiled preelection polling for 96 gubernatorial elections between 2004 and 2012. The number of polls varies a great deal between elections, with some receiving a single poll and others as many as 60. Figure 1 plots the relationship between our ex post measure and the average polling margin. The regression has a coefficient of 0.9 and an adjusted R^2 of 0.83, substantiating our choice of ex post margin as an accurate proxy of ex ante expected margin.

Because small shocks are more likely than large shocks, the effect of an increase in vote margin on electoral uncertainty should be declining in the vote margin. In other words, the effect on uncertainty is larger when moving from a 5 percent margin to a 10 percent margin than it is between 25 percent and 30 percent. Because of this and to make our coefficients easily interpretable as elasticities, we construct our dependent variable based on the natural log of the vote margin. For state s in year t,

let *vote margin* be VM_{st}. Our first component of the dependent variable is *electoral uncertainty*, EU_{st}:

$$(1) \qquad EU_{st} = \begin{cases} \ln[101] - \ln\left[VM_{st} + 1\right] & \text{in an election year} \\ 0 & \text{otherwise} \end{cases}.$$

The second term is negative to ensure that a smaller vote margin produces greater uncertainty. The first term is present to normalize so that an unopposed election ($VM_{st} = 100$) produces $EU_{st} = 0$. The resulting measure of electoral uncertainty varies from 0 in an unopposed election to $\ln(101) = 4.62$ in a dead heat.

B. *Polarization*

Because there is a great deal of variation between states in the philosophy of government espoused by the average voter, both major parties adjust their platforms and legislative behaviors to accommodate local preferences. As a result, the policy-relevant difference between the two major parties varies a great deal from state to state. In states where there is very little difference between the parties, a given degree of electoral uncertainty might translate into very little policy uncertainty. To control for this, we scale the measure of *electoral uncertainty* (EU_{st}) by a state-and-year-specific measure of the distance between the two parties to achieve a measure of *policy uncertainty* (PU_{st}). We then normalize this number by dividing by the sample-average value. Thus, coefficient γ in equation (3) represents the effect of election uncertainty in a state with average partisan polarization

$$(2) \qquad PU_{st} = EU_{st} \times \left[\frac{polarization_{st}}{\frac{1}{S}\frac{1}{T}\sum_{T}\sum_{S} polarization_{st}} \right].$$

C. *Specification*

Equation (3) describes our main specifications, where the panel indices s and t reference the US state and calendar year, respectively. Our vector of economic controls, $\mathbf{X}$, includes the logged level of real state GDP, the logged state unemployment rate, the logged value added in the state manufacturing sector, and the growth rate of real state GDP-less manufacturing investment.[4] In addition, we include two lags of each of these variables plus two lags of the dependent variable. In some specifications, we include a time trend or year fixed effects which may capture changes in interest rates, inflation, the federal tax treatment of investment,

[4] Because it requires the development of separate instruments and because these instruments are quite weak, we have looked into state legislative electoral uncertainty separately and do not include it in this paper. Interestingly, uncertainty over the partisan control of the state legislature is nearly orthogonal to gubernatorial electoral uncertainty, with correlations ranging from 0.05 to 0.1 depending on the threshold for uncertainty. Thus, we feel comfortable omitting legislative uncertainty from our gubernatorial specifications.

presidential election uncertainty, and other factors relevant to the investment decision:

$$\log I_{s,t} = \rho_1 \log I_{s,t-1} + \rho_2 \log I_{s,t-2} + \gamma PU_{s,t} + \beta_0 X_{s,t} + \beta_1 X_{s,t-1} + \beta_2 X_{s,t-2} + \varepsilon_{s,t} + \mu_s. \tag{3}$$

We include the first lag of the dependent variable to acknowledge that there is an underlying level of investment that is unrelated to political factors—due to the size of the industry, the age of the relevant plants, the rates of depreciation and technological change in the statewide mix of industries, etc. Moreover, being that the timing of investment spending is somewhat flexible, recent past investment either above or below this trend speaks to the volume of pent-up demand, hence the need for a specification with two lags. The coefficients on the first and second lags bear out this interpretation. The first lag is positive and highly significant, indicative of these omitted variables. The second lag is also positive and significant, though an order of magnitude smaller than the first. For a given level of investment in $t-1$, a state with low investment in $t-2$ is likely a state that has just had an uptick in $t-1$ satisfying some of the time-elastic demand whereas a state with high investment in $t-2$ is in the opposite position of having built up some elastic demand. By this logic, a third lag should be irrelevant as the first lag controls for the omitted variables, the second lag for the pent-up demand. And indeed, a third lag is an order of magnitude smaller than the second and statistically indistinguishable from 0. Schwartz' Bayesian Information Criterion confirms the choice of two lags.

The variable of interest is our measure of uncertainty surrounding the partisan affiliation of the victor, which was described in the previous sections. Our data are annual, and we relate the investment in a calendar year with the closeness of an election in that same calendar year. In years without elections, both electoral and policy uncertainty are zero. The vast majority of our elections take place in early November, suggesting that the concurrent calendar year is predominantly the proximate preelection period and thus the proper window in which to observe effects on investment.

D. *Estimators*

We estimate equation (3) using both 2SLS panel fixed effects and two-step system GMM with collapsed instruments so that there is just one instrument for each variable and lag length, rather than one for each time period, variable, and lag length. In each case, we use the strictly exogenous instrument for political uncertainty described in the previous subsection.

After collapsing, we are left with $j = 50$ instruments and $N = 50$ panels (states). Hansen's test of overidentifying restrictions cannot reject the null of valid instruments. In later specifications, we split the sample in two according to whether a state's legislature is relatively more or less professional. This results in $j = 50$, $N = 25$. At this point, the p-value for Hansen's test soars, and it seems likely that Hansen's test has lost power (Roodman 2009), which may concurrently suggest

bias from over-fitting. Unfortunately, this means we are unable to use system GMM on that part of the sample in which the effect is concentrated (the states with professionalized legislatures). As a result, we rely on FE IV for the bulk of the paper. Basic results from system GMM are shown to confirm that system GMM delivers similar results.

Lastly, we have to account for spatial correlation among the error terms. Since we show that uncertainty in one state leads to a rise in uncertainty in neighboring states, the errors of these neighboring states are contemporaneously correlated. We adapt code from Hsiang (2010) to allow errors to be correlated across states that share a neighbor.

III. Results

A. *Baseline Specification*

Table 2 shows the results of our baseline regression of manufacturing investment on the extent of election-induced policy uncertainty that year plus economic controls. Because both independent and dependent variables are in logs, the coefficient of interest (top row) is interpretable as an elasticity. The first column is the OLS result, which is small and statistically indistinguishable from zero. The second column shows the baseline IV. Displaying the expected sign, doubling our measure of policy uncertainty leads to a 2.7 percent decline in investment. Adding a time trend (column 3) allays fears that the result is driven by a secular trend in US manufacturing. As described above, political uncertainty is the product of electoral uncertainty and polarization. Our instrument is unrelated to polarization, but is relevant for electoral uncertainty. The effect on investment of electoral uncertainty alone (column 4) is quite similar to that of political uncertainty. This may be an indication that the generic left-right spectrum is not perfectly aligned with the policy cleavages relevant to businesses. Using state unemployment rather than state GDP (column 6) limits the sample but reconfirms the result.

B. *Legislative Professionalism*

We have argued that the stakes are likely to be greater where the legislature is professionalized and thus both governor and legislature are more capable of intervention. Table 3 shows the effects of splitting the sample at the median value of legislative professionalism. It is clear that it is in states with high legislative professionalism that we see the greater effect of uncertainty in gubernatorial elections. Indeed, when unemployment and a time trend are included, the estimated elasticity in the more professional half of the sample is in excess of -0.05 (column 5).

As we argued in Section IID, we believe that in a panel of these dimensions, the FE estimator is more reliable than GMM. Nonetheless, we have reported GMM estimates of the baseline specification and the split by legislative professionalism in Table 4. Comparing the GMM estimates (Table 4, columns 2 and 3) to the comparable FE estimates (Table 3, columns 5 and 6) shows that both estimators find

Table 2—Gubernatorial Electoral Uncertainty Depresses Manufacturing Investment

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A						
Estimator	OLS	IV	IV	IV	IV	IV
Errors			Spatially correlated errors			
Instrument for close elections			No incumbent governor due to death or term limits			
Dependent variable			log of state manufacturing investment			
Sample:			1967–2004			1976–2004
Panel B						
Political uncertainty	−0.00833 (0.00522)	−0.0273 (0.0131)	−0.0280 (0.0120)		−0.0315 (0.0141)	−0.0244 (0.0126)
Electoral uncertainty				−0.0263 (0.0112)		
Average of neighboring states' political uncertainty					0.0193 (0.00895)	
log of state manufacturing investment, 2 lags	Yes	Yes	Yes	Yes	Yes	Yes
log of state manufacturing GDP, current + 2 lags	Yes	Yes	Yes	Yes	Yes	Yes
log of real state GDP, current + 2 lags	Yes	Yes	Yes	Yes	Yes	
Growth rate of state real GDP-less manufacturing investment, current + 2 lags			Yes	Yes		
log of state unemployment rate, current + 2 lags						Yes
Constant		Yes	Yes	Yes	Yes	Yes
Time trend			Yes			Yes
State fixed effects		Yes	Yes	Yes	Yes	Yes
Observations		1,650	1,650	1,650	1,650	1,100
Adjusted R^2	0.978	0.978	0.980	0.980	0.978	0.978
Number of states		50	50	50	50	50
First-stage *F*-statistic		321.1	315.2	424.0	296.3	292.2

Note: Standard errors are in parentheses.

the effect to be concentrated in the more professional legislatures. Moreover, the estimated magnitudes are comparable. So the GMM results provide a useful check that an erroneous estimator is not driving either the flavor or strength of our results.

C. *A Flight to Stability*

The wait-and-see theory of investment under uncertainty suggests that we should see a rebound of investment once the election has concluded and the uncertainty is resolved. Figure 2 shows the effect of uncertainty in year t on investment in years $t-2$ to $t+2$. Manufacturing investment in the two years before the election year is unrelated to electoral uncertainty, which reassures us of the specification. Puzzlingly, however, we see no post-electoral rebound of investment.

Table 3—The Effect Is Concentrated in States with Professionalized Legislatures

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A						
Estimator	Fixed effects IV with spatially correlated errors					
Instrument for close elections	No incumbent governor due to death or term limits					
Dependent variable	log of state manufacturing investment					
Professionalism of the state legislature	High	Low	High	Low	High	Low
Sample:	1967–2004				1976–2004	
Panel B						
Political uncertainty	−0.0393 (0.0201)	−0.0164 (0.0158)	−0.0385 (0.0192)	−0.0164 (0.0159)	−0.0514 (0.0231)	−0.00462 (0.0151)
log of state manufacturing investment, 2 lags	Yes	Yes	Yes	Yes	Yes	Yes
log of state manufacturing GDP, current + 2 lags	Yes	Yes	Yes	Yes	Yes	Yes
log of real state GDP, current + 2 lags	Yes	Yes	Yes	Yes		
log of state unemployment rate, current + 2 lags					Yes	Yes
Growth rate of state real GDP-less manufacturing investment, current + 2 lags					Yes	Yes
Constant	Yes	Yes	Yes	Yes	Yes	Yes
Time trend			Yes	Yes	Yes	Yes
Observations	825	825	825	825	550	550
Adjusted R^2	0.983	0.975	0.983	0.975	0.985	0.970
Number of states	25	25	25	25	25	25
First-stage *F*-statistic	127.8	216.0	127.9	215.7	100.4	213.4

Note: Standard errors are in parentheses.

One potential explanation is that the investment does not return because it has already been completed elsewhere. One example for which we have found direct evidence (albeit not within the manufacturing sector) is the film industry. Pioneering the use of tax-credits in 2002, Louisiana became a leading destination for the filming of big-budget studio movies. But in response to budget pressures, the legislature passed (and the term-capped governor signed) a law in 2015 placing a cap on the available film tax credits. The law became a point of difference between the candidates for the 2015 gubernatorial election and uncertainty about the results and the resulting policy has reduced business. "… a Disney/ABC executive told [executive director Patrick Mulhearn of Celtic Studios in Baton Rouge] that the company would not be sending any new projects to Louisiana until questions about the law could be resolved."[5] Clearly, ABC/Disney is not delaying their movies—they are simply choosing to film them elsewhere. The policy will be clarified and the uncertainty resolved only upon assumption of office by the new governor.

[5] See Verrier (2015).

Table 4—GMM Tells the Same Story but Suffers from Too Many Instruments

	(1)	(2)	(3)
Panel A			
Estimator	Two-step system GMM with collapsed instruments and robust standard errors		
Instrument for close elections	No incumbent governor due to death or term limits		
Dependent variable	log of state manufacturing investment		
Professionalism of the state legislature	All states	More professional	Less professional
Sample:	1976–2004		
Panel B			
Political uncertainty	−0.0177	−0.0350	0.00262
	(0.0153)	(0.00937)	(0.0197)
log of state manufacturing investment, first lag	0.528	0.600	0.442
	(0.0585)	(0.0990)	(0.119)
log of state manufacturing investment, second lag	0.0563	0.0378	0.0965
	(0.0496)	(0.0644)	(0.161)
log of state manufacturing GDP	0.208	0.259	0.206
	(0.0719)	(0.159)	(0.208)
log of state manufacturing GDP, first lag	0.0625	0.0250	0.170
	(0.141)	(0.294)	(0.177)
log of state manufacturing GDP, second lag	0.122	0.0813	0.0658
	(0.101)	(0.364)	(0.336)
log of state unemployment rate	−0.136	−0.136	−0.00977
	(0.0543)	(0.0856)	(0.291)
log of state unemployment rate, first lag	−0.0781	−0.0583	−0.229
	(0.0689)	(0.0990)	(0.467)
log of state unemployment rate, second lag	0.220	0.107	0.284
	(0.0624)	(0.0876)	(0.235)
Observations	1,100	550	550
Number of states	50	25	25
Number of instruments	50	50	50
Hansen's test of overid restrictions: *p*-value	0.244	0.998	0.998
Test for AR(1) in first differences: *p*-value	−4.166	−2.594	−2.418
Test for AR(2) in first differences: *p*-value	0.880	0.382	0.0674

Note: Standard errors are in parentheses.

The relevant competing sites no doubt vary according to the geography of a particular industry. The primary competitors for automotive plants may be the right-to-work states while competitors for military naval vessels would necessarily be coastal states. Competitive states may also vary over time; silicon wafer production used to be the exclusive preserve of California and Texas but has spread across the globe. Unable to track all the relevant geographic, socioeconomic, and regulatory factors for the various components of our aggregate measure of investment, we simply look at neighboring states.[6]

[6] An alternative is to presume that the existing distribution of an industry indicates the most likely alternative locations. To develop an alternative measure of competing states, we assume that the probability of a firm in industry i choosing state s' instead of state s is proportional to the share of industry i located in state s'. We then

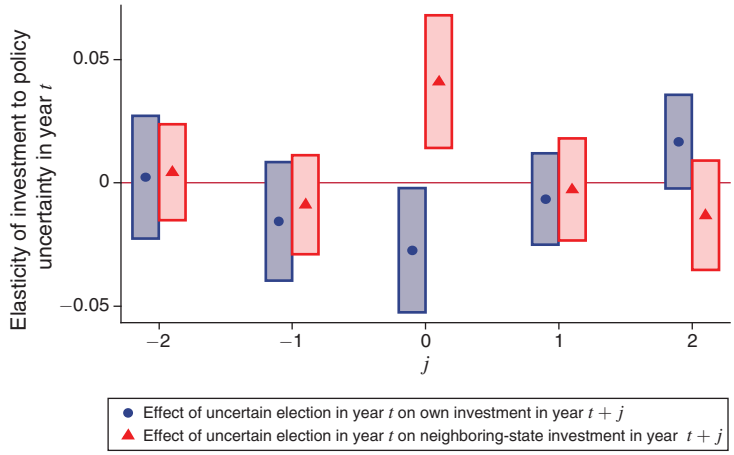

FIGURE 2. FLIGHT TO THE NEIGHBORS

Notes: Each bar is a variation on the regression specification of Table 2, column 1. The circles track the effect of own-state uncertainty in year t on own-state investment in years $t-2$ through $t+2$. The triangles track the effect of own-state uncertainty on neighboring-state investment controlling for the conditions in each neighboring state as described in Table 2. The dot plots the point estimate while the bar shows the 95 percent confidence interval.

For each state year, we take the sum of the residuals from our preferred regression (Table 2, column 1) for all the neighboring states. This is our new dependent variable. We then regress it on our uncertainty measure and bootstrap to achieve the proper standard errors. In this way, we are estimating whether electoral uncertainty in one state leads to an unusual rise in concurrent investment in neighboring states, after controlling for the economic and political situation in these states. We find that it does. As shown in Figure 2, the election-year decline in own-state investment is mirrored by an increase in neighboring-state investment. We then return to the original specification and add the average policy uncertainty in neighboring states. Neighboring uncertainty is positive and significant (Table 2, column 5). Thus, we measure statistically significant flows in both directions: to a state from neighbors undergoing an election and from a state undergoing an election to its neighbors.

D. *Checking the Instrument*

Incumbents enjoy a large electoral advantage (name recognition, free press, etc.) and are reelected at a high rate (Carey, Niemi, and Powell 2000, among many

presume that, when faced with policy uncertainty, all firms are equally likely to leave. Thus, the attractiveness of state s' to manufacturing investment diverted from state s is the industry-by-industry product of the share of state s manufacturing in a particular industry times that the share of that industry located in state s'. This produces a continuous variable. We then use this instead of the binary neighbor/not-neighbor to calculate the weighted sum "neighbor's residuals." Repeating the exercise from Figure 2 delivers the familiar statistically significant rise in investment in competing states when a state undergoes electoral uncertainty.

others), thus an election in which there is no incumbent running is generally an election whose outcome is less certain. However, it is possible that an incumbent's party is saddled with a bad economy or a tarnished party brand. If the incumbent party is actually an underdog, then removal of this incumbent and his/her incumbency advantages might, by further handicapping the underdog, make the election outcome *more* easily forecast. To rule out such a scenario, we regress the incumbent party's realized two-party vote share on state real GDP growth, the number of years the party has held the governorship, and the change in the incumbent party's share of state legislative seats in the same election. Length of time in office has been shown to affect a party's vote share (Nannestad and Paldam 1994), and the change in legislative seat share is intended to capture the concurrent strength of the party brand apart from gubernatorial candidates. We then note that *none* of the predicted values falls below 50 percent. In other words, the incumbent party is never the underdog based solely on party label and economic conditions. Hence, the removal of the incumbent is likely to make the election more closely contested.

Gubernatorial term limits are a strong instrument. In our baseline specifications, first-stage F-statistics on the excluded instrument are in excess of 300. Even when the sample is split by legislative professionalism, the first-stage F-statistics range between 100 and 200. This strength of the instrument derives from the incredible electoral advantage of an incumbent, which is magnified by selection as high-quality opponents wait for an open seat.

IV. Discussion

We have estimated the effect of electorally induced policy uncertainty on investment in the manufacturing sector. We have chosen US states because they afford a large sample with high-quality comparable data and relatively homogeneous political institutions. More important, term limits provide a convincing instrument allowing us to estimate causal effects. Because state governors exercise considerable power over legislation and considerable discretion over regulation and permitting and because the policies relevant to business investment vary systematically by party, uncertainty over the partisan affiliation of the future governor is a source of political risk to firms considering investing in-state. Thus, we have used electoral uncertainty, scaled by the policy distance between parties, as a measure of policy uncertainty. As expected, we find that in the calendar year of a gubernatorial election, state investment in the manufacturing sector declines when the election is less certain. The elasticity is -0.027, implying that doubling the electorally induced policy uncertainty will result in a 2.7 percent fall in investment. This is in line with the sole comparable prior study. Canes-Wrone and Park (2012) find that in OECD countries, elections with above average partisan polarization and a vote margin within 15 points witness a 2 percentage point decline in private fixed investment in the quarter prior to the election.

However, the post-electoral dynamics of investment that we find are significantly different than those of Canes-Wrone and Park. In their case, there is some evidence of a post-electoral boom, consistent with wait-and-see investment returning upon resolution of the electoral uncertainty. We find no such reversal the following year.

Instead, investment in neighboring states rises significantly during the year of electoral uncertainty. The difference may come from the fact that relocating across national borders is more onerous than relocating across state borders. Because we cannot sort out the entire set of spillovers from one state to the next, we clearly cannot conclude as to the general equilibrium net effect of a rise in state-level uncertainty on nationwide investment. For that we would need to take the next step of building and estimating a multilocation model.

One potential alternate explanation of our findings is that the relevant policy uncertainty is not resolved at the time of the election. If firms and industries form connections with governors as individuals rather than as members of their party, then perhaps when a new governor takes office (as happens after all of our incumbent-less races), there is a period of lobbying during which firms and industries try to form connections with the new governor and during which there is uncertainty as to which firms and industries will successfully curry favor.[7] In support of this view, a simple panel regression of investment on an indicator of a newly elected governor plus our set of controls shows a (borderline) statistically significant slowdown of investment in the first year of the new term but not in the second year. Moreover, this is true even if the new governor is of the same party as the old. However, as Figure 2 shows, the lost investment is not replaced even in the second year of the new administration by which, one presumes, political connections have been established.[8]

There is unlikely to be one precise channel whereby policy uncertainty affects investment. Prior work has found evidence of partisan differences at the state level on both aggregate demand (Potrafke 2017) and regulatory enforcement (Scholz and Wei 1986, Helland 1998). There is also abundant evidence of partisan effects on firms and industries (e.g., Knight 2006). The specific investment-relevant policies over which partisan politics cast uncertainty no doubt vary by time, place, industry, and firm.[9] Rather, the goal of this paper is to propose an effective instrument to enable causal inference and to bring evidence of the hitherto unremarked possibility that policy uncertainty within one polity does not simply delay investment, but may cause it to flee to competing polities.

Appendix A: Data Sources

A. *Gubernatorial Vote Shares*

For elections prior to 1996, we use data compiled by Claggett and David. For elections in 1997 and 1998, we use vote counts from the *Book of the States*. Data for 1999–2012 come from the Statistical Abstract of the United States. In all cases, we calculate two-party vote shares for Democrats and Republicans.

[7] We are grateful to an anonymous reviewer for raising this point.

[8] Chirinko and Wilson (2010) finds that political contributions by corporations have an effect on headline corporate tax rates in the same year.

[9] Using BEA data from 1997–2004, we find no comparable effect of policy uncertainty on personal consumption expenditures. (The effect on investment remains of similar magnitude and significance when restricted to this period.) This is at odds with the results of Giavazzi and McMahon (2012), who found a significant effect of a close German election on precautionary savings.

B. *Governor Turnover*

We assembled a comprehensive dataset indicating, for each gubernatorial election, whether the incumbent was running and, if not, why not. From these data, we derive our instrument of exogenous variation in the degree to which an electoral result is uncertain ex ante. Our coding distinguishes between the following alternatives: death/incapacity, term limited, appointed to a higher office (e.g., US Ambassador), resigned to run for higher office (e.g., US Senate) whether successful or not, resigned for other political or personal reasons, recalled, impeached/convicted, or incumbent simply chose not to seek reelection. To ensure exogeneity, we focus on the first three.

Studies of the economic vote suggest that voters typically respond to performance only within the last year (Nannestad and Paldam 1994) so if the governor had been in office at least twelve months prior to the election, he was considered the incumbent. If not, his predecessor was considered the incumbent and the predecessor's reasons for leaving office early would be relevant.

C. *Polarization*

To measure the policy distance between the local Democrats and Republicans in a particular state, we use data from Berry et al. (1998, 2010) which gives a score to each party for each state and year on a common single-dimensional left-right scale capturing their attitude toward government involvement in the economy. Scores are ultimately based on the voting record of the state's congressional delegation in Washington D.C. which provides a set of common bills over which the preferences of politicians of different states (and parties) can be compared. We are essentially assuming that all Democrats in a state year, including both those who win office and those who challenge unsuccessfully are characterized by this state- and year-specific party score and likewise for Republicans. The data cover 1960–2004. As a robustness check, we also use Adam Bonica's Database on Ideology, Money in Politics, and Elections (DIME) scores for the gubernatorial candidates which cover 1990–2012, though coverage of most states doesn't begin until at least 1998 (Bonica 2014; Database on Ideology, Money in Politics, and Elections: Public Version 2.0 2016). Bonica's scores are derived from political contributions. Positions on a unidimensional left-right scale are estimated simultaneously for both donors and candidates based on the assumption that contributors prefer ideologically proximate candidates. DIME scores are available for a much shorter panel, but have the advantage of being direct measurements of the politicians in the statehouse rather than inferences from their federal delegation. These results are reported in Appendix B.

D. *Legislative Professionalism*

State legislatures vary a great deal in their remit. Some legislatures meet frequently, constituting full-time jobs for their members who are well-paid and equipped with professional staffs (Squire 2007). Others are a part-time gig

performed by members who concurrently hold other jobs. We use the Squire dataset of state legislative professionalism covering 1967–2010. There was a strong move to professionalism in a subset of states during the 1960s (King 2000) but during the bulk of our sample, scores are fairly stable over time, though they exhibit considerable variation in the cross section. For more information, see Squire (2007).

E. *Real State Manufacturing Investment*

Our dependent variable is the log of real capital expenditure in manufacturing industries in a given state in a given year. We use data assembled by Chirinko and Wilson (2009) which cover the manufacturing sector (NAICS sectors 31–33) and span 1963–2006, with a break from 1979–1981 when the original source was not available. They are constructed from a representative sample of plants located in the state in question. Chirinko and Wilson construct and apply a deflator to achieve a series for real investment. We update them through 2012 using the original sources (the Annual Survey of Manufactures) and the authors' notes.

One potential concern is that the national sampling strategy of the ASM will not produce representative measures at the state level. Two potential worries surrounding the smaller sample size of a state are relevant: a state with relatively few plants in a stratum or a plant of extreme size and importance might easily be misrepresented if that plant is missed. However, a number of conditions cause an establishment to be sampled with certainty: if the establishment is sufficiently large, if there are relatively few establishment in the industry, and if the establishment is in a state with fewer than 20 additional plants in the same NAICS. This last clause, relating to frequency at the state level, is especially helpful. Along with the fact that the sample consists of approximately 50,000 establishments nationwide, these checks suggest the state-level data are likely to remain sufficiently representative.

F. *Real State Manufacturing Output*

We control for the size of the state's manufacturing sector using a measure of value added in the manufacturing sector. The raw data, assembled by Chirinko and Wilson, derive from the ASM and are deflated using producer prices.

G. *Real State GDP*

We use state-level gross domestic product (GDP) data from the Bureau of Economic Analysis (BEA). We deflate using a state-specific cost of living index constructed by Berry, Fording, and Hanson (2000).

H. *Unemployment*

State-level unemployment data come from the Bureau of Labor Statistics and are available starting in 1976.

Appendix B

Table B1—Alternate Measure of Uncertainty

	(1)
Panel A	
Estimator	IV
Errors	Spatially correlated errors
Instrument for close elections	No incumbent governor due to death or term limits
Dependent variable	log of state manufacturing investment
Sample:	1990–2012
Panel B	
Alternate uncertainty measure	−0.0461 (0.0191)
log of state manufacturing investment, 2 lags	Yes
log of state manufacturing GDP, current + 2 lags	Yes
log of real state GDP, current + 2 lags	Yes
Constant	Yes
Year fixed effects	Yes
Observations	523
Adjusted R^2	0.984
Number of states	50
First-stage *F*-statistic	112.7

Note: Standard error is in parentheses.

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