Beaches or Boarding?: Shark Attacks, Tourism, and the 1916 Presidential Election*

Abstract

Many recent studies have offered contrasting conclusions as to whether voters punish elected officials in response to "irrelevant events" – issues that affect voters but are out of the (direct) control of the officials. One prominent case considers whether a spate of shark attacks in New Jersey in 1916, which negatively impacted the tourism industry in the state, prompted voters to punish Woodrow Wilson in his reelection bid; while Achen and Bartels (2004, 2016) provide evidence of an electoral penalty, Fowler and Hall (2018) argue there is no consistent evidence of this penalty. This short article revisits this debate by introducing new data on communities' susceptibility to the negative economic consequences alleged to have prompted electoral harm for Wilson: the size of the local hotel industry. Incorporating information about New Jersey hotels obtained from a contemporaneous travel guide, we find no evidence communities proximate to beaches with large hotel industries exacted stronger penalties against Wilson relative to beach communities without a large concentration of hotels or to non-beach communities. Our findings highlight the importance of incorporating into studies of the electoral consequences of irrelevant events historical context and tests of the mechanisms posited to link events to electoral outcomes.

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In recent years, political scientists have explored the effects of "irrelevant events" on election outcomes. While many studies suggest voters hold incumbents responsible for outcomes over which they wield no power, such as floods, droughts, and sporting events (e.g., Busby et al. 2017; Graham et al 2023a; Healy et al. 2010), subsequent replication and extension studies have inspired lively debates about the extent to which voters rely on simple "blind retrospection" or are attentive to the context in which these events occurred (Fowler and Montanges 2015, 2023; Graham et al 2023b; Muller and Kneafsey 2023; Rapeli and Soderlund 2022).

One of the most prominent irrelevant events cases concerns a spate of four shark attacks in New Jersey in the summer of 1916 that may have hampered President Woodrow Wilson's electoral performance there. In their seminal work on blind retrospection, Achen and Bartels (2004, 2016) assert these attacks prompted a decline in beach tourism on the Jersey Shore which, in turn, reduced electoral support for Wilson. Fowler and Hall (2018) criticize some of Achen and Bartels' measurement and modelling choices and argue there is no consistent relationship between shark attacks and the 1916 election results - challenges Achen and Bartels rebut (2018).

We revisit this case with new data that better captures the mechanism posited to link shark attacks to electoral outcomes: the scale of local beach tourism (Achen and Bartels 2016, 118-121; 2018, 1438-1440). Achen and Bartels theorize these attacks harmed Wilson because they depressed tourism (and thus economic activity) in New Jersey's coastal communities. Achen and Bartels—and, subsequently, Fowler and Hall in their replication and extension—measure whether communities were affected with binary indicators for proximity to the beach. We build on this work by incorporating information about the size of the hotel industry, which accounts for the *scale* of the tourism industry in each community. While hotels were not the only component of the tourism industry in 1916 New Jersey, they were a central feature of the beach tourist experience at that time. By extending prior work to incorporate measures of the hotel industry at the county- and town-level, we more accurately reflect the posited link between shark attacks and electoral outcomes and allow for a more granular analysis of Achen and Bartels' expectations. Our analyses do not provide evidence that shark attacks hampered Wilson's electoral performance. These findings should encourage future work on irrelevant events to utilize measures that directly reflect the specific theoretical mechanisms expected to link events to political outcomes while also remaining sensitive to the historical context of those cases.

Measuring Susceptibility to Shark Attack Effects through Proximity to Beaches

In arguing shark attacks depressed support for Wilson, Achen and Bartels assert the attacks themselves did not prompt electoral consequences, but that the "substantial economic losses" they caused in tourism-dependent communities, coupled with contemporary blame directed at Wilson and the federal government, led voters to punish Wilson (2018: 1438). To model this relationship, prior studies operationalize affected communities as those proximate to beaches, as "they are the places in which the shark attacks would have had the most pronounced economic effects" (Achen and Bartels 2016: 121). In doing so, they presume all communities proximate to beaches have comparably substantial tourism industries such that shark attacks would manifest homogeneous negative economic, and subsequently electoral, effects.

However, beach-related tourism activity was not uniformly distributed among New Jersey communities in 1916. While some locales, like Atlantic City, have served as major tourist destinations since the early 20th century, other cities and towns proximate to beaches had smaller or nonexistent tourism industries at that time (Mazzagetti 2018: 72). For instance, while Bay Head is coded by both Achen and Bartels and Fowler and Hall as a beach town, it had few hotels in the early 20th century and even today "remains a quiet upper-income community for homeowners and renters… [with] few hotels and restaurants and little or no nightlife" (2018:161). Further, while Brigantine City was a beach resort community in the late 19th century and is coded as such, most of its commercial efforts had failed by the 1910s, leaving travelers with few establishments to visit (2018: 199).[1]

Variation in the extent to which beach communities in 1916 New Jersey relied on tourism, and thus were susceptible to the economic and electoral effects of shark attacks, suggests relying on binary indicators for whether communities are proximate to the beach may introduce measurement error. Suppose there is a true effect of shark attacks on support for Wilson in beach communities with large tourism industries, but *not* in beach communities with little or no tourist activity. If both types of communities are coded identically as "beach," the effect of shark attacks in tourism-reliant beach communities will be diluted by the absence of an effect in beach communities less dependent on tourism. Since such measurement error makes estimates less precise, even slight changes to model specification, such as those Fowler and Hall (2018) implement, could prompt substantial shifts in parameter estimates and test statistics.

In overlooking heterogeneity in communities' tourism industry size, Achen and Bartels and Fowler and Hall also forego opportunities to probe "theoretically relevant heterogeneous effects" that could facilitate a more thorough test of the expectations in the New Jersey shark attacks case (Graham et al. 2023a). Specifically, given Achen and Bartels' expectation that economic harm caused by depressed tourist activity prompts electoral harm for Wilson, we should expect that as economic harm increases, the magnitude of the electoral penalty increases

[1] See Supplemental Information Section A for more information about variation in the presence of tourism activity among communities proximate to beaches in 1916 New Jersey.

as well. However, as the studies measure susceptibility to adverse effects through a binary indicator, they cannot probe this more granular theoretical expectation.

Measuring Susceptibility to Shark Attack Effects through Hotel Industry Size

To improve the measurement approach described above, we utilize information about the size of the hotel industry in New Jersey communities in 1916. While hotels do not account for all tourism-related economic activity, they provide an important signal of the relevance of tourism to a locale, especially in the 1910s when transportation was sparse and time-consuming such that tourists traveling even short distances to New Jersey's beaches would stay in hotels.[2] Thus, the size of a community's hotel industry facilitates a more fine-grained measure of its reliance on tourism and, thus, susceptibility to the negative effects of shark attacks.

We obtain information on hotels in New Jersey communities from the 1916 edition of the *American Hotel Directory Travelers' Blue Book of All America* (*AHD*), which lists the name and number of rooms for each hotel in each community.[3] According to *AHD*, New Jersey contained

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[2] Indeed, Achen and Bartels' evidence of the negative economic consequences of the attacks focuses on hotel cancellations and vacancies at summer resorts: "In the aftermath of the attacks, the federal government was called on for help. The resorts were losing money rapidly, with $250,000 in reservations cancelled within a week. Some resorts had 75% vacancy rates in the midst of their high season" (Achen and Bartels, 2016, 119).

[3] See Supplemental Information Section B for more information about how AHD collected information, how we coded information in AHD, and how AHD's listings compare to those of other contemporary travel guides.

1,180 hotels with 55,718 rooms in 1916.[4] Figure 1 displays the relative density of hotels (right pane) and rooms (left pane) across New Jersey's 21 counties. While the majority of hotels and rooms are in the four Jersey Shore counties Achen and Bartels and Fowler and Hall code as "beach counties" (Atlantic, Cape May, Monmouth, and Ocean), there is considerable variation in hotel industry size among them—for instance, Monmouth contains more than twice as many hotels (393) as Atlantic (179) and Cape May (152) and nearly four times as many as Ocean (99). Additionally, some "non-beach" counties have sizable hotel industries, such as Morris, whose 71 hotels approach the number of those in Ocean. Substantial variation also exists among communities in the Jersey Shore counties used in Achen and Bartels and Fowler and Hall's town-level analyses. For instance, the "beach" communities of Atlantic City and Asbury Park have high numbers of hotels (158 and 122, respectively), but 8 of the 33 "beach" communities have 0 hotels. Further, while communities that have no beaches or include substantial non-beach land area tend to have fewer hotels than beach communities, the number of hotels in some of these communities, such as Lakewood and Neptune, are above the 90th percentile among Jersey Shore communities (77 and 37, respectively).[5] This variation *between* "beach" and "non-beach" communities and *among* "beach" communities enables us to more precisely measure

[4] While our counts of hotels and hotel rooms are highly correlated (r>0.90 at the county- and town-level), they represent different concepts. To assess the robustness of our results across concepts, we utilize both measures.

[5] See Supplemental Information Section B.2 for visual representations of the distributions of hotels and rooms at the town-level.

communities' susceptibility to economic harm caused by shark attacks and probe how the scale of communities' tourism industries condition the effect of those attacks.

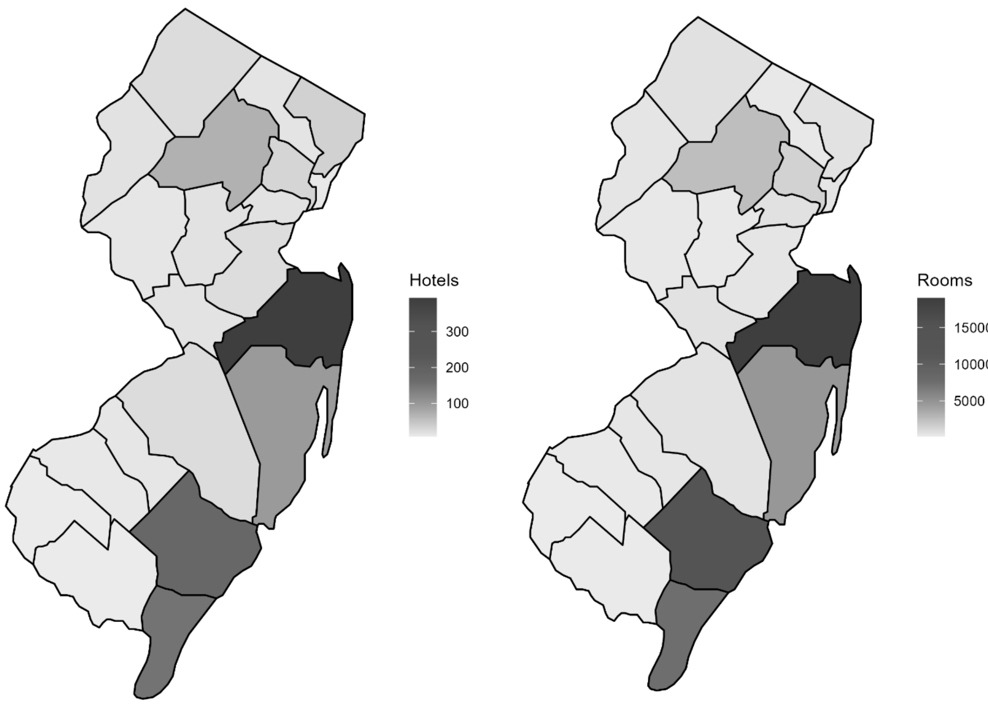

Figure 1: Distribution of Hotels and Hotel Rooms in New Jersey Counties, 1916

Results

We incorporate our measures of hotel industry size in Achen and Bartels and Fowler and Hall's analyses by interacting their binary indicators for whether a county or town was a beach community with its number of hotels or rooms.[6] In Tables 1 and 2, we present our extensions of

[6] In Supplemental Information Section D, we implement best practices for interactions by examining marginal effects for the full support of our hotel industry measures (Brambor et al. 2006), probing the plausibility of the linear interaction effect assumption for each model, and utilizing alternative methods when that assumption is violated (Hainmueller et al. 2019). In

the county- and town-level analyses in Tables 3 and 4 of Fowler and Hall (2018), which substantively replicate Achen and Bartels (2004, 2016).[7] The key coefficient of interest is the interaction between beach community and the community's number of hotels or rooms, which the theory of blind retrospection expects to be negative and statistically distinguishable.[8]

Table 1: Interactive Effect of Hotel Industry Size and Community Type (County-Level)

	Model 1		**Model 2**		**Model 3**		**Model 4**		**Model 5**		**Model 6**	
	(a)	**(b)**	**(a)**	**(b)**	**(a)**	**(b)**	**(a)**	**(b)**	**(a)**	**(b)**	**(a)**	**(b)**
Beach County	-0.03	-0.03	-0.04	-0.03					-0.03	-0.02	-0.02	-0.02
	(0.02)	(0.02)	(0.03)	(0.03)					(0.03)	(0.04)	(0.04)	(0.04)
Attack County					-0.03	-0.03						
					(0.03)	(0.03)						
Coastal County							-0.01	-0.01				
							(0.01)	(0.01)				
Num. Hotels	-0.00		0.00		-0.00		-0.00		-0.00		-0.00	
	(0.00)		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)	
Beach:Num. Hotels	0.00		-0.00						0.00		0.00	
	(0.00)		(0.00)						(0.00)		(0.00)	
Attack:Num. Hotels					0.00							
					(0.00)							
Coastal:Num. Hotels							0.00					
							(0.00)					
Num. Hotel Rooms		0.00		0.00		-0.00		-0.00		0.00		0.00
		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)
Beach:Num. Hotel Rooms		-0.00		-0.00						-0.00		-0.00
		(0.00)		(0.00)						(0.00)		(0.00)
Attack:Num. Hotel Rooms						0.00						
						(0.00)						
Coastal:Num. Hotel Rooms								0.00				
								(0.00)				
Machine (Achen and Bartels)	-0.06 *	-0.06 *	-0.04 *	-0.04 *	-0.06 *	-0.06 *	-0.05 *	-0.05 *				
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)				
Machine (Mayhew)											0.00	0.00
											(0.02)	(0.02)

implementing these best practices, none of the models presented in Tables 3 or 4 provide evidence of an interactive effect consistent with the blind retrospection expectation.

[7] Following Graham et al. (2023a), we collected original data for variables used in prior analyses where feasible (see Supplemental Information Section C).

[8] Alternative operationalizations of our hotel industry measures, such as per capita counts of hotels and rooms, counts that account for spillover from neighboring localities, and normalized measures, yield substantively similar results (see Supplemental Information Section D).

	Model 1		**Model 2**		**Model 3**		**Model 4**		**Model 5**		**Model 6**	
	(a)	**(b)**	**(a)**	**(b)**	**(a)**	**(b)**	**(a)**	**(b)**	**(a)**	**(b)**	**(a)**	**(b)**
Wilson 1912 Vote Share	0.95 *	0.95 *	0.86 *	0.88 *	0.95 *	0.95 *	0.95 *	0.95 *	0.92 *	0.92 *	0.92 *	0.92 *
	(0.07)	(0.07)	(0.09)	(0.08)	(0.07)	(0.07)	(0.07)	(0.07)	(0.11)	(0.11)	(0.11)	(0.11)
Intercept	0.05	0.04	0.08	0.07	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04
	(0.03)	(0.03)	(0.04)	(0.04)	(0.03)	(0.03)	(0.04)	(0.04)	(0.05)	(0.05)	(0.06)	(0.05)
Include Essex County			Y	Y								
R^2	0.95	0.95	0.90	0.91	0.94	0.94	0.94	0.94	0.86	0.86	0.86	0.86
Num. obs.	20	20	21	21	20	20	20	20	20	20	20	20

***** denotes *p*<0.05. The outcome in each model is Wilson's two-party vote share in 1916. (a) and (b) models denote usage of number of hotels or number of rooms to measure hotel industry size, respectively. Models 1-6 correspond with those in Table 3 of Fowler and Hall (2018).

Looking first at the county-level analyses in Table 1, we find no evidence for the expectation that the electoral penalty for Wilson increases in "beach" counties relative to "non-beach" counties as the size of the county's hotel industry grows. In each model, the interaction term is substantively small ($|\beta|<0.00$) and not distinguishable from zero, and marginal effects calculated from these models indicate no range of the support of hotels or rooms for which the expected negative relationship manifests (see Supplemental Information Section D).

Table 2: Interactive Effect of Hotel Industry Size and Community Type (Town-Level)

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)
Beach Town	-0.28 *	-0.29 *	-0.08	-0.12	-0.33 *	-0.38 *	-0.09	-0.12	-0.07	-0.07	0.02	0.01
	(0.09)	(0.09)	(0.11)	(0.12)	(0.13)	(0.12)	(0.11)	(0.12)	(0.06)	(0.06)	(0.01)	(0.01)
Num. Hotels	0.01	0.00	0.01	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Beach Town:Num. Hotels	0.02		-0.00		0.06		-0.01		0.01		-0.00	
	(0.01)		(0.02)		(0.03)		(0.02)		(0.01)		(0.00)	
Beach Town:Num. Hotel Rooms		0.00		0.00		0.00		-0.00		0.00		-0.00
		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)
Intercept	-0.02	-0.01	-0.02	-0.01	-0.02	-0.02	-0.02	-0.02	-0.01	-0.00	0.01	0.00
	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.02)
Include Sea Side Park			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Drop cases of boundary changes					Y	Y	Y	Y	Y	Y	Y	Y
Merge Long Beach and Beach Haven							Y	Y	Y	Y	Y	Y
Include towns with total vote change >25%									Y	Y	Y	Y
Include all beach counties											Y	Y
County fixed effects											Y	Y
R^2	0.64	0.62	0.18	0.17	0.54	0.61	0.26	0.26	0.12	0.13	0.09	0.08
Num. obs.	15	15	16	16	13	13	14	14	19	19	71	71

***** denotes *p*<0.05. The outcome in each model is the change in Wilson's vote share between 1916 and 1912. (a) and (b) models denote usage of number of hotels or number of rooms to measure hotel industry size, respectively. Models 1-6 correspond with those in Table 4 of Fowler and Hall (2018).

Turning to the town-level analysis in Table 2, we again find no consistent evidence for blind retrospection. In 4 of the 12 models, the constituent term for beach town is negative and distinguishable, indicating Wilson incurred electoral punishment in beach towns relative to non-beach towns among towns with no hotels. However, the interaction terms are generally substantively small and inconsistently signed, and none attain statistical distinguishability. Further, when examining the models' marginal effects, electoral support for Wilson often *increases* as the size of the hotel industry grows, counter to expectations, though this trend is never distinguishable from zero (see Supplemental Information Section D). Taken together, the results presented in Tables 1 and 2 provide scant evidence the 1916 shark attacks prompted penalties for Wilson in locales susceptible to the tourism-related economic harm they are thought to have caused.

Conclusion

In this note, we revisited one of the most prominent cases in the irrelevant events literature—shark attacks in New Jersey preceding the 1916 election—in hopes of clarifying conflicting results with new data and model specifications that better reflect the mechanism underlying the blind retrospection expectations initially posed by Achen and Bartels (2004, 2016). Our analyses, which incorporate the size of communities' hotel industries to account for their susceptibility to the tourism-related economic harm thought to link the attacks to electoral punishment for Wilson, yield scant evidence to support the original expectations. Further, some analyses yield suggestive evidence counter to those expectations, as support for Wilson sometimes *increased* as hotel industry size, and thus vulnerability to economic harm, grew.

These results could lead to at least two plausible implications. First, they might bolster the conclusions of Fowler and Hall (2018) that the initial findings of Achen and Bartels (2004, 2016) were false positives and that the shark attacks did not affect support for Wilson in 1916 New

Jersey, which may cast subsequent doubt on the notion of blind retrospection and the lack of confidence in voters' competence to award credit and blame in elections. Second, our null findings may suggest that if blind retrospection manifested in this case, it did so through a mechanism other than the tourism-related economic harm Achen and Bartels emphasized. For instance, perhaps the local media's coverage of the shark attacks that placed blame on Wilson and the federal government, rather than depressed tourist activity, harmed Wilson at the polls (Achen and Bartels 2016: 118-121). Alternatively, the shark attacks may have affected voter behavior by activating anxiety, which subsequently reduced support for Wilson (Lehrer et al. 2024). We encourage future scholars studying irrelevant events to consider and thoroughly probe the theoretical mechanisms and related measures they expect to link the events themselves to the political outcomes of interest given the historical context of the events they explore, as doing so will cultivate a more complete and rigorous understanding of how irrelevant events manifest political implications.

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Supplemental Information for "Beaches or Boarding?: Shark Attacks, Tourism, and the 1916 Presidential Election"

Section A: Limitations of Proximity to Beaches as a Measure of Susceptibility to Economic Harm

In this short article we reassess the "shark attacks" debate by proposing a new measure of which areas of New Jersey should be expected to have been affected by the causal theory Achen and Bartels propose in their seminal work on this topic. While Achen and Bartels allow for the possibility that the attacks themselves – which "caused several deaths plus considerable emotional" (Achen and Bartels, 2016, 120) distress – may have affected voters, their core focus is on the link between the attacks and summer tourism. Specifically, Achen and Bartels argue that the series of shark attacks in New Jersey in the summer of 1916 initiated a process of news coverage of the attacks which subsequently scared off substantial numbers of tourists from spending their summer holidays on the shore. Indeed, Achen and Bartels note that: "In the aftermath of the attacks, the federal government was called on for help. The resorts were losing money rapidly, with $250,000 in reservations cancelled within a week. Some resorts had 75% vacancy rates in the midst of their high season. […] Losses may have amounted to as much as $1 million for the season altogether […]" (Achen and Bartels, 2016, 119). As a result, of these major negative economic effects on the shore, Achen and Bartels argue, voters there punished President Woodrow Wilson during the 1916 presidential election later that year.

Crucially, Achen and Bartels focus on "beach counties" because they make up "the classic 'Jersey Shore' counties listed in the guidebooks, whose beach areas are heavily dependent upon summer tourism. They are the places in which the shark attacks would have had the most pronounced economic effects" (Achen and Bartels, 2016, 121). Additionally, Achen and Bartels later reject some of the alternative modeling choices Fowler and Hall (2018) made precisely because they do not take into account the connection between shark attacks, tourism, and economic downturn. For example, Achen and Bartels reject the reliance on "attack counties" (i.e., counting only the counties in which the shark attacks took place as treated) as ignoring "the historical evidence of economic losses and intense concern about the shark attacks along the entire Jersey Shore" (Achen and Bartels, 2018, 1442). Similarly, Achen and Bartels also reject Fowler and Hall's reliance on counting all coastal counties in New Jersey as treated because it counts counties where no "family beach tourism" (Achen and Bartels, 2018, 1442) should be expected as treated. Thus, Achen and Bartels' core theoretical mechanism linking the shark attacks to electoral punishment for Wilson in the 1916 presidential election is the economic hurt felt in areas with major summer beach tourism.

As explained in this short article, while they disagree on many measurement decisions, both Achen and Bartels – in their original study – and Fowler and Hall – in their replication and extensions of this study – rely on a binary measure of which areas in New Jersey were affected by the shark attacks and their subsequent consequences on tourism. Relying on binary indicators may help distinguish the communities most susceptible to economic harm following the attacks from those unlikely to experience negative consequences. However, this approach assumes that the magnitude of the harm is homogenous across beach communities. This is certainly not true across all coastal areas in New Jersey. For example, as part of their rebuttal of Fowler and Hall, Achen and Bartels note that certain ocean connected parts outside of the "Jersey shore" are unlikely to have faced economic consequences since they consisted of "gritty beachside docks and warehouses" (2018, 1442) where no form of tourism occurred. Because of this, Achen and Bartels reject Fowler and Hall's reliance on an "all coast" measure of affected counties as they argue such a measure does not reflect the causal mechanism Achen and Bartels identified.

But even within the Jersey shore part of New Jersey there was differentiation in the size of the tourism industry. In some beach areas no major tourism industry developed: for example, Bay Head is coded as a beach town in the Fowler and Hall dataset, but it had only a small number of hotels in the early 20th century (Mazzagetti, 2018, 161). Other areas did see major tourist-centered economic developments at some point either before or after but not *in* 1916. For example, Brigantine City was a resort community in the late 19th century but by the 1910s few if any of such establishments were left (Mazzagetti, 2018, 199). And, even among coastal towns and cities that did attract beach tourism in 1916, there was major variation in scope: since the early 20th century, Atlantic City has been a major beach tourist destination with a boardwalk "dominated by grand hotels, each more spectacular and architecturally alluring than the last," but many other communities that attracted beach travelers had a much smaller tourist industry (Mazzagetti, 2018, 72). Combined, there is thus reason to be concerned that a binary measure of towns or even counties being 'on' the Jersey Shore could introduce substantial measurement error – conflating areas that had little to no tourism (and, thus, should not be affected by a decline in visitors after the shark attacks) with those that did.

To assuage these concerns, we propose an alternative measure of which areas were more likely to be affected by the shark attacks and the economic downturn they caused: coastal areas with higher levels of tourism industry as measured by the number of hotels (and hotel rooms) in each area. Crucially, we argue this measure better reflects the causal mechanism proposed by Achen and Bartels (and the evidence they presented of economic downturn).

Section B: Hotel Industry Size as a Measure of Susceptibility to Economic Harm

Section B.1: Coding of Hotel Industry Data

To measure the size of the hotel industry across New Jersey in 1916, we rely on the 1916 edition of the *American Hotel Directory Travelers' Blue Book of All America* (henceforth *AHD).* By its own account, the *AHD* covers "practically every hotel on the North and South American continents and islands adjacent" (*American Hotel Directory*, 1916, i).[1] First published in 1915, the *AHD*'s second edition a year later was much expanded and relied on a more comprehensive approach to gathering hotel data from across the United States. Specifically, the guide's publisher contacted "the mayor, leading merchant and postmaster of every small town or village," as well as the editors of newspapers based in those towns, to get a list of local hotels (*American Hotel Directory*, 1916, v). In cities with fewer than 50,000 inhabitants, the guide also contacted the local Chamber of Commerce or Board of Trade, while for larger cities a representative of the guide visited the area. Combined, the guide's publisher employed "[e]ighteen stenographers, translators, and clerks" who "spent ten months in securing and compiling" the hotel data (*American Hotel Directory*, 1916, v).

For each municipality in each US state, *AHD* lists the names of each hotel it identified operating there, and for each hotel provides information about its number of rooms and the price

[1] Or at least those "fit for a white man to stop at" (*American Hotel Directory*, 1916, iv).

per room per night. For some hotels, *AHD* also indicates whether it is a summer or winter resort and a subjective evaluation of the quality or character of the hotel. In a small number of cases (28) the guide lists a name but no additional information except "Data suspended." The guide does not provide additional explanation on how to interpret that, however, by cross checking these hotels with competing hotel guides and other historical sources we have found no evidence to suggest these hotels were no longer in business in 1916. Thus, we include these hotels in our hotel-count data. Since the listings do not include the number of hotel rooms, these entries are excluded from the room-count measure.

In transcribing the *AHD* listings for each New Jersey municipality such that they would be compatible with the administrative units used in the New Jersey legislature's official manual to report election results (Fitzgerald 1913, 1917), we noticed some cases in which the towns listed by *AHD* did not match with any towns listed in the manual. When we encountered these cases, we utilized historical resources such as Snyder (1969), which provides a detailed discussion of the development of New Jersey civil boundaries between 1606-1968. We describe these discrepancies and how we addressed them below:

- The *AHD* has listings for Elwood and Mays Landing in Atlantic County. Elwood was part of Mullica township and Mays Landing was part of Hamilton township. We code any hotels listed as such.
- The *AHD* lists hotels in Anglesea, Cape May Court House, Holly Beach, Tuckahoe, and Peermont in Cape May County. Anglesea was part of North Wildwood township, Holly Beach was part of Wildwood township, Tuckahoe was part of Upper township, and Peermont was part of Avalon township. We code all hotels accordingly.
- The *AHD* lists hotels in Branchport, Brielle, Elberon, Keansburg, Little Silver, Locust Point, Matawan, Ocean Grove, Oceanic, Sea Girt, and West End in Monmouth County. Most of these listings are relatively straightforward to adjust: Branchport, Elberon, and West End were part of Long Branch township in 1916. Brielle became its own township in 1919 but was part of Wall township before. Similarly, Sea Girt became its own township in 1917 but in 1916 was still part of Wall as well. Little Silver was part of Shrewsbury prior to 1923. Ocean Grove was part of Neptune township in 1916. Oceanic was part of Rumson township. We code all hotels accordingly. The data from Monmouth does include two more complicated issues:
    - The *AHD* has listings of significant number of hotels in Keansburg, which does not become its own township until 1917. Prior to that, the geographic areas that would become this township were located in two different townships: Raritan and Middletown. We are unable to determine whether the different hotels were in Raritan or in Middletown. As a result, we merge the two towns into one entry: Middletown-Raritan.
    - The *AHD* has listings for hotels in Matawan but this could refer to one of two different townships: Matawan township and Matawan borough. For each hotel listed we were able to determine which town the listing should be coded for:
        - A post on the Matawan Historical Society's website mentions that Matawan House was situated "near the junction of Main Street and

Maiden Lane."[2] An intersection of two streets by these names occurs only in Matawan Borough. Consequently, we match this hotel listing with Matawan Borough.

- A post on a local history blog references the Aberdeen Inn as having been "opposite Mattawan railroad station."[3] The station was on Main Street in Mattawan borough. We match this hotel with Matawan Borough.

- The *AHD* lists hotels in Barnegat, Forked River, Lakehurst, New Egypt, Pine Beach, Tom's River, and Waretown. Forked River was part of Lacey township. Lakehurst became its own township in 1921 but in 1916 was part of Manchester. New Egypt was part of Plumsted township. Pine Beach was part of Berkeley township. Tom's River's official name is Dover. Waretown was part of Ocean township.
  - The *AHD* lists hotels for Barnegat and Barnegat City which cover two distinct areas: Barnegat (which currently is known as Barnegat Light) and Union (which today is known as Barnegat township). The AHD lists two hotels (Almont Inn and Clarence Hotel) as having been in Barnegat. The Almont Inn is located in what is today Barnegat township and in 1916 was Union.[4] The Clarence Hotel was on the corner of West Bay and Railroad Avenue which is also in modern-day Barnegat township and thus Union in 1916.[5] The other *AHD* listings were for Barnegat City which are therefore matched to Barnegat.

Section B.2: Potential Limitations of Hotel Industry Measure and Remedial Approaches

To be sure, relying on counts of hotels and hotel rooms at the county- and town-levels with the goal of representing the extent to which a decline in tourism affected New Jersey voters is not perfect. First, hotels do not account for the full amount of tourism-related economic activity a community may enjoy: after all, visitors of the Jersey Shore are likely to have also spent money in other types of establishments, such as restaurants and stores. However, the size of the hotel industry in coastal areas represents the relevance of tourism to the community: since transportation was sparse and time consuming in the 1910s, tourists traveling even minimal distances to the Jersey Shore typically stayed in hotels. Thus, information about the size of the hotel industry in New Jersey counties and towns would facilitate a more fine-grained measure of the extent to which specific geographic areas relied on tourism and were more likely affected by the shark attacks and subsequent downturn in tourism in the summer of 1916.

Second, while we argue the hotel industry is a good measure of the size of the local tourist industry, the economic effects associated with those hotels are not necessarily confined to the localities in which they reside *or* equally distributed across its populations. Regarding the latter, the number of hotels and hotel rooms should reflect the size of the tourist industry but not

[2] "Bell, George Washington (1814-1897)." *Matawan Historical Society*. https://matawanhistoricalsociety.org/bell-george-washington-1814-1897/.
[3] "History: Aberdeen Inn, Matawan NJ – Part 2," *Aberdeen NJ Life*, https://aberdeennjlife.blogspot.com/2011/06/history-aberdeen-inn-matawan-nj-part-2.html.
[4] "Take a Walking Tour of Historic Barnegat," *Asbury Park Press*, May 29, 2024, https://www.app.com/story/life/2014/05/29/barnegat-walking-tour/9719717/.
[5] See: https://thehistorygirlnj.tumblr.com/post/167719036274/mansardmonday-the-clarence-hotel-in-barnegat.

necessarily how much it affected voters – for example, areas with different numbers of hotels may also have had different population sizes and, thus, different per capita effects of economic downturns related to hotel cancellations. Additionally, the negative economic effects could have spilled over to neighboring localities. From the perspective of tourists, while the convenience and efficiency of travel was more constrained in 1916 as it is in modern-day and required tourists to board at establishments close to their destinations, in some areas it was feasible for tourists to stay at a hotel in one locality but – at least theoretically – spend their leisure time and money in a neighboring locality. Similarly, from the perspective of residents, in some areas it was possible for people to live and vote in one locality but work at a hotel or another tourism-related business in a nearby locality.

For instance, the Jersey Shore in Monmouth County was composed of numerous small towns that would have been easy for tourists to travel between within the course of a single day (e.g., Bradley Beach, Neptune, and Neptune City were tightly clustered on and near the shore and each had many hotels). To the extent that tourists spread their activities out beyond the boundaries of the locality in which they boarded and residents worked in different localities than they lived, our analysis may fail to account for spillover effects—that the effect of shark attacks on tourism-related economic conditions within a given locality includes not only the decrease in the number of tourists boarding or residents working within the locality, but also the decrease in the number of tourists who may board in a neighboring locality and spend some of their time and money in the locality of interest or residents who may work in a tourism-related job in a neighboring locality but live and vote in the locality of interest.

To alleviate both concerns we present alternative specifications of our main analyses in Supplemental Information Section D: one in which we evaluate the effect of per capita hotels and hotel rooms and another in which we account for the numbers of hotels and rooms in each locality and the localities bordering it. Both models produce similar results to the findings presented in the main paper.

Section B.2: Descriptive Statistics of Hotel Industry Data

After transcribing the *AHD* listings for each New Jersey municipality, we constructed two different measures of hotel industry size for each New Jersey county and for each of the towns in the four Jersey Shore counties used in Achen and Bartels and Fowler and Hall's town-level analysis (Atlantic, Cape May, Monmouth, Ocean). First, we tabulated the number of hotels listed in each geographic unit, which represents the scope of independent lodging businesses based in each unit. The 1916 *AHD* lists 1,180 hotels in New Jersey, 823 of which are in the four Jersey Shore counties. Second, we calculated the number of rooms listed for the hotels listed in each geographic unit, which represents the volume of tourism activity the hotel industry in that unit could accommodate. We utilize this second measure because hotels can vary widely in scale; while the largest hotel in New Jersey at the time, the Traymore Hotel in Atlantic City, had 700 rooms, 54 hotels listed in *AHD* contained as few as 10 rooms. The 1916 *AHD* lists a total of 55,718 rooms across the state of New Jersey, with 45,308 of those rooms located in the four Jersey Shore counties.

Figure SI.1, which is the same as Figure 1, displays the relative density of hotels (right pane) and hotel rooms (left pane) across the 21 New Jersey counties in 1916. For both measures, the vast majority of the hotel industry's footprint is in the four Jersey Shore counties. While this concentration is consistent with Achen and Bartels and Fowler and Hall's characterizations of areas proximate to the ocean as most susceptible to the negative effects of shark attacks, this figure communicates two important pieces of information about the limitations of their binary coding scheme. First, there is considerable variation with respect to hotel industry size among the Jersey Shore counties; for instance, Monmouth contains more than two times as many hotels (393) as Atlantic (179) and Cape May (152), and nearly four times as many as Ocean (99). If the means by which shark attacks diminish political support for Wilson is the negative consequences they have for tourism, this variation in hotel industry size implies that the magnitude of the electoral penalty for Wilson should be larger in Monmouth than in the other counties. Second, outside the Jersey Shore counties, we still observe variation in the size of the hotel industry, with Morris County containing nearly as many hotels as Ocean (71) but Cumberland and Salem Counties containing very few hotels (8 each). This variation allows us to gain insight on whether units with larger hotel industries exhibited uniformly lower support for Wilson or if those political consequences manifested only in units whose tourism industries depended on proximity to the ocean.

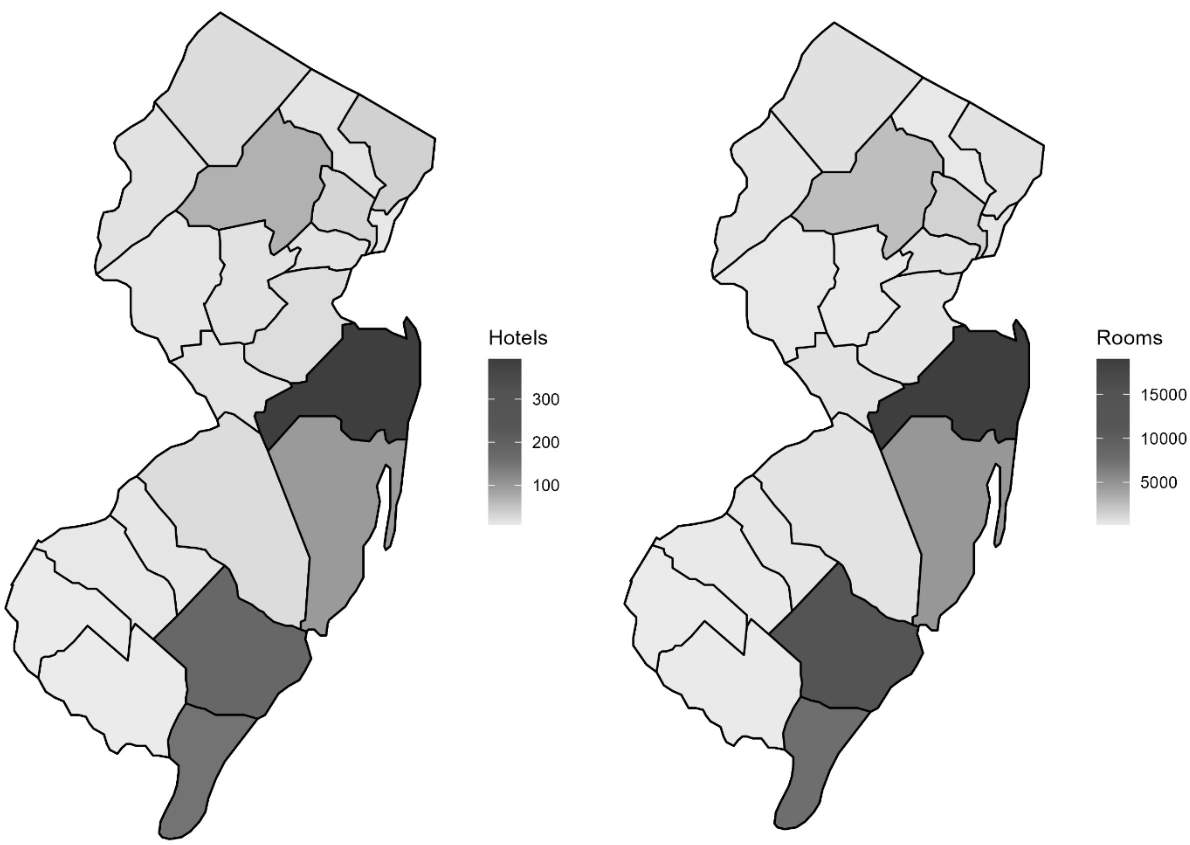

Figure SI.1: Distribution of Hotels and Hotel Rooms in New Jersey Counties, 1916

At the town level, variation across towns proximate to and distant from the beach is—unsurprisingly—even wider.[6] Figure 2 presents histograms for the number of hotels (right pane)

[6] The histograms in Figure 2 include the 71 towns in Atlantic, Cape May, Monmouth, and Ocean Counties that we will utilize in our replication of Model 6 in Table 4 from Fowler and Hall

and hotel rooms (left pane) in the four Jersey Shore counties. The shading in these histograms reflects our independent application of the coding scheme used by Achen and Bartels and Fowler and Hall to categorize towns as beach towns (“beach”), proximate to the beach but contains little or no coastline (“near beach”), or containing elements of both preceding town types (“both”). First, we see substantial variation in the size of the hotel industry across beach communities. For instance, while some beach communities such as Atlantic City and Asbury Park have high numbers of hotels (158 and 122, respectively) and hotel rooms (13,512 and 7,413, respectively) 8 of the 33 beach communities have zero hotels. Thus, whereas the town-level analyses in Achen and Bartels and Fowler and Hall assume that beach communities should express uniformly stronger negative effects on support for Woodrow Wilson relative to near beach and both communities, our measures of hotel industry size demonstrate that some beach communities were more vulnerable to the consequences of shark attacks for tourism and therefore should express effects of larger magnitudes than other beach communities.

Second, while the towns with the largest hotel industry presence are Beach communities, nearly half of the near beach or both communities have at least one hotel (18 of 38) and several have substantial numbers of hotels and hotel rooms, such as Lakewood (37 and 1,762) and Neptune (77 and 3,005). This variation across community type allows us to assess whether hotel industry concentration moderated the effect of shark attacks on support for Wilson more strongly in the communities posited to experience the largest drops in tourism activity—beach communities. Taken together, the hotel industry data not only better capture the theoretical mechanism linking shark attacks to reduced electoral support for the incumbent president, but also provide richer variation in measuring the exposure of communities to those posited negative effects that facilitates more granular analyses.

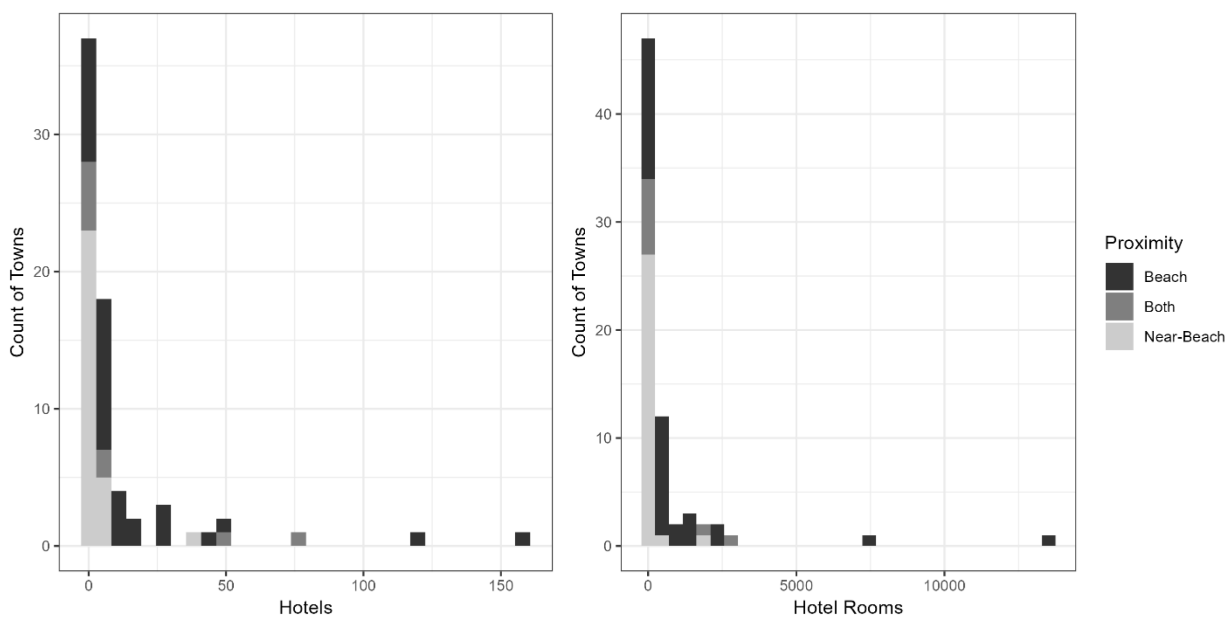

Figure SI.2: Distribution of Hotels and Hotel Rooms in Jersey Shore Communities, 1916

Section B.3: Comparison of AHD Information to Alternative Travel Guides

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(2018), which is the model that utilizes the most unique towns. See the Appendix for further information on which towns we include, either as standalone units or as part of combined units.

The *AHD* was not the only hotel travel guide published regularly in this era, but in comparison to its main competitors—such as *The Official Hotel Red Book and Directory* (henceforth "*Red Book*") and *The John Willy Hotel Directory* (henceforth "*Willy's*")—it provides a considerably more detailed representation of the size of the hotel industry in different locations. Specifically, we chose to use *AHD* as the basis of our analyses because of two advantages it offers over its competitors. First, *AHD* covers a much broader range of hotels: while *AHD* aimed to collect practically *all* hotels, the other guides were more selective. For example, by its own description the *Red Book* covered "the Best Hotels in the United States and Canada, including Summer and Winter Resorts" (*The Official Hotel Red Book and Directory*, 1917, p. 5). As a result, the *AHD* presents a much more comprehensive list of New Jersey hotels from across the entire state than the other guides: to illustrate, the *Willy's* published in 1916 has 353 entries for the state of New Jersey, the 1916 *Red Book* has 478, but the 1916 *AHD* lists 1,180 hotels. The more extensive measure of hotels is beneficial precisely because it allows for a test of the core theory – namely that a decline in tourism after the shark attacks would affect hotels on the beach but not those in other parts of the state. Second, the *AHD* is the only hotel guide that lists the number of hotel rooms in each establishment. As a result, the *AHD* listings allow us to measure the number of hotel rooms by county and town.

While we do not use them in our analysis directly, the hotel listings in *Red Book* and *Willy's* provide us with an opportunity to assess the reliability of the listings provided by *AHD*. To do so, we transcribed the hotel entries for each municipality in New Jersey from the 1916 editions of the *Red Book* and *Willy's* directories and, as we did for *AHD*, standardized municipality names (and combined municipal units where necessary) to match with those used in the 1913 and 1917 editions of the New Jersey legislature's official manual (Fitzgerald 1913, 1917). When hotels listed in the same county had similar names but were listed as in different towns across guides, we drew on historical resources to determine whether the listings referred to the same hotel (and, if so, in which town it was truly located) in order to limit duplicates.[7]

Across the three guides, we identified 1,328 unique hotels. Comparing the coverage of hotels in *AHD* to those in the alternative guides across the full state of New Jersey, we find that that *AHD* includes 388 of the 478 (81%) listed in *Red Book* and 271 of the 353 (77%) listed in *Willy's*. To ensure that our measures of hotel industry presence across our geographic units of interest—counties and towns—are substantively similar across guides, we also assessed the county-level and, among the four counties included in the town-level analysis (Atlantic, Cape May, Monmouth, and Ocean), town-level correlations of the number of hotels listed in each geographic unit. At both levels, the *AHD* count of hotels is highly correlated with those in the alternative guides; at the county-level the correlation with *Red Book* is 0.94 and with *Willy's* is 0.71, and at the town-level the correlation with *Red Book* is 0.90 and with *Willy's* is 0.80. Taken together, the substantial overlap across *AHD* and *Red Book* and *Willy's*, as well as the strong correlations in hotel counts from the alternative guides across geographic units, demonstrate substantial reliability of *AHD's* hotel listings.

Section C: Original Collection of Existing Data

[7] When we were able to conclusively determine that listings across guides referred to the same hotel, we retained only the entry corresponding with the hotel's true location. If we were not able to conclusively make this determination, we retained both entries.

Following Graham et al. (2023), we collect all data other than that on hotels and machine counties independently rather than relying on the publicly available replication data from Fowler and Hall (2018).[8] We detail how we collected each variable below:

- *Election returns*: We transcribe 1912 and 1916 presidential election returns at the county and town level from the 1913 and 1917 editions of the New Jersey legislature's official manuals, respectively (Fitzgerald 1913, 1917). This election data is used in the county-level analyses to measure the outcome—Wilson's share of the two-party vote in 1916—as well as one of the control variables—Wilson's share of the three-party vote in 1912. For the town-level analyses, this election data is used to measure the outcome variable—the change in Wilson's vote share between the 1912 and 1916 elections—and weight our observations by the total number of votes cast in each town in 1916.

  One important complication in constructing units of observation measured at two points in time for the town-level analyses is that the boundaries of several of the towns in the four New Jersey counties included—Atlantic, Cape May, Monmouth, and Ocean—changed boundaries between 1912 and 1916. Shifting boundaries were a central point of debate between Achen and Bartels (2016) and Fowler and Hall (2018)—particularly the towns of Sea Side Park and Seaside Heights in Ocean County. In independently collecting town-level data, we identified cases of shifting boundaries using John F. Snyder's 1969 book, *The Story of New Jersey's Civil Boundaries 1606-1968*, which the New Jersey Geographic Information Network cites as a reference for generating its own maps. We did not identify any cases of shifting boundaries that were not identified by either Achen and Bartels (2016) or Fowler and Hall (2018), and use this space to discuss our own disposition of these cases:

  - Sea Side Park and Seaside Heights (Ocean County)—In their original analysis, Achen and Bartels exclude Sea Side Park because it "apparently split into two between 1912 and 1916 and jointly nearly doubled in size," rendering it an inconsistent unit of analysis (2016, 126). Fowler and Hall (2018) argue that Snyder's 1969 book demonstrates that Seaside Heights instead drew territory from Berkley and Dover, not Sea Side Park, and subsequently include Sea Side Park in most of their analyses. Achen and Bartels (2018) counter that the historical record suggests that Seaside Heights' election returns before its incorporation in 1913 were included in those of Sea Side Park, such that its

[8] To account for areas where party bosses turned against Woodrow Wilson between the 1912 and 1916 elections, Achen and Bartels (2016) initially coded Bergen, Hudson, Essex, and Union Counties as "machine" counties, as they had at least 30,000 votes in 1916 and 60% or more foreign citizens in the 1910 Census. In addition to adopting this coding procedure used by Achen and Bartels (2016), Fowler and Hall (2018) also utilize a measure of "machine" counties from Mayhew (1986), which instead identifies Camden, Essex, Hudson, Mercer, Middlesex, and Passaic Counties as "machine" counties. We are unaware of any other plausible coding schemes for "machine" counties and therefore adopt those of Achen and Bartels (2016) and Fowler and Hall (2018) as described.

creation substantially changed the composition of the electorate reported as Sea Side Park and the town should be excluded from the analysis. In replicating Table 4 of Fowler and Hall (2018), we will naturally assess whether the inclusion or exclusion of Sea Side Park substantively affects our results; therefore, we do not establish a firm coding rule of our own but instead incorporate those from both sets of authorship teams.

- Beach Haven and Long Beach (Ocean County)—In 1913, Beach Haven absorbed some territory from Long Beach. Both towns are in Ocean County on the Jersey Shore and did not exchange territory with any other municipalities between 1912 and 1916. Consequently, Fowler and Hall (2018) merge these towns in Models 4-6 of Table 4 to construct a consolidated unit that maintains its boundaries across the two periods. Given that in replicating Table 4 of Fowler and Hall (2018) we will naturally compare models that do not and do count these towns as a consolidated unit (Models 3 and 4, respectively), we again do not need to establish our own coding rule but instead will treat Beach Haven and Long Beach as did both sets of authorship teams.
- Atlantic Highlands, Highlands, Middleton, and Raritan (Monmouth County)—Between 1912 and 1916, pieces of Middletown were reallocated to Atlantic Highlands and Highlands, but the boundaries of these three towns were otherwise stable. Because combining the three municipalities would create a consolidated unit that is stable across the two periods, Fowler and Hall (2018) create a single observation that utilizes as its election returns variables the sums of each of the three towns. After reviewing Snyder's accounts of boundary changes, we agree with this assessment. Further, because the *AHD* hotel listings for Keansburg required us to merge Middletown with Raritan, we combine all four towns into a single observation.
- Middle and Stone Harbor (Cape May County)—In 1914, Stone Harbor was created using part of the territory previously included in Middle. Fowler and Hall (2018) drop Middle from their analyses because of this change. However, the creation of Stone Harbor from part of Middle was the *only* change to Middle's boundaries between 1912 and 1916, such that creating a consolidated unit that included both Middle and Stone Harbor would create an observation whose boundaries remain consistent across the two periods. Accordingly, we depart from Fowler and Hall (2018) by merging Middle and Stone Harbor to retain them as a single observation.

- *Beach/Attack/Coastal*: In their county-level analysis, Achen and Bartels (2016) code the four counties that contained the Jersey Shore—Atlantic, Cape May, Monmouth, and Ocean—as "beach" counties. Fowler and Hall (2018) carry forward this coding, and also estimate alternative specifications that instead identify counties as either experiencing a shark attack or being on the coast. The four deadly shark attacks occurred in Monmouth and Ocean Counties, and we follow Fowler and Hall (2018) in coding these two counties as "attack" counties. Fowler and Hall (2018) subsequently code counties as "coastal" if the National Oceanographic and Atmospheric Administration (NOAA) classifies them as "Coastal Shoreline Counties" that "have a coastline bordering the open ocean or the

Great Lakes, or contain coastal high hazard areas (V-zones)."[9] We utilized the current NOAA list of Coastal Shoreline Counties to code counties as "coastal," and our codings match those of Fowler and Hall (2018).

In their town-level analysis, Achen and Bartels focus on towns in Ocean County and subset to those that are either "beach" towns or "near beach" towns, the latter category being those towns that are west of the current Garden State Parkway but do not themselves contain beachfront territory (2016: 129). Fowler and Hall (2018) extend this analysis to include the other three "beach" counties—Atlantic, Cape May, and Monmouth—and apply the same coding rules to towns in those counties. While our codings generally match those of Achen and Bartels (2016) and Fowler and Hall (2018), we note several points of departure below based on our own assessments of the contemporary town boundaries according to Snyder's 1969 book and ancillary historical records.

- Atlantic Highlands, Highlands, Middleton, and Raritan (Monmouth County)—As we depart from Fowler and Hall (2018) by consolidating Atlantic Highlands, Highlands, Middletown, and Raritan into a single observation, we also need to reconcile the codings of coastal proximity for the individual municipal units. Fowler and Hall (2018) coded each unit as follows: Atlantics Highlands, near beach; Highlands, near beach; Middletown, both; Raritan, non-beach. We agree with the original codings of Atlantic Highlands and Highlands, but arrive at different codings for Middletown and Raritan as elucidated below:
    - Middletown—Snyder indicates that in the 1910s Middletown did not contain any parcels that were on the Jersey Shore proper (1969: 182). Consequently, we consider Middletown "near beach."
    - Raritan—Similar to Matawan Township, Fowler and Hall (2018) code Raritan as "non-beach" even though it is on the "ocean" side of the Garden State Parkway. To determine how Raritan, which in 1916 did have a stretch of coastline, should be classified, we again explored whether any beaches existing in this municipality or any adjacent municipalities in 1916. We identified at least one major beach-based tourist attraction that existed in Raritan in 1916. In 1904, William Gehlhaus broke ground on the Keansburg Amusement Park "in hopes of creating a resort area" and built "a boardwalk and vacation bungalows" in addition to traditional amusements. By 1909, Gehlhaus also created a steamboat company to ferry tourists from New York City. While the land including the amusement park and surrounding amenities split from Raritan in 1917, forming Keansburg (Snyder 1969: 184), it was within the boundaries of Raritan for the 1916 shark attacks and presidential election. Given the presence of the Keansburg Amusement Park and surrounding attractions in 1916 as well as the extensive coastline of Raritan at the time and its

[9] "Economics: National Ocean Watch (ENOW), Counties List." National Oceanographic and Atmospheric Administration. November 2017. https://coast.noaa.gov/data/digitalcoast/pdf/enow-counties-list.pdf.

proximity to the Keyport Yacht Club (see above discussion of Matawan Township), we code Raritan as a "beach" community.

Consequently, three of the units in this consolidated observation we code as "near beach," and one we code as "beach." We reconcile this by coding the entire unit as "both," as it contains both beach and near beach communities.

- Lacey (Ocean County)—Achen and Bartels (2016) and Fowler and Hall (2018) express disagreements over the coding of Lacey. Fowler and Hall report that they learned through private correspondence with Achen and Bartels that they initially coded Lacey as neither "beach" nor "near beach" as the majority of its land area (but not its population) is west of the Garden State Parkway (2018: 1431). Fowler and Hall retain this coding and note that how Lacey is coded does not affect the substantive results they present. However, Snyder indicates that until 1933, Lacey included a parcel of land directly on the Jersey Shore that would later become Island Beach (1969: 203). Consequently, we coded Lacey as "both."
- Matawan Township (Monmouth County)—Following the coding rule established by Achen and Bartels (2016) that towns west of the Garden State Parkway are to be excluded from the analysis, Fowler and Hall (2018) code Matawan Township (now Aberdeen) as "non-beach." However, Matawan Township is on the "ocean" side of the Garden State Parkway (though better defined as the "northern" side of the Garden State Parkway, as the throughway changes directions once it approaches the northern end of the Jersey Shore); given that the Achen and Bartels (2016) Garden State Parkway boundary was initially established for only Ocean County, where the throughway ran strictly north-south, the location of Matawan Township relative to the ocean and the Garden State Parkway makes this case ambiguous. We sought to resolve this ambiguity by investigating whether any beaches existed in that township or adjacent townships in 1916, as beaches in or proximate to the township would suggest the town should be classified as a beach or near beach town, respectively. Because the main beach in Matawan Township, Cliffwood Beach, was not developed until the 1920s, we determined that it should not be classified as a beach town.[10] However, Matawan Township was adjacent to Keyport, which contained notable ocean-related attractions including an entertainment venue built on the water named Pavilion Beach and the Keyport Yacht Club, both of which were constructed in the first decade of the 20th century (Jeandron 2003: 136-137). Consequently, we code Matawan Township as a "near beach" community, as it was adjacent to a town that was especially susceptible to economic harm due to the shark attacks but did not itself have significant exposure to ocean-related tourism.
- Middle/Stone Harbor (Cape May County)—As we depart from Fowler and Hall (2018) by including a consolidated observation consisting of Middle and Stone

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[10] "Summers Past at Cliffwood Beach." *Matawan-Aberdeen Hometown Shopper*. Summer 1994, https://mapl.org/resources/archive/Town%20shopper%20local%20history/1994%20Summer%20-%20Cliffwood%20Beach.pdf

Harbor rather than only including Middle, we need to reconcile the codings of coastal proximity. As Middle is a "near beach" community while Stone Harbor is a "beach" community, we code the unit as "both."

- Ocean (Ocean County)—Fowler and Hall (2018) code Ocean as "near beach." However, Snyder indicates that until 1933, Ocean included a parcel of land directly on the Jersey Shore that would later become Island Beach (1969: 204). Consequently, we coded Ocean as "both."
- Upper (Cape May County)—Fowler and Hall (2018) code Upper as "near beach." This coding aligns well with the town's modern-day boundaries, but in 1916 Upper contained much of modern-day Ocean City, which is part of the Jersey Shore and contains beachfront territory. Subsequently, we code Upper as "both."
- West Cape May (Cape May)—Fowler and Hall (2018) code West Cape May as "non-beach." While this municipality does not have any coastline of its own, it is separated from the ocean by only small slivers of Cape May and Cape May Point. As the Garden State Parkway terminates just north of West Cape May, it is not clearly "east" or "west" of the parkway, but it is on the "ocean" side of the parkway. Consequently, we code West Cape May as "near beach."

Section D: Empirical Analyses

Our empirical analyses were pre-registered through the Open Science Framework.[11] Our pre-registered empirical analyses extend the analyses presented in Tables 3 and 4 of Fowler and Hall (2018), which also substantively replicate Achen and Bartels (2004, 2016).[12] Specifically, we utilize the same model specifications in those analyses while adding an interaction between the binary indicator for whether a community is a "beach" community and a measure of the size of its hotel industry (as well as the constituent term for the hotel industry size measure).

While our counts of hotels and hotel rooms in each county and town are highly correlated (r>0.90 at the county- and town-level), they represent different concepts; while the number of hotels communicates information about the number of independent lodging businesses operating within a given county or town, the number of hotel rooms provides insight on the volume of tourist activity those hotels and the larger community typically service. Thus, to assess the robustness of our results across concepts, we pre-registered that we would present results using both measures of community exposure to the hotel industry in our main analysis.

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[11] Our pre-analysis plan is available here: https://osf.io/ydwex/?view_only=5d8e093c97c2449490b675f6ee8e8ab7. We kept the data files containing information on county- and town-level hotel locations and on the other variables used in the original analyses of Achen and Bartels (2016) and Fowler and Hall (2018) stored separately until our pre-analysis plan was submitted to OSF's registries repository. This data management protocol of collecting but not merging data for observational studies until after the pre-registration process has been completed has been used by several recently published studies (e.g., Graham et al. 2023a; Fraga and Miller 2022).

[12] Fowler and Hall (2018) note that their analyses which mirror those in Achen and Bartels (2016) are near-replications and utilize the same modeling strategies; thus, replicating Tables 3 and 4 in Fowler and Hall (2018) substantively replicates Achen and Bartels (2016).

The generic formula for our linear regression models at the county level is as follows:

$$1916\mathrm{vote}_i = \alpha + \beta_1 \mathrm{beach}_i + \beta_2 \mathrm{hotel\_industry}_i + \beta_3 \mathrm{beach\_hotel\_industry}_i + \beta_4 1912\mathrm{vote}_i + \beta_5 \mathrm{machine}_i + \epsilon_i$$

$\mathrm{hotel\_industry}_i$ represents our measure of community exposure to the hotel industry as the number of hotels or the number of hotel rooms across models. The key coefficient of interest is β_3, which represents the multiplicative effect of each additional hotel or hotel room within a beach county. The theory of blind retrospection anticipates this coefficient to be negative and statistically significant, such that the electoral penalty of shark attacks among beach counties is stronger for those counties with larger hotel industries.

The generic formula for our linear regression models at the town level is as follows:[13]

$$\mathrm{vot}echange_i = \alpha + \beta_1 \mathrm{beac}h_i + \beta_2 \mathrm{hotel\_industry}_i + \beta_3 \mathrm{beach\_hotel\_industry}_i + \epsilon_i$$

The key coefficient of interest is again is β_3, which represents the multiplicative effect of each additional hotel or hotel room within a beach town. The theory of blind retrospection again anticipates this coefficient to be negative and statistically significant, such that the electoral penalty of shark attacks among beach towns is stronger for those towns with larger hotel industries.

Section D.1: Visual Representations of Marginal Effects

When utilizing interactions in a regression model, best practices dictate that researchers move beyond presenting only model coefficients and also provide visual representations of the marginal effects for the variable(s) of interest, as those effects rely on both the constituent term *and* the interaction term in the model and therefore cannot be discerned directly from the coefficients (Brambor et al. 2006). As our main analyses include 24 different models, each of which manifests substantively similar results, we provide here marginal effects plots for a subset of these models rather than plots for *each* of those 24 models.

Figure SI.3 presents the marginal effects plots for Model 1a and Model 1b in Tables 1 and 2, which are the model specifications analogous to those originally used by Achen and Bartels (2004, 2016). For all four models, the slopes of the lines are close to flat and the 95% confidence intervals include zero across the full support of the hotel industry size measures, suggesting there is no evidence that Wilson experienced an electoral penalty in beach communities that grew larger as the size of the hotel industry in those communities grew larger.

[13] Following Fowler and Hall (2018), Model 6 in Table 4 also includes county fixed effects.

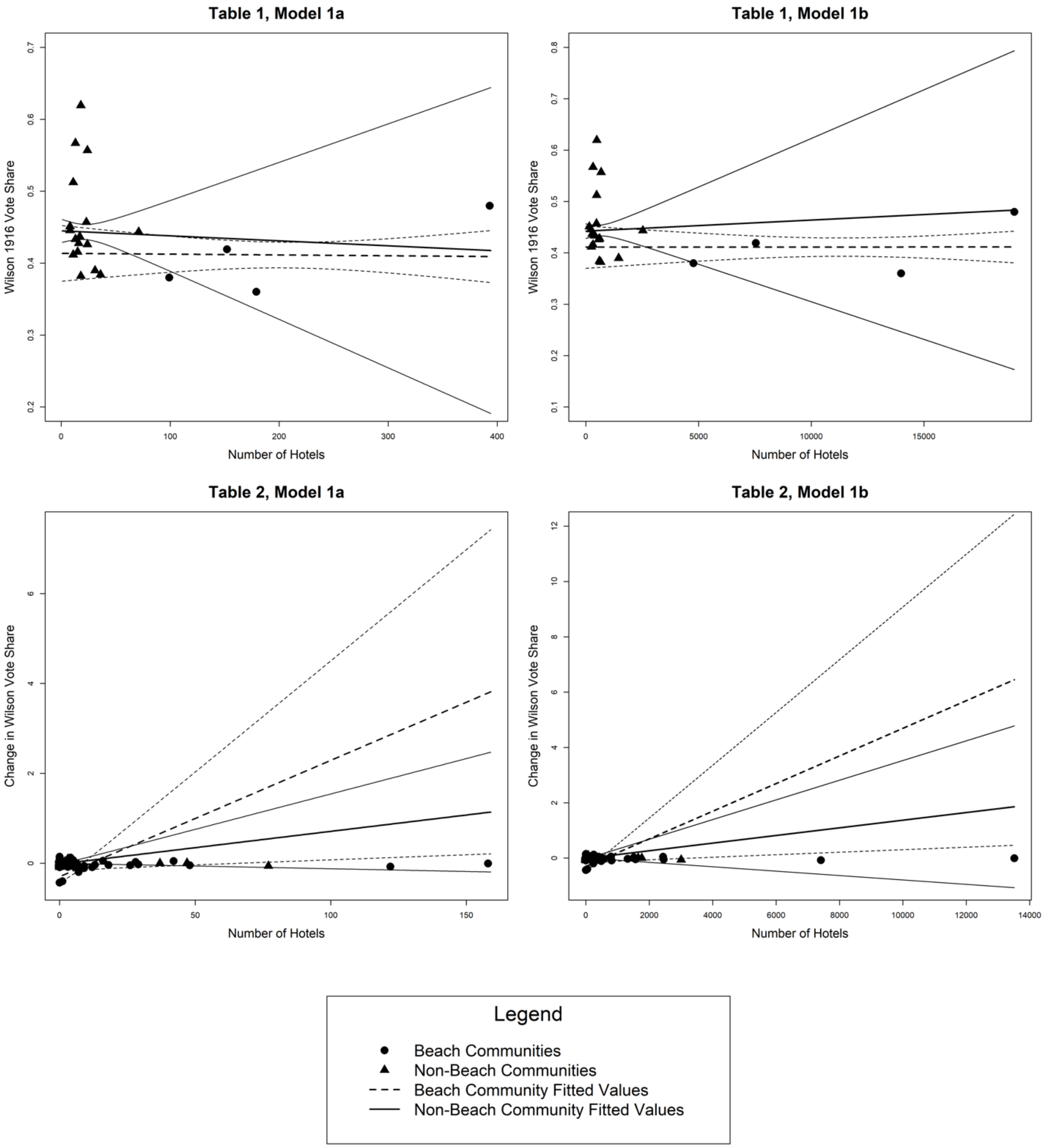

Figure SI.3: Marginal Effect of Hotel Industry Size on Electoral Support for Wilson. The four panels of this figure present the fitted values for communities designated as "beach" communities (solid line) or communities not designated as such (dotted line) using the regression models indicated in the title of each panel. Thinner lines represent 95% confidence intervals around these fitted values. Circles and triangles indicate the observed values of hotel industry size and electoral support for Wilson among beach communities and communities not designated as such, respectively.

Section D.2: Alternative Operationalizations of Hotel Industry Size

In Tables 1 and 2 of the main paper, we utilize counts of the number of hotels and hotel rooms in each county and town, respectively, to account for the size of the hotel industry in those localities. Beyond these counts, other reasonable operationalizations of hotel industry size exist that could provide more easily interpretable results and/or better embody the mechanism of interest (locality exposure to economic harm through decreased tourism). We consider three alternative operationalizations here and provide the results we obtain when utilizing them.

Section D.2.1: Hotel Industry Size Per Capita

As we describe above in Section B.2 of the Supplemental Information, in utilizing counts of hotels and hotel rooms, our main analysis does not account for the magnitude of the hotel industry in each locality relative to size of the locality's larger economy. For example, while Avalon, Red Bank, and Wall each have 7 hotels, our analysis does not consider whether those 7 hotels might be more substantial contributors to the economies relative to the other two towns. As these towns vary substantially in terms of population (measured by the number of votes cast in the 1916 election), with Avalon holding only 76 persons while Red Bank and Wall holding 1460 and 759, respectively, we may have reason to believe that the 7 hotels in Avalon are more significant contributors to the town's economy than the same number of hotels are to Red Bank and Wall.[14]

We repeat our analyses in Tables 1 and 2 of the main paper with measures of hotels and hotel rooms per 1000 voters for counties and per 100 voters for towns in Tables SI.1 and SI.2, respectively. The models that use these alternative operationalizations yield results substantively similar to those presented in the main paper.

Table SI.1: Interactive Effect of Hotel Industry Size Per Capita and Community Type (County-Level)

	Model 1		**Model 2**		**Model 3**		**Model 4**		**Model 5**		**Model 6**	
	(a)	**(b)**	**(a)**	**(b)**	**(a)**	**(b)**	**(a)**	**(b)**	**(a)**	**(b)**	**(a)**	**(b)**
Beach County	-0.02	-0.02	-0.03	-0.02					-0.01	-0.01	0.00	0.00
	(0.03)	(0.04)	(0.04)	(0.05)					(0.04)	(0.06)	(0.05)	(0.06)
Attack County					-0.31	-0.28						
					(0.88)	(0.99)						
Coastal County							-0.01	-0.01				
							(0.01)	(0.01)				
Num. Hotels Per Capita	-0.00		-0.00		-0.00*		-0.00		0.00		0.01	
	(0.00)		(0.01)		(0.00)		(0.00)		(0.00)		(0.01)	
Beach:Num. Hotels PC	0.00		0.00						-0.01		-0.01	
	(0.00)		(0.01)						(0.01)		(0.01)	
Attack:Num. Hotels PC					0.02							
					(0.05)							
Coastal:Num. Hotels PC							0.00					
							(0.00)					
Num. Hotel Rooms Per Capita		0.00		0.00		-0.00		-0.00		0.00		0.00
		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)

[14] While the number of voters in a locality is not equivalent to the number of persons living there, both Achen and Bartels (2004, 2016) and Fowler and Hall (2018) use turnout to approximate population in their analyses, and we follow their analyses by doing so in our own.

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	(a)	**(b)**	**(a)**	**(b)**	**(a)**	**(b)**	**(a)**	**(b)**	**(a)**	**(b)**	**(a)**	**(b)**
Beach:Num. Hotel Rooms PC		-0.00		-0.00						-0.00		-0.00
		(0.00)		(0.00)						(0.00)		(0.00)
Attack:Num. Hotel Rooms PC						0.00						
						(0.00)						
Coastal:Num. Hotel Rooms PC								0.00				
								(0.00)				
Machine (Achen and Bartels)	-0.06 *	-0.06 *	-0.04 *	-0.04 *	-0.06 *	-0.06 *	-0.05 *	-0.05 *				
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)				
Machine (Mayhew)											0.01	0.01
											(0.02)	(0.02)
Wilson 1912 Vote Share	0.96 *	0.95 *	0.87 *	0.86 *	0.98 *	0.96 *	0.95 *	0.94 *	0.90 *	0.90 *	0.90 *	0.90 *
	(0.07)	(0.07)	(0.09)	(0.08)	(0.07)	(0.07)	(0.07)	(0.07)	(0.11)	(0.10)	(0.11)	(0.10)
Intercept	0.04	0.05	0.08	0.08 *	0.03	0.04	0.05	0.06	0.05	0.04	0.04	0.04
	(0.03)	(0.03)	(0.04)	(0.04)	(0.03)	(0.03)	(0.03)	(0.03)	(0.05)	(0.05)	(0.05)	(0.05)
Include Essex County			Y	Y								
R^2	0.95	0.95	0.90	0.90	0.95	0.95	0.95	0.95	0.86	0.86	0.87	0.87
Num. obs.	20	20	21	21	20	20	20	20	20	20	20	20

***** denotes *p*<0.05. The outcome in each model is Wilson's two-party vote share in 1916. (a) and (b) models denote usage of number of hotels or number of rooms per 1000 voters to measure hotel industry size, respectively. Models 1-6 correspond with those in Table 3 of Fowler and Hall (2018).

Table SI.2: Interactive Effect of Hotel Industry Size Per Capita and Community Type (Town-Level)

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)
Beach Town	-0.29 *	-0.35 *	-0.04	-0.15	-0.14	-0.34	-0.02	-0.16	0.03	0.04	0.00	0.03*
	(0.10)	(0.11)	(0.14)	(0.16)	(0.19)	(0.18)	(0.16)	(0.16)	(0.04)	(0.07)	(0.01)	(0.02)
Num. Hotels	0.03 *	0.00	0.03	0.00	0.03	0.00	0.03	0.00	0.01	0.00	-0.00	-0.00
	(0.01)	(0.00)	(0.02)	(0.00)	(0.02)	(0.00)	(0.02)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)
Beach Town:Num. Hotels	-0.00		-0.03		-0.01		-0.03		-0.01		0.00	
	(0.02)		(0.03)		(0.04)		(0.02)		(0.01)		(0.00)	
Beach Town:Num. Hotel Rooms		0.00		-0.00		0.00		-0.00		-0.00		-0.00
		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)
Intercept	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.01	-0.01	-0.01
	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)
Include Sea Side Park			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Drop cases of boundary changes					Y	Y	Y	Y	Y	Y	Y	Y
Merge Long Beach and Beach Haven							Y	Y	Y	Y	Y	Y
Include towns with total vote change >25%									Y	Y	Y	Y
Include all beach counties											Y	Y
County fixed effects											Y	Y
R^2	0.71	0.69	0.28	0.24	0.26	0.40	0.26	0.27	0.13	0.05	0.08	0.16
Num. obs.	15	15	16	16	13	13	14	14	19	19	71	71

***** denotes *p*<0.05. The outcome in each model is the change in Wilson's vote share between 1916 and 1912. (a) and (b) models denote usage of number of hotels or number of rooms per 100 voters to measure hotel industry size, respectively. Models 1-6 correspond with those in Table 4 of Fowler and Hall (2018).

Section D.2.2: Standardized Hotel Industry Size

Given the skewedness of the distributions of our hotel industry measures (see Figures SI.1 and SI.2), where many localities have few hotels and hotel rooms while others have large numbers, the relevant coefficients in our regression analyses are small and not easily interpretable. As an alternative presentation, we provide analogous analyses in Tables SI.3 and SI.4 that instead use standardized versions of our hotel and hotel room measures. In these analyses, the relevant coefficients represent the change in vote share for Wilson when the number of hotels or hotel rooms changes by one standard deviation. These results are substantively similar to those presented in the main paper.

Table SI.3: Interactive Effect of Standardized Hotel Industry Size and Community Type (County-Level)

	Model 1		**Model 2**		**Model 3**		**Model 4**		**Model 5**		**Model 6**	
	(a)	**(b)**	**(a)**	**(b)**	**(a)**	**(b)**	**(a)**	**(b)**	**(a)**	**(b)**	**(a)**	**(b)**
Beach County	-0.03	-0.04	-0.04	-0.06					-0.02	-0.03	-0.02	-0.03
	(0.02)	(0.03)	(0.03)	(0.03)					(0.03)	(0.04)	(0.03)	(0.04)
Attack County					-0.02	-0.02						
					(0.02)	(0.02)						
Coastal County							-0.01	-0.01				
							(0.02)	(0.02)				
Num. Hotels Per Capita	-0.01		0.00		-0.02		-0.01		-0.01		-0.01	
	(0.03)		(0.04)		(0.01)		(0.03)		(0.04)		(0.05)	
Beach:Num. Hotels PC	0.01		-0.00						0.01		0.01	
	(0.03)		(0.04)						(0.05)		(0.05)	
Attack:Num. Hotels PC					0.02							
					(0.01)							
Coastal:Num. Hotels PC							0.00					
							(0.03)					
Num. Hotel Rooms Per Capita		0.01		0.05		-0.01		-0.00		0.01		0.01
		(0.04)		(0.05)		(0.01)		(0.05)		(0.07)		(0.07)
Beach:Num. Hotel Rooms PC		-0.01		-0.05						-0.01		-0.01
		(0.04)		(0.05)						(0.07)		(0.07)
Attack:Num. Hotel Rooms PC						0.01						
						(0.01)						
Coastal:Num. Hotel Rooms PC								-0.00				
								(0.05)				
Machine (Achen and Bartels)	-0.06 *	-0.06 *	-0.04 *	-0.04 *	-0.06 *	-0.06 *	-0.05 *	-0.05 *				
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)				
Machine (Mayhew)											0.00	0.00
											(0.02)	(0.02)
Wilson 1912 Vote Share	0.95 *	0.95 *	0.86 *	0.88 *	0.95 *	0.95 *	0.95 *	0.95 *	0.92 *	0.92 *	0.92 *	0.92 *
	(0.07)	(0.07)	(0.09)	(0.08)	(0.07)	(0.07)	(0.07)	(0.07)	(0.11)	(0.11)	(0.11)	(0.11)
Intercept	0.04	0.05	0.08 *	0.10 *	0.04	0.04	0.04	0.05	0.04	0.05	0.04	0.05
	(0.03)	(0.03)	(0.04)	(0.04)	(0.03)	(0.03)	(0.03)	(0.04)	(0.05)	(0.05)	(0.05)	(0.06)
Include Essex County			Y	Y								
R^2	0.95	0.95	0.90	0.91	0.94	0.94	0.94	0.94	0.86	0.86	0.86	0.86
Num. obs.	20	20	21	21	20	20	20	20	20	20	20	20

* denotes $p<0.05$. The outcome in each model is Wilson's two-party vote share in 1916. (a) and (b) models denote usage of standardized number of hotels or number of rooms to measure hotel industry size, respectively. Models 1-6 correspond with those in Table 3 of Fowler and Hall (2018).

Table SI.4: Interactive Effect of Standardized Hotel Industry Size and Community Type (Town-Level)

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)
Beach Town	-0.12 *	-0.12	-0.09	-0.08	0.18	0.11	-0.00	-0.10	0.01	0.01	0.02	0.01
	(0.05)	(0.06)	(0.08)	(0.10)	(0.18)	(0.18)	(0.16)	(0.20)	(0.03)	(0.03)	(0.01)	(0.01)
Num. Hotels	0.17	0.22	0.17	0.22	0.46	0.88	0.46	0.88	0.01	0.01	0.00	0.00
	(0.10)	(0.18)	(0.16)	(0.28)	(0.25)	(0.48)	(0.28)	(0.58)	(0.02)	(0.03)	(0.01)	(0.01)
Beach Town:Num. Hotels	0.43		-0.03		1.39		0.29		0.17		-0.01	
	(0.29)		(0.43)		(0.77)		(0.54)		(0.10)		(0.01)	
Num Hotel Rooms		0.22		0.22		0.88		0.88		0.01		0.00
		(0.18)		(0.28)		(0.48)		(0.58)		(0.03)		(0.01)
Beach Town:Num. Hotel Rooms		0.59		0.12		1.69		0.06		0.26		-0.01
		(0.42)		(0.62)		(0.94)		(0.80)		(0.14)		(0.01)
Intercept	0.05	0.05	0.05	0.05	0.15	0.24	0.15	0.24	-0.00	-0.00	0.01	0.00
	(0.03)	(0.04)	(0.05)	(0.07)	(0.08)	(0.13)	(0.09)	(0.16)	(0.02)	(0.02)	(0.01)	(0.02)
Include Sea Side Park			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Drop cases of boundary changes					Y	Y	Y	Y	Y	Y	Y	Y
Merge Long Beach and Beach Haven							Y	Y	Y	Y	Y	Y
Include towns with total vote change >25%									Y	Y	Y	Y
Include all beach counties											Y	Y
County fixed effects											Y	Y
R^2	0.64	0.62	0.18	0.17	0.54	0.61	0.39	0.39	0.19	0.20	0.09	0.08
Num. obs.	15	15	16	16	13	13	14	14	19	19	71	71

* denotes $p<0.05$. The outcome in each model is the change in Wilson's vote share between 1916 and 1912. (a) and (b) models denote usage of standardized number of hotels or number of rooms to measure hotel industry size, respectively. Models 1-6 correspond with those in Table 4 of Fowler and Hall (2018).

Section D.2.3: Potential Spillover Effects

In our main analyses, we measure the size of the hotel industry in each locality using the count of hotels and hotel rooms within that locality. However, as discussed in Section B.2 of the Supplemental Information, the economic effects associated with those hotels are not necessarily confined to the localities in which they reside—put differently, those economic effects could have spilled over to neighboring localities. To assess the potential for spillover effects, we repeat our town-level analyses by adding to each town's counts of hotels and hotel rooms the numbers of hotels and hotel rooms in bordering towns.[15] The results from this analysis, presented in Table SI.5, are substantively similar to those presented in the main paper.

[15] We do not perform a similar spillover analysis at the county-level because New Jersey's counties were sprawling in size such that it tourists would be unlikely to have routinely traveled between counties with any regularity in the course of a single vacation.

Table SI.5: Interactive Effect of Hotel Industry Size and Community Type Accounting for Potential Spillover (Town-Level)

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)
Beach Town	-0.26 *	-0.28 *	-0.06	-0.09	-0.02	-0.06	-0.03	-0.04	0.02	-0.05	0.01	0.01
	(0.08)	(0.09)	(0.09)	(0.11)	(0.12)	(0.14)	(0.07)	(0.13)	(0.04)	(0.08)	(0.01)	(0.02)
Num. Hotels	0.00		0.00		0.00		0.00		0.00		-0.00	
	(0.00)		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)	
Beach Town:Num. Hotels	0.01		-0.00		-0.00		-0.00		-0.00		0.00	
	(0.01)		(0.01)		(0.01)		(0.00)		(0.00)		(0.00)	
		0.00		0.00		-0.00		-0.00		0.00		-0.00
		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)
Beach Town:Num. Hotel Rooms		0.00		0.00		0.00		-0.00		0.00		0.00
		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)
Intercept	-0.01	-0.00	-0.01	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	0.01	0.01
	(0.02)	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.01)	(0.01)
Include Sea Side Park			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Drop cases of boundary changes					Y	Y	Y	Y	Y	Y	Y	Y
Merge Long Beach and Beach Haven							Y	Y	Y	Y	Y	Y
Include towns with total vote change >25%									Y	Y	Y	Y
Include all beach counties											Y	Y
County fixed effects											Y	Y
R^2	0.56	0.57	0.10	0.11	0.02	0.03	0.08	0.07	0.07	0.04	0.17	0.14
Num. obs.	15	15	16	16	13	13	14	14	19	19	71	71

* denotes $p<0.05$. The outcome in each model is the change in Wilson's vote share between 1916 and 1912. (a) and (b) models denote usage of standardized number of hotels or number of rooms to measure hotel industry size, respectively. Counts of hotels and hotel rooms for each observation include both the numbers of hotels and hotel rooms within each town and the numbers of hotels and hotel rooms in all bordering towns. Models 1-6 correspond with those in Table 4 of Fowler and Hall (2018).

Section D.3: Influential Observations & Alternative Estimation Methods

As we noted in our pre-registration document, given the skewed distributions of our hotel industry measures (see Figures SI.1 and SI.2), we anticipated that one or more of our data points may exhibit high leverage. While storing our hotel industry measures separately from the other data necessary to conduct our analyses prevented us from knowing ex ante if any data points with high leverage would also exhibit an outlier value for their outcome values, we noted the possibility that our models may contain influential observations and established protocols for addressing such observations.

First, we committed to assess whether any of our observations are associated with abnormally large Cook's distance values and report the summary statistics of those values. Table SI.5 presents the number of observations with Cook's distance values that exceed the cutoff of n-k-1 (Chatterjee and Hadi 1988). Most models include at least one observation that exceeds its respective threshold.

Table SI.6 Cook's Distance Values for Main Analyses

Model	Cook's Distance Cutoff (4/(*n*-*k*-1)	Number of Influential Observations	Largest Cook's Distance Value	Smallest Cook's Distance Value Above Cutoff
Table 3, Model 1a	0.29	0	0.26	-
Table 3, Model 1b	0.29	1	2.00	2.00
Table 3, Model 2a	0.27	1	0.64	0.64
Table 3, Model 2b	0.27	2	5.09	0.72
Table 3, Model 3a	0.29	0	0.26	-
Table 3, Model 3b	0.29	1	0.52	0.52
Table 3, Model 4a	0.29	2	2.11	0.77
Table 3, Model 4b	0.29	1	1.34	1.34
Table 3, Model 5a	0.27	1	1.35	1.35
Table 3, Model 5b	0.27	1	1.74	1.74
Table 3, Model 6a	0.29	2	1.05	0.44
Table 3, Model 6b	0.29	2	1.63	0.42
Table 4, Model 1a	0.36	4	9.43	0.38
Table 4, Model 1b	0.36	3	7.16	0.78
Table 4, Model 2a	0.33	4	7.61	0.44
Table 4, Model 2b	0.33	3	7.09	0.44
Table 4, Model 3a	0.44	2	3.39	1.39
Table 4, Model 3b	0.44	3	2.18	1.32
Table 4, Model 4a	0.40	2	9.16	1.10
Table 4, Model 4b	0.40	3	8.70	0.88
Table 4, Model 5a	0.27	3	2.01	0.31

Table 4, Model 5b	0.27	3	340.83	0.27
Table 4, Model 6a	0.06	7	6.53	0.12
Table 4, Model 6b	0.06	7	15.16	0.12

Second, when influential observations were detected, we committed to repeat our analyses with logged versions of our hotel industry measures and/or use robust regression (Huber estimator), which down-weights the contribution of influential observations to the model estimates. For those models where influential observations were detected, we utilized both of these alternative approaches to assess whether the resulting models yielded substantively different conclusions (not presented here but available in our replication code). In all cases, these alternative approaches do not yield model parameters that support conclusions substantively different from those presented in Tables 1 and 2.

Section D.4: Linear Interaction Effect Assumption & Alternative Estimation Methods

As in the case of influential observations, storing different parts of our data separately until after the pre-registration process was completed prevented us from assessing the plausibility ex ante of the linear interaction effect assumption (Hainmueller et al. 2019). However, we recognized that violations of this assumption could manifest and committed to both assessing the plausibility of the assumption for each model and, when we detected violations, employing alternative methods that accommodate effect heterogeneity.

For each model, we used the `interflex` package in `R` to assess the plausibility of the linear interaction effect assumption and, if we deemed the assumption implausible, assessed the interaction effect using a kernel estimator (not presented here but available in our replication code). In all cases, supplementary kernel estimator analyses (where appropriate) do not yield estimates that support conclusions substantively different from those presented in Tables 1 and 2.

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