Testing Islam’s Political Advantage: Evidence from Indonesia

Thomas B. Pepinsky  Cornell University
R. William Liddle  The Ohio State University
Saiful Mujani  Universitas Islam Negeri Syarif Hidayatullah Jakarta

Across the Muslim world, Islamic political parties and social organizations have capitalized upon economic grievances to win votes and popular support. But existing research has been unable to disentangle the role of Islamic party ideology from programmatic economic appeals and social services in explaining these parties’ popular support. We argue that Islamic party platforms function as informational shortcuts to Muslim voters, and only confer a political advantage when voters are uncertain about parties’ economic policies. Using a series of experiments embedded in an original nationwide survey in Indonesia, we find that Islamic parties are systematically more popular than otherwise identical non-Islamic parties only under cases of economic policy uncertainty. When respondents know economic policy platforms, Islamic parties never have an advantage over non-Islamic parties. Our findings demonstrate that Islam’s political advantage is real, but critically circumscribed by parties’ economic platforms and voters’ knowledge of them.

Do Islamic party ideologies confer an advantage on political parties above and beyond their programmatic platforms? Existing research suggests that Islamic parties may have an inherent advantage over other parties in attracting Muslim voters, due perhaps to Islam’s scriptural focus on economic justice, or alternatively because of Muslim voters’ association of Islam with other normatively good outcomes. As Evans and Phillips write on Algerian politics in *Anger of the Dispossessed*,

In the face of unending economic hardship, this vision of Islam offered a powerful pull because, in providing an all-embracing credo, it gave people a sense of new-found purpose and dignity. (2007, 131)

Likewise, popular portrayals of disaffected youths and the urban poor hold that economic hardship in Muslim societies provides a critical impetus that drives voters towards Islamic parties and social movements (see, e.g., *International Herald Tribune*, February 17, 2008). In such writings, Islamists have an inherent power to attract voters under conditions of economic hardship that non-Islamic parties and movements do not have. We term this view “Islam’s political advantage.”

Substantial inferential and conceptual problems exist in this research. Existing studies cannot discern whether Islam’s political advantage is inherent to populist Islam or is merely a consequence of Islamic organizations’ persistence under unpopular and unresponsive popular regimes. Conceptual problems, by contrast, lie in the failure of existing research to articulate precisely how Islamic platforms attract popular support. Are Islamic parties more able to win over constituents with populist economic programs than are non-Islamic parties with identical platforms? Do nonreligious party platforms shape Islam’s political advantage?

This article makes three contributions to political economy and mass public opinion in the Muslim world. First, we propose a new theory of how religion interacts

Thomas B. Pepinsky is Assistant Professor of Government, Cornell University, 322 White Hall, Ithaca, NY 14853 (pepinsky@cornell.edu). R. William Liddle is Professor of Political Science, The Ohio State University, 2140 Derby Hall, 154 N. Oval Mall, Columbus, OH 43210-1373 (liddle.2@osu.edu). Saiful Mujani is Associate Professor, Fakultas Ilmu Sosial dan Ilmu Politik, Universitas Islam Negeri Syarif Hidayatullah Jakarta, Jl. Kertamukti No. 5 Cirendeu, Ciputat, 15419 Indonesia (saifuljohn@yahoo.com).

The study was funded in part by a grant from the Smith Richardson Foundation, Inc. We thank Dodi Ambardi, Jenny Epley, Allen Hicken, Yusaku Horiiuchi, Eddy Maleksy, John McCauley, Kevin Morrison, Burhanuddin Muhtadi, Michael Ross, Sunny Tanuwidjaja, and seminar participants at ANU, Cornell, Michigan, Nanyang Technological University, Lembaga Survei Indonesia, UCLA, and UCSD for valuable comments and discussion. We are responsible for all errors. Replication data are available at http://courses.cit.cornell.edu/tp253/data.html.


© 2012, Midwest Political Science Association

DOI: 10.1111/j.1540-5907.2011.00570.x
with material interests to shape mass support for Islamic parties, drawing on literature on cueing, heuristics, and informational shortcuts in comparative political behavior. Islamic party ideologies, we claim, function as informational shortcuts to Muslim voters—much as heuristics such as party, ideology, and elite endorsements shape political behavior among voters in American elections (see, e.g., Lau and Redlawsk 2001; Rahn 1993; Sniderman, Brody, and Tetlock 1991). Second, we distinguish our theory from various alternative conceptions of Islam’s political advantage which are implied in existing research and show the difficulties of using observational data to differentiate them. Finally, we use experimental methods to test our theory in the world’s largest Muslim country, Indonesia.

We argue that because voters view Islamic party ideologies as cues about expected future behavior, they should only confer a political advantage when voters are uncertain about parties’ other policies. Accordingly, policy uncertainty plays a critical role in shaping the electoral fortunes of Islamic parties. We show that when citizens rate parties’ economic policies as either favorable or unfavorable, Islamic parties have no advantage over non-Islamic parties. However, when citizens are unsure about economic policies, Islamic parties do have a distinct political advantage. In demonstrating this point, we show that even among those respondents who are most sympathetic to political Islam, Islamic party ideologies only give parties an advantage over non-Islamic parties when voters are uncertain about parties’ economic policy platforms. Our findings indicate that Islam’s political advantage is real but is critically circumscribed by voters’ instrumental motives and their beliefs and knowledge about party platforms.

Our approach overcomes the main conceptual and inferential problems in the research on Islam’s political advantage. Our theory provides more conceptual nuance than either an essentialist conception of Islam as universally attractive to voters or a reductionist perspective of Islam as an ideological cover for material interests. The choice of Indonesia, where Islamic parties campaign freely alongside non-Islamic parties, removes the inferential problems that arise when Islamic parties (or any other parties) are forbidden from participating in elections or restricted in the ideological appeals they may make. Our experimental strategy allows us to pose directly the precise counterfactuals necessary to evaluate just how Islam—rather than other components of a party’s platform—is attractive to voters. By randomizing ideology and economic evaluations across respondents, we ensure that respondents’ baseline ideological orientations cannot systematically influence the average level of support that we elicit for a particular party type.

Beyond applying the insights of the literatures on cueing and information in comparative political behavior to a novel empirical domain, our findings from Islamic parties in Indonesia contribute to larger debates about religion and politics. The idea that confessional parties might hold unique appeal among the faithful is an old and sensible one (Lipset and Rokkan 1967). More recent research has examined the links between religious belief and vote choice (e.g., Kotler-Berkowitz 2001; Layman 1997; Manza and Brooks 1997; Norris and Inglehart 2004). We turn this research around, asking not how an individual’s religious belief affects his or her vote choice, but instead how a party’s ideology affects its aggregate political support. Our answer—that religion matters, but in a subtle way that existing research has ignored—suggests important new directions for understanding how religious messages affect popular support for confessional parties.

**Islamic Parties and Economic Appeals**

Across the Muslim world, Islamic parties tap into economic grievances to win popular support. In Indonesia, the Prosperous Justice Party (PKS) campaigns on issues of economic and social justice (Mujani and Liddle 2009). In Malaysia, the Pan-Malaysian Islamic Party (PAS) has built a platform around progressive economic policies and anticorruption (Noor 2003). Pakistan’s Islamist opposition, the Muttahida Majlis-e-Amal (MMA), derives support from its opposition to the war on terror and to liberal capitalism (Misra 2003). The Islamic Republic of Iran consistently implemented redistributive policies throughout the 1980s, and today its Islamist president uses economic appeals to secure political support (Amuzegar 2007). Turkey’s ruling Justice and Development Party (AKP) campaigns on its record in economic management (Oniş 2006). In Egypt, the Muslim Brotherhood grew by stressing poverty eradication and economic empowerment (Lia 1998, 85–86). Algeria’s Islamic Salvation Front (FIS) united disgruntled urban poor with middle-class groups under a platform of social reform and economic development (Miller 1993). These examples all share a common theme: an Islamic party capitalizing on economic grievances to gain political power.

Economic appeals figure in Islamic political activism in nonelectoral contexts as well. During Iran’s Islamic revolution, bazaaris (urban traders and small merchants) created a “bazaar-mosque alliance” that combined frustration with the Shah’s economic policies with disgust
with the regime’s perceived anti-Islamic stance (Ashraf 1988). Palestinian Hamas draws its support not merely from its strict opposition to Israel, but also from service provision (Mishal and Sela 2000). Islamic social institutions in the Middle East, which appeal to broad constituencies frustrated with the state’s failure to provide adequate social services, represent Islam’s “challenge to the secular state itself” (Clark 2004, 5–6; see also Wiktorowicz 2003).

The fact that popular Islamic political movements so frequently emerge in response to economic grievances suggests that Islam is inherently attractive to the economic. Yet this literature often treats Islam’s appeal under such conditions as given and unproblematic. A key early critic of this literature, Wickham (2002) notes that the Muslim Brotherhood’s growth in Egypt arose from the sustained mobilizational efforts of movement elites. Her critical insights suggest a broader problem. In the Muslim world, conspicuously Islamic parties occupy only a portion of the political landscape. Their political competitors seek Muslim votes but campaign on liberal, nationalist, socialist, and other ideological platforms. These parties confront the same economic circumstances as Islamic parties. Most, in fact, face fewer legal hurdles than do Islamic parties and movements. Why, then, should grievances drive Muslims to support Islamic parties?

To be sure, there is no agreement that Islamic parties have any advantage over other parties. Smith (2003) argues that many bazaaris grew to oppose Iran’s Islamic government due to its economic policies. Brumberg (2006) rejects any sort of monolithic Islamic identity that shapes political behavior. Ottaway and Hamzawy (2007) stress that Islamic parties invariably couple their religious messages with redistribution and patronage. But this begs the question of why Islamic parties appear more successful at deriving political support from such platforms than their secular counterparts. Accordingly, some are explicit that Islamic parties are uniquely able to link their Islamic platforms to popular economic discontent, e.g., Vergès (1997), Miller (1993), and Demiralp (2009).

How might Islam resonate with economic grievances? Davis and Robinson argue that a worldview called “theological communitarianism” “inclines the orthodox to economic communitarianism or egalitarianism” (2006, 169). Muslims, in this view, might be predisposed towards favoring Islamic political movements over non-Islamic ones in conditions of economic hardship. Yet even if this is true, it implies that Islam’s appeal is not only universal, but also unconditional on other factors such as the policy platforms of other parties that surely affect the ways in which parties compete to attract Muslim voters.

Uncertainty and Party Choice: Islam as a Cue

In contrast to these views, we argue that Islam resonates with voters precisely because they are uncertain about parties and the policies that they intend to adopt. Voters face at least three kinds of uncertainty. The first is uncertainty over policies: voters may not actually know parties’ economic policies, perhaps because they are “cognitive misers” (Lau and Sears 1986), or alternatively as a consequence of parties’ inability to communicate their policy platforms (Banks 1990). A second kind of uncertainty is uncertainty over outcomes: voters may not know how policies that the parties plan to adopt will affect them (Fernandez and Rodrik 1991). A third kind of uncertainty is uncertainty over implementation: voters may be uncertain about a party’s commitment ex ante to adopt costly policies ex post (Besley and Coate 1998). These three forms of uncertainty are present in all elections, but they are hallmarks of elections in young democracies (such as Indonesia or Pakistan), where there is high party turnover (Turkey), or where electoral authoritarianism prevents some or all parties from campaigning (Egypt before 2011).

Under all forms of uncertainty, we argue that the value of Islamic party ideology in majority Muslim countries is that it serves as an informational shortcut that communicates something positive about a party’s policy intentions. Linking Islam to a party’s platform will do this if voters are predisposed to associating religious piety with other normatively good outcomes (as per Davis and Robinson 2006), and hence voters—who face a problem of uncertainty about policies adopted ex post—believe that Islamic parties are more likely to adopt good policies than are non-Islamic parties. Islam’s political advantage operates not when voters evaluate party platforms as good or bad, but specifically when voters are uncertain about how to evaluate party platforms. This means that voters cue on Islamic ideology under conditions of policy uncertainty. Critically, if we are correct, then we should be able to show that when individuals are provided with information about parties’ policies, Islam’s political advantage disappears entirely.

To distinguish this perspective on Islam’s political advantage from competing views, we outline below these alternative conceptions of “advantage” based on how voters respond to the policies proposed by Islamic and non-Islamic parties. Throughout, our discussion is not whether pious individuals vote for Islamic parties, but rather whether a party is better able to sway a mass of voters by appealing to Islam than it would otherwise be. “Advantage” here is a statement about aggregate support, not about an individual’s beliefs and vote choice.
 Absolute Advantage

The first alternative is that voters always prefer an Islamic party to a non-Islamic one. To make this idea concrete, imagine two kinds of policies and two kinds of parties. The first policy is to increase fuel subsidies for the disadvantaged in a country such as Indonesia, Pakistan, or Iran, where such subsidies are deeply popular. The second policy is the opposite, a cut in fuel subsidies, which is just as unpopular as subsidies are popular. The “absolute advantage” view is simply that an Islamic party offering either of those policies is always more popular than a non-Islamic party offering the same policy. In this view, voters have consistent noninstrumental motives for voting for Islamic parties. This can take two forms. Under a noninstrumental absolute advantage, voters prefer Islamic parties offering subsidy cuts to non-Islamic parties offering subsidy increases. An instrumental absolute advantage, by contrast, would find that voters prefer non-Islamic parties advocating subsidy increases to Islamic parties offering subsidy cuts, but that across identical policies, Islamic parties are always preferred to non-Islamic parties.

 Conditional Advantage

Islam’s political advantage, however, may be conditional on parties’ economic policy platforms. The second alternative conception of Islam’s political advantage holds that when confronted with policies that they oppose, neither Islamic parties nor non-Islamic parties have any advantage. However, when the two party types both propose favorable policies, voters prefer Islamic parties to non-Islamic ones. In the example of fuel subsidies, voters will reject any parties that advocate subsidy cuts but will favor Islamic parties offering subsidy increases over non-Islamic parties offering the same. This means that voters reward Islamic parties with popular policies more than they do non-Islamic parties. Accordingly, voters’ noninstrumental motives for supporting Islamic parties affect their party preferences, but only when their instrumental motives have been fulfilled.

We emphasize that the simple observation that populist Islamic parties have garnered widespread popular support in many countries is consistent with both of the two preceding interpretations of Islam’s political advantage. Populist Islamic parties may be popular because they are Islamic parties offering popular policies and Islamic parties are always more popular, or because they are Islamic parties offering popular policies and only this kind of Islamic party has an advantage over its non-Islamic competitors. Without comparing different kinds of parties across different kinds of policies, we cannot judge how Islamic ideology affects a party’s popular support.

The third alternative conception is the mirror image of the second one. Voters may still have noninstrumental motives for party choices, but instead of rewarding Islamic parties that propose popular economic policies, voters may punish Islamic parties that propose unpopular economic policies less than non-Islamic parties offering the same. This conception of Islam’s political advantage suggests that voters forgive Islamic parties with unpopular policies more than they do non-Islamic parties. Here, Islam matters when material interests have not been fulfilled.

The idea that Islam’s advantage appears only in contexts where Islamic parties’ policies are unpopular is ill-suited to explain the primary motivating examples of this article—PKS’s stress on pro-development policy in Indonesia, FIS’s popular support in Algeria, or the AKP’s popularity in Turkey. But there are reasons to take this view seriously. It may be that Islamic mass organizations in war-torn countries such as Somalia and Afghanistan are more likely than non-Islamic counterparts to secure power despite their ruthless means. Perhaps Iran’s Islamic government has survived periods of economic stagnation due to its fealty to Islamic principles. In countries such as Indonesia and Bangladesh, small and relatively unpopular Islamic parties may be more popular than they would otherwise be if they campaigned as nationalist parties. Again, absent comparisons of warlords with benevolent social planners, or of popular economic platforms by Islamic parties with unpopular economic platforms by Islamic parties, these casual observations alone are also consistent with the absolute view of Islam’s political advantage.

Islamic Irrelevance

Finally, the null hypothesis that there is actually no inherent advantage to being an Islamic party is critical to our analysis. If true, Islam’s perceived advantage is entirely the result of external contextual factors. How might this occur? If non-Islamic opposition parties are inefficient, anti-incumbent voters may vote for Islamic parties for reasons having nothing to do with Islam itself. Alternatively, non-Islamic parties may simply be less sensitive, for whatever reason, to citizens’ demands, rendering them unwilling or unable to offer the sorts of popular policies that Islamic parties can. In both cases, what appear to be votes for Islamic parties are actually nothing more than votes for preferred policies.
Observing “Advantage”

Given these five conceptual possibilities, we can distinguish among them using only six quantities of interest. We summarize these in Panel A of Table 1. The letter in each cell corresponds to the average level of support across citizens for a party of the type denoted in the columns that offers the economic platform denoted in the rows. In Panel B of Table 1, we show how these quantities of interest translate into hypotheses. Absolute advantage holds that Islamic parties offering any policy type are always more popular than non-Islamic policies offering the same. If this is true, then the average level of support for an Islamic party offering good policies (denoted A in Table 1) should be significantly larger than the average level of support for non-Islamic parties offering good policies (denoted B). The same should be true for both other economic policy platforms: C should be larger than D, and E should be larger than F. If the noninstrumental version of the absolute advantage thesis is correct, then in
addition to the above, both C and E should be larger than B, indicating that any Islamic party is more popular than a non-Islamic party even when the latter offers favorable policies.

Alternatively, if Islam’s political advantage means that voters reward Islamic parties for offering good policies, then we should expect A to be larger than B but no difference between E and F. If it means that voters forgive Islamic parties offering bad policies, then we predict no difference between A and B, but that E should be larger than F. Because neither view makes any claim about Islam’s role under conditions of uncertainty, we hold simply that C should be greater than or equal to D under both of the conditional hypotheses. If the null hypothesis is true, then we should observe that A is equal to B, C is equal to D, and E is equal to F.

If we are correct, though, that voters cue on Islam only under conditions of uncertainty, we should observe that when voters are certain about policy types, there should be no difference between average support for either Islamic or non-Islamic parties: A and B should be equal, as should E and F. But when voters are uncertain about economic policy platforms, Islamic parties should be relatively more popular, so C should be larger than D.

These quantities of interest make clear the inferential problems that observational studies face. In most Muslim-majority countries, restrictions on political rights prevent elections from approximating true referenda on the political parties contesting in them. The optimal case for studying the role of Islam is a country like Indonesia, a democracy in which several non-Islamic parties compete with several Islamic ones. Islamic parties there struggle to attract the type of electoral support that non-Islamic parties have, suggesting that in the world’s largest Muslim democracy, Islam does not dominate all other considerations. But unless we can ensure that we are comparing two parties whose economic platforms are identical, we cannot distinguish the failure of Islam to influence voters from a failure of these parties’ economic policies or other considerations.

Now consider other cases. In Turkey, for most of the twentieth century a secular establishment delivered inconsistent economic performance while failing to address the social upheavals that accompanied modernization. Since 2001, the AKP has attracted popular support by campaigning on probusiness, yet socially minded, developmentalist principles. Yet following Table 1, this tells us nothing about the existence or nature of Islam’s political advantage. As it is, Islam’s importance for the AKP’s success remains a topic of debate.

Even more difficult is Iran, where avowedly secular parties have been effectively banned since 1979. While current parties vary in their ideological orientations, all place Islam at their ideological core. Yet their economic policies vary, and candidates employ both Islamic symbols and policy pledges to win votes. Absent parties that fall into the right-hand column of Panel A in Table 1, we cannot evaluate the role of Islam in shaping popular support for Iranian parties. The benefit of our experimental approach is that we can directly observe all of these quantities of interest.

The Method and the Indonesian Case

All conceptions of Islam’s political advantage rest on claims about voter preferences. As such, we base our analysis on popular support for different kinds of political parties, which we elicit using public opinion surveys. The Indonesian case fulfills three key criteria: (1) Islamic parties have a possibility of victory; (2) parties face no restrictions on their legal ability to campaign as Islamic versus other kinds of parties; and (3) elections are free and fair contests, so that respondents understand elections to be referenda about parties and their platforms. Few regimes in the Muslim world meet these basic standards for democratic electoral competition. Among those that do, however, political freedoms often remain circumscribed. The exception is Indonesia, both a consolidated democracy and the world’s most populous Muslim country.

Since the fall of the New Order regime in 1998, Indonesia has transformed from a dictatorship into a vibrant multiparty democracy. Political parties in Indonesia range from avowedly pluralist social democratic parties to openly Islamic parties. Free and fair national elections were held in 1999, 2004, and 2009. The most prominent Indonesian political parties in mid-2008 (when our survey was fielded) fall into two camps according to their ideological bases (asas). Their names and vote shares in the 2004 legislative elections appear in Panel A of Figure 1.

The first camp includes parties whose ideological basis is Islam. Together, these Islamic parties received just over 20% of the votes in the 2004 legislative elections. The Unity and Development Party (PPP) was founded in 1973 as the New Order’s official “Islamic” opposition party. PPP attracts some support from Islamists, but “local patron-client relations, more than pro-Islamic state sentiments, appear to have been PPP’s main source of support” (Mujani and Liddle 2009, 581) during the New Order period. By contrast, PKS, the Prosperous Justice

1In the supplementary materials, we show that Indonesia was the only Muslim country meeting minimal standards for both electoral competition and political liberties in mid-2008.
Testing Islam’s Political Advantage

Figure 1 Indonesian Political Parties

Panel A: Islamic versus Pancasila-based Parties

Share of pie indicates each party’s vote share in Indonesia’s 2004 legislative elections.

Panel B: Views of Seven Large Parties

Each column contains the distribution of responses to three questions about the seven largest political parties in Indonesia. Potential responses included “Agree,” “Disagree,” and “Don’t Know/Refuse to Answer.” Data come from Muslim respondents only. Figures may not sum to 100 due to rounding. † = Pancasila-based party with Islamic roots. ‡ = Islamic party.

Party, is one of the youngest Islamic parties in Indonesia, formed after its predecessor, the Justice Party (PK), failed to meet the minimal electoral threshold in 1999. PKS is a cadre-based party, one that eschews charismatic leadership in favor of grassroots mobilization, with linkages to similar parties in the Middle East (Eliraz 2007; Mujani and Liddle 2009). Whereas PK campaigned in favor of imposing Islamic law in 1999, PKS has since downplayed the Islamic language of its campaign messages in favor of economic empowerment and moral leadership. Its relatively strong showing in the 2004 legislative elections has been attributed to the mobilizational capacities of its cadres and to its campaign appeals for “clean and caring” government (Mujani and Liddle 2009, 582). The Moon and Star Party (PBB) and the Reform Star Party (PBR) attract the support of some devout Muslims, but lack the institutional legacy of PPP and the cadre-based system of PKS.

Nearly every other political party retains an official allegiance to Pancasila. Promulgated by Indonesia’s first president, Sukarno, Pancasila (“Five Principles”) is a religiously syncretic political ideology based on five core values held to be common to all Indonesians. While its interpretation has evolved over the years (Darmaputra 1988), since the 1970s the five principles have commonly been understood to be the acceptance of a single God, humanitarianism, the unity of the Indonesian state,

2This principle is interpreted very broadly; in common understanding, it simply rejects atheism.
democracy guided by consensus, and social justice (Panitia Lima 1977).

The idea that an Indonesian party’s platform is Pancasila or Islam—and that this is a politically salient cleavage today—has historical origins. Under President Sukarno (1945–67), Pancasila emphasized national unity and progressive reform while rejecting Islamic particularism. Pancasila was reformulated under President Soeharto (1967–98) as an ideological basis for the New Order regime, rejecting communism and Islamism alike. In 1982, Soeharto decreed that all political parties and organizations must adopt Pancasila as their sole foundation (asas tunggal). After 1999, this requirement lapsed, leading the PPP along with several new political parties to declare that their official foundations were no longer Pancasila, but Islam. The remaining parties retain allegiance to Pancasila. Among the largest Pancasila-based parties in mid-2008, the Golkar Party is the successor to Soeharto’s mass organization of the same name, PDI-P is the successor to PDI (the Indonesian Democracy Party, the New Order’s officially “nationalist” opposition party), and PD is the personal political vehicle for current President Susilo Bambang Yudhoyono.

The remaining two Pancasila-based parties, PKB and PAN, are distinctly different in that they are based on mass Muslim organizations but have consciously chosen to become open, multifaith parties with nationalist ambitions. PKB was founded in 1998 by leaders of Nahdlatul Ulama, a traditionalist Muslim sociocultural organization which claimed 50 million members in 2003 (Republika, January 9, 2003). PAN was founded in the same year by Amien Rais, former head of Muhammadiyah, a modernist counterpart of Nahdlatul Ulama which claimed 35 million members in 2003. In Indonesia’s first democratic period (prior to 1957), both Nahdlatul Ulama and Muhammadiyah supported Masjumi, an Islamic party which advocated the adoption of sharia law.³

**Survey Design**

To explore the nature of Islam’s political advantage, we conducted a nationally representative survey of 2,548 Indonesians in May 2008. Among developing countries, Indonesia exemplifies some of the worst of the difficulties associated with collecting survey data. Few of its 240 million people, divided into five large and thousands of smaller islands, spread across 3,000 miles, own telephones or have access to the Internet. Our survey was specifically designed to respond to these concerns.⁴ We began by a random selection, weighted by provincial population, of villages (desa) and urban wards (kelurahan) enumerated in national census data. In each selected village and ward we obtained a list of neighborhoods (rukun tetangga) from which we further sampled randomly. Lists of household heads (kepala keluarga) and household members were obtained from the neighborhood heads. Alternating by gender, respondents were chosen randomly from the lists using a Kish grid. The interviews were conducted face-to-face by trained interviewers. Our response rate was 89.3%.

**Experimental Method**

As part of the survey, we randomly assigned respondents to a series of hypothetical electoral choices. The precise wording is below, with italics highlighting the manipulation:

> If there were a candidate for president from a Pancasila-based party/Islamic party wishing to implement Islamic law, and you believed that/were unsure if that party’s economic policies would/would not develop our economy and increase the welfare of the people, would you vote for him or her?

Possible answers included “Yes,” “No,” and “Don’t Know/Refuse to Answer.” “Don’t Know” accounted for less than 1% of the responses in each experimental group, so we are comfortable discarding these responses from our analysis. We repeated this question two additional times, changing “president” to “the House of Representatives” and then to “governor.” As several districts have enacted sharia ordinances in recent years, we conjecture that respondents may be more willing to support Islamic parties at the regional level than at the national level. Each respondent accordingly answered three questions, each chosen randomly.⁵ Of our respondents, 88.3% self-identified as Muslims, and we restrict our analysis to this sample.

Our approach inevitably forced us to make hard choices about question wording. Our choices reflect deliberate ambiguity for certain concepts and precision for others. First, we chose a binary distinction between Pancasila-

---

³NU formed its own political party in 1955. Today, PBB claims to be Masjumi’s intellectual heir.

⁴We describe our method, sample, and quality control procedures in the supplementary materials.

⁵Precise question wordings for all questions are provided in the supplementary materials.
and Islamic party to reflect this fundamental ideological cleavage in Indonesian politics. We avoided the term “non-Islamic” because it might connote opposition to or removal from Islam. All Pancasila-based parties of any national standing count devout Muslims among their most prominent members, and none express hostility to Islam.

Second, we added the qualifier “wishing to implement Islamic law” in order to cue respondents into the distinction between an Islamic party and other parties with large Muslim constituencies. Recall that PAN and PKB are rooted in mass Muslim organizations but base their ideology on Pancasila, in contrast to the four Islamic parties that support some form of Islamic law. To ensure that respondents did not consider Pancasila-based parties as “Islamic” in our survey, we included the modifier “wishing to implement Islamic law” in our question wording. We show below that there is no evidence that this decision has biased our findings.

Third, we operationalized economic conditions using the phrase “would develop our economy and increase the welfare of the people” in order to ensure that respondents considered the policy implications of the party for all members of society. We did this to avoid appealing to respondents’ own interests and instead cue them into parties’ economic platforms. We believe that targeted appeals to personal welfare are important, but we leave this issue for further study. We do recognize that respondents may have interpreted the response in light of their own material interests regardless of our intentions. If, for example, poor respondents are more likely to both vote for Islamic parties and to interpret this question via their material interests, this might inflate our estimates of support for Islamic parties. Future studies may profit from providing respondents with a clearer definition of the economic policy content of various party platforms.

Fourth, we were deliberately ambiguous about what makes economic policy “good” or “bad.” In particular, we do not specify whether there is a trade-off between growth (“develop our economy”) and the distribution of the benefits of that growth (“increase the welfare of the people”). We chose to allow respondents to respond following their own belief about whether there is a trade-off between growth and distribution and to weigh for themselves the relative salience of these two issues in economic policymaking. We note, however, that all Indonesian political parties hold that their economic policies will result in broadly shared economic development.

Fifth, we do not have a natural “control” group among the six treatment groups. Yet while we take seriously the importance of control groups in survey experiments of the type reviewed by Gaines, Kuklinski, and Quirk (2007), this does not affect the inferences that we draw. All hypotheses are inherently relational: an advantage as compared to some other kind of party. As our goal in the Indonesian context is to ascertain the extent to which Islamic parties have an advantage over Pancasila-based parties, we are careful to compare Islamic parties to Pancasila-based parties rather than to parties of an unknown or unspecified type.

Sixth, we deliberately refrained from specifying actual parties in our questions in order to remove any chance that nonreligious and noneconomic factors such as leadership charisma or historical legacies (see Liddle and Mujani 2007) would influence respondents’ choices. Our goal is to approximate a true referendum among ideal types, not to gauge respondents’ views of particular parties. Respondents may have linked the prompt to their favorite (or least favorite) Indonesian political party, but randomization prevents this from systematically influencing our results. We likewise refrained from specifying concrete policy platforms. Rather than impose a single conception of what counts as good or bad policies, we allowed voters to consider whatever policies they would find appealing or unappealing to guide their responses.

Validity

One danger for this approach is that voters can imagine hypothetical Pancasila-based parties with favorable policies, but they nevertheless associate actual Islamic parties with good economic outcomes to a greater degree than they do actual Pancasila-based parties. While Islam and competence may be conceptually distinct, perhaps in actual politics they are not. If true, our hypothetical Pancasila-based parties with favorable economic policies would be purely hypothetical, diminishing the validity of our study. In Panel B of Figure 1, we check whether this is true using respondents’ actual views of the seven largest Indonesian political parties. We chose three variables that should correlate with respondents’ views about parties’ platforms; these are imperfect indicators, but they are the best available in our data. The figure shows that there are few substantive differences between the overall average perceptions of Indonesian Muslims about the seven political parties in question. This reassures us that our hypothetical questions are reasonable; for each party, a large plurality of Indonesian Muslims believes that it represents the interests of both the rich and the poor and is led by capable leaders, but that it is also corrupt.

Although differences across parties in Figure 1, Panel B are substantively small, they are in some cases statistically significant. But significant differences vary
by party, not by platform. That is, the proportion of respondents viewing PPP as representing the interests of all classes in Indonesian society is greater than the proportion believing that PD does (.661 vs. .630, p = .03), but the same cannot be said for PKS versus PD (.628 vs. .630, p = .90) or versus any other Pancasila-based party. Likewise, whereas the proportion of respondents who view PKS as free of corruption is larger than that for all other political parties (p < .01 for all comparisons), the similar proportion for PPP is only larger than that for Golkar and PKS (p < .001 for both) and not other parties. Finally, the proportion of respondents who believe Golkar’s leadership is more competent is higher than for PPP and PKS (p < .01 for both), but the same is not true for PDI-P.

We therefore find no evidence that Islamic parties as a whole are viewed differently than Pancasila-based parties, either those based on mass Muslim organizations or those with more avowedly pluralist backgrounds. Other party characteristics matter. PKS is perceived as slightly less corrupt than other Indonesian parties not due to its Islamic platform, but probably because of its dedicated focus on eliminating corruption. Golkar’s historical association with the New Order regime, the bureaucracy, and the indigenous Indonesian business community probably contributes to views that its leaders are comparatively better suited to rule than other parties. It is therefore unlikely that respondents overwhelmingly associate actual Islamic parties with good economic outcomes and Pancasila-based parties with the opposite.

The validity of our survey experiment also depends on the extent to which our randomization of questions truly yields six comparable treatment groups. We checked for balance across treatment groups by examining the choice of question (which defines our six treatment groups) across a range of observed responses to other survey questions. We were especially concerned that demographic variables, indicators of religious piety, and views of the economy and politics were each equivalent across treatment groups. We judge this to have been achieved when there is no evidence of a relationship between the responses to such questions and placement in a particular treatment group—the former the voluntary responses of the respondents, the latter randomly chosen by us. We examined a wide range of statistics to check for balance and find no evidence of any systematic differences among treatment groups on a range of underlying dimensions that might conceivably affect responses to our experimental questions.  

Findings

Figure 2 summarizes our main results. Mirroring the hypotheses in Panel B of Table 1, each column represents “Support 𝑗”, the proportion of Muslim respondents answering “Yes” to a question asking their willingness to vote for a party of type 𝑖 offering policy 𝑗. Error bars denote 95% confidence intervals. “Advantage” is calculated as SupportIslam,𝑗 − SupportPancasila,𝑗; we test our hypotheses through t-tests of the significance of this difference. We find no evidence that Islamic parties offering good economic policies are far more popular than parties of either type offering uncertain or unfavorable economic policies. This neatly dismisses the possibility that all Islamic parties are more popular than all non-Islamic parties.

Our other theoretical expectations operate through the comparison of Islamic and Pancasila-based parties that offer the same policies, represented in the t-tests arrayed along the bottom of Figure 2. We find no evidence that Islamic parties offering good policies are more popular than Pancasila-based parties offering the same and also no evidence that Islamic parties offering bad economic policies are more popular than Pancasila-based parties offering the same. These results contradict both of the conditional versions of Islam’s political advantage, and they hold across electoral contexts. In fact, we find evidence that Indonesian Muslim respondents are slightly more likely to support Pancasila-based parties offering good economic policies. Evidence of this is relatively weak for presidential elections (p = .061) but stronger for both legislative and gubernatorial elections (p < .001 for both). We discuss possible explanations for this finding below.

For now, we turn our attention to our own understanding of Islam’s political advantage, which holds that Muslim voters cue on Islamic platforms under conditions of uncertainty. We find consistent evidence that this is the case. Across electoral domains, respondents were significantly more likely to support an Islamic party than a Pancasila-based party under conditions of economic policy uncertainty (all differences are statistically significant at p < .005 in two-tailed tests). The effect is substantively rather small (ranging from 7.78 to 9.85 points), which is due to the fact that fewer than a quarter of respondents are willing to support a party whose economic policies

---

6 p-values come from tests of the equality of proportions (1 = agree, 0 = disagree or don’t know).

7 Complete results are provided in the supplementary materials.

8 Throughout, our inferences are unchanged if we use a binomial test rather than a t-test.
were stipulated to be uncertain. But the absolute level of support for such parties in general is immaterial for our purposes—we expect respondents to be suspicious about parties about whose policies they are uncertain, and we base our inferences not on absolute levels of support but on comparisons across types. Indeed, in all three electoral contexts, roughly twice as many respondents are willing to support an Islamic party as a Pancasila-based party under conditions of policy uncertainty.

Our first set of results accordingly demonstrates that Islam’s political advantage manifests itself only when a party’s economic policy platform is unclear to respondents. This finding is consistent with our hypothesis that an Islamic ideology serves as a cue to voters about the future intentions of parties, one that is only salient when economic policy platforms are unclear. In other circumstances—when policies are clearly good or clearly bad, and regardless of electoral context—an Islamic party ideology confers no political advantage.

We can also test whether respondents are more likely to support Islamic parties in electoral contexts other than presidential races using the data in Figure 2. In no cases are differences statistically different from zero at p < .1, so there is no evidence that respondents’ willingness to support Islamic parties differs across electoral domains. We might have expected respondents to be more likely to cue on Islam in institutional contexts where politicians have greater control over development policy. There are several possible interpretations of our failure to uncover differences in cueing across electoral contexts. Indonesian voters probably perceive party platforms and individual leadership as more important than formal institutions in general, so our respondents may have simply failed to notice the institutional context in our three survey items. It is also possible that voters do not have detailed understanding of the variation in economic policy responsibility across Indonesian political institutions.

A criticism of our approach is that it lumps all Indonesian Muslims together. Might there be “subgroups” of Indonesian Muslims among whom Islamic parties do have more of an advantage? While theoretical claims about Islam’s political advantage frequently are not
restricted to demographic or economic subgroups, we consider it quite plausible that heterogeneity in Muslim political attitudes might drive our null findings for some of the hypotheses we have tested thus far. A disaggregated analysis will also show which groups are most sympathetic to Islamic political parties under conditions of policy uncertainty.

We chose 11 different variables which might plausibly capture relevant subgroups in which Islam’s political advantage might be more likely to exist. The first five variables are demographic. Women captures the possibility that there exist gender differences in support for Islamic parties—women may be more likely to support any type of Islamic platform (Blaydes and Linzer 2008). Urban classifies respondents as residing in an urban area as defined by the Indonesian census. In Indonesia, much as in Turkey and Egypt, Islamic opposition parties are widely believed to be a primarily urban phenomenon. This is explained as a consequence of economic dislocation and feelings of disconnectedness from the modern economy, which are held to be more common among urban residents (who are presumably less connected to traditional social structures than are rural residents; Kaplan 1992). Non-Javanese includes all respondents whose primary ethnic identification is not Javanese. There is a common claim that ethnic Javanese are consistently more syncretic or “less orthodox” Muslims than other ethnic groups in Indonesia (e.g., Houben 2003, 165). Accordingly, we test whether our findings reflect the fact that Javanese are the largest ethnic group in our sample. Younger 50% includes all respondents below our sample median age of 38 years, for older Indonesians may have more internalized the norms of Pancasila than younger Indonesians raised in a time of increasingly conscious Islamization. Finally, High School corresponds to all respondents with a high school education or lower.

We next turn to economic characteristics which might condition respondents’ support for various economic policy platforms. Employed counts only those respondents currently employed. No High Income omits from the sample the respondents with household incomes above Rp 1.8 million per month (approximately US$193 in early June 2008). Low Income counts only the respondents with household incomes below Rp 800,000 per month (approximately US$86).

Finally, we examine three measures of piety. An influential perspective on Indonesian Islam classifies Javanese Muslims into three aliran, or “streams” (Geertz 1960). Members of the group known as santri espouse an orthodox version of Islam which seeks to purify religious practice from the influences of pre-Islamic Indonesian belief systems (Hinduism, Buddhism, and animism). Abangan are marked by continued influence of animist beliefs on their religious practices. Priyayi are a small bureaucratic class whose religious practices still retain the Hindu and Buddhist influences of precolonial Javanese court Islam. While the santri-abangan-priyayi trichotomy is properly a description of Javanese Islam rather than Indonesian Islam in general, santri connotes a kind of religious orthodoxy that can serve as an identifier of religious outlook for non-Javanese Muslims—most of whom tend to be more orthodox. Muslims who self-identify as santri might be more open to Islamic party platforms than those who identify as either abangan or priyayi. Pro-Sharia includes all respondents who either agree or strongly agree with the view that Indonesian law must be made consistent with Islamic law. Pro-Islam in Politics takes a broader view, capturing all respondents who believe that Islam should play a greater role in Indonesian politics. If Islamic parties have a systematic advantage, it should be among these respondents.

We present the results of the subgroup analysis in Figure 3. We calculated the difference between average support for an Islamic party and a Pancasila-based party—our measure of advantage—for each of the three economic policy platforms across each of the 11 subgroups. We plot this difference and its estimated 95% confidence interval, arranging the 11 groups horizontally. At the far left of each graph we include our results for all Muslims as a reference to show how restricting the sample changes the results. We focus here on presidential candidates.

We begin our discussion with our central theoretical claim, which is that Islamic parties have a political advantage when economic platforms are unclear. Results from the subgroup analyses in Panel B show that this finding is remarkably consistent. Across all 11 subgroups, we find that when economic policies are unclear, Islamic parties always have a statistically significant political advantage. Results from Panel C likewise confirm that an Islamic platform never confers an electoral advantage upon parties offering bad economic policies.

Our findings do change, however, in Panel A. Across all Muslims, we found that Pancasila-based parties had a small advantage among parties offering good economic policies. We see in Panel A that this weak advantage disappears in most of the subgroups. Differences are small and far from conventional levels of significance. But most

---

Data on respondents per category are available in the supplementary materials.

Results from other candidates are available in the supplementary materials.
"Islamic Advantage" is calculated as $\text{Support}_{\text{Islam},j} - \text{Support}_{\text{Pancasila},j}$ for each policy type $j$. The 95% confidence intervals are calculated from t-tests of the equality of the means of $\text{Support}_{\text{Islam},j}$ and $\text{Support}_{\text{Pancasila},j}$.

Interestingly, even among respondents who agree that Indonesian law must be consistent with Islamic law, we find no evidence that Islamic parties offering good policies gain more support than Pancasila-based parties offering the same. We cannot reject the null hypothesis that Islamic parties offering good economic policies are no more popular than Pancasila-based parties offering the same.

Together, these results give us greater confidence that the patterns we identify among all Indonesian Muslims hold regardless of the sample of Indonesian Muslims that we use. A weakness of our subgroup analyses is that our sample size inevitably shrinks, reducing our statistical power and making it more likely that we find null results among subgroups than among the general population. But our overall findings still hold.

**Discussion**

We have shown that an Islamic party platform only provides an electoral advantage to Indonesian political parties when voters are uncertain about parties’ economic platforms. But our other findings are interesting as well. Why, given the apparent appeal of Islam as a religion to
so many of its adherents, are we unable to find that Islamic platforms produce an electoral advantage in other contexts, at least among the most pious respondents in our sample?

Our answer is straightforward. Islamic piety does not entail support for political Islam. Indonesian Muslims have many demands on government, of which expanding the role of Islam in society or implementing Islamic law are only some, so it is natural that we find that other concerns dominate Islam in explaining mass support for political parties. To probe this, we asked respondents to choose the three most important governmental priorities from among 18 different choices. The percentage of respondents mentioning each appears in the online supplementary materials; we note here that “Implement Islamic law” was a top-three priority for only 2.3% of respondents, while “Protect Moral Values” was a top-three priority for only 1.7% of respondents. Instead, most respondents rated welfare, employment, stable prices, and national security as their main concerns. Indonesian Muslims look to their political leaders to deliver prosperity, safety, and capable government. In this, they are like voters anywhere else in the world.

An alternative explanation for our null findings is the argument that Indonesian Islam is inherently more moderate than Islam elsewhere in the world (see, e.g., Wanandi 2002). This is more contentiously phrased as what Azra calls the “myth of abangan,” which holds that “Southeast Asian Islam is not real Islam” (2003, 39). This might suggest that our cue for “Islamic party” is too strong, so that by including “wishing to implement Islamic law” we have set the bar too high for Islamic parties. Could our finding reflect an inherently moderate population that simply opposes the imposition of Islamic law in Indonesia? Almost certainly not. We find that 83% of respondents would support such a party if they supported its economic policies! Moreover, fully 56% of Muslim respondents (1,248/2,241) either agreed or strongly agreed that Indonesia’s laws must be consistent with Islamic law. Of course, there may be some respondents who were discouraged by the mention of Islamic law. But we have no reason to believe that they outweigh the portion of Islamic party supporters who might have believed that PKB and PAN (the two parties based on mass Muslim organizations but which maintain an affiliation with Pancasila) count as “Islamic” parties had we not presented this cue.11 Moreover, as we report above, even when we restrict our analysis to those respondents who agree that Indonesian laws must be consistent with Islamic law, we find no change in our main results. We are therefore confident that neither an inherently moderate population nor the cue “wishing to implement Islamic law” biases us against finding an Islamic advantage.

Our results tell us several things about party ideology and political competition in democratic Indonesia. Islamic party ideology is neither necessary nor sufficient for a party to attract mass popular support. In fact, Islamic parties must establish favorable economic policy credentials to have any hope of attracting the type of mass support necessary to defeat Pancasila-based parties. Both party types appear to have internalized these ideas, as all parties portray themselves as faithful stewards of the Indonesian economy—and their opponents as irresponsible, corrupt, or incompetent. These findings comport with research which has stressed the importance of social service provision in explaining the rise of PKS (e.g., Hamayotsu 2009), but provide the first rigorous evidence against the importance of Islamic party platforms themselves.

Our findings also reinforce that Pancasila-based parties in Indonesia must establish that they are credible economic managers; if they are unable to do so, Islamic parties will enjoy a small advantage over non-Islamic parties. The implication is that to know if Islam affects the electoral fortunes of particular Indonesian Islamic parties, we must take into account what the mass public believes about their policies and those of their competitors. By comparing across parties the proportion of respondents with favorable, unfavorable, or unclear opinions about these parties, we can examine the extent to which parties with Islamic platforms have the possibility of further gaining political strength. We lack data on respondents’ views of parties’ economic policies, but we do have information on general views about the largest Indonesian parties as of mid-2008.

To probe respondents’ views of Indonesian political parties, we return to Panel B of Figure 1. Across all parties, substantial numbers of respondents indicate that they are unsure about how to evaluate them. A small proportion of respondents are unsure about all parties. Eight percent of all respondents were unsure if any party represents the interests of all classes in Indonesian society, 11% were unsure if any party is led by competent leaders, and 14% were unsure if any party is free from corruption. These are the voters for whom Islamic parties have an inherent advantage, and they tend to be older, rural citizens with relatively low levels of education. A large majority of these respondents acknowledged voting in the 2004 elections, meaning that they could prove critical in close elections between Islamic and Pancasila-based parties.

We expect that these findings will travel to other Muslim-majority countries. In countries that hold free

---

11 We discuss this further in the supplementary materials.
free elections, we expect that respondents will be more responsive to economic and social service platforms than to Islamic party ideology and that Islamic parties will adopt ever more serious and public commitments to capable governance to complement their Islamic platforms. The new democratic governments in Bangladesh and Pakistan appear to reflect this, as does Hamas in Gaza. Given that we do see relatively high rates of support for an increased role of Islam in Indonesian politics among our respondents, and that our findings do not change when we restrict our analysis to only these respondents who hold such sentiments, we see no principled reason why these findings should not travel to other Muslim countries.

Of course, when regimes restrict Islamic parties from campaigning, inviting them to become symbols of anti-incumbent opposition to secular states, our findings may not hold. In such contexts, the very meaning of Islam as a political ideology may change, becoming a competing source of legitimacy for opposition movements in a way that does not obtain under conditions of free political competition. We of course cannot ascertain whether this is the case using evidence from democratic Indonesia. Still, the developmentalist messages of Islamic parties in Turkey (where elections are free but party platforms are not) and Malaysia (an authoritarian regime with relatively free elections) are consistent with our argument.

Conclusion

Islamic parties the world over have linked pleas for spiritual renewal and Islamic ethics with messages of economic empowerment. Some suggest that Islamic messages play a central role in explaining the rise of such parties, while others argue precisely the opposite. Existing studies have not collected the proper data to adjudicate between these two possibilities, and existing research is conceptually unclear about how Islamic party messages might explain aggregate support for Islamic parties. In this article we remedy both of these problems. We develop a complete set of coherent hypotheses about Islam’s political advantage and collect the exact data needed to test them using the case of Indonesia, which offers the unique benefits of being both a consolidated democracy (making it perfectly suited for conducting our empirical investigation) and the world’s most populous Muslim country.

Our methodology takes seriously, but our findings reject, both the reductionist view that Islamic platforms play no role in explaining Islamic party support and the essentialist view that Islamic platforms always play a role in explaining party support. Adopting a nuanced view of how religion interacts with mass public opinion towards political parties, we show that Islamic platforms only influence the aggregate political support that parties receive when voters are uncertain about parties and their policies. Concern with economic policy dominates concern with Islamic platforms among Indonesian Muslims, but within this framework, we can identify situations in which Islamic platforms will play a powerful role.

We see this as the first step in a broad research program on religion and political economy in the Muslim world and beyond. The problem of separating religious motives from material interests in explaining mass support is common to all confessional parties, not just Islamic ones. For this research to be cumulative, researchers must start with a common set of concepts about the role of religion in mass support for political parties, develop falsifiable hypotheses based on these concepts, and use research designs that provide the necessary data to test them. But we stress that this research must also be sensitive to national political contexts. Understanding the specific political environments in which confessional parties operate is the crucial first step towards developing a general understanding of how religious appeals affect party success.

References


International Herald Tribune, February 17, 2008.


---

**Supporting Information**

Additional Supporting Information may be found in the online version of this article:

1. Democracy and Political Freedom in the Muslim World
2. Indonesian Version
3. Survey Design
4. Treatment Balance
5. Subgroup Analysis for Gubernatorial and Legislative Candidates
6. The “Sharia Law” Cue
7. Government Priorities
8. Respondents’ Views of Seven Large Indonesian Political Parties

**Table 1:** Political Regimes and Freedom in the Muslim World (Freedom House 2009)

**Table 2:** Total Number of Respondents, by Province and Urban-Rural Cleavage

**Table 3:** Treatment Groups and Binary Demographic Covariates

**Table 4:** Treatment Groups and Continuous Demographic Covariates

**Table 5:** Treatment Groups and Religious Behavior

**Table 6:** Treatment Groups and Political Attitudes

**Table 7:** Subgroup Variables

**Table 8:** What Should the Government’s Three Main Priorities Be?

**Figure 1:** Subgroup Analysis, Legislative Candidates

**Figure 2:** Subgroup Analysis, Gubernatorial Candidates

Please note: Wiley-Blackwell is not responsible for the content or functionality of any supporting materials supplied by the authors. Any queries (other than missing material) should be directed to the corresponding author for the article.