# The public morals - public services tradeoff: Theory and evidence from Sharia regulations in Indonesia *

Attila Gáspár†

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**Abstract**

Campaigning on value-based and highly divisive issues can serve as a cheaper alternative to provision of goods and services, so politicians have an economic incentive to cater to hardliners. I use a voting model to examine this idea, and show the existence of such a mechanism using Indonesian data. About half of the district governments in Indonesia have been experimenting with Sharia-based religious policies since 2000. In line with the main prediction of the model, I identify the negative impact of policies on government expenditure and services using difference-in-differences and instrumental variables methodologies. The first IV exploits village-level variation in the number of religious schools using a leave-out mean design, the second IV exploits regional variation in religious schools interacted with the country-wide increase in religiosity using a shift-share design. The conservative estimate of the impact is a 10 percent decrease in both spending and in the value of a standardized government services index. Regions which adopt Sharia-based regulations also experience an increase in poverty and in the frequency of violent incidents. The calibration of the model suggests that the total utility of the secular voters can decrease by as much as four times as the decrease in observed outcomes would justify. The evidence is consistent with the notion that politicians use divisive policies to strategically redistribute utility across voters while reducing the supply of material wellbeing.

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†PhD Candidate, Central European University, Department of Economics and Business. Contact address: Central European University, Department of Economics and Business, 1051 Nador utca 13, Budapest, Hungary; Email: gaspar_attila@phd.ceu.edu; Phone: +36 305267196

# I Introduction

Democracies across the globe are experiencing the emphasis of politics shifting from "what we want" to "who we are" (Fukuyama 2018). The existing literature in economics mostly focuses on the demand side determinants of the increasing salience of ethnic, religious[1] and national identities and of the intolerance[2] that commonly comes along. Less is known about the supply side incentives of politicians to cater to these demands, and the impacts of such decisions.

I argue in this paper that divisive issues are cheap for politicians, while providing goods and services based on a policy platform (when institutions are strong), or building a network of clientele (when intstitutions are weak) are more expensive. Supply side incentives (such as the lucrativeness of the position) and demand jointly determine which politician acts as a champion of virtues, and which does not. The result is a substitution between public morals and public services: the politician who offers more of one will deliver less of the other.

As the first contribution of this paper I put forward this idea formally. Then I present evidence on the relevance of the mechanism in the context of conservative religious regulations in Indonesia, the most populous Muslim-majority country. Over the last two decades since the fall of the military rule in 1998, many of the elected district heads of the newly democratized and decentralized country decided to implement regulations inspired by Sharia, or traditional Islamic law. These regulations often sparked controversy locally, and have inspired an extensive literature in political science, which is, to the best of my knowledge, almost exclusively qualitative.[3] The second contribution of this paper is to show counterintuitive quantitative stylized facts on the correlates of these Sharia regulations. The third, most important contribution of the paper is that it measures the impact of the policies on spending, government services and social outcomes. While the existing literature mostly concerns the impact of one particular religious institution or policy,[4] in this paper the "policy" being evaluated has two elements: a restrictive regulation justified on religious grounds, and a change in the nature and the quantity of transactions between voters and the government.

[1] Bentzen (2015) and Belloc *et al.* (2016) find that natural disasters globally religiosity.Binzel & Carvalho (2016) show that secularization trends in Egypt reversed as a consequence of declining social mobility. Chen (2010) argues that religion offered ex post insurance for financial distress during the Indonesian financial crisis.Henderson & Kuncoro (2011) show evidence that the voters in the early 2000s in Indonesia chose Islamist parties to curb corruption in local assemblies.

[2] The most recent focus is populism in the West (Bursztyn *et al.* 2017; Di Tella & Rotemberg 2018; Enke 2018; Guiso *et al.* 2017; Pastor & Veronesi 2018; Rodrik 2017). In broader contexts we know of economic analyses of intergroup conflict (Esteban & Ray 2008; Jha 2013), religious extremism (Iannaccone & Berman 2006).

[3] The earliest paper I encountered is Bush (2008); Buehler (2016) is the most extensive source; Other papers usually focus on a specific case study or a specific characteristics of Sharia-politics in Indonesia(Buehler, 2008; Buehler & Muhtada, 2016; Crouch, 2009; Nastiti & Ratri, 2018; Pisani & Buehler, 2016; Van Dijk & Kaptein, 2018).

[4] Within the context of Islam, the impact of the religious foundations (Kuran, 2004; Bazzi *et al.*, 2018), the pilgrimage to Mecca Clingingsmith *et al.* (2009), inheritance rules (Alfano, 2017), and fasting during the month of Ramadan (Oosterbeek & van der Klaauw, 2013; Majid, 2015; Campante & Yanagizawa-Drott, 2015) were studied recently.

To assess the impact of Sharia-inspired regulations I first compare adopting and non-adopting regions in a difference-in-differences setting. Then I use two different demand-side instruments for religious policies that rely on different identification assumptions. The first uses within-region variation in preferences.[5] The second exploits pre-policy regional patterns of demand for Sharia interacted with the country wide growth rate of preference for religious policies. The three identification strategies, though rely on different identification assumptions, yield similar results and show a decrease in public good provision and public employment expenditure, while poverty increases and violent incidents become more frequent.[6] As a final exercise, I use the voting model to infer from election results the unobserved welfare changes caused by Sharia regulations. This suggests that the regulations have a significant direct negative impact on the secular voters beyond the reduction in state services.

In Section II I structure my empirical analysis by introducing a simple model of elections which focuses on policy choices of the incumbent. The politician faces the countervailing incentives of keeping spending down (which increases rents given reelection) and probability of reelection up (which can be done by spending on public employment). Besides spending, he or she can introduce a divisive policy that pleases the hardliners a lot, but alienates everyone else a little bit.

The model has three main predictions. First, the incumbent who introduces the divisive policy will have less people in public employment and thus provide less public services. The reason is that if the policy gives a big enough electoral edge for the office holder, he or she will be better off employing somewhat less people and enjoy higher rents from office. This is the central result, the public morals - public services tradeoff. Second, if the wage at which the incumbent can employ people is high, clientele building is more expensive which makes ideological campaigns more attractive. Third, the incumbent will be less likely to introduce the divisive policy if (exogenous) state revenues are abundant. Such large stake elections need broader coalitions, so catering to hardliners is less attractive. The first prediction contradicts the common notion that hardliner politicians are "effective" and "get things done". The second suggests that politicians are more attracted by the extremes in more developed areas (where wages are higher). The third suggests that abundance of money can discourage conflictive politics, which contradicts our present knowledge on the resource curse.[7] As the predictions are counterintuitive, it is very important to take them to the data and see how realistic they are.

[5] Village (*desa*) is the smallest administrative level of territories, so the whole country is subdivided to "villages", not just rural areas. The levels are 1) villages (desa or kelurahan) 2) subdistricts (kecamatan) 3) districts or cities - where Sharia regulations are introduced (kabupaten or kota) 4) provinces (propinsi). The average population of a village was almost 3500 in 2011.

[6] I use the INDODAPOER regional data set of World Bank, and village level PODES data set of the Indonesian Statistical Center (BPS), and the National Violence Monitoring System data of the Indonesian Ministry for Human Development and Culture, and the Indonesian Family Life Survey of the Rand Corporation for auxiliary evidence.

[7] When institutions are weak exogenous revenues are broadly understood increase conflict, harm accountability, increase adverse selection and further weaken institutions ( Mehlum *et al.* 2006; Robinson *et al.* 2006; Ross 2008;Paler 2011;Brollo *et al.* 2013; Ross 2015; Berman *et al.* 2017).

In Section III I present stylized facts about the economic correlates of Sharia regulations in Indonesia using a unique dataset.[8] Regions that introduce Sharia regulations are initially more urban and developed (in terms of GDP/capita), have higher minimum wage and lower poverty rates. Regions that have more revenue from exogenous sources will be less likely to introduce religious policies. These more lucrative districts also see more candidates competing for them and higher chance of the incumbents being ousted from office. These findings, though correlational only, are nevertheless closely in line with the second and third predictions of the model.

To test the first prediction, in Section IV I estimate the causal impact of religious regulations on spending, public services and welfare indicators. I use three different, complementary identification strategies. The first design is a simple difference-in-differences (DID) analysis where I exploit regional and time variation in the implementation of the religious policies. I compare over time outcomes of regions that implement Sharia regulations to regions that do not in a setting with geographical and time fixed effects and a variety of control variables including lagged economic indicators and regional government income, which is mostly determined by exogenous factors.[9] I present the results both in fixed effect regression and in event study forms. I find that in election cycles where the incumbent is introducing religious policies spending on public employees is lower by about ten percent, while total spending does not differ significantly. A village-level standardized index of government services drops by 8 percent of a standard deviation following the introduction of the first religious policy in the region, and villages are 1.5 percent more likely to have a slum area.[10] Regional poverty rate goes up by 1.5 percentage points on average, and violent incidents become more frequent by .26 percent when religious policies are introduced. The DID analysis relies on the assumption of parallel trends, meaning that if the policies had not been introduced, other things equal the outcomes of adopting and non-adopting regions would have evolved similarly over time. If adoption of religious policies happened at random, this would be an entirely plausible assumption, but they are not happening at random. As a consequence, if the factors that shift supply and demand of religious extremism are correlated with the outcomes, the estimates are biased. I rule out several alternative causal mechanisms, but demand side omitted variables remain a concern. I use two different sources of variation in demand that shift the policy variable exogenously in the second and third empirical designs.

In the second design I hold village level demand for Sharia fixed and use variation in demand for Sharia

[8] Based on Buehler (2016) and my original data collection.

[9] The median share of locally generated revenue in the regions is 5% over the study period. Most regional government revenue is allocated through government block grants and natural resource revenue redistribution mechanisms. These are formula-based allocation schemes and generate large variation in local government revenue. In 2010, for example, the region at the 99th percentile of the revenue distribution had 17 times more revenue per capita (!) as the region at the 1st percentile.

[10] I use this indicator as the village level proxy for poverty, as poverty rate statistics are not available on the village level in PODES.

regulations from other villages in the same region. Across regions the strongest predictor of religious policies is the number of a particular type of Indonesian private Islamic school (the *pesantren* ), and these schools have been previously identified as the promoters of religious policymaking and the drivers of the Islamic turn.[11] I observe the number of these schools on the village level, so I use their presence to measure village level variation in demand and instrument the introduction of religious policies with their regional leave-out-mean for every village.[12] This way I use only that variation in the probability of receiving a policy that comes from demand shifts from outside the village. In an instrumental variables regression with year and village fixed effects I estimate the effect of religious polices on government services at -40 percent of a standard deviation, marginally insignificant at 10 percent level (p=0.101) and +7 percent increased probability that the village has a slum, also insignificant. The noisiness can be explained by within-region heterogeneity in effect size - the impact on government services becomes strongly significant on the subsample of villages that themselves had no religious schools, suggesting that more secular areas are impacted more by the policy. This identification strategy does not depend the assumption of regional parallel trends, but on two exclusion restrictions. First, that religious demand of any village only affects the outcomes of another village in the region through the introduction of the religious policy. Second, that conditional on regional economic characteristics the shift in the number of schools represents a shift in demand for religion. Placebo tests and sensivity analysis of the estimates using different specifications of the leave-out-mean support the validity of these assumptions.

In the third design I interact pre-policy regional variation in preference for Sharia with the country level growth rate in Islamic schools to obtain a shift share-type instrument.[13] The intuition behind this instrument is that the whole country becomes more religious over time, but this will translate to increasing demand for religious extremism more directly in localities where there was already an established hardliner base.[14] I estimate the impact of Sharia regulations on the regionally aggregated government services index at -10 percent of a standard deviation in an instrumental variables regression with region and time fixed effects, while the impact on poverty rate in a similar setting is a 5 percentage points increase. Both results are statistically significant. This identification strategy needs on one hand that the assumption that pre-policy variation in the preference for Sharia regulations is exogenous to later variation in the relevant outcomes. On the other hand, while it permits regional variation in demand for religious regulations to be endogenous,

[11] There are examples both in the political science (Buehler 2008,2016) and in the economics literatures (Bazzi *et al.*, 2018).
[12] For every village the average number of *pesantren* in all other villages.
[13] Similar to Bartik (1991).
[14] An analogue from the migration literature (which extensive uses shift share instruments) is that historic patterns of immigrant communities are exogenous, and total migrant inflows from a particular country are exogenous, too (the first is the "share", second is the "shift" part in the term "shift share instrument"). Then instrumenting inflows to a particular locality amounts to using the variation coming only from the fact that the locality had a migrant community already, and that migrants prefer to go to places where they find their conationals.

it assumes that the overall, country-wide time trend is not. The estimates are robust to choosing different types of baseline variation in Sharia demand, including pre-policy difference in the presence of Islamic schools and a pre-Suharto era historic proxy.[15] Even though none of them individually eliminates all identifaction concerns, the results from the three identification strategies together robustly show that government services and material welfare decline as a consequence of Sharia-inspired local government regulations. However, this does not mean that they are altogether welfare decreasing. Campante & Yanagizawa-Drott (2015) show that negative economic impacts of religious institutions can be more than offset by their positive impact on subjective wellbeing. The results in Section IV show that politicians push for a substitution between these two, but does not reveal the overall impact on utility and how utility is being redistributed between supporters of religious policies and the rest of the population.

In Section V, the final part of the paper, I take the model from Section II to the data. First I estimate the "taste parameters" for religious regulations of groups of voters given observed regional characteristics, policy decisions of incumbents, and their eventual electoral performance. Then I use the estimated parameters to calculate what is the utility loss of the secular voters that is consistent with observed voter behavior. For the religious voters I set up a lower bound that establishes at least how much utility they had to gain in order for the religious policy to be welfare increasing on the aggregate. I find that drops in welfare for the secular can be four times as high through the unobserved direct channel than through the channel of the public morals-public services tradeoff, and subjective utility of devout voters has to be on average ten times as much as the subjective disutility of secular voters in absolute terms in order for the policies to be welfare increasing on the aggregate.

[15] The three specifications are: 1) the percentage of all *pesantren* that are in the district in 2000 2) the share of *pesantren* in all comparable educational institutions in the district in 2000. 3) the 1955 vote share of the Masyumi Party, which advocated a widespread adaption of Islamic Law in Indonesia, and was later banned.

# II A model of clientele building and extremist policies

## *II.A Setup*

The model focuses on the policy decisions of the incumbent (as in Strömberg 2004), who is running for reelection against $J$ challengers. The incumbent is maximizing expected rents from office,

$$V_1 = Pr(reelected) \times M - \omega N_E - s \cdot c$$

where $M$ is the office value, which can be thought of as all the state funds the incumbent can freely dispose of. He[16] has two policy tools at hand. He can build a clientele, meaning that he hires $N_E$ people into public employment at cost $\omega$, which can be thought of as the wage net of subjective utility from employing people or monetary kickbacks. He can also decide to implement a divisive policy ($s = 1$ if he does so) at fixed cost $c$. In the simplest case the incumbent is unconstrained in spending state funds[17], so he will spend until $\frac{\partial Pr(reelected)}{\partial N_E} = \frac{\omega}{M}$. Public employment in this context serves as a token for any relationship between the elected official and the voter that is contractable to some extent.

Challenger behavior is taken as exogenous, as if they had a fixed campaign budget $\bar{M}$ which they all spent on mobilizing voters at a per capita price of $p$. Their decision and their entry can be endogenized [18], but that does not change the main insights.

Incumbent votes are determined by equation

$$Votes_1 = (1-s) \times \underbrace{(\Delta\pi_E N_E + \pi_{NE} N)}_{\text{Inc. votes without divisive policy}} + s \times \underbrace{(N_R + \Delta\pi_E^S N_E + \pi_{NE}^S (N - N_R))}_{\text{Inc. votes with divisive policy}} + e_1, \tag{1}$$

while challengers get votes according to

$$Votes_j = (1-s) \times \underbrace{(\Delta\pi_B N_B + \pi_{NB} N)}_{\text{Chall. votes without divisive policy}} + s \times \underbrace{(\Delta\pi_B N_B + \pi_{NB} (N - N_R))}_{\text{Chall. votes with divisive policy}} + e_j. \tag{2}$$

$\pi$s are individual voters' probabilities of voting on a given candidate. $\pi_{NE}$ is the probability that a non-employed votes for the incumbent, while $\Delta\pi_E$ is the extra probability that she votes for the incumbent given she is employed. $\Delta\pi_E^S$ and $\pi_{NE}^S$ are the same probabilities in the case that $s = 1$, that is, the incumbent introduces a divisive policy. Similarly, $\pi_{NB}$ is the probability that a not bribed voter votes for a challenger, while any individual bribe will convey an extra voting probability of $\Delta\pi_B$. $N$ is the total number of the electorate, while $N_R$ is the number of hardliner voters, while $e_j$ is an iid. turnout shock. Let's turn to the

[16] I use the male pronoun because in the Indonesian example the vast majority of districts heads are male.

[17] Relaxing this will result in lower reelection probabilities, and the incumbent will choose the corner solution for a larger part of the parameter space (see Appendix), but does not change the essence of the analysis.

[18] As if they, too, maximized $Pr(elected) \times M$, and entered the race until that value was over a certain fixed threshold.

main assumptions on voting behavior.

First, $\Delta\pi_E^S < \Delta\pi_E$ and $\pi_{NE}^S < \pi_{NE}$ , that is, the moderate voter will be less likely to vote for the incumbent if he introduces the divisive policy. The reason is that these cause some disutility for the moderate voters, as they enforce some sort of behavior on them.

Second, if $s = 1$, the hardliner voters will vote for the incumbent in any case, so the incumbent will have $N_R$ votes at least. If $s = 0$, there is no difference between the behavior of the hardliners and the moderates.

Third, the candidates take voting $\pi_{B,E,NB,NE}$ probabilities as given. An approximate microfoundation can be provided to this behavior by assuming that voter $j$ gets utility $\beta B + \delta E - s\varsigma + \nu_{ij}$ from candidate $i$, where $B$ is an indicator of having received a bribe, $E$ is an indicator of being in public employment and $s$ is an indicator if the canditate introduced a the divisive policy, and $v_{ij}$ is an iid. popularity shock. The approximation is in that I assume that there are enough voters so that candidates don't cross-bribe and employ each others votes, and that candidates consider everyone that they did not bribe or employ voting for them with the same probability, regardless of them being bribed or employed by another candidate. This can be thought of as the candidates having a heuristic about their general popularity within the electorate, or that they are approaching different pools of voters altogether, such as their ethnic group or people in their geographical proximity.

If $e_j$ is assumed to come from a Type-I extreme value distribution, then the probability of winning for each candidate will conveniently be of a logit form. Thus, the election probability for the incumbent will be, without introducing the divisive policy:

$$P = \frac{\Delta\pi_E N_E + \pi_{NE} N}{(\Delta\pi_E N_E + \pi_{NE} N) + Jexp(\Delta\pi_B \frac{\bar{M}}{p} + \pi_{NB}(N - s \cdot N_R))}$$

And with introducing it:

$$P = \frac{N_R + \Delta\pi_E^S N_E + \pi_{NE}^S (N - N_R)}{N_R + \Delta\pi_E^S N_E + \pi_{NE}^S (N - N_R) + Jexp(\Delta\pi_B \frac{\bar{M}}{p} + \pi_{NB}(N - s \cdot N_R))}$$

Now the incumbent's problem can be solved. He will introduce the divisive policy if it gives him higher expected payoff. To see if this is the case, we need to solve for the optimal public employment $N_E^*$ with and without the policy, and check which gives higher expected utility.

*II.B Results*

**Proposition 1: existence.** The incumbent introduces the divisie policy iff $N_R > \underline{N_R}$, where $\underline{N_R}$ is a threshold that is a function of the model parameters only. Proof: see Appendix.

**Proposition 2: the public morals - public services substitution.** If the incumbent decides to introduce the divisive policy, he will set lower public employment levels. Proof: see Appendix. The intiution is that buying votes is costly, and he has an incentive to keep costs down. So if he can deliver some votes at a fixed cost, he will use some of that advantage to keep his variable costs at bay, that is, the size of his clientele.

**Proposition 3: comparative statics.**

$\frac{\partial N_R}{\partial M} > 0$**;** $\frac{\partial N_R}{\partial \omega} < 0$**.** Proof: see Appendix

The threshold number of the hardliners over which the incumbent introduces the divisive regulation is increasing in office value. That is, the policy will be less likely to occur in regions which have high office value.The intuition for this is the following. The problem of the incumbent is such that he wants to set his re-election probability to a fixed level with public employment. This target probability is increasing in $M$: the more valuable the office is, the surer he wants to get about winning the election. Thus he is going to need more votes. On the other hand, divisive policies render all votes more costly after the first $N_R$. So the incumbent would need more votes under higher $M$, and he would also be doing a worse job at getting them with the divisive policy.

On the other hand, the threshold is decreasing in employment cost. That is, if wages are high, the incumbent will be more likely to introduce divisive policies. The intuition is that ideology and clientelism are substitute technologies, and $\omega$ is the price of clientelism. Thus the incumbent substitutes away from clientelism if its prices are high.

*II.C Welfare*

I define total material welfare of electorate as:

$$\sum W_i = N_E\delta + N_B\beta - (N - N_R)\,\varsigma_1 + N_R\varsigma_2$$

Where$\delta$ is the individual utility of employment; $\beta$ is utility from bribe; $\varsigma_1$ is direct effect on the secular, $\varsigma_2$ is direct effect of the religious. Total effect of divisive policies on average welfare then:

$$\bar{W}_S - \bar{W} = \underbrace{\delta\left(\frac{N_E^S}{N} - \frac{N_E}{N}\right)}_{\text{Substitution effect}} - \underbrace{\varsigma_1\left(\frac{N - N_R}{N}\right) + \varsigma_2\frac{N_R}{N}}_{\text{Direct effect}} \tag{3}$$

The first part I call the substitution effect: this is due to trading off public services for public morals. The second part is the direct effect: this is any direct impact of the policy on the moderate. In the case of the Sharia regulations these would be the utility loss due to having to close a store, having to undergo extra education, or suffering from vigilantism. The main goal of the empirical section is to estimate the substitution effect, while the final structural exercise aims at uncovering the direct effect on the secular, $\varsigma_1\left(\frac{N-N_R}{N}\right)$. The parameter $\varsigma_2$ is the extra utility of the hardliners that they have from having their demands put into policy. As the number of the hardliners will be only observed through a proxy, and because the model imposed the restriction that the hardliners vote for the incumbent with certainty, I will only able to estimate a lower bound on this parameter. Essentially I say that the total utility of the religious must be at least this much to explain observed voter behavior. This approach acknowledges the results of Campante & Yanagizawa-Drott (2015) who find that negative effects of religious institutions on economic performance might be offset by subjective wellbeing.

# III Context, data and stylized facts

### *III.A Institutional context and local politics*

The fall of Suharto in 1998 following the economic crisis of the same year instigated a wave of reforms in Indonesia. The next year saw the first free elections in decades, and the passing of crucial legislation on the decentralization of the government.[19] The administrative level of regencies and cities (which I jointly refer to as "regions" or "districts" throughout the paper)[20] gained considerable autonomy in a wide range of policies; so wide that it is easier to note the exceptions where the central government maintained authority, such as foreign affairs, national defense, justice, monetary policy and religion. The newly elected legislatures chose the new president and the district heads where the latter's five-year term was through.[21] Indirect election of the executives was changed to direct election in 2004 in case of the office of the president of the republic and in 2005 onwards for district heads.[22] Additional fiscal decentralization came about in 2005 which furthermore increased the capacities of district governments.

One heritage of the Suharto regime is that parties are only weakly institutionalized locally. Rather than being the recrutational base for new politicians, anecdotal evidence suggests that parties offer their support as a commodity for political entrepreneurs who run in regional politics (Buehler & Tan, 2007). At any rate, single-party endorsements are the exception, not the rule. Under this institutional configuration, it is not very suprising that ideological differences between most candidates are not very salient, and factors such as material transfers to voters (in cash or in kind), personal charisma and group loyalty are among the most important.

There is a widespread agreement that the political and fiscal empowerment of the districts *de facto* meant the empowerment of the district heads, who enjoy discretion over policy and spending. As a result, the office is a rather attractive one. As early as 2005, mounting a serious campaign for district head required spending between $180,000 to $1.6 million in USD (Rinakit, 2005). Candidates, on the other hand, receive relatively low amount of monetary support from the state, so most sources are round up from private donations. These are subject to donation caps, but sanctions are mostly unenforceable; essentially, the system is designed to be non-transparent (Mietzner *et al.*, 2011). Vote buying is pervasive(Aspinall *et al.*, 2017). Businessmen write

[19] Laws 22/1999 and 25/1999

[20] Regencies (kabupaten) consist of mostly rural areas; cities (kota) are urban centers.

[21] The latter generated exogenous variation in the timing of local government democratization, which is used byMartinez-Bravo *et al.* (2017); Martinez-Bravo (2014)

[22] Again, indirectly elected district heads were allowed to complete their tenure, so districts could have there first direct district head election any time between 2005 and 2009. Only very recently have been a centralized effort made to synchronize local elections across the country.

checks expecting government contracts should their candidate assume office; candidates themselves accrue significant debts during the election process(Buehler & Tan, 2007). Burhanuddin *et al.* (2018) reports that as many as one in three voters in can be exposed to vote buying in national elections, and posits that in local elections, where electorates are smaller and ties are stronger, it might be even more pervasive.

Cyclicality in government spending is suggestive that incumbents regularly use government funds to sustain their majorities (Sjahrir *et al.*, 2013, 2014), and certainly there has been significant incumbent advantage present in local elections since the beginning until recently (Martinez-Bravo *et al.*, 2016; Fossati *et al.*, 2017). Particularly important is the maintaining of patronage networks: bureaucratic jobs are used to maintain patron-client relationships and deliver the votes necessary for reelection of members of the elite (Van Klinken, 2009; Simandjuntak, 2012).[23]

### *III.B Sharia regulations*

According to the 2010 census, 87% of the population of Indonesia identifies as Muslim, and they are predominantly of the Sunni denomination. Though the first of the "five principles" (pancasila) guiding Indonesian nationalism has been the belief in a one and only God, the Indonesian state is a secular one. Though the national government maintained an exclusive authority in religious issues, local politicians found their way around this and starting from 1999 began to introduce regulations which they perceived as being in line with, or aiming to uphold or restore Sharia, traditional Islamic law. Originally meaning the divine law governing the world[24], and the way through which this law can be uncovered through deliberation, Sharia over the centuries became a powerful political symbol which condenses a claim to preserve or to create a vaguely defined "Islamic way of life".[25] While five of the ten most populous countries on Earth make reference to Sharia in their legal systems [26] and surveys shows that a majority of Muslims supports Sharia 29 out 39 countries surveyed (Pew Research Center, 2013), these figures are not very enlightening as to *what* these people actually support, as the term has no direct mapping into a set of policies.[27] Nevertheless, Sharia as a political symbol has become popular with Islamophobes and Islamists alike, and became popularly (and wrongly) identified with a set of regulations ranging from charitable giving and financial transactions to

[23] This can be true to the lowest levels of the administration: anecdotal evidence suggests even the jobs of primary school teachers can be part of patronage networks. (Pisani, 2014)

[24] The Encyclopedia of Islam reports "pathway to water" as the word's literal sense (Calder and Berry 2007 in Campo 2009)

[25] For the evolution of the concept see Hallaq (2009).

[26] Those are India, Indonesia, Pakistan, Nigeria and Bangladesh.

[27] Much like terms such as "Christian values" or "European values". Being of a vague enough terminology, most people in the West would subscribe to these, without giving a second thought of any policy implications or how some politicians abuse the very same words.

public morals, elements of family law, such as marriage and inheritance, and also penal punishment. [28]

The regulations adopted by district governments in Indonesia has been focusing on these policy areas. The political science and sociology literature has been studying these regulations for a decade, from the early work ofBush (2008) to the recent comprehensive account of Buehler (2016). I use the list of regulations compiled by these scholars as primary data source along with own data collection and a deeper analysis of the regulations' actual content.[29] It is important to note that these regulations are passed by politicians of a secular background (Pisani & Buehler, 2016) to gain support from religious voters and pressure groups from outside existing patronage networks(Buehler & Muhtada, 2016). Figure 1 shows the map of the prevalence of Sharia-based regulations until 2013.

I categorize these pieces of legislation into two broad groups, which I call prohibitive and normative. Prohibitive regulations are the ones which severely constrain or ban altogether the selling, distributing and consuming alcohol; increase the crackdown on drugs and prostitution; enforce the retail restrictions imposed by Islamic festivities. Normative regulations, on the other hand, try to actively change behavior: they regulate religious almsgiving, attire, the interaction of sexes in public, required levels of religious knowledge.

The reason why I do not provide a more fine-grained categorization in the analysis is that Buehler (2016)argues that in many cases it is not the exact content of the regulations which matters the most but the fact that any such regulation takes effect. It might happen, that the regency legislates the banning of alcohol, and vigilante groups start policing places they deem "immoral" and enforce attire rules which were not at all mentioned in the text. Thus, one channel through which the policies might have an effect is an increased general level of intolerance and public concern about religious values which is independent of the actual content of the legislation **(Nastiti & Ratri, 2018)**.

Typical examples of these regulations include the following:

- Regulation 2002/6 of the city of Batam sets to build a society based on Islamic morals; this regulation includes a provision that people of the opposite sex who are not married are prohibited from living under the same roof[30]

- Regulation 2003/5 of the regency of Bulukumba sets the appropriate dress code for man and women; for women this includes wearing a hijab and garments that cover ther hips and ankles.[31]

- Regulation 2001/5 of the city of Cilegon makes it illegal to gamble; to run brothels; to manufacture,

[28] **Hallaq (2009)** also gives an account of how this transformation had its roots in Muslim communities under colonial rule under rulers who were under external pressure of colonial powers.

[29] I would like to thank Giannisa Novi Budiutami again for the excellent research assistence she provided me for over a year.

[30] http://www.jdih.setjen.kemendagri.go.id/download.php?KPUU=13882

[31] http://www.jdih.setjen.kemendagri.go.id/download.php?KPUU=16542

store or sale alcoholic beverages or narcotics; all on the grounds that these acts are contrary to religious teachings and local customs. [32]

- Regulation 2008/1 of the same region sets up compulsory extracurricular Islamic educational schemes for pupils learning in secular elementary schools.[33]

Another reason why I am not using more fine-grained categorizations is that these regulations are usually coming in bundles, so disentangling the effects of a specific policy would be econometrically too challenging. What I did next was to go one by one and search each regulation's traces in local news outlets, to see if there is evidence for public support, debate, resistance or any hint to what extent the regulations were enforced. I ended up using all Islamic regulations in the analysis which had a reference and the text of which I was able to access.

To best of my knowledge, systematic statistical analysis of the impact of these regulations has not yet been carried out. This is not to say that there as no scholarly interest (morover, concern) of the effects these regulations might have had. The most often cited negative impacts are on vulnerable groups, such as women, children, the poor, and members of religious communities such as the Ahmadiyah sect (Crouch, 2009; Van Dijk & Kaptein, 2018).**(Nastiti & Ratri, 2018)**.

### *III.C Data sources*

The original dataset on Sharia-based regional regulations is based on the list of regulations in Buehler (2016), which only provides the region names, years and regulation numbers, but not further detailed information. The list was corroborated using a two-step procedure. First,the items in the list were cross-checked with the database of local regulations on the homepage of the Ministry of the Interior of Indonesia to get access to their actual texts, and once the titles and content were at hand, to check if similar other regulations exist which the original list did not cover. Then local news media were systematically scraped for all implementing regions to see which regulation left any trace.

Most regional variables are coming from the Indonesia Database for Policy and Economic Research (INDO-DAPOER, World Bank Group, 2015). This dataset compiles different Indonesian official data sources[34] into a single, comprehensive yearly data set until the year 2013. Starting years and periodicity of the variables are determined by the original data sets.

[32] http://www.jdih.setjen.kemendagri.go.id/download.php?KPUU=6686
[33] http://www.jdih.setjen.kemendagri.go.id/download.php?KPUU=7057
[34] Such as regional government financial reports, gross regional product from the Central Statistical Office, the National Labour Force Survey (SAKERNAS), the National Socioeconomic Survey (SUSENAS), the Village Potential Survey (PODES)

Village level data is obtained from the Village Potential Statistics, a survey of the universe of Indonesian villages. This data is collected simultaneosuly with the population census, or other universal data collection efforts, such as the agricultural and economic censuses. The data that I use includes one survey wave prior to decentralization (1996), and five afterwards (2000, 2003, 2005, 2008, 2011). Village identifiers are rather inconsistent across waves, so I can only partially match data across survey waves, relying partly on statistical identifiers and names of localities. The linked sample includes 73% of all villages, about 50.000 villages every year.[35] The data that I use from the village potential survey include village population, basic geographical data, information on local institutions (Islamic schools, police, and whether the village head is elected or appointed), and a standardized index that I construct from the hundreds of variables on local service availability and infrastructure quality.[36]

Data on district heads, candidates and election outcomes is hand collected from online news sources and regional statistical offices. [37] I also use two other data sources to present auxiliary evidence or to check the robustness of the results. One of them is the National Violence Monitoring System (Sistem Nasional Pemantauan Kekerasan, SNPK), an Indonesian database compiled by the Ministry for Human Development and Culture, with support from the Habibie Center and the World Bank, which records all violent incidents with geographical location, incident type, information on victims and perpetrators. Started in 1998 as a pilot program in the island of Maluku, it has been gradually expanded over the following years. It was covering already about half of the country in 2005, when the first direct district head elections took place. About 40% of the sampled regions had at least one religious policy in 2013.

The other auxiliary data source is the Indonesian Family Life Survey of the RAND corporation, an on-going longitudinal survey in Indonesia, representative of about 83% of the population and contains over 30.000 individuals (Strauss *et al.*, 2009, 2016). About 50% of the sampled individuals lived in a region that had a religious policy by the 5th wave of the survey.

The study period differs somewhat across empirical specifications due to data availability. Village-level exercises look at the 1996-2011 time frame, regional estimations use data from 2002 to 2013, except those which use election data, as the first direct elections for district heads took place in 2005. The geographical scope is the whole country, except Aceh, Papua and Jakarta. The first two of these enjoy higher degree of autonomy and have a history of strained relationship with the central government. The capital of Indonesia is not self-administered on the level of districts.

[35] The size of the successfully linked sample is similar to that in Martinez-Bravo (2014)

[36] See the Appendix on more information of the government services index.

[37] For helping in the collection of this data I owe gratitude to Giannisa Novi Budiutami and Zsolt Hegyesi who provided invaluable research assistance.

*III.D Stylized facts*

Table 1 presents descriptive statistics on districts. The first column presents the average across all regions in the first year when the variable was available in INDODAPOER.[38] The second column shows the average of the group which did not end up with a Sharia-regulation until the end of the study period (the "control group"), while the third shows the average that implemented at least one until 2013 ("treated group").

**1. Regions that introduce Sharia-policies are, on average, more developed.** "Treated regions" had higher GDP, higher GDP per capita, higher urbanization and lower poverty rates at the beginning of the study period. The differences are all statistically significant.

**2. Public finances are very similar initially between later adopters and non-adopters** Table 1 shows that revenue and expenditure are not statistically significantly different across the two groups initially, while regions that eventually introduce religious policies have somewhat lower revenue and expenditure per capita already in 2001.

**3. Religious regulations are less likely to happen in regions that have more money later on** Public finances diverge later on. Though local revenues are expanding massively in all regions (in particular after the fiscal decentralization of 2005), the regions that would not have religious policies are the relative beneficiaries. This is happens through fiscal automatisms, not the policy preferences of the central government. The most important changes are the decentralization of natural resource revenues, and the massive expansion of the General Allocation Grant[39], which reallocates funds to local government based on their development indicators and fiscal needs, so it favors initially more underdeveloped regions.

Figure 3, a binned scatterplot, shows the correlation between average block grants per capita and the probability of introducing a religious policy. The unit of observation is a region-election cycle. We see a statistically significant negative correspondence between budget size and the probability of introducing a Sharia regulation, consistently with the model prediction from the previous section.

**3. Religious regulations are less likely to happen in regions that have lower minimum wage** The binding minimum wage is set on a provincial level in Indonesia, which is the administrative tier above the districts. This means that the minimum wage is exogenous to district governments (though they can

[38] This mostly means the year 2000, when only 3% of regions had a religious policy.
[39] Dana Alokasi Umum, or DAU for short.

legislate a higher minimum wage locally). In Figure 3 I show a binned scatterplot which shows significant negative correlation between the minimum wage and the incidence of Sharia regulations.

While the model in Section II suggests that wages will be crucial determinants in the decision to introduce the extremist policy, as they are the cost at which the alternative strategy, clientele building can be pursued.

**4. Regions which have more Islamic schools are more likely to introduce Sharia regulations**

Regions which ended up introducing religious policies had 11.4 Islamic schools per 100.000 inhabitants in 2000 on average, while those that would not, had 9.2.

The umbrella term "Islamic school" refers to the Indonesian institutions called *pesantren* and *madrasah diniyah*. The pesantren are traditional boarding schools where students learn along a mixed religious-secular curriculum and receive vocational training as well. These schools are important centers of authority, and their leaders (the *kiyai*) are often courted by politicians during campaigns. Buehler (2016) calls these schools the nodes of the grassroots Islamist movement that rallies people for the cause of Sharia. Madrasah diniyah are religious schools that offer extracurricular religious education for students who otherwise participate in secular education. These are not the exclusive forms of education with religious affiliation, as religious organizations[40] maintain a large network of schools, and the government also has its own schools that follow a partly religious curricula.

Pesantren and madrasah diniyah are unique as they are the only institutions which mostly focus on religious education and are exclusively private ventures. Because of this, and because of the wide agreement in the literature that these schools are among the main promoters of the religious turn in Indonesia, I will use the presence of these schools as a proxy for the grassroots demand for religious legislation.

Table 2 shows a "horse race" where I regress the incidence of religious policies on Islamic schools and potential other predictors. In Panel A the contemporaneous levels of the other predictors are included. Column 1 of Panel A shows the raw correlation between Islamic schools and the incidence of religious policies in every region and year where direct elections were already in place. All further columns are estimated with region and year fixed efffects included. Standard errors are clustered on the level of regions.

In Columns 2 to 7 I show various other potential variables that might be driving the introduction of religious policies, while Column 8 uses all predictors simultaneously. These variables are GDP per capita, local government revenue per capita from block grants (the largest revenue component for all regions, and the one which is the least variable across years), unemployment rate, inequality and poverty rate. All variables

[40] such as Nahdlatul Ulama and Muhammadiyah, which are probably the largest independent Islamic organizations on the world

are from INDODAPOER (except for the number of Islamic schools which is aggregated to the regional level from PODES). Observation counts differ because of missing data [41]. The inequality measure is defined as the log difference in monthly expenditure of the average household and the household in the lowest income quintile (also from INDODAPOER). Panel B replicates Columns 3 to 8 from Panel A including the change of the variable in question over the past year.

Including additional variables always increase the magnitude of the coefficient on Islamic schools compared to the baseline, suggesting that several factors might be at place which can demand religious policies either from the demand or the supply side, but Islamic schools have an autonomous role. Signs of other predictors are largely in line with either the model predictions (such as the positive coefficient on GDP and block grants), or existing literature and common sense (higher inequality is associated with extremism becoming more frequent). Somewhat contradicts this the negative coefficients on poverty (meaning that Sharia regulations are less likely in high poverty areas), but that is also consistent with the predictions of the model (poor people are probably easier to target when the incumbent is building a clientele).

While the number of schools is certainly strongly correlated with the incidence of religious policies, it is not clear whether this link has anything to do with the electoral process. Figure 5 provides an illustration for this question. This figure is a binned scatterplot based on region-election cycle observations of data. The horizontal axis represents the log of the number of Islamic schools in the region, while the vertical axis shows the number of votes the incumbent official received during the election. The solid line plots the linear correspondence between these two variables for regions and cycles where the incumbent did not implemented a religious policy. The point estimate of the linear coefficient is a precisely estimated zero. Importantly, these region-election cycle observations constitute the majority of data points.

The dashed line plots the same correspondence for elections following district head terms where a religious policy was introduced. Under such circumstances the district head votes are positively correlated with the number of schools, and the slope of the estimated linear correspondence is positive and significant. Incumbent votes are only proportional to the number of Islamic schools in those cases where the incumbent engaged in religious campaigning.

**5. There is no "trivial" economic explanation of the introduction of religious policies.** The fact that distress causes an increase in religious participation and an increased salience of religion in politics has been documented many times using data ranging from medieval Italy to late 1990s Indonesia (Belloc *et al.*

[41] INDODAPOER compiles data from several government agencies, so the original data coverage varies a lot across variables. Because different agencies omit different data points, any observation will be more likely to have at least one missing explanatory variable when there are more explanatory variables. This explains the low observation count in the last column of both panels.

2016,Chen 2010). It is important to note, however, that post-decentralization Indonesia since 2001 was not such an environment, where systematic economic shocks could have been the most important determinant of religious policymaking. To illustrate this, in Panel A of Figure 6 I plot the average change in per capita GDP of regions over the years of the study period, and the average yearly incidence of religious policies. Average growth rates of the regions remains positive over the whole study period, even in the Great Recession years. Eyeballing suggest no systematic aggregate relationship between religious policies and GDP growth. Panel B checks if such relationship exists on the disaggregate level. In this binned scatterplot the horizontal axis shows the yearly change in the logarithm of real GDP per capita, while the vertical shows the incidence of religious policy for each bin in the same year, the next year, and the year after that. The estimated slopes of the regression lines are close to zero and never statistically significant. This suggests that aggregate economic fluctuations are not responsible for the wave of Sharia policies.

# IV The impact of religious policies

*IV.A Outcome variables of interest*

I am measuring the impact of Sharia regulations on three set of variables. The first set contains input variables describing the input use of the local government, as the substitution channel of divisive policies implies that local government spending decreases and less people are in public employment if religious policies are introduced. I look at the logarithm of the (real) regional public sector wage bill first. Then, since I do not observe the number of people employed nor public sector wages directly, I define two proxies. The first I call implicit public employment This measures the number of people that could have been in public employment in the case if every one of them were employed at the minimum wage. [42]The third outcome measures the ratio of implicit public employment to the population of the region. [43]

The second set contains the village level government services index, where the substitution channel also implies a negative impact. If government productivity is not increasing as a consequence of Sharia regulations, less spending translates to less government services provided.

The third set contains outcomes on both the regional and the village level. The set includes poverty indicators and different measures of violence. What these variables have in common is that they are all potentially affected through both the substitution and the direct channel. The substitution effect on these outcomes will be plausibly negative as the absence of government services is poverty increasing,[44] and if state activities are in decline, law and order can be at risk. Qualitative studies also suggest that Sharia regulations sometimes instigate vigilante violance **(Pisani, 2014; Buehler, 2016; Nastiti & Ratri, 2018)**. However, the direct effect can be positive if the regulation restricts behavior that cause negative externalities (alcohol, prostitution and drug bans in particular can have such effects). I give a stylized graphical model of the channels of impact in Figure 7.

[42]The minimum wage is obviously not an exogenous variable, but it is set on the provincial level, which is one level above the unit of the current analysis. That is, for every year there are at most 30 different minimum wages corresponding to each province of Indonesia. Indonesia currently has 34 provinces, but Aceh, Jakarta and Papua are excluded from the analysis.

[43]It is typically bigger than 1 (median: 1.46, mean: 1.68), also attesting that public servant compensation is considerably more generous than the minimum wage. Nevertheless, this scaling facilitates the comparison of public employment across regions of different size.

[44](Keefer & Khemani, 2004)

*IV.B Difference in differences*

In the first empirical specification I estimate the impact of religious policies on the outcomes of interest in a difference-in-differences setting. The baseline empirical specification will be a regression of the following form

In this section I discuss whether the presence of a religious policy changes the way the local government spends its resources. In particular, what the model suggests is that the incumbent will spend less on public employment. To capture this effect, I consider the following empirical model in the case of the spending data:

$$y_{rt} = \beta RP_{rc} + \gamma X_{rt} + \alpha_r + \lambda_t + \varepsilon_{rt} \tag{4}$$

where $y_{rt}$ denotes the outcome of interest in region $r$ in time $t$. $RP_{rc}$ is a dummy indicating if a religious policy has been implemented in region $r$ and election cycle $c$. As the effect is realized through a shift in the organization of the reelection effort of the politician, I define the policy variable for election cycles of introduction instead of their calendar years. The model predicts that regions under religious regulations have ceteris paribus lower public employment, so $\beta < 0$ is expected. The rest of the variables in Equation 4 are $\alpha_r$ and $\lambda_t$ are region and time fixed effects, respectively, and the vector of control variables $X_{rt}$ . This set in the baseline specificiation includes the natural logs of population, real GDP per capita and government revenues per capita. Also included are the ratio of the nominal level of government revenues to the nominal level of GDP, and dummies controlling for administrative border changes in the province.[45] The error term $\varepsilon_{rt}$ represents idiosyncratic heterogeneity in the outcome caused by factors not accounted for by the policy variable, the controls and the fixed effects.

In the case of regional outcome variables, such a the number of violent incidents, this slightly changes as the $RP_{rc}$ changes index to $RP_{rt}$. This version of the dummy variable indicates takes the value of 1 if a religious policy was in place in region $r$ at year $t$. I use calendar years because spending cuts associated with the substitution effect might not be synchronous with the direct impact of the policies.

The specification takes the following form in the case of village level data (government services index and slum incidence dummy):

$$y_{vw} = \beta RP_{rw} + \gamma X_{vw} + \alpha_v + \lambda_w + \varepsilon_{vw} \tag{5}$$

[45] These have an impact on how revenue redistribution across regions are calculated by the central government.

A single data point refers to a wave-village observation:$v$ indexes village, $w$ indexes survey wave ($w \in \{1..6\}$), $r$ indexes regions. Village- and survey wave fixed effects are used instead of region- and calendar-year dummies, respectively. The outcome variable is the village lever Government Services Index, which I compile from the Village Pontential Survey. It condenses all information on local infrastructure and locally supplied services that are consistently available for the waves of the survey into a single, standardized measure (see the Appendix for details on the content and construction of the survey). The policy variable is now defined as taking the value of 1 if a religious policy has been introduced in the region no later than the year preceding data collection from the survey. The set of control variables is in the baseline is limited to the number of Islamic schools (in logs) and log of population due to data limitations.

**Identification assumptions.** The key identification assumption is that $\varepsilon_{rt}$ (and $\varepsilon_{vw}$ in the village regressions) does not include unobserved variation that is correlated with both the introduction of the policy and the outcome. To assess the validity of this assumption, one should note that important potential confounders are included in the vector of controls, such as measures government revenues and GDP, so results are controlling for differences in spending capacities and differences in economic performance.

There are other ways how omitted variables and reverse causality might bias the estimation. First, aggregate economic dynamics might conceal significant economic shocks that shift voter preferences and government behavior independently at the same time. Second, anticipation of future (hence unobserved) economic shocks can trigger a simultaneous shift in both public service provision and election strategies. Third, changes in the outcome can reflect voter preferences that are correlated with but unrelated to their preference for Sharia-based policies. In particular, crime and corruption have been shown to be an important determinant of voting for Islamic parties in nation-wide elections in Indonesia (Henderson & Kuncoro, 2011). If this is the case, they can be common causes for both the religious policies and the diversion of government resources at the same time. I discuss these threats to identification after the results.

As an additional exercise, I also present the same results in an event study form. This helps us to assess the validity of the parallel trends assumptions (which in turn is the corollary of the assumption on the error term). In this exercise the sample is defined differently. I define the event year as the year in which the region introduced its first religious policy, and the event window to be $\pm 4$ years to that event. The sample covers every region where the timing of the first religious policy is such that the whole time window is observed. For every region that had such an event I use as a comparison group every other region that had not experienced a religious policy during the event window. On this sample I estimate the following specification:

$$y_{rt} = \beta RP_{rt} + \sum_{s=1..4} \beta_{-s} e_s RP_{r,t-s} + \sum_{s=1..4} \beta_{+s} e_s RP_{r,t+s} + \gamma X_{rt} + \alpha_r + e_s + \lambda_t + \varepsilon_{rt}$$

where $e_s$ are event-time dummies, and $X_{rt}$ is the same set of controls as before. The estimated coefficients $\beta_{-4..1,1..4}$ will be presented as the event study data points, which amounts to normalizing the difference between the event regions and the comparison regions to 0 at the time of the event, and estimate the event-year interactions compared to that. In the village data case the estimating equation becomes:

$$y_{vw} = \beta RP_{rw} + \sum_{s=1..2} \beta_{-s} e_s RP_{r,w-s} + \sum_{s=1..2} \beta_{+s} e_s RP_{r,w+s} + \gamma X_{vw} + \alpha_v + e_s + \lambda_w + \varepsilon_{vw}$$

In this case, as survey waves are happening on average in every 3 years, the event is defined as receiving the first religious policy between two survey waves and the event window is only $\pm 4$ waves to that event. The set of control variables is the same as in the corresponding regressions.

**Results.** The results from the spending regressions are presented in Table 3. Panel A shows the results for the three outcomes for the whole study period. We observe a negative and significant impact on the log wagebill and implicit employment figures, and a marginally insignificant impact of implicit employment to population ratios. Zooming in on years when the district heads were directly elected and had more discretion over policy (Panel B), the estimated effects are an order of magnitude larger in magnitude and their are much less noisily estimated. Indeed, regions which introduce religious policies seem to employ less people. Figure 8 shows the results in an event study, which are in line with those from the regressions, showing a negative impact on the overall wagebill and the different proxies of public employment figures as well.

For the government service village regressions I present the estimated coefficients for Equation 5 in Table 4. Villages of regions that have introduced Sharia-based policies have on average 8.5% of a standard deviation lower level of the Government Service Index. The event study in Figure 9 confirms the magnitude of the estimate and ascertains that there are no significant differences in pre-trends.

Table 5 shows the main results for poverty. In Columns 1 and 2 we see the estimated $\beta$ coefficients from Equation 4. Poverty rates were on average 1.1 percentage points higher in regions that had religious policies in place, while the poverty gap was higher by 0.22 points. These are sizeable effects as they represent 7.3% and 8.5% of the average values, respectively. Both results are strongly statistically significant. In Columns 3 and 4 I estimate the effect on poverty with a trend break at the introduction of the first religious policy.

The trend breaks in both measures are positive and statistically significant, while somewhat unexpectedly the level shifts are negative though very noisily estimated. In Column 5 I present the estimated $\beta$ from the village panel, which shows that a village in a region with a religious policy is on average 1.6 percentage points more likely to have a slum area, which is a good 23% percentage of the average probability. This result is more noisily estimated, than the regional regressions, but the effect is nevertheless significant at the 5% level. The poverty event studies show a very similar pattern for both regional and village level data (see Figures 10 and 11).

Finally, I check whether violent incidents increase in frequency after Sharia regulations are being passed. Table 6 shows the regression results. It is inportant to note that the smaller sample size is due to the fact that the National Violence Monitoring Data only covered about 50% of the country for most of the study period (see Figure 2 for 2 for details).

The results show that there are 23.33 more violent incidents on average, which translates to about a 28% increase. About 8 more people in every 100000 falls victim to a violent crime. Figure 12shows the same result in an event study and highlights that there were no significant differences in trends between adopters and non-adopters of religious policies previously.

It is worthwile to also look at violence statistics in a more disaggregate manner. Table 7 does that by checking violence by which kind of perpetrators are more likely in regions that have Sharia-policies. Panel A shows a set of regressions where the dependent variables are dummies indicating whether the region in that year saw any violence by either a religious group, the government, or other political players (such as political parties, youth organizations). Panel B puts the number of incidents by the same groups on the left hand side, while Panel C uses the number of victims by each type of organized group. Religious organizations are the only groups which are systematically more likely to be the perpetrators of violence along all measures. Incidents by religious organizations are the most likely to happen compared to other perpetrators, but on average there are less of them and have lower number of victims. This finding is in line with the anecdotal evicence that Sharia regulations empower local Islamists (Buehler, 2016; Pisani, 2014). Table 8 disaggregates incidents by types of the acts that involved human victims. Panel A puts the raw number of the left hand side, while Panel B uses the rates over 100.000 people. Importantly, all types are statistically significantly higher, and at least one measure is significant for all of them. It is worthwile to note that there are on average 0.631 people killed in regions that had religious policies. Though not directly comparable, this is put into some context by the fact that the murder rate (murders per 100.000 inhabitants) in Indonesia was 0.5 in

2016[46]. Also, these figures are remarkably larger than the ones in the previous table, suggesting that more violence done by unorganized perpetrators than organized ones. An additonal channel through which this could take place is a partial atrophying of the state because of the spending cuts suggested both by theory and evidence.

While one should be cautious about a causal interpretation of these results,[47] these findings are consistent with the model assumption that seculars under Sharia regulations incur substantial utility losses beyond the public morals - public services substitution considered by the model.

**Threats to identification.** The first threat which could indermine identification was that aggregate economic fluctuations might conceal more localized significant economic shocks which in turn can affect both voter behavior and government policy. Large-scale industrial investment will, for example, increase total GDP, while in the meantime might crowd out local small scale enterprises, or have devastating impact on local agriculture or the environment in general. If this is the case, the government can respond by realigning its spending to mitigate these particular impact. In the meantime voter discontent can manifest as a demand to restore justice in a more general understanding. While such events cannot explicitly be controlled for, what I can do is to check whether including more disaggregate economic shocks as controls changes the results in any way.

First, I re-estimate Equation 4 with the lagged value of a rudimentary inequality measure included as a control. This measure is the ratio between the average household expenditure and the average household expenditure of the lowest 20% (Table A.11). Second, I re-estimate the equation with lagged unemployment levels (Table A.12). Third, I re-estimate the specification with lagged values of sectoral changes of GDP, in particular the change in the percentage contribution of manufacturing and finances (Table A.13 ). I also do this for the case of the social outcomes (A.13). None of these alternative specifications exhibit a major qualitative or quantitative difference compared to the baseline. [48] I conclude that there is no evidence that unobserved local economic shocks are driving the introduction of the religious policies.

The second potential threat to identification was that expecting a future economic shock (such as a budget cut) simultaneously can shift spending patterns and electoral strategies as well. We should first note that such an event would not contradict the mechanism that is being explored in this paper. An expected cut in

[46]Source: UNSDC/INTP/CTS statistics. The murder rate only considers intentional homicide, not killings during civil unrest.

[47]The organizations that collect crime data use local media sources, and data collectors might give an extra attention to regions that introduce Sharia-based policies.

[48]The reason why these control variables are not included there in the first place is that these variables are of inferior quality in INDODAPOER; in particular, they exhibit missing data points which are not accounted for by the data description. As part of an unreported robustness check I looked at whether the fact that the data are missing is correlated with the introduction of the religious policies. It is not.

future budget would amount to a ceteris paribus lower $M$ office value for the incumbent, which in turn would make religious policies more likely and thus make a cut in public sector jobs more likely as well. Though I cannot directly control for expectations of politicians, what I can do is to see whether those expectations were justified. In Panels A and B of Figure 18 I replicate the expenditure event studies with per capita total revenue of the local government and with per capita revenue from block grants (which is the single biggest revenue source and the one exhibiting the less variation over years). Although both event studies exhibit lower per capita incomes for regions that introduced religious policies, the estimated confidence intervals are very wide, so this effect is not significant. However, these lower levels are relative to non-introducing regions each event year, and does not necessarily mean a decrease in revenues in absolute terms. This is shown in Panel C of the same figure, where I plot average yearly growth rates of these revenue terms in all regions that ever had a religious policy, along with the average yearly incidence of the religious policies. On average the regions exhibit increasing revenue over the whole study period, except for the years 2005, when revenues stagnated before a huge increase in 2006, and in 2009, when they fell dramatically. Fiscal decentralization was legislated in 2005, when the central government delegated huge revenue streams to the regional public administrations. The 2009 drop in revenues are attributable to the global financial crises, which caused prices of raw materials to plummet, drying up revenue streams on every level. Note that the average occurrence of religious policies are actually declining over this period. While a causal link cannot be drawn here, the long run trends are certainly consistent with the model's predictions: first an increasing trend in religious policies when they become available as a policy tool, and then a steady decline as on the long run revenues are increasing and render them relatively less effective.

The third main threat to identification was the presence of voter demand for policies that are correlated with but unrelated to their preference for Sharia-based policies. Two different avenues for this argument come up. First, perceived corruption and crime can be correlated with diversion of public revenue, and these might translate into a religion-based argument for restoring justice and lawlessnes. Second, religious voters might have preferences for different public goods, or less "secular redistribution" in general, and prefer a smaller government that does not interfere with how they are running their lives. If this is the case, a reduction in government spending can be considered simply a voter demand that is being met independently of religious policies.

Two things should be considered here. First, if demand for Sharia-regulations is due to corruption and crime which is also correlated with diversion of public spending, that should happen *before* the policy, and not after it. Similarly, government services should be ex ante getting worse, which they are not (as I will

argue in the next section). A similar argument about timing can be made with the other preference-driven explanation as well.

For a more thorough investigation of these arguments I use two auxiliary data sources, the National Violence Monitoring System (SNPK) and the Indonesian Family Life Survey (IFLS) . Though neither of the two data sources covers the whole country, there is enough variation to carry out a meaningful comparison.

The former allows to explore whether violent crime can predict the introduction of Sharia regulations. hough the previous results suggests that there were no previous differentials in trends, level differences might have triggered Sharia policies. Table A.14 shows regressions of the religious policy dummy on 1) violent crime event counts 3) number of victims in a 100000 people (who was either injured, kidnapped, sexually assaulted or killed) 3) logarithms of event counts of regions in the SNPK. For each case I estimated a version with lagged values of the variable, and the lagged yearly difference in the variable. I added region and time fixed effects, logarithm of population and GDP per capita, poverty rate and inequality as controls. There is no specification in which violent crime would be a significant predictor of Sharia regulations.

Petty crimes and crimes against property in general can also be a concern which is not addressed by using SNPK data. Though there is no detailed crime statistics data, the Indonesian Family Life Survey's community survey chapter asked about the perceptions of village notables about crime and corruption in 2007. Unfortunately this sample is extremly limited, and resorts to two respondents per region. Table A.3 in the Appendix shows that crime perception in 2007 in regions that had no religious policy by then did not significantly correlate with introducing a religious policy between 2007 and 2013. Similarly, Table A.5 in the Appendix looks at villages in 2007 without a religious policy and checks whether their perceived levels and trends of corruption correlated with later Sharia implementation. Interestingly, it seems that Sharia regulations between 2007 and 2013 were *less* likely to happen in regions where the village leaders reported higher corruption levels in the district. This goes against the argument that demand for Sharia regulations would be a consequence of perceived corruption. It rather seems more in line with what the model suggests: if vote buying and clientelism is easier in environments with higher corruption (that is, $\omega$ is lower if there is more corruption), the incumbents will be more likely to introduce Sharia in places where the state is less corrupt. That means, if anything, that the estimated coefficients and in the difference-in-differences are biased towards zero, and the impact of the religious policies is underestimated.

IFLS also gives an opportunity to test indirectly whether religious voters have different preferences for policy. In Table A.4 of the Appendix I check if different forms religious cooperation become more frequent in regions that implement Sharia-based policies. If government-provided public services are substituted for

services provided by religious communities, these forms should become more frequent. This is not the case for any form of religious cooperation that is queried in the IFLS. People living in regions that introduce Sharia regulations do not receive more donations from religious organizations, do not participate more frequently in religious community work or microfinance, nor do they in more general types of religious community events. All in all, there is no evidence from the additional data sources that these alternative channels undermine my core empirical strategy.

In terms of government services the results might represent a substitution of government provision to private provision by religious organizations. In other words, it might be an issue of mismeasurement, not overall decline on services (though this does not explain the increase in poverty). To assess this concern, I re-calculate the index in question excluding all raw variables that plausibly have a private counterpart, such as education. The remaining variables are purely concerning physical infrastructure, such as roads, sanitation and phone availabilty. In Table A.16 I show all regression results using the Infrastructure Index instead of the Government Services Index, that is, this specification and all later specifications and heterogeneity analyses as well. Though the regression coefficient of the policy variable from Equation 5 is no longer significant, it is similar in magnitude, and all further village level results from this subsection are replicable in a way that is very similar both qualitatively and quantitatively.

### *IV.C Instrumenting with local demand variation*

Omitted variables might remain of a concern. In this subsection I provide an instrumental variable estimation strategy that uses within-region variation in preference for Sharia regulations to solve the problem for village level unobserved confounders. According to the model described in Section II, the number of devout voters will be the most important determinant factor in the decision to introduce religious policies; in particular, whether that number exceeds the threshold defined by the mother parameters, or formally, whether $N_R - \underline{N_R}(\omega, M) > 0$. Holding parameters fixed, an increase in $N_R$ will mean an increase in the incidence of religious policies. I will proxy $N_R$ with the number of private Islamic schools in the village, an information which I observe in the PODES survey.[49]

The stilized facts at the beginning of this section showed that the presence of these schools is the strongest predictors of religious regulations. Previous literature has been linked these schools to local support for Islamist policies.(Bazzi *et al.*, 2018) Figure 13 shows that increase in the number of religious schools start before the policies are adopted, and do not follow as a consequence.

[49] To be precise, the number of *pesantren* and *madrasah diniyah*. There is no Islamic equivalent of a "state church", all educational institutions are private.

The average number of schools in the village as an instrument for religious policies might be endogenous. The reason for this as that economic considerations are plausibly present at the decision to found such an institution (is the community wealthy enough to support their children's private religious schooling?). On the other hand, for every village the changes in the average number of schools in all *other* villages represents a plausibly exogenous change in religious demand. In essence, the identification strategy is to use only the variation from changes in other villages' number of religious schools in determining whether a village ends up being in a region that implements a religious policy. The first identification assumption is that the number of religious schools in other villages only affects government services in any village through the implementation of the policy. The second identification asumption is that there are no local religious spillovers, that is, an increase in one village's religiousity will not impact its neighboring villages' religiousity.

Formally, the model I estimate takes the following form:

$$y_{vw} = \beta RP_{rw} + \gamma X_{vw} + \alpha_v + \lambda_w + \delta schools_{_{vw}} + \varepsilon_{vw}$$

While the decision whether there would be a religious policy depends on the average of religious schools in the village:

$$RP_{rw} = \eta \frac{\sum schools_{vw}}{\sum pop_{vw}} + \alpha'_v + \lambda'_w + \theta_{rw}$$

If $schools_{vw}$ is correlated with $\epsilon_{vw}$ (but not with other $\epsilon_{v'w}$-s in the region) then the estimation of coefficient $\beta$ will be biased because the endogenous error term would enter through the decision to introduce the religious policy. This type of endogeneity is solved by instrumenting the religious policy with the leave-out-mean, which is $LOM_{vw} = \frac{\sum_{v'=1..V_r,-v} schools_{v'w}}{\sum_{v'=1..V_r,-v} pop_{v'w}}$, where $V_r$ is the number of villages in the region. The reason is that any village's own $\varepsilon_{vw}$ will not be correlated with the leave-out-mean.

The first stage of such a regression would take the following form:

$$RP_{rw} = \eta LOM_{vw} + \alpha'_v + \lambda'_w + \theta_{rw} \tag{6}$$

Table 10 shows the estimated coefficents of Equation 6, and the reduced form regression of the Government Services Index on the instrument, while Table 9 shows the main IV regression result (column 2) compared to the baseline fixed effects estimate (column 1). The instrumental variable coefficients suggest a much higher

(-.44) decrease in the Government Services Index due to the policy, but insignificalt. The statistical tests reject underidentification and weak identification.[50]

The coefficients are might be higher in magnitude because the model prediction that more developed areas introduce religious policies suggests that the difference-in-differences estimates might be biased towards zero. On the other hand, as the instrument estimates local average treastment effects, heterogeneity in the treatment effect might explain why de estimates are much noisier.

To increase the credibility of the identification of Equation 6, I do two more exercises. First, the second identification assumption was the lack of religious spillovers. If this assumption is violated, then the other villages' religiosity will not create an exogenous shift in the incidence of religious policies from the point of view of one particular village, and thus the instrument would be compromise. To address this concern, I re-calculate the leave-out-mean for every village now with the omission of not just the village itself, but also all other villages in the same subdistrict [51], so immediate neighbors Islamic schools are not taken into account either. Tables A.18 and A.19 are the corresponding outputs from this exercise, showing no significant qualitative and quantitative differences in the results, so local spillovers are arguably not driving the results.

Next I conduct a placebo experiment. The assumption was that Islamic schools, as a proxy for the religious population, only affect the provision of government services through the introduction of the policy. I check the validity of this assumption by regressing the Government Service Index on the leave-out-mean in 2000 (after democratization, but before religious policies really took off), and doing the same in a panel setting with the years 1996 and 2000. Table A.22 shows the result, which shows no such correlation. Another formulation of this test can be found in Figure 5 where I plotted the binned scatterplot of incumbent votes on the Y axis against the log of Islamic schools on the X axis for every election event, and estimated a different regression line for election events that were preceded by the introduction of a religious policy and for election events where it was not. The figure clearly illustrates that religious schools only matter in terms of incumbent votes when the incumbent introduces the religious policy.

The noisiness of the estimates in the instrumental variables strategy might be explained by treatment effect heterogeneity, as the IV gives an estimate for the local average treatment effect of the policy. If politicians cut back services in places which do not vote for them, then the secular villages will have higher treatment effects which will be overrepresented in the average. To check if this indeed drives the results, in Tables 15 and 16 I re-estimate the IV on the subsample of villages that had no *pesantren* in 2000 and ever

[50] The Kleibergen-Paap Wald rk LM statistic is 14.95, the corresponding F statistic (justified due to using clustered SEs) is 19.09.

[51] *kecamatan*, the administrative level between the village and the region

after, and on the subsample which had at least one at some point. Table 15 is of particular interest as it shows the average effect of the religious policy on villages that had no *pesantren*, which amounts to 70% of the villages. It does not differ statistically from the estimated effect on all villages, while the estimated effect on the sample of villages with schools does not differ from zero.

### *IV.D Instrumenting with pre-policy differences and growth rates*

Using pre-policy differences in preference for Sharia and the country-wide growth rate in religiosity I can obtain an instrument which can rule out a different class of omitted variables. This is a shift share instrument.[52] It is defined as follows:

$$shiftshare_{rt} = share_{0,r} * growth_t$$

The first term of the product, $share_{0,r}$ is a measure of the pre-policy preference for Sharia-policies. I use three different specifications for this. The first is the share of *pesantren* among all comparable level of education in 2000 (this is the closest in definition of the classical shift share instrument). The second is the share that regional Islamic schools represent in each region compared to the national total in 2000. The third is a historical instrument using the vote share of a party that advocated the full implementation of Islamic Law in the only pre-Suharto era free election in 1955.[53] The results are robust to choosing any of these.

The variable $growth_t$ is the yearly growth in the total number of these particular schools country-wide. The idea behind identification is to use only the variation in religiosity which is not confounded by unobserved local factors, distributed by the relative religiosity in 2000. For this instrument we have to assume that the country-wide growth rate of religious and exogenous, and only the regional differentials to this growth rate are correlated with unobserved confounders. We also have to assume that pre-policy differences in Sharia preference are not correlated with the growth rate of variables other than the yearly Sharia preference in itself. If these assumptions not hold, the estimates will be biased.

Formally, the estimated model is the following:

$$y_{it} = \alpha_i + \lambda_t + \beta RP_{it} + x_{it} + \epsilon_{it},$$

where the first stage is

[52] Similarly to Bartik 1991 or Altonji & Card (1991).

[53] Masyumi party. Vote shares are obtained from the http://www.pemilu.asia website; missing data is imputed from provincial averages reported in **Fetih (1955)**

$$RP_{it} = \alpha_i' +' \lambda_t' + \eta schools_{it} + x_{it} + \nu_{it}.$$

The variable $x_{it}$ is an unobserved endogenous confounder, so $E[x_{it} schools_{it}] \neq 0$. The shiftshare IV assumes is that schools/Sharia preference grow yearly at a rate that is the sum of an exogenous and an endogenous term: $schools_{it} = schools_{0,r} \prod(\delta_t + \delta_{t,r})$;

Where$\delta_t$ is an nation-wide growth rate of preference for Sharia and it is exogenous, so $E[x_{it}\delta_t] = 0$ and $E[\delta_t \delta_{t,r}] = 0$, but $E[x_{it}\delta_{t,r}] \neq 0$. Then $schools_{it}$ can be decomposed as

$schools_{it} = schools_{0,r} \prod(\delta_t + \delta_{t,r}) = schools_{0,r} [(\delta_1 + \delta_{1,r})(\delta_2 + \delta_{2,r})..(\delta_t + \delta_{t,r})] =$

$= schools_{0,r} [\delta_1 [(\delta_2 + \delta_{2,r})..(\delta_t + \delta_{t,r})] + \delta_{1,r} [(\delta_2 + \delta_{2,r})..(\delta_t + \delta_{t,r})]]$

$= schools_{0,r} \left[ \prod_{k=1..t} \delta_k + \sum \prod_{k=1..t} \delta_{k,(r)} \right]$

The term is $schools_{0,r} \prod_{k=1..t} \delta_k$ and the sum of $schools_{0,r} \prod_{k=1..t} \delta_{k,(r)}$ terms where at least one $\delta_{k,(r)}$ will be regional, so if the exclusion restriction holds, it is 0 in expectation. The term $schools_{0,r} \prod_{k=1..t} \delta_k$ is the shift share, the latter is the endogenous variation in the schools. So the first stage can be written as:

$$RP_{it} = \alpha_i' +' \lambda_t' + shiftshare_{it} + \widetilde{schools}_{it} + x_{it} + \nu_{it}$$

As $shiftshare_{it}$ is independent of $x_{it}$ and $\widetilde{schools}_{it}$, estimating instead the following first stage will yield consistent result:

$$RP_{it} = \alpha_i' +' \lambda_t' + sshare_{it} + \theta_{it}$$

If the exclusion restriction holds, this instrument allows for different trends in religiosity for the "treated" and "not treated" regions (which the difference-in-differences does not), as long as those trends are independent from the initial differences in religiosity and the country-wide overall trend.

I use this instrument to estimate the effect of the religious policy on 1) the regionally weighted government services index 2) the poverty indicators. I present the results in Table 17.I find that the impact on the regional government services index is -9.4 percent of a standard deviation, while the poverty rates are higher by 4.9 percentage points on average. These are larger than their respecitve difference in differences estimates. The impact on the poverty gap index is 1.3 percentage points and the incidence of violent events is also larger at 3 log points.

To compare specifications, Figure 14 plots the coefficients for the estimated Sharia regulation impact on government services across the three specifications, while Figure 15 shows the coefficients comparing fixed

effects and IV coefficients for the regional outcomes only. I find that Sharia regulations have a negative impact on government services, they increase poverty and violence. These findings are coming from three different data sets and robust to three empirical strategies that rely on different assumptions.

**Heterogeneity analysis.** Finally, I am going to explore two potential dimensions of heterogeneity within the effect of religious policies on government output. It is important to note that as I have a single instrument, so this exercise relies only on the geographical and time variation in the policy variable.

The first dimension of interest is the geographical one. I am checking whether the policy effects are different in villages that are further away from the center, and whether they are different in villages that have an office of the regional police.[54] Both variables are a proxy for local state capacity, and are also closely correlated (central villages are more likely to have such a police force), but they highlight somewhat different aspects. If state capacity is limited, the regional center probably has a difficulties projecting power to the peripheral areas of the region, und religious policies might not be enforced in further away villages. Also regional centers are more urban areas with a more vigorous economy, and as such, with potentially higher wages. If the public morals - public service substitution exists, and wages within the region are heterogenous, a rational incumbent will start the substitution on public sector workers in the center, so reduction in government services should be more severe in central villages. As both mechanisms go in the same direction, they observationally equivalent, but I can check if the state capacity channel exists in its own right by looking at whether the policy effects are heterogenous across villages that have a regional police and those that do not.

In Table table A.9 I interact the religious policy dummy with the distance from the center in hundred kilometers (Column 1) and with a dummy indicating the presence of regional police (Column 2). Both specifications show that the effect of the policy is mitigated in villages with lower state capacity. In particular, the effect of religious policies is strongest in the center (.26 standard deviation), and increases with distance from the center. In particular, the effect becomes zero at 45km on average, which means that 80% of villages on average experience lower public good provision levels (mean distance: 30 km, median: 23.47km). The police interaction in Column 2 shows that villages with a regional police on average have higher government services (by 0.02 standard deviations, not significant), but if their region adopts a religious regulation, the service provision drops by a strongly significant -.19 standard deviation. Interestingly, and in line with the distance interactions, villages in these regions that do not have such a police fare relatively better (by 0.08

[54] The actual institution I am looking at is the Pertahanan Sipil, or Civil Defense, which is a police body directly overseen by the regional government. Other types of police forces exist as well.

standard deviation, not significant).

I also present these evidence in form of event studies. In particular, now I only look at regions that receive a religious policy, and compare, in the first exercise, the quartile of villages closest to the center to the most distant quartile of villages, before and after the policy was introduced (Figure figure 16). In the second exercise I compare villages with regional police to villages without regional police before and after the policy was introduced (Figure figure 17). Both event studies show that there were no significant differences in the trends these villages followed before the policy, and that central villages and villages with police experienced a significant reduction in government services after the policy was introduced.

The second dimension of heterogeneity that I look at is the content of the regulations. I classify regulations into either the group of prohibitive regulations, or to the group of normative regulations.[55] First, I re-estimate Equation equation (5) in the following form:

$$y_{vw} = \beta_1 NORMATIVE_{vw} + \beta_2 PROHIBITIVE_{vw} + \gamma X_{vw} + \alpha_v + \lambda_w + \varepsilon_{vw} \tag{7}$$

Then I estimate the same equations with the policy variable interacted with distance. The results can be found in Tables table A.9 and table A.10, respectively. Interestingly, without distance interactions included, one would think that it is entirely normative regulations that drive the results. But once distance is controlled for, we see that prohibitive regulations are the ones from which the geographical pattern comes from: government services are hit hard at the center, but the effect is mitigated in more peripheral areas. This pattern is consistent with the insight of the model that religious policies will have a twofold effect: one through public service substitution, and one through the direct effect of the policies themselves. In normative religious regulations probably the first element dominates, so their geographical pattern is weaker. Prohibitive regulations, on the other hand, need active enforcement, thus will be stronger where state capacity is stronger. Also, enforcing them needs public resources to be diverted from other purposes, which would produce the same pattern as we see in table A.10.

[55] For a deeper discussion on the regulations and the classification please see the Appendix.

# V Welfare

In this section I infer unobserved welfare effects of religious policies from observed voting behavior. As I discussed in Section III, there are many different types of regulations and they often overlap, so disentangling the direct effects of each policy would probably be a futile endeavor. Instead, I acknowledge that the direct effect of the religious policy remains unobserved, and ask the following question: what unobserved effect size would be consistent with observed voting behavior, given that the model described voter behavior accurately? What is the unobserved impact of Sharia policies on utility that is consistent with the voting patterns actually seen in the data?

Two preconditions have to be met to carry out this exercise. First, a reality check is needed whether what the model assumes on voter behavior is to some extent realistic. Second, the relevant parts of Section II have to be stated in a form that is suitable for empirical analysis.

### *V.A Evidence on model assumptions*

Estimating the taste parameter crucially hinges upon the question whether the main assumptions of the model and the chosen proxies for implicit employment and devout community size are valid. These questions are inherently empirical in nature, and in the following subsection I use two data sets to answer them. The two data sets on voting behavior have advantages that complement each other's drawbacks well, so together they can be used to paint a more complete picture on the validitiy of the model assumptions and their corresponding empirical predictions. These assumptions and predictions are the following:

- **Assumption 1**: public employees are more likely to vote for the incumbent, and thus more public employees mean higher reelection probability.
- **Prediction 1**: greater public employment levels (as proxied by implicit employment) are associated with more votes for the incumbent.
- **Assumption 2**: public employeees are less likely to vote for the incumbent, if he introduced religious policies.
- **Prediction 2**: the above empirical correspondence is weaker in elections which are preceded by introduction of a religious policy.
- **Assumption 3**: the devout voters vote for the incumbent if he introduces religious policies.

- **Prediction 3**: if the incumbent introduced a religious policy, he will get additional votes in proportion to the number of Islamic schools of the region.

In the first exercise I use regional election data. The merit of this approach is that I can identify how policies, candidate characteristics and regional variables are correlated with eventual political outcomes. Also, I am using the universe of regional election events from 2003 to 2013 where the number of votes was available, so the variation is rich in space and time. The drawback of this strategy is that I do not observe individual decisions of voters, just aggregate differences in turnout and number of votes.

In the second exercise I use individual (voter level) data from the fifth wave of the Indonesian Family Life Survey. The merit of this approach is that I can identify how religiousity and being in public employment is correlated with the decision to vote. On the other hand, the data is cross sectional (from 2014)[56], and does not cover the whole country[57]. Also, the respondents are asked if they voted in the past elections, but not asked who they voted for.

**Checking the predictions on election data.** I observe vote counts in over 70% of the 822 election events that happened between 2005 and 2013. Most missing data is from early years. In the year of the first direct election, the missing rate is 60%, which is dropping on average by 10 percentage points every year to stabilize at 90% in 2010. I link every election event to regional data from the past election cycle. I estimate the following linear model:

$$votes_c = \beta_0 + \beta_1 RP_c + \beta_2 N_c + \beta_3 IPE_c + \beta_4 IPE_c \times RP_c + \beta_5 N_c \times RP_c + \boldsymbol{\beta_6 inc_c} + \varepsilon_c$$

Where *votes* is the number votes the incumbent receives, $RP$ is a dummy indicating if a religious policy was introduced in the cycle preceding the election, $N$ is the size of the electorate in the election year, $IPE$ is average implicit employment in the non-election years of the previous cycle (as in election years one cannot differentiate which part can be attributed to the incoming district head), *inc* is a vector of incumbent-specific controls and $c$ indexes region-election cycle observations.

I expect $\beta_3$ to be positive, which amounts to meeting Prediction 1 discussed above. I expect $\beta_4$ to be negative, as suggested by Prediction 2. This would mean that a bigger public sector employment means more votes, but voters who are attracted by public sector votes are somewhat disillusioned with the incumbent if

[56] The previous wave of the survey is from 2007, when a significant portion of the regions was still not exposed to direct regional elections.

[57] However, it is representative for the whole country on a provincial level upwards. About 50% of the regions in the IFLS areas had religious policies in 2013, which means that these areas are somewhat overrepresented.

the engages in extremist policies.

Prediction 3 is harder to check in this specification. First, the statistical model does not differentiate between religious and secular among the non-employed. As a consequence $\beta_5$, the coefficient on $N \times RP$ , will represent the net effect of the secular being less likely to vote for the incumbent under Sharia policies ($\pi^S_{NE}$) and the increase in the voting determination of the devout. The total effect will be a weighted average of these, where the weights depend on the $N_R/N$ ratio. It is, however, plausibly positive, as the incumbent would otherwise lose votes one the net. Including the variable for Islamic schools in the regression does not necessarily mitigate the problem. First, the two variables will be highly correlated, as the total electorate is the sum of the devout and the secular, and the number of schools is an unknown function of the number of the devout. As a consequence, serious multicollinearity is to be expected. Second, the relationship between $N_R$ and the school variable, as above discussed, is very complicated, further increasing noise in the estimates. Nevertheless, I estimate versions of the above equation where I include the number of the schools among the regressors in themselves and interacted with the religious policy variable. I estimate two versions, one with levels and one with natural logarithms of the school variable. I also include versions of all specifications with and without incumbent observables, which are limited to information deduced from the name of the politician. These are a dummy for having any honorific title, and two other dummies, one representing the most important religious subset of titles (the title of *haji* or *hajjah*, which indicates a person who completed the pilgrimage to Mecca), the other the most important secular subset (having a doctorate of any sort).[58]

**Results.** Table A.1 reports the estimation results. The coefficients $\beta_3$ and $\beta_4$ have the expected sings and are strongly significant across specifications. According to the baseline specification, each public worker means for the incumbent $\beta_2 + \beta_3$ votes in expectation, which is .34 vote. Each person in the electorate who is not employed represents $\beta_2$ incumbent votes in expectation, which is estimated at .18. If the incumbent decides to implement the religious policy, then the expected votes after public employees is $\beta_2 + \beta_3 + \beta_4 + \beta_5 = .17$, while the expected votes for each non-employed is .28. Note that the differential becomes negative, so in this case a larger public sector means less votes on the net. However, this is misleading for the reason stated above: the electorate size here confounds the secular non-employed and the religious non-empoyed, thus overestimates the baseline incumbent votes.

Another consequence of this is that introducing religious schools and their interactions with the religious policy does not yield significant result, but they both have a positive sign, as expected. Titles of the politicians

[58] Other titles include Bachelor's and Master's degrees, professional titles (such as "engineer"), *kiyai* (religious expert on Islam) etc.

are associated with higher vote counts. I also include province dummies.

**Checking the predictions on individual survey data.** Next I use individual level data from the fifth wave of the Indonesian Family Life Survey to check if voters behave individually in a way that is consistent with the model. That is, I check if workers in government jobs are more likely to vote, if religious policies have any impact on this behavior, and if devout voters are more likely to vote if a religious policy was introduced. I define the sample as all Muslim respondents who were eligible to vote in the last election and in 2007 (the year of the previous wave) lived in a region that had no religious policy. A sample defined this way consists of 8958 individuals.

I estimate the following linear probability model:

$$voted_i = \beta_0 + \beta_1 gworker_i + \beta_2 devout_i + \beta_4 RP_r + \beta_4 gworker_i \times RP_r + \beta_5 devout_i \times RP_r + \boldsymbol{\delta} X_i + \varepsilon_i$$

where *voted* is a dummy indicating if the person says he voted during the last election, *gworker* is a dummy indicating if the person's primary or secondary job was in public employment, *devout* is a dummy for strong religiosity, $RP$ indicates the presence of a religious policy where he or she lives and $X_i$ is a vector of individual level controls. These include controls for age, sex, marital status, years of schooling, living in an urban environment, religious tradition dummies,[59] and dummies indicating if the person moved recently, voted in 2007, was a government worker in 2007 and whether lived in urban environment in 2007.

The *devout* dummy takes the value of 1 if the person reports that either all the institutions he or she attended were operated by religious organizations, or his or her highest level of education is from a religious school.[60]I chose this measure as opposed to self-reported measures of religiosity due to both theoretical and practical reasons. First, being very religious is neither a necessary nor a sufficient condition to support religious policies. Second, state ideology in Indonesia embraces religious diversity, but is rather suspicious towards atheism, which seems to be true for Indonesians in general.[61] Third, it is straightforward to use the

[59]The reference group is Nahdlatul Ulama, a traditionalist Islamic religious movement, which is the largest of its kind in Indonesia, and as such the largest independent Islamic movement in the world with 94 million members. Two-thirds of the respondents in the IFLS felt closest to NU, while about 12% felt closest to Muhammadiyah, the second largest Islamic movement. The rest of respondents are uncommitted. The analyzed subsample has almost identical representation of religious movement.

[60]That is, if the person went through education that provided regular degrees but the institutions themselves had Islamic background, or if the studied in an institution dedicated for Islamic studies, such as a *pesantren* or a *madrasah*. In an unreportred robustness check I estimated the same model with both categories separately, and the results were qualitatively the same.

[61]Belief in the higher power is the first of the five principles of *pancasila* state ideology. Only 2% of the IFLS respondents identify as "not religious"

same proxy as in the instrumental variabless regressions, and the welfare calculations.

**Results.** Column 1 in Table A.2 reports the results from an OLS regression. On average, government workers are 8% percent more likely to report to have voted in the preceding district head election. The coefficient on the interaction term with religious policies is -0.063, meaning that government workers are less likely to vote if there are religious policies in place. These are in line with Predictions 1 and 2.

Voting behavior of the devout is not significantly different in absence of religious policies. But if there is any, they are 7% more likely to vote, in line with Prediction 3.

Also, introducing the religious policies has no significant effect in itself except through this channel ($\hat{\beta}_4$ negative and insignificant).

Importantly we cannot be sure that public sector employees are voting for their employers, and that the devout vote for that person who introduced a policy they probably favor, but it is very plausible. What I can do is to show that government employment only matters in turnout when the name on the ballot is the name of their boss, and that religiosity only matters for turnout when the election is about the leader who introduced the religious policies. To do this, I conduct two placebo tests where the dependent variables are participation in the elections for People's Representative Council (the national legislature), and participation in village head elections. In the former case the voters vote for party lists. The typical district head is a candidate of more than one parties at once (the distribution of the number of nominating parties is symmetric around 2), and anecdotal evidence suggests that the nomination in many cases is bought (Buehler, 2007), so it is not evident whether the incumbent district head (and by extension, their clients) owe any loyalty during these elections. Village head elections, on the other hand, should reflect preferences over very different issues, and probably driven more by personal experience.

No coefficient of interest is statistically different from zero in the placebo tests (Columns 2 and 3), suggesting that the coefficients in the district head election case do reflect the voters' loyalty for their employers (in the case of government employees), and their preference for religious policies (in the case of the devout voters). [62]

Having shown that the data does not contradict the model assumptions and the corresponding empirical predictions, I now connect the relevant aspects of the theory in Section II to the data.

[62] What this test does not rule out is that the government employee turns out to vote, but only to vote *against* his employer, and that the devout voter goes to the ballot box and votes *against* the incumbent who introduced the religious policy, but seems to be unlikely.

*V.B Setting up the welfare calculation*

To do this, one should observe Equation 1 in the model, the definition of incumbent votes from Section II. Importantly, all variables in the equation are either observed in our data (such as incumbent votes, presence of religious policy and electorate size), or can be proxied by an observed variable (as is the case for public employment $N_E$ and religious community size $N_R$). Parameters of the model then are functions of the $\delta$ and $\varsigma$ welfare weights, which we can recover from parameter estimates. Knowing the welfare weights then will give as a voter behavior based estimate of the subjective impact of Sharia policies.

That being said, by proxying $N_E$ with implicit employment and by proxying $N_R$ with the number of Islamic schools we can re-formulate the Equation 1 as follows:

$$Votes_1 = (1-s)\times \underbrace{\left(\Delta\pi_E\alpha_1 \frac{wagebill_{it}}{minimumwage_{it}} + \pi_{NE}N\right)}_{\text{Inc. votes without Sharia}} + s\times \underbrace{(\alpha_2 log(schools_{it}) + \Delta\pi_E^S\alpha_1 \frac{wagebill_{it}}{minimumwage_{it}} + \pi_{NE}^S(N - \alpha_2 log(schools_{it})))}_{\text{Inc. votes with Sharia}} + e_1 \tag{8}$$

The implicit employment (wagebill over the minimumwage) and the number of Islamic schools are proxies which only identify their unobserved counterparts up to scale parameters $\alpha_1$ and $\alpha_2$ . This means that we do not know how many voters are represented by a single Islamic school, and thus we do not know what is the probability that an individual devout voter will vote for the incumbent who introduced the religious policy, we only know that a unit increase in the log number of Islamic schools is associated with $\alpha_2$ increase in votes.

We also do not know how many people are there in the patronage network of the incumbent through public employment. But we do know that a unit increase in implicit employment will be associated with $\Delta\pi_E\alpha_1$ extra votes in the abscence of the religious policy, and $\Delta\pi_E^S\alpha_1$ increase in the presence of the religious policy. However, given implicit employment, actual clientele size can vary through at least three different margins. First, there is a wage margin, as wages are not observed, so we do not know how many people are actually employed. Second, there is a loyalty margin as we do not know how likely is that a person who is in the clientele will vote for the incumbent. Third, there is an outreach margin, as a client might very well turn out more than one people to vote. As a consequence we do not directly measure the rate at which a unit increase in the clientele increases votes for the incumbent ($\Delta\pi_E$ ).

To identify all the relationships in the equation, we need further assumptions. In particular, the model assumed that a religious individual will vote for the incumbent with probability 1 if the incumbent introduces the religious policy. With that assumption the estimated $\hat{\alpha_2}$ pins down the number of the devout by establishing that $\hat{N_R} = \hat{\alpha_2} log(schools_{it})$. In the case of the employment, similarly, neither $\Delta\pi_E$ and $\alpha_1$ , nor

$\Delta\pi_E^S$ and $\alpha_1$ are identified separately. What will pin them down eventually is a functional form assumption on individual voting probabilities based on the model microfoundations (see Appendix). Without getting into details here, in the simplest case (where candidate observable characterestics don't come into play) the probabilities will be $\pi_E = \frac{exp(\delta)}{exp(\delta)+J+1}$ in the abscence of the religious policy, and $\pi_E^S = \frac{exp(\delta-\varsigma_1)}{exp(\delta-\varsigma_1)+J+1}$ in the presence of one, where $J$ are the number of competitors, $\delta$ and $\varsigma_1$ are the individual utility from employment and secular disutility from Sharia, and $\pi^{(S)}{}_E = \Delta\pi_E^{(S)} + \pi_{NE}^{(S)}$ .

Substituting these into Equation 8 now identifies parameters $\alpha_{1,2}, \varsigma_1$ and $\delta$ non linearly, while the estimated $\hat{\alpha_1}$ and $\hat{\alpha_2}$ parameters can be used to recover an estimate for $N_E$ and $N_R$ through $\hat{N_E} = \hat{\alpha_1}\frac{wagebill_{it}}{minimumwage_{it}}$ and $\hat{N_R} = \hat{\alpha_2} log(schools_{it})$.

### *V.C Welfare calculations*

I now estimate the parameters from Equation 8 using non-linear least squares. $\hat{\delta} = .61$ (bootstrapped standard error: .05), $\hat{\varsigma} = .27$ (bootstrapped standard error: .30). The median estimate for the share of the secular is $\frac{(N-N_R)}{N} = 90\%$, while a conservative estimate for the substitution effect $\frac{(N_E-N_E^S)}{N}$ would be 10% (using, for example Tables 3). If that is the case, then substituting into Equation 3 the unobserved direct effect will make up abot 80% of the impact on the secular .

In order for the total effect to be positive, the $\varsigma_2$ coefficient has to be such that it satisfies

$$\underbrace{\delta\left(\frac{N_E^S}{N} - \frac{N_E}{N}\right)}_{\text{Substitution effect}} - \underbrace{\varsigma_1\left(\frac{N-N_R}{N}\right) + \varsigma_2\left(\frac{N_R}{N}\right)}_{\text{Direct effect}} > 0$$

Rearranging this yields that the average $\varsigma_2/\varsigma_1$ at which this inequality holds 12.7 (median: 9.5). The corresponding average value for $\varsigma_2/\delta$ is 5.66 (median: 4.23) This means that the subjective wellbeing caused by the Sharia regulation must be roughly ten times as much as the disutility on the secular in absolute terms; and it has to be roughly 5 times as much as the subjective utility from having a public sector job. These suggest that it is unlikely that the regulations would be welfare increasing on the aggregate.

# VI Conclusion

In this paper I proposed a mechanism which provided a possible explanation why politicians supply divisive, ideological policies. This mechanism suggests that these policies are usually cheaper alternatives to supplying public goods and services, so politicians have an economic incentive to supply ideology instead.

I investigated in detail whether politicians who were running on ideological platforms provided less for their constituents in Indonesia. I used three empirical designs and three independent data sets to deliver compelling evidence of the existence of the "public morals - public services tradeoff". The results suggest that regions that implement Sharia-based regulations have about 8-10% worse public services and expenditure on public employment in a difference-in-differences setting. I also found evidence that the policies have lasting impact on poverty, and on the number of violent incidents. Alternative identification strategies using instrumental variables yielded results that were similar both qualitatively and quantitatively. A model based structural estimation suggested that the total effect on welfare can be five time as high as that caused by the cutback in government services.

An important feature of the studied mechanism is that it is more likely to be at work in regions which are relatively more developed. The consequence of this is that identity-based divisive policies should become more likely in a country which is moving along its development path. This effect might be mitigated if development eventually strengthens instutions, making programmatical politics and issues about redistribution more salient, but this question is out of the scope of the current paper. Importantly, this paper and the stylized model concentrated on a developing country setting where due to weak institutions the politician could only choose between clientele building and ideological policies. An important avenue for future research would be to extend this analysis to a setting with stronger institutions, where the politicians are able to offer programmatical politics as well. It remains to be seen if a substitution between ideology and public services emerges in such a setting, and whether it is empirically relevant in developed countries.

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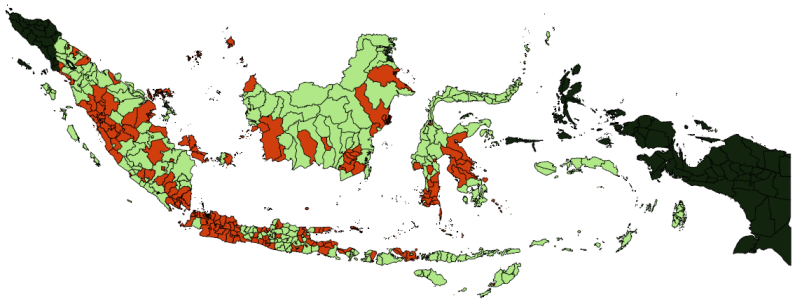
# Figures

Figure 1: Map of regions with religious policies (RPs) (red)



The map shows districts in red which had at least one Sharia-policy by 2013. The regions in black are omitted from the analysis (Aceh, Jakarta and Papua). The shapefiles show borders in 2009.

Figure 2: Coverage of National Violence Monitoring System by provinces and years

| | Provinsi / Tahun | 1997 | 1998 - 2004 | 2005 - 2010 | 2011 | 2012 | 2013 | 2014 | 2015 Jan - Mar |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Aceh | | | | | | | | |
| 2 | Maluku | | | | | | | | |
| 3 | Maluku Utara | | | | | | | | |
| 4 | Papua | | | | | | | | |
| 5 | Papua Barat | | | | | | | | |
| 6 | Kalimantan Barat | | | | | | | | |
| 7 | Kalimantan Tengah | | | | | | | | |
| 8 | Nusa Tenggara Timur | | | | | | | | |
| 9 | Sulawesi Tengah | | | | | | | | |
| 10 | Jabodetabek | | | | | | | | |
| 11 | Lampung | | | | | | | | |
| 12 | Nusa Tenggara Barat | | | | | | | | |
| 13 | Kalimantan Timur | | | | | | | | |
| 14 | Kalimantan Utara | | | | | | | | |
| 15 | Sumatera Utara | | | | | | | | |
| 16 | Jawa Timur | | | | | | | | |
| 17 | Sulawesi Selatan | | | | | | | | |
| 18 | Sulawesi Utara | | | | | | | | |
| 19 | Sumatera Barat | | | | | | | | |
| 20 | Kepulauan Riau | | | | | | | | |
| 21 | Riau | | | | | | | | |
| 22 | Bengkulu | | | | | | | | |
| 23 | Jambi | | | | | | | | |
| 24 | Kepulauan Bangka Belitung | | | | | | | | |
| 25 | Sumatera Selatan | | | | | | | | |
| 26 | Jawa Barat | | | | | | | | |
| 27 | Banten | | | | | | | | |
| 28 | DI Yogyakarta | | | | | | | | |
| 29 | Jawa Tengah | | | | | | | | |
| 30 | Bali | | | | | | | | |
| 31 | Kalimantan Selatan | | | | | | | | |
| 32 | Sulawesi Barat | | | | | | | | |
| 33 | Gorontalo | | | | | | | | |
| 34 | Sulawesi Tenggara | | | | | | | | |

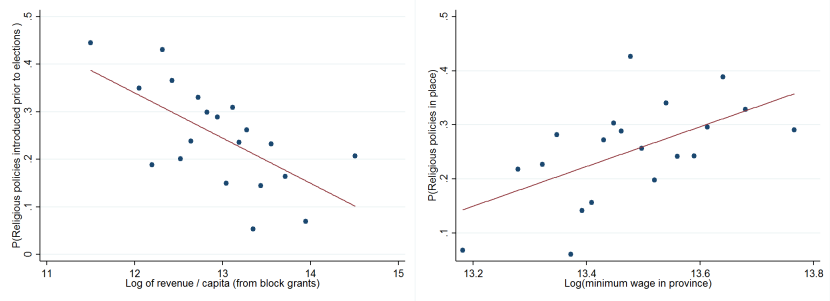
: Tersedia

: Sedang dalam proses

Source: http://snpk.kemenkopmk.go.id/

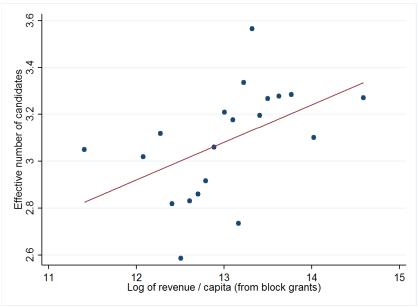
*Stylized facts*

Figure 3: Determinants of Sharia regulations: model predictions



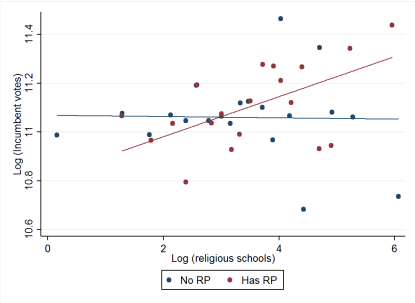

The figures show the occurrence of a religious policy (Y axis) against the revenues and the minimum wage in a binned scatterplot. The probability of religious policies is decreasing in reliable revenue streams ($\hat{\beta}$ : -.10,$t$ : -4.78 ), increases in wages ($\hat{\beta}$ : .36,$t$ : 2.85 ). Sample: district-election cycle observations, Controls: logs of population, GDP/cap, Block grant /cap (with wages only); year dummies

Figure 4: Determinants of Sharia policies: competition



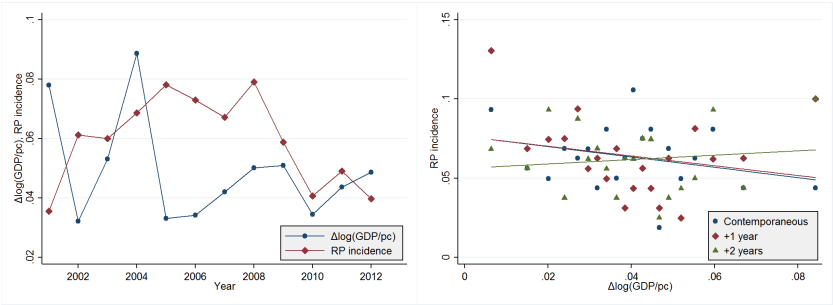

The figures shows the binned scatterplot of the effective number of candidates (Y axis) against the log of the government revenue from block grants per capita (X axis). There is more competition in regions which have more available revenue ($\hat{\beta}$ : .16,$t$ : 3.14 ). Data points are bins created from are district-election cycle observations. The effective candidate number is the Laakso & Taagepera (1979) index. Controls: logs of population, GDP/cap; year dummies

Figure 5: Incumbent votes and Islamic schools



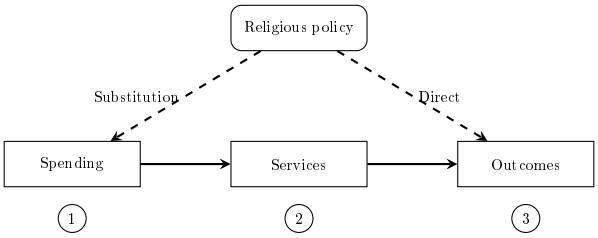

The figure shows a binned scatter blot shows the log number of incumbent votes (Y axis) against the log number of total pesantren and madrasah diniyah Islamic schools in the region. The linear regression is estimated for regions which had a religious policy already and for those that do not. The bins are created from district-election cycle variables. The incumbent votes are only positively correlated with the number of schools in districts and years where religious policies were introduced. Controls: logs of population, GDP/cap; year dummies

Figure 6: Economic shocks and religious policy incidence




The first panel shows the average growth rate of the economy and the share of districts each year which introduced a religious policy. The second panel shows the probability that the region has a religious policy (Y axis) plotted against change in per capita GDP in the same year, a year before and two years before. The figures show that there is no obvious correlation between economic performance and the religious turn.

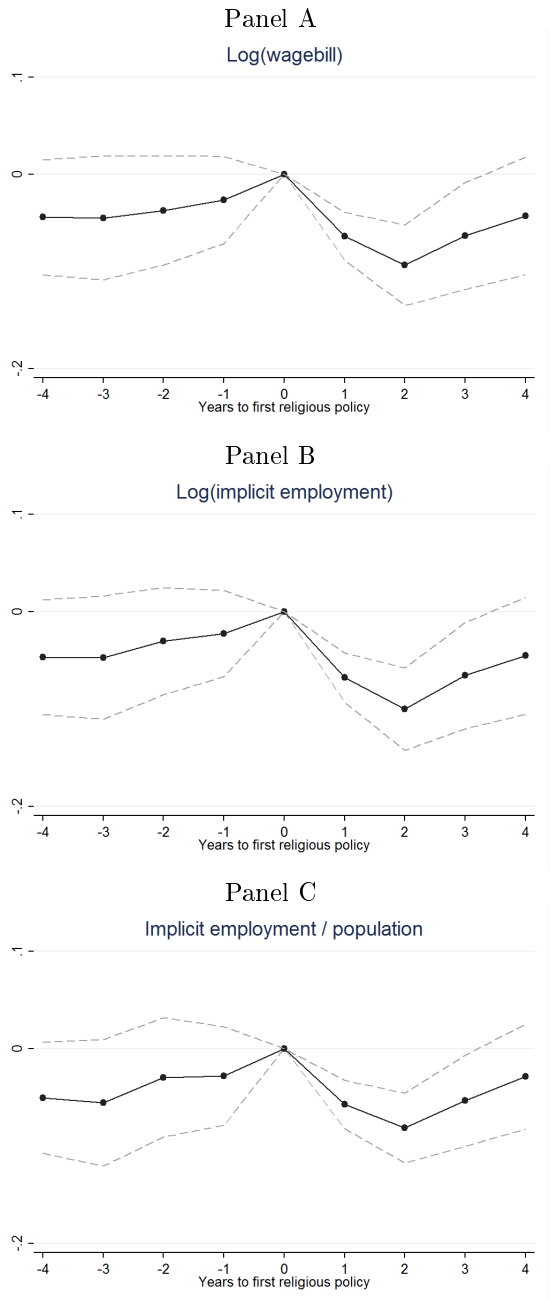
Figure 7: Stylized impact of religious policies




The figure shows how religious regulations affect the three sets of outcomes of interest. First, the incumbent who introduces the Sharia regulation cuts spending (Set 1). The consequence is a decrease in the level of public services (Set 2). These are constitute the substitution effect. Lack of government services then have an impact on social outcomes such as poverty and violence, but these are also potentially affected directly by the regulation (direct channel).

*Regional event studies*

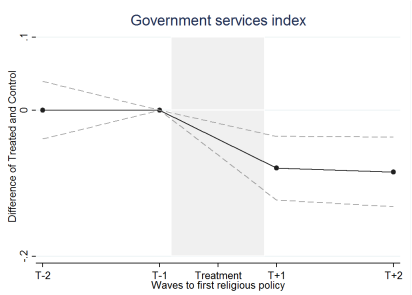
Figure 8: Expenditure and clientele event studies




The figures shows event studies comparing different expenditure measures in regions which introduced a religious policy and regions that did not. The figure uses district-year observations. The events are defined as the start of the election cycle that saw the intoduction of the religious policy. The term of the district head is five years. The control group is defined as all regions that had no religious policy or not yet within the event window. Panel A shows the log of the total wagebill. Panel B shows the log of implicit public employment, which means the number of people who could have been employed given the wagebill given that everyone was employed at the minimum wage. Panel C shows the implicit employment measure divided by the population of the region. The minimum wage is set at the provincial level. Regional fixed effects, income, GDP/capita (logs and lagged growth rates), calendar year dummies, election dummes, population (in logs) are included as controls. Confidence intervals are based on standard errors clustred at the regional level

*Government services event studies*

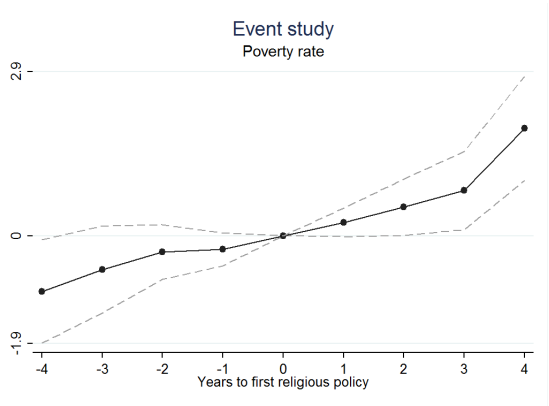
Figure 9: Government output event study




The figure shows an event study where the outcome variable is the standardized Government services index created from all variables consistently measured throughout the PODES survey (see the Appendix for details). The figure uses village - survey wave observations. An event is defined as the village being in a district that introduced the first religious policy between the two survey waves. The survey takes place together with every national census, in every three years on average. The control variables are village fixed effects, calendar year dummies and log of population. The confidence interval is based on standard errors clustered at the regional level.

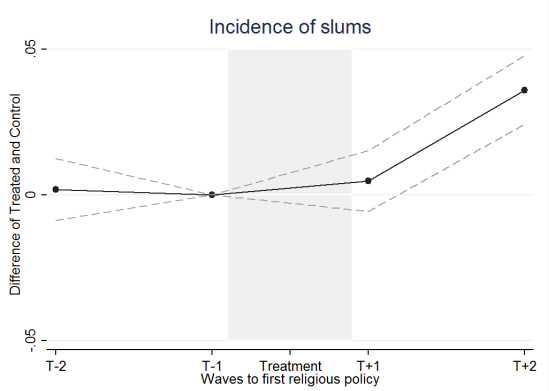
*Event studies on social outcomes*

Figure 10: Poverty rate event study (region)



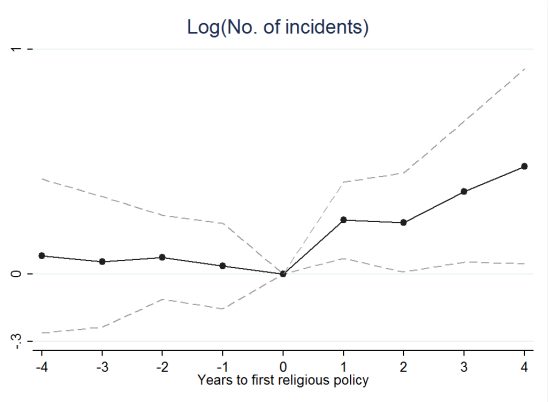

The figure shows the difference between poverty rates of Sharia-regulation introducing and non-introducing regions. The figure uses district-year observations. The event is defined as the year of the first Regional fixed effects, income, GDP/capita (logs and lagged growth rates), calendar year dummies, election dummes, population (in logs) are included as controls. 95% confidence intervals are based on standard errors clustred at the regional level

Figure 11: Incidence of slums event study (village)




The figure shows an event study where the outcome variable is a dummy indicating the presence of a slum region in the village from the PODES survey . The figure uses village - survey wave observations. An event is defined as the village being in a district that introduced the first religious policy between the two survey waves. The survey takes place together with every national census, in every three years on average. The control variables are village fixed effects, calendar year dummies and log of population. The confidence interval is based on standard errors clustered at the regional level.

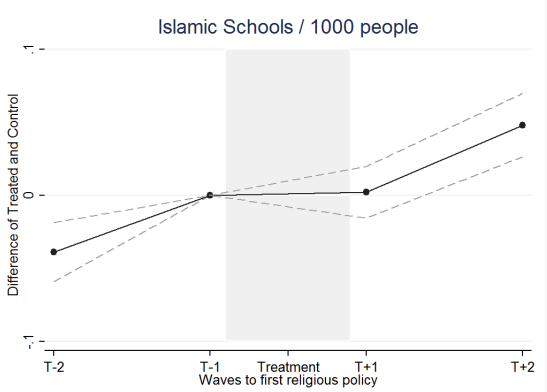
Figure 12: Event study on violent incidents (region)




The figure shows the difference between the log number of violent incidents Sharia-regulation introducing and non-introducing regions. The outcome variable comes from the SNPK dataset. The figure uses district-year observations. The event is defined as the year of the first Regional fixed effects, income, GDP/capita (logs and lagged growth rates), calendar year dummies, election dummes, population (in logs) are included as controls. 95% confidence intervals are based on standard errors clustred at the regional level

*Demand for religious policies*

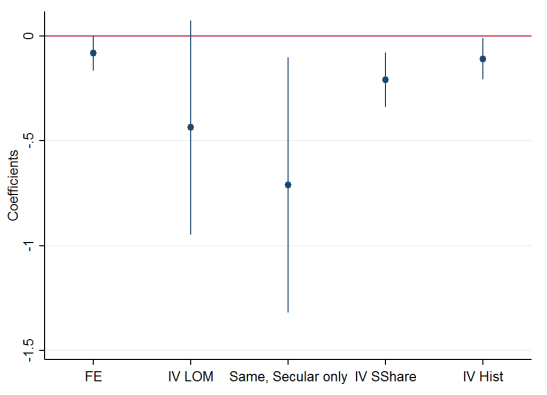
Figure 13: Trends in school Islamic presence relative to religious policy introduction




The figure shows an event study where the outcome variable is the number of Islamic schools per 1000 inhabitants in a village. Data comes from the PODES survey. The figure uses village - survey wave observations. An event is defined as the village being in a district that introduced the first religious policy between the two survey waves. The survey takes place together with every national census, in every three years on average. The control variables are village fixed effects, calendar year dummies and log of population. The confidence interval is based on standard errors clustered at the regional level. The figures show that villages that would introduce religious policies experienced an increasing trend in the number of religious policies in the village.

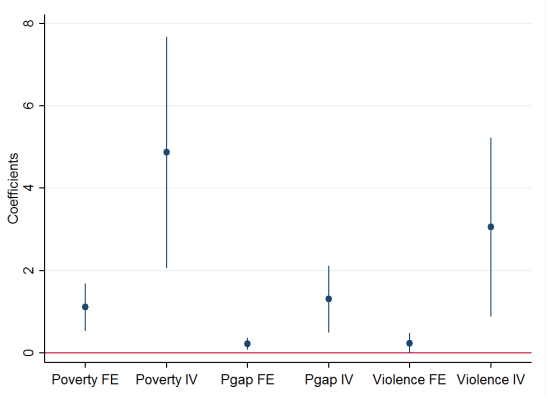
*Comparison of results across specifications*

Figure 14: Comparison of estimates of impact on government services across empirical specificatios




The figure compares the estimated $\beta$ parameters of the impact of government services through different empirical specifications, which are the baseline village fixed effect regression (FE), the Leave-out-mean instrument (IV LOM), the same for secular villages only, the shift-share instrument with school shares (IV SShare) and the shift-share instrument with 1955 election data es baseline.

Figure 15: Comparison of DID and regional IV coefficients




The figure compares the estimated $\beta$ parameters between regional outcome variables in the fixed effect and the shift share IV specification. The outcomes are the poverty rate, the poverty gap index, and the log number of violent incidents.

# Tables

Table 1: Descriptive statistics

| | All regions | No RP until 2013 | RP until 2013 | Difference |
|---|---|---|---|---|
| Number of obs. | 286 | 172 | 114 | |
| Population (thousands) | 698.6 | 627.20 | 814.27 | 187.06 |
| | (616.62) | (528.83) | (725.07) | (77.7) |
| Log (real GDP/cap) -2002 | 1.29 | 1.17 | 1.46 | .29 |
| | (.64) | (.67) | (.55) | (.05) |
| Poverty rate - 2002 | 18.4 | 20.3 | 15.77 | -4.54 |
| | (9.09) | (9.09) | (8.45) | (1) |
| Poverty Gap (index) - 2002 | 3.1 | 3.46 | 2.61 | -.86 |
| | (1.85) | (1.95) | (1.58) | (.2) |
| % of pop. urban | 39.28 | 33.98 | 47.34 | 13.36 |
| | (32.55) | (30.23) | (34.4) | (3.86) |
| Islamic schools / 100.000 people | 11.35 | 9.19 | 14.85 | 5.65 |
| | (16.38) | (15.55) | (17.14) | (2.06) |
| Log(minimum wage) - 2002 | 12.24 | 12.23 | 12.25 | .02 |
| | (.12) | (.13) | (.1) | (.01) |
| Log(total revenue) - 2001 | 25.94 | 25.9 | 25.99 | .09 |
| | (.52) | (.47) | (.60) | (.06) |
| Log(total revenue pc) - 2001 | 12.94 | 13 | 12.86 | -.14 |
| | (.60) | (.57) | (.63) | (.07) |
| Log(total expenditure) - 2001 | 25.85 | 25.81 | 25.9 | .09 |
| | (.52) | (.46) | (.60) | (.01) |
| Log(total expenditure pc) - 2001 | 12.85 | 12.91 | 12.78 | -.13 |
| | (.56) | (.51) | (.61) | (.06) |

This table shows summary statistics that describe pre-religious policy differences between regions in Indonesia. Where not indicated, the year is 2000. All data is from the INDODAPOER dataset, except for the Islamic school variable, which is from the 2000 wave of the PODES survey, and it shows the sum of pesantren and madrasah diniyah schools per 100.000 inhabitants of the region. The first column shows the mean of all regions, the second the group of regions that did not have a Sharia regulation until 2013, the third the regions that had until one at least in 2013. The fourth Column shows the difference between the two groups in the first year the variable is observed. Standard deviations of the variables are found in parenthesis in Columns 1 - 3. In Column 4, the standard error of the difference is in the parenthesis.

Table 2: Predictors of religious policies

Panel A: $P(religious\,policy_{rt}) = \beta_1 Log(schools+1) + \beta_2 X_{rt} + \alpha_r + \lambda_t$

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| Log(schools+1) | 0.00992*** | 0.0148** | 0.0142* | 0.0174** | 0.0150** | 0.0173** | 0.0148** | 0.0203** |
| | (0.00214) | (0.00685) | (0.00740) | (0.00680) | (0.00736) | (0.00781) | (0.00681) | (0.00854) |
| Log(GDP/pc) | | | 0.000205 | | | | | 0.0305 |
| | | | (0.0418) | | | | | (0.0497) |
| Log(Block grants pc.) | | | | -0.00844 | | | | -0.0116 |
| | | | | (0.0128) | | | | (0.0146) |
| Unemployment rate | | | | | 0.00125 | | | 0.00255 |
| | | | | | (0.00254) | | | (0.00313) |
| Inequality | | | | | | 0.0492** | | 0.0371* |
| | | | | | | (0.0196) | | (0.0194) |
| Poverty rate | | | | | | | -0.00420* | -0.00184 |
| | | | | | | | (0.00231) | (0.00295) |
| Observations | 3184 | 3184 | 2754 | 3084 | 2995 | 2786 | 3179 | 2143 |
| Model | OLS | FE | FE | FE | FE | FE | FE | FE |

Panel B: $P(religious\,policy_{rt}) = \beta_1 Log(schools+1) + \beta_2 X_{rt} + \beta_3 \Delta X_{rt} + \alpha_r + \lambda_t$

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| Log(schools+1) | 0.0143* | 0.0189*** | 0.0143 | 0.0214*** | 0.0162** | 0.0216** |
| | (0.00742) | (0.00701) | (0.00916) | (0.00769) | (0.00691) | (0.0106) |
| Log(GDP/pc) | 0.0362 | | | | | 0.0787 |
| | (0.0446) | | | | | (0.0965) |
| Δ Log(GDP/pc) | -0.143 | | | | | -0.132 |
| | (0.0892) | | | | | (0.131) |
| Log(Block grants pc.) | | 0.00287 | | | | 0.00106 |
| | | (0.0153) | | | | (0.0119) |
| Δ Log(Block grants pc.) | | -0.0117** | | | | -0.00545 |
| | | (0.00576) | | | | (0.00559) |
| Unemployment rate | | | 0.00367 | | | 0.00695 |
| | | | (0.00365) | | | (0.00560) |
| Δ Unemployment rate | | | -0.00308 | | | -0.00410 |
| | | | (0.00325) | | | (0.00417) |
| Inequality | | | | 0.0622** | | 0.0793** |
| | | | | (0.0313) | | (0.0390) |
| Δ Inequality | | | | -0.0228 | | -0.0528* |
| | | | | (0.0205) | | (0.0294) |
| Poverty rate | | | | | -0.00502** | -0.00598 |
| | | | | | (0.00252) | (0.00365) |
| Δ poverty rate | | | | | 0.00468 | 0.0125 |
| | | | | | (0.00302) | (0.00774) |
| Observations | 2754 | 2935 | 2685 | 2305 | 3082 | 1481 |
| Model | FE | FE | FE | FE | FE | FE |

This table shows anFixed Effects regression of the dummy for having a religious policy on the log of Islamic schools in the region , against different sets of controls. District and year fixed effects are included and standard errors are clustered on the level of districts. All control variables are from INDODAPOER. Observation numbers vary because missing data in INDODAPOER, as it collevts data from various sources. Panel A shows levels of the alternative control variables, while in Panel B the yearly differences are included as well.

**Government expenditure and clientele regressions**

Table 3: Baseline specification

Panel A

| | (1) Log(wbill) | (2) Log(imp. emp.) | (3) Imp. emp. / pop. |
|---|---|---|---|
| Religious policy in cycle | -0.0316* | -0.0311* | -0.0176 |
| | (0.0176) | (0.0173) | (0.0252) |
| Observations | 4020 | 4045 | 4045 |
| MeanY | 25.53 | 12.82 | 1.443 |
| hastrend | Yes | Yes | Yes |

Panel B

| | (1) Log(wbill) | (2) Log(imp. emp.) | (3) Imp. emp. / pop. |
|---|---|---|---|
| Religious policy in cycle | -0.121*** | -0.123*** | -0.158*** |
| | (0.0308) | (0.0299) | (0.0385) |
| Observations | 2642 | 2667 | 2667 |
| MeanY | 25.53 | 12.82 | 1.443 |
| hastrend | Yes | Yes | Yes |

This table shows Fixed Effect regressions of different expenditure measures of the district government on a dummy indicating if the district had ha religious policy in the given election cycle. Panel A shows the whole study period, Panel B only the election cycles where the district head was directly elected.E Election cycles are 5 year long. The first direct election could have occurred any time between 2005 and 2009 as it was scheduled when the incumbent district head completed his or her term. Regional fixed effects, income, GDP (lagged values of GDP/capita and its growth rate), calendar year dummies, election dummes, population (in logs) are included as controls.

**Village regressions**

Table 4: Village panel main results

| | (1) | (2) |
|---|---|---|
| | Gov. services | P(slum) |
| Religious policy | -0.0854** | 0.0159** |
| | (0.0416) | (0.00678) |
| Observations | 273450 | 273450 |

This table shows a Fixed Effect regression of the Government services index (Column 1) and the incidence of slums (Column 2) on a dummy indicating if the region had a religious policy. The observations are village-year observations from the linked PODES data. Time- and village fixed effects and log of population are included as controls. Standard errors are clustered on the regional level.

## Social effects

Table 5: Social effects main table

| | (1) Poverty rate | (2) Poverty gap | (3) Poverty rate | (4) Poverty gap | (5) P(slum) |
|---|---|---|---|---|---|
| Religious policy | 1.110*** | 0.224*** | -0.967 | -0.272* | 0.0157** |
| | (0.295) | (0.0706) | (0.707) | (0.156) | (0.00678) |
| Years after RP | | | 0.179** | 0.0414** | |
| | | | (0.0849) | (0.0187) | |
| Observations | 4049 | 4049 | 4049 | 4049 | 273450 |
| MeanY | 15.07 | 2.618 | 15.07 | 2.618 | 0.0685 |
| hastrend | No | No | Yes | Yes | No |
| Data Source | region | region | region | region | village |

This table shows Fixed Effect regressions of different social outcomes on a dummy indicating if the district had ha religious policy the year before the outcome was observed. Columns 1 to 4 include data from INDODAPOER, Column 5 shows village data from PODES. Accordingly, columns 1-4 use region-year observations, and the specifications include regional fixed effects, income, GDP (lagged values of GDP/capita and its growth rate), calendar year dummies, election dummes, population (in logs) are included as controls. Standard errors are clustered on the level of regions in all cases. The poverty rate is the % of people living under the poverty line, the poverty gap is an index measure showing how far is the averasge poor person living from the poverty line. Columns 3-4 have the same measures interacted with a time trend starting at the year of the first policy. The outcome in Column 5 is a dummy indicating if the village had a slum when the survey was conducted. In this case the empirical specification is otherwise identical to that of Table 4.

## Violence and religious policies

Table 6: Do Sharia regulations predict violence?

| | (1) No. of incidents | (2) No. of incidents/1000 people | (3) Log(No. of incidents) |
|---|---|---|---|
| Had RP (T-1) | 23.33** | 7.946** | 0.279** |
| | (11.36) | (3.462) | (0.134) |
| Observations | 921 | 921 | 921 |

The table shows Fixed Effects regressions where the outcome variables are different violence measures. The independent variable is a dummy indicating if the region had a religious policy in the previous year. The source of the data is the SNPK dataset, and the sample includes all regions that were covered by the SNPK. (See Figure 2 for details). The specifications include regional and time fixed effects. Standard errors clustered at regional borders.

Table 7: Perpetrator types

Panel A: P(perpetrator)

| | (1) Religious group | (2) Government | (3) Other political |
|---|---|---|---|
| Had RP (T-1) | 0.194** | 0.0369 | -0.0346 |
| | (0.0888) | (0.0686) | (0.0775) |

Panel B: Number of incidents by perpetrator

| | (1) Religious group | (2) Government | (3) Other political |
|---|---|---|---|
| Had RP (T-1) | 0.451*** | 1.351 | 4.330 |
| | (0.159) | (1.167) | (2.817) |

Panel C: Number of victims / 100000 people by perpetrator

| | (1) Religious group | (2) Government | (3) Other political |
|---|---|---|---|
| Had RP (T-1) | 0.0874* | 1.688 | 2.315 |
| | (0.0477) | (1.422) | (2.110) |
| Observations | 921 | 921 | 921 |

The table shows a similar specification to Table 6, but instead of the incidence of violence, the outcome variables are grouped by perpetrators. In Panel A the outcomes of dummies indicating if the region had a violent act by the given perpetrator. Panel B shows the number of incidents by the specific petpetrator. Panel C shows the number of victims by 100.000 inhabitants by perpetrator. Note: not all perpetrators belong to these groups or any group, so the numbers do not have to add up to the coefficients from the previous table. Regional and time fixed effects included. Standard errors clustered at regional borders.

Table 8: Incident types

Total number of victims by incident type

| | (1) Killed | (2) Injured | (3) Kidnapped | (4) Sexually assaulted |
|---|---|---|---|---|
| Had RP (T-1) | 3.317*** | 20.57* | 0.423** | 4.759 |
| | (0.835) | (10.56) | (0.211) | (3.000) |

Victims / 100000 people by incident type

| | (1) Killed | (2) Injured | (3) Kidnapped | (4) Sexually assaulted |
|---|---|---|---|---|
| Had RP (T-1) | 0.631*** | 6.752* | 0.109 | 1.743*** |
| | (0.192) | (3.944) | (0.0838) | (0.654) |
| Observations | 921 | 921 | 921 | 921 |

The table shows a similar specification to Table 6, but instead of the incidence of violence, the outcome variable is the number of victims by incident types in Panel A, and number of victims per 100.000 inhabitants in Panel B. Regional and time fixed effects included. Standard errors clustered at regional borders.

**Instrumenting outcomes with the leave-out-mean**

Table 9: IV regression: Government services

| | Baseline | | + Political vars. | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| | FE | IV FE | FE | IV FE |
| Religious policy | -0.0855** | -0.444 | -0.0861** | -0.446 |
| | (0.0425) | (0.273) | (0.0423) | (0.274) |
| Islamic schools (log) | | | | |
| Administrative village | | | -0.00889 | -0.0130 |
| | | | (0.0366) | (0.0371) |
| Remote village | | | 0.0271 | 0.0547 |
| | | | (0.0603) | (0.0667) |
| Village has Hansip police | | | 0.0689*** | 0.0696*** |
| | | | (0.0141) | (0.0146) |
| Observations | 269552 | 269552 | 269201 | 269201 |

Columns 1 and 3 show Fixed Effect regressions of the Government Services Index on the dummy indicating a religious policy, population, regional and time fixed effects and the control variables in indicated in the table. Columns 2-4 show Panel IV regressions where the instrument is the leaveout mean of Islamic schools (pesantren and madrasah) for every village. The leave-out mean is defined as the average number of schools, not counting the schools of the particular village. All data are village-level data from INDODAPOER. Standard errors are clustered on the level of districts.

Table 10: First stage and Reduced form

| | First stage | | Reduced Form | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Islamic schools / 1000 people (other villages) | 0.360*** | 0.358*** | -0.160 | -0.159 |
| | (0.110) | (0.110) | (0.104) | (0.103) |
| Islamic schools (log) | | | | |
| Administrative village | | -0.00337 | | -0.0115 |
| | | (0.0228) | | (0.0368) |
| Remote village | | 0.0661** | | 0.0252 |
| | | (0.0275) | | (0.0609) |
| Village has Hansip police | | 0.00385 | | 0.0679*** |
| | | (0.00651) | | (0.0141) |
| Observations | 269552 | 269201 | 269552 | 269201 |

This is a companion to Table 9 . Columns 1 and 2 show the First Stage of the IV estimation (the correspondence between the policy dummy and the instrument), Columns 3-4 show the Reduced Form of the IV estimation (the correspondence between the outcome and the instrument.

Table 11: IV regressions: Prevalence of slums

| | Baseline | | + Political vars. | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| | FE | IV FE | FE | IV FE |
| Religious policy | 0.0160** | 0.0780 | 0.0159** | 0.0797 |
| | (0.00687) | (0.0642) | (0.00688) | (0.0650) |
| Islamic schools (log) | | | | |
| Administrative village | | | 0.0290*** | 0.0297*** |
| | | | (0.0104) | (0.0107) |
| Remote village | | | 0.00686 | 0.00197 |
| | | | (0.00880) | (0.00984) |
| Village has Hansip police | | | 0.00125 | 0.00112 |
| | | | (0.00315) | (0.00314) |
| Observations | 269552 | 269552 | 269201 | 269201 |

Columns 1 and 3 show Fixed Effect regressions of the Slum dummy on the dummy indicating a religious policy, population, regional and time fixed effects and the control variables in indicated in the table. Columns 2-4 show Panel IV regressions where the instrument is the leaveout mean of Islamic schools (pesantren and madrasah) for every village. The leave-out mean is defined as the average number of schools, not counting the schools of the particular village. All data are village-level data from INDODAPOER. Standard errors are clustered on the level of districts.

Table 12: First stage and Reduced form

| | First stage | | Reduced Form | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Islamic schools / 1000 people (other villages) | 0.360*** | 0.358*** | 0.0280 | 0.0285 |
| | (0.110) | (0.110) | (0.0208) | (0.0209) |
| Islamic schools (log) | | | | |
| Administrative village | | -0.00337 | | 0.0295*** |
| | | (0.0228) | | (0.0104) |
| Remote village | | 0.0661** | | 0.00724 |
| | | (0.0275) | | (0.00874) |
| Village has Hansip police | | 0.00385 | | 0.00143 |
| | | (0.00651) | | (0.00318) |
| Observations | 269552 | 269201 | 269552 | 269201 |

This is a companion to Table 11 . Columns 1 and 2 show the First Stage of the IV estimation (the correspondence between the policy dummy and the instrument), Columns 3-4 show the Reduced Form of the IV estimation (the correspondence between the outcome and the instrument.

Table 13: Placebo: Government services

| | Cross-section IV | | | 1996-2000 panel |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| | RP | IV | RP+IV | IV |
| Ever RP | -0.0170 | | -0.0156 | |
| | (0.0363) | | (0.0388) | |
| Average of schools in region (log) | | -0.0155 | -0.00940 | 0.399 |
| | | (0.0589) | (0.0631) | (0.316) |
| Observations | 45556 | 45556 | 45556 | 91043 |

This table show a placebo experiment to Table 9 . Columns 1 shows a pre-policy regression of the Government Services index on a dummy indicating if the region would have a religious policy by 2013. Column 2 shows the pre-policy regression of the outcome variable on the instrument. Column 3 includes both variables. Column 3 shows a regression of the outcome on the instrument in a panel setting that includes 1996 and 2000 only. All standard errors are clustered on the regional level.

Table 14: Placebo: Prevalence of slums

| | Cross-section IV | | | 1996-2000 panel |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| | RP | IV | RP+IV | IV |
| Ever RP | 0.0138 | | 0.0161 | |
| | (0.00984) | | (0.0101) | |
| Average of schools in region (log) | | -0.00908 | -0.0154 | -0.282*** |
| | | (0.0124) | (0.0127) | (0.0925) |
| Observations | 45556 | 45556 | 45556 | 91043 |

This table show a placebo experiment to Table 11 . Columns 1 shows a pre-policy regression of the slum dummy on a dummy indicating if the region would have a religious policy by 2013. Column 2 shows the pre-policy regression of the outcome variable on the instrument. Column 3 includes both variables. Column 3 shows a regression of the outcome on the instrument in a panel setting that includes 1996 and 2000 only. All standard errors are clustered on the regional level.

Table 15: IV regression: Effect on government services in villages without *pesantren*

| | Baseline | | + Political vars. | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| | FE | IV FE | FE | IV FE |
| Religious policy | -0.0783* | -0.709** | -0.0796* | -0.709** |
| | (0.0455) | (0.315) | (0.0453) | (0.317) |
| Islamic schools (log) | | | | |
| Administrative village | | | -0.0145 | -0.0178 |
| | | | (0.0373) | (0.0402) |
| Remote village | | | 0.107* | 0.134* |
| | | | (0.0587) | (0.0732) |
| Village has Hansip police | | | 0.0768*** | 0.0777*** |
| | | | (0.0174) | (0.0186) |
| Observations | 189418 | 189418 | 189091 | 189091 |

Estimates a version of the specifications in Table 9 with the sample reduced to villages which never had a *pesantran*-type Islamic school over the study period. These are roughly 70% of the villages. The regressions are otherwise identical.

Table 16: IV regression: Effect on government services in villages with *pesantren*

| | Baseline | | + Political vars. | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| | FE | IV FE | FE | IV FE |
| Religious policy | 0.00460 | 0.169 | 0.00386 | 0.182 |
| | (0.0427) | (0.376) | (0.0426) | (0.383) |
| Islamic schools (log) | | | | |
| Administrative village | | | 0.0320 | 0.0379 |
| | | | (0.0713) | (0.0733) |
| Remote village | | | 0.0292 | 0.00934 |
| | | | (0.0864) | (0.0922) |
| Village has Hansip police | | | 0.0561* | 0.0568* |
| | | | (0.0313) | (0.0315) |
| Observations | 40384 | 40384 | 40368 | 40368 |

Estimates a version of the specifications in Table 9 with the sample reduced to villages which had at least one*pesantran*-type Islamic school over the study period. These are roughly 30% of the villages. The regressions are otherwise identical.

**Shift-share istruments**

Table 17: Shift-share instruments

Panel A: all years, non-survey year data imputed

| | (1) Government services | (2) Poverty rate | (3) Poverty gap | (4) Log(No. of incidents) |
|---|---|---|---|---|
| L.Has RP | -0.0946** | 4.870*** | 1.307*** | 3.055*** |
| | (0.0451) | (1.434) | (0.413) | (1.109) |
| Observations | 3291 | 3982 | 3982 | 1253 |
| Specification | | | | |

Panel B: survey years only

| | (1) Government services | (2) Poverty rate | (3) Poverty gap |
|---|---|---|---|
| Has RP | -0.177 | 3.685 | 0.759 |
| | (0.114) | (3.013) | (0.994) |
| Observations | 1214 | 1228 | 1228 |
| Specification | | | |

Panel C: first stage and reduced forms (all years)

| | (1) Has RP | (2) Government services | (3) Poverty rate | (4) Poverty gap |
|---|---|---|---|---|
| School shift share (i) | 0.00391*** | -0.000441** | 0.0200*** | 0.00535*** |
| | (0.000631) | (0.000186) | (0.00543) | (0.00158) |
| Observations | 3291 | 3291 | 3982 | 3982 |

Panel D: first stage and reduced forms (survey years)

| | (1) Has RP | (2) Government services | (3) Poverty rate | (4) Poverty gap |
|---|---|---|---|---|
| School shift share | 0.00331*** | -0.000585* | 0.0126 | 0.00259 |
| | (0.000999) | (0.000332) | (0.00984) | (0.00333) |
| Observations | 1214 | 1214 | 1228 | 1228 |

This table shows regional instrumental variables estimations of outcomes on the religious policy dummy where the instrument is a shift share of Islamic schools in the region, defined as the share of Islamic schools in Indonesia in the particular region in 2000 multiplied by the country-wise growth rate in the total number of Islamic schools. Variables are either from PODES (population weighted average of the village-level government services index and the shift share instrument) or INDODAPOER (poverty rates and poverty gaps and all other controls). Panel A shows a version where PODES data is linearly interpolated to years where PODES was not conducted. Panel B is restricted to years where PODES data is available. Regional fixed effects, income, GDP (lagged values of GDP/capita and its growth rate), calendar year dummies, election dummes, population (in logs) are included as controls. Standard errors are clustered at the regional level.

# Appendix - Proofs of propositions

There are an incumbent and $J$ challengers, whose behavior is taken as exogenous. In this setting, the only player is the incumbent, and we are considering his decision problem.

The incumbent maximizes

$$V = Pr(reelected) \times M - \omega N_E - s \cdot c \tag{9}$$

The challengers spends $N_B = \bar{M}/p$ on bribing voters, where $\bar{M}$ is their campaign budget and $p$ is the cost of bribing a voter. The number of challengers can be endogenized by assuming that they enter the race until their expected utility is above some threshold, but this is not necessary to make the points about incumbent behavior. Votes are given by

$$Votes_I = (1-s) \times \underbrace{(\Delta\pi_E N_E + \pi_{NE} N)}_{\text{Inc. votes without Sharia}} + s \times \underbrace{(N_R + \Delta\pi_E^S N_E + \pi_{NE}^S (N - N_R))}_{\text{Inc. votes with Sharia}} + e_1, \tag{10}$$

$$Votes_j = (1-s) \times \underbrace{(\Delta\pi_B N_B + \pi_{NB} N)}_{\text{Chall. votes without Sharia}} + s \times \underbrace{(\Delta\pi_B N_B + \pi_{NB} (N - N_R))}_{\text{Chall. votes if inc. does Sharia}} + e_j. \tag{11}$$

If the turnout shocks $e$ follow a Type-I extreme value distribution, the probability that any particular candidate wins will be given by the logit formula (McFadden *et al.*, 1973). The decision variables of the incumbent are the public employment level $N_E \geq 0$ and the decision to implement the divisive policy, $s \in \{0, 1\}$. In the simplest version of the problem the incumbent is optimizing without a constraint, meaning that he can spend as much on public employment as he wants to. There will be, however, an implicit constraint, as he cannot have a reelection probability above 1 , so spending more than $M/\omega$ will result in a negative utility no matter what. He is better off not spending at all, given that the turnout shocks grant him a positive reelection probability even without spending. Introducing a binding spending constraint does not change the lessons of the analysis, so I get back to this at the end.

In what follows I take the following steps:

1. Solve for the condition of the incumbent under which he chooses $s = 1$
2. I show that if he chooses $s = 1$, $N_E$ will be set lower than in an alternative setting where the divisive policy is not available. This is the public morals - public services tradeoff.
3. Show how the condition in (1) depends on the economic parameters, $M$ and $\omega$.

*The decision to introduce the divisive policy*

I first calculate optimal $N_E$ given $s$, and than show which are the conditions under which $V(s=1) > V(s=0)$. This will be the condition to introduce the religious policy. Optimal public employment level is given by the first order condition in Equation 9:

$$\frac{\partial V}{N_E} : \frac{\partial P(reelected)}{\partial N_E} = \frac{\omega}{M}$$

The conditional logit formula for the winning probability is

$$P(reelected) = P_r = \frac{exp(\Delta\pi_E(s)N_E + \pi_{NE}(s)(N - s \cdot N_R) + s \cdot N_R)}{1 + exp(\Delta\pi_E(s)N_E + \pi_{NE}(s)N) + Jexp(\Delta\pi_B \frac{\bar{M}}{p} + \pi_{NB}(N - s \cdot N_R))} \tag{12}$$

From which the marginal probability takes the simple form $\frac{\partial P_r}{\partial N_E} = \Delta\pi_E(s)P_r(s)(1 - P_r(s))$. This means that the optimal public employment will be implicitly given by the quadratic equation

$$P_r^*(s) = \frac{1}{2} \pm \frac{1}{2}\sqrt{1 - 4\frac{\omega}{M \cdot \Delta\pi_E(s)}} \tag{13}$$

Where the second derivative test reveals that the smaller root is a local minimum, and the larger root is a local maximum. [63]This means that for a given parameter vector $(\omega, M, \Delta\pi_E(s))$ the incumbent will have a preferred reelection probability $P_r^*(s)$.

**Lemma 1:** $P_r^*(s=1) < P_r^*(s=0)$ **if** $\Delta\pi_E(s=1) < \Delta\pi_E(s=0)$**.** The incumbent will target a lower reelection probability under the divisive policy if introducing it makes clientele building less effective. This directly follows from the fact that $P_r^*(s)$ is increasing in $\Delta\pi_E(s)$. Similarly, $P_r^*(s)$ is increasing in $M$ and decreasing $\omega$. The bigger the stakes are at the election, the surer he wants to get in winning. If getting votes is more costly, the optimal reelection probability will be lower.

The identity $P_r^*(s) = P_r(s)$ gives implicitly $\Delta\pi_E(s)N_E$, the ex post clientele size of the incumbent:[64]

$$\Delta\pi_E(s)N_E = log\left(\frac{P_r^*(s)}{1 - P_r^*(s)}\right) - s \cdot (1 + \pi_{NB} - \pi_{NE}(s)) \cdot N_R + (\pi_{NB} - \pi_{NE}(s))\, N + logJ + \Delta\pi_B \frac{\bar{M}}{p} \tag{14}$$

[63]There are no real roots if $\omega > \frac{1}{4}M \cdot \Delta\pi_E(s)$. If wages are high or office value is too low, the payoff will be a decreasing function of employment over its whole domain of $N_E$, so the incumbent will not employ anyone and his votes will be given by $\pi_{NE}(s)N + e$ .

[64]With the approximation that the approximation that $log(1+x) \simeq log(x)$ for high enough $x$.

There are three main parts in this expression that behave differently under the decision to implement the divisive policy.

- The ex-post clientele size is smaller under the religious policy through the terms $log\left(\frac{P_r^*(s)}{1-P_r^*(s)}\right) - s \cdot (1 + \pi_{NB} - \pi_{NE}(s)) \cdot N_R$ .[65] The incumbent knows that vote buying is less efficient, so he will set a lower target (first term), and as he will want to economize on vote buying to the fact that he gets the religious vote (second term)

- The incumbent takes into account that the non-employed people are less likely to vote for him under religious regulations, which gives an incentive to compensate for this loss. This is encompassed in the term $(\pi_{NB} - \pi_{NE}(s))\, N$ , which is larger under the divisive policy.

- $logJ + \Delta\pi_B \frac{\bar{M}}{p}$ is the pressure of competitors, which does not depend on $s$.

A sufficient condition for the total effect of $s$ on $\Delta\pi_E(s)N_E$ to be negative is that $(\pi_{NB} - \pi_{NE}(s=1))\, N < (1 + \pi_{NB} - \pi_{NE}(s=1)) \cdot N_R$, or $(\pi_{NB} - \pi_{NE}(s=1))\,(N - N_R) < N_R$, which is intuitive: the incumbent can only rely on the hardliner community if its size is higher than the number of votes a challenger gets "for free" from among the moderate population. If the religious community is smaller than that, then the incumbent would have to employ more people and also pay the fixed cost of divisive policies, so in this case he will prefer purely clientelist competition.

What we are after is whether the incumbent employs more or less people under the divisive policy, that is, the sign of $\Delta N_E = N_E(s=1) - N_E(s=0)$. To determine that, let's denote $\Delta\pi_E(s=1) = \Delta\pi_E(s=0) + \Delta_s$, where $\Delta_s$ is the difference in the additional voting probabilities in public employment under $s=0$ and $s=1$. Then we can can write up the definition of $\Delta N_E$ in terms of ex post clientele sizes observed in Equation 14:

$$\Delta N_E = \frac{1}{\Delta\pi_E(s=1)} \left(\Delta\pi_E(s=1)N_E(s=1) - \Delta\pi_E(s=0)N_E(s=0)\right) - \frac{\Delta_s}{\Delta\pi_E(s=1)} N_E(s=0)$$

Equation 14 gives the first term:

$$\Delta\pi_E(s=1)N_E - \Delta\pi_E(s=0)N_E = C_P + C_N + C_R$$

The difference in ex-post clientele sizes is given by the sum of the probability channel, the population channel and the hardliner channel. These describe the competing forces at work in choosing optimal employment

[65] The term $log\left(\frac{P_r^*(s)}{1-P_r^*(s)}\right)$ is monotonically increasing in $P_r^*$, so it will be smaller if $s=1$.

as $C_P + C_R$ will have different signs as $C_N$.

The probability channel $C_P = log\left(\frac{P_r^*(s=1)}{1-P_r^*(s=1)}\right) - log\left(\frac{P_r^*(s=0)}{1-P_r^*(s=0)}\right)$ is negative: the incumbent wants to employ less people under the divisive policy because he knows he is less efficient at it.

The hardliner channel $C_R = -(1 + \pi_{NB} - \pi_{NE}(s=1)) \cdot N_R$ is negative: the incumbent wants to employ less people as he knows he gets the hardliner vote with certainty.

The population channel $C_N = -\left(\pi_{NE}(s=1) - \pi_{NE}(s=0)\right) N$ is positive: the incumbent also gets less votes from the non-committed voters, as they dislike the divisive policy. He wants to compensate this with additional employment.

$$\Delta N_E = \frac{1}{\Delta\pi_E(s=1)} \left(C_P + C_N + C_R - \Delta_s N_E(s=0)\right)$$

This will be smaller than zero if $-C_P - C_R > -\Delta_s N_E(s=0) + C_N$. The left hand side is the number of employees he wants to cut because of the hardliner votes come in ($-C_R$) and because vote buying is now less efficient (-$C_P$). The right hand side is number of voters he would lose given he employed the same amount of people as without policy ($-\Delta_s N_E(s=0)$) and the number he would lose because the non-committed voters vote for him with a smaller probability ($C_N$). Intuitively, the incumbent considers if setting $s=1$ on the net gives him more votes or less votes. If he is on the positive side, he will adjust employment downward accordingly.

This shows that he will cut employment under the divisive policy in most cases, but it remains to be seen whether there can be cases where $\Delta N_E > 0$ and $s=1$ simultaneously.

The incumbent will introduce the religious policy if $V(s=1) > V(s=0)$, or $M\Delta P_r^* - \omega\Delta N_E - c > 0$. From this $N_R$ can be expressed to show that the incumbent introduces the divisive policy if the size of the hardliner community exceeds a certain threshold $N_R > \underline{N_R}$

$$\underline{N_R} = \rho\left((C_P + C_N - \Delta_s N_E(s=0)) - \frac{\Delta\pi_E(s=1)}{\omega} M\Delta P_r^* + c\right) \tag{15}$$

All terms are functions of parameters of the model only. We now can show that the incumbent who introduces the divisive policy will cut back employment.

**Proposition 1: the incumbent employs less people if he introduces the divisive policy.**

**Proof.** The incumbent would employ *more* people in this case if $-C_P - C_R < -\Delta_s N_E(s=0) + C_N$. On the other hand, Equation 15 implies that $-C_P - C_R > -\Delta_s N_E(s=0) + C_N - \frac{\Delta\pi_E(s=1)}{\omega} M\Delta P_r^* + c$.

This can only hold if $-\frac{\Delta\pi_E(s=1)}{\omega}M\Delta P_r^* + c < 0$. However, Lemma 1 showed that $\Delta P_r^* < 0$, meaning that this expression is positive. So if the incumbent introduces the divisive policy, it means that he cuts back employment.

**Proposition 2: The threshold community size at which the incumbent introduces Sharia increases in $M$, decreases in $\omega$.**

**Proof: Office value $M$.** The first part of the propostion amounts to showing that $\partial \underline{N_R}/\partial M > 0$. There are three terms in Equation 15 that depend on $M$. These are $C_P$, $-\Delta_s N_E(s=0)$, and $-\frac{\Delta\pi_E(s=1)}{\omega}M\Delta P_r^*$.

The parameter $M$ only enters the second term through $P_r^*$, so we only have to consider $\frac{-\Delta_s}{\Delta\pi_E(s=0)} log\left(\frac{P_r^*(s)}{1-P_r^*(s)}\right)$. As $C_P = log\left(\frac{P_r^*(s=1)}{1-P_r^*(s=1)}\right) - log\left(\frac{P_r^*(s=0)}{1-P_r^*(s=0)}\right)$ , it is convenient to investigate the two terms together. We have to decide if $log\left(\frac{P_r^*(s=1)}{1-P_r^*(s=1)}\right) - \left(1+\frac{\Delta_s}{\Delta\pi_E(s=0)}\right) log\left(\frac{P_r^*(s=0)}{1-P_r^*(s=0)}\right)$ is increasing in $M$.

Given the definition if $\Delta_s$, this simplifies to $log\left(\frac{P_r^*(s=1)}{1-P_r^*(s=1)}\right) - \left(\frac{\Delta\pi_E(s=1)}{\Delta\pi_E(s=0)}\right) log\left(\frac{P_r^*(s=0)}{1-P_r^*(s=0)}\right)$.

Let's call $log\left(\frac{P_r^*}{1-P_r^*}\right) = f(M\cdot\Delta\pi_E(s))$ where $f$ is monotonically increasing over $M\cdot\Delta\pi_E(s)$. Then we can reformulate the terms as

$$f(M\cdot\Delta\pi_E(s=1)) - \left(\frac{\Delta\pi_E(s=1)}{\Delta\pi_E(s=0)}\right) f(M\cdot\Delta\pi_E(s=0))$$

From that the derivative with respect to $M$ will be

$$f'\Delta\pi_E(s=1) - \left(\frac{\Delta\pi_E(s=1)}{\Delta\pi_E(s=0)}\right) f'\Delta\pi_E(s=0)$$

Which is simply $f'\Delta\pi_E(s=1) - f'\Delta\pi_E(s=1)$, and this term is zero. The divisive policy decreases optimal reelection probability through making clientelism less effective, so the bar that has to be jumped is lowered. This enters the decision to introduce the divisive policy through two channels. First, the bar is set lower, so a smaller hardliner base is enough to jump it. Second, if the competition in general requires large clienteles to be built ($N_E(s=0)$ is high), and clients dislike the divisive policy a lot ($-\Delta_s$ is high), he only wants to introduce the religious policies if the size of the religious community is large. These two channels that work through efficiency of clientelism offset each other on the margin.

It is left to see that $-\frac{\Delta\pi_E(s=1)}{\omega}M\Delta P_r^*$ is increasing in $M$. The derivative is $\frac{1}{\omega}\left(-\Delta P_r^* - \frac{\partial\Delta P_r^*}{\partial M}M\right)$. $-\Delta P_r^*$ is positive given Lemma 1. From the definition, The sign of $-\frac{\partial\Delta P_r^*}{\partial M_2}$ remains to be seen. From the Equation 13 we know that

$$-\Delta P_r^*(s) = \frac{1}{2}\sqrt{1 - 4\frac{\omega}{M \cdot \Delta\pi_E(s=0)}} - \frac{1}{2}\sqrt{1 - 4\frac{\omega}{M \cdot \Delta\pi_E(s=1)}}$$

The derivative of which

$$-\frac{\partial \Delta P_r^*}{\partial M} = \frac{\omega}{2M^2}\left(\frac{1}{\Delta\pi_E(s=0)\sqrt{1 - \frac{4\omega}{\Delta\pi_E(s=0)M}}} - \frac{1}{\pi_E(s=1)\sqrt{1 - \frac{4\omega}{\Delta\pi_E(s=1)M}}}\right)$$

which, given $M > 0$ is positive if

$$\left(\frac{1}{\Delta\pi_E(s=0)\sqrt{1 - \frac{4\omega}{\Delta\pi_E(s=0)M}}} - \frac{1}{\Delta\pi_E(s=1)\sqrt{1 - \frac{4\omega}{\Delta\pi_E(s=1)M}}}\right) > 0$$

Which can be rearranged into the following condition:

$$\Delta\pi_E(s=1) + \Delta\pi_E(s=0) > \frac{4\omega}{M}$$

In an interior solution with positive employment (see footnote on Page 63) we also have to have that

$$1 - 4\frac{\omega}{M_2 \cdot \Delta\pi_E(s)} > 0$$

From which

$$\Delta\pi_E(s) > \frac{4\omega}{M_2}$$

From which it follows that for every $\Delta\pi_E(s=1)$ or $\Delta\pi_E(s=0)$ that is part of an interior solution

$$\Delta\pi_E(s=1) + \Delta\pi_E(s=0) > \frac{4\omega}{M_2}$$

So the threshold defined in Equation 15 is increasing in $M$.

**Proof: Employment cost $\omega$** The first part of the argument that it is decreasing in $\omega$, is identical before, as $\omega$ enters the $C_P$ and $N_E(s=0)$ the same way, except that it the logarithmical terms are monotonically decreasing in $\omega$. We still have show that $-\frac{\Delta\pi_E(s=1)}{\omega}M\Delta P_r^*$ is decreasing in $\omega$. The partial derivative is $-M\left(\frac{-1}{\omega^2}\Delta P_r^* + \frac{1}{\omega}\frac{\partial \Delta P_r^*}{\partial \omega}\right)$. The first term is negative, given Lemma 1. The partial derivative of the second term is:

$$-\frac{\partial \Delta P_r^*}{\partial \omega} = \frac{-4}{M}\left(\frac{1}{\Delta\pi_E(s=0)\sqrt{1-\frac{4\omega}{\Delta\pi_E(s=0)M}}} - \frac{1}{\pi_E(s=1)\sqrt{1-\frac{4\omega}{\Delta\pi_E(s=1)M}}}\right)$$

Since $\frac{-4}{M}$ is negative, the expression will be negative if the second term is positive, which had been shown in the previous derivation.

# Appendix - Data

*Government services index*

The PODES (Pendataan Potensi Desa - Village Potential Database) is a government survey conducted in each census year since 1983. It covers the universe of villages in Indonesia, and gives a great detail of village characteristics in every wave. It is important to note that the term "village" is an administrative concept; rural and urban communities are both surveyed.

Using PODES poses two major empirical challenges. First, the village identifier variables are not inconsistent over time, so I had to match the villages across the waves based on the geographical names of the regions, subdistricts and villages. With this method I was able to match 73% of all the villages, which is in the same ballpark as the efficiency of Martinez-Bravo (2014), who implemented the same strategy for matching the data across waves.

Second, the the data coverage over years is inconsistent. Data collection for PODES is linked to data collection for the census, so in years when a plain population census is implemented, the data content will be somewhat different then in years of the agricultural census, or the economic census. I identified all variables that are consistently reported over the waves. Since I have a single explanatory variable, looking at the correlation of each survey variable and the single right hand side variable would raise the prospect of multiple inference. In order to avoid that, I took all variables that reflect government services such as education and infrastructure (the detailed list is provided below), and used them to create an additive index using the method described in Anderson (2008).[66]The procedure takes the following steps:

1. Adjust signs of all variables so that a higher value corresponds to the better outcome
2. Demean outcomes and divide them by the standard deviation of the "control group" (all villages that did not introduce religious policies until the end of the study period)
3. Create weights for each variable -the weights will be the sum of the row entries of the inverted covariance matrix of the variables
4. Create the index, which will be the weighted sum of the variables.

The variables which are included in the index are:

[66]I omit the variables related to healthcare, as over the study period Indonesia starded experimenting with central government-financed healthcare schemes which grew steadily in coverage and funding, thus the data on healthcare infrastracture mostly reflects central, and not local government policies.

- Number of schools for each main Indonesian education tiers (SD, SMTP, SLTP, SMU)
- Number of vocational education institutions
- Number of households that have access to electricity
- Number of households with landline phone subscriptions[67]
- Type of road lights
- Type of cooking fuel
- Type of waste disposal
- Type of sewage disposal

The four infrastructure variables are measured on ordinal scale; the best value typically corresponds to state provision of a centralized public service.

*Regional variables*

Appendix

[67] Though steadily increasing, mobile phone penetration rates were still comparatively low by the end of the study period (the exact rates were 0.1%, 0.8%, 4%, 9%, 25% and 42%), so landlines were still a relevant factor in wellbeing. Data source: World Bank (https://data.worldbank.org/indicator/IT.CEL.SETS.P2?locations=ID); accessed: 08/29/2018

# Appendix - Evidence on political behavior

Table A.1: Total incumbent votes and incumbent decisions

| | Incumbent votes | | | | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| RP before election | 19429.5 | 11729.0 | 22129.6 | 14621.1 | 9838.9 | -4099.4 |
| | (13746.7) | (13591.1) | (14460.3) | (14287.7) | (14263.7) | (13841.6) |
| Electorate size | 0.175*** | 0.164*** | 0.174*** | 0.164*** | 0.159*** | 0.154*** |
| | (0.0243) | (0.0231) | (0.0234) | (0.0223) | (0.0249) | (0.0242) |
| Implicit employment | 0.157*** | 0.171*** | 0.158*** | 0.170*** | 0.158*** | 0.171*** |
| | (0.0545) | (0.0528) | (0.0514) | (0.0494) | (0.0529) | (0.0520) |
| Implicit employment × RP | -0.286** | -0.284** | -0.288** | -0.285** | -0.311** | -0.314** |
| | (0.135) | (0.125) | (0.130) | (0.120) | (0.139) | (0.130) |
| Electorate × RP | 0.123** | 0.131** | 0.104* | 0.109** | 0.131** | 0.130** |
| | (0.0556) | (0.0514) | (0.0532) | (0.0490) | (0.0597) | (0.0559) |
| Number of schools | | | 1.749 | 0.0741 | | |
| | | | (15.78) | (15.97) | | |
| Number of schools × RP | | | 29.98 | 33.78 | | |
| | | | (35.56) | (34.79) | | |
| Log schools | | | | | 4417.9** | 2766.2 |
| | | | | | (1767.4) | (1932.8) |
| Log(schools+1) × RP | | | | | 2312.7 | 5361.9 |
| | | | | | (6172.5) | (5986.8) |
| Inc. has degree | | 14931.3** | | 16040.5** | | 15830.2** |
| | | (6582.0) | | (6488.3) | | (6472.8) |
| Inc. is doctor | | 1905.7 | | 2408.5 | | 3685.7 |
| | | (6732.3) | | (6678.3) | | (6849.2) |
| Inc. is haji | | 22667.5*** | | 21928.3*** | | 20577.8*** |
| | | (6490.3) | | (6533.5) | | (6924.8) |
| Observations | 530 | 530 | 530 | 530 | 530 | 530 |

The table shows OLS regressions of incumbent votes the size of the electorate (calculated from the population), the implicit employment variable (wagebill / minimum wage), different measures of penetration by Islamic schools, and their interactions with a dummy indicating if the incumbent introduced a religious policy in his or her cycle. Additional controls are characteristics of the incumbent that are identified from his or her full name: whether had any degree that is not a doctorate, whether had a doctorate, and whether he or she has completed the pilgrimage to Mecca (those who did can use the honorific title of Haji or Hajjah ). Election data is hand-collected. Religious policy information is based on Buehler (2016). Demographics come from INDODAPOER, the number of Islamic schools are from PODES. Robust standard errors in parenthesis.

Table A.2: Individual voting behavior

| | (1) Pr(voted, district head) | (2) Pr(voted, village head) | (3) Pr(voted, legislature) |
|---|---|---|---|
| Public employee | 0.0816*** | -0.00818 | 0.0166 |
| | (0.0228) | (0.0305) | (0.0233) |
| Devout | 0.00819 | -0.00679 | -0.00517 |
| | (0.0137) | (0.0151) | (0.0126) |
| Religious policy | -0.00988 | 0.0130 | -0.00285 |
| | (0.0182) | (0.0237) | (0.0162) |
| Public employee × RP | -0.0635* | -0.000896 | -0.0536 |
| | (0.0366) | (0.0569) | (0.0361) |
| Devout × RP | 0.0705*** | -0.0677 | -0.000617 |
| | (0.0269) | (0.0417) | (0.0225) |
| Observations | 8958 | 7087 | 9141 |

The table shows OLS regressions of electoral participation on different characteristics of the voter. The data comes from Wave 5 of the Indonesian Family Life Survey (2014). 50% of the respondents lived in a region which had a religious policy. The sample includes all Muslim respondents who lived in a region that did not have a religious policy in 2007. The outcome variable is a dummy indicating if the respondent says he or she voted during the last election for district head (Column 1), village head (Column 2), national legislature (Column 3). Additional controls include demographics (age, marital status, sex, years of schooling), province dummies, Islamic tradition dummies (Muhammadiyah and "Other", Nahdlatul Ulama is baseline), dummies indicating if the person moved between survey waves, whether voted in 2007, whether person lived in an urban area in 2013 and in 2007, and whether the person was a government worker in 2007. Standard errors are clustered at the regional level.

# Appendix - Survey evidence on voter preferences

In Table A.3 I regress the dummy for Sharia regulations on crime indicators. In Columns 1-2 the unit of observation is a Muslim respondent in the IFLS in 2007 who lived in a region that did not have a religious policy.[68] The dependent variable is a dummy indicating if the region had a religious policy in 2013. In Columns 3-4 the same is regression is run on regional averages. No significant coefficients are found, except for a negative one for property crimes in Column 2, indicating that if a person indicated that he or she suffered a property crime, such as theft or damaged property, it is less likely the same region would have a Sharia regulation by 2013. There is no evidence that regions that had higher crime in 2007 would end up having Sharia policies.

In Table A.4 I regress different measures of religious participation on a dummy indicating if the person lived in a region that had a religious policy. In this case the sample is all Muslim respondents who lived in a region that had its first religious policy between 2007 and 2013. The controls include demographics, such as age, sex, marital status, a dummy for living in an urban area, years of schooling, province dummy, and Islamic tradition dummies. The outcome variables are sets of dummies, indicating whether 1) the respondent received a donation from a religious organization 2) if the respondent took part in a religious microfinancing group 3) if any general religious event occured in the village 4) if the respondent participated in that event.If regions which introduce Sharia policies substitute government production of public services with religious production, we would observe an increase in religious participation. If anything, there is week evidence that religious participation is weaker in these regions.

In Table A.5 and I regress a dummy indicating that the region had a Sharia regulation in 2013 on different levels of perceived corruption in 2007, for regions that had no religious policy that year. The units of observation are "informants" for the IFLS community survey (local authority figures who are not politicians or public administrators, so do not have a vested interest in a good result). There is one village in the community survey for every region, and (mostly) two informants for every village. The respondent asks whether corruption is present (Panel A) or corruption got worse since 2000 (Panel B) in different layers of public administration (columns). The only significant coefficients are for district heads and district parliaments (Columns 3 and 4) and the coefficients indicate that regions which report corruption in 2007 are less likely to have a religious policy in 2013. There is no evidence that people demand Sharia regulations because of corruption waves. This is in contrast with the results in Henderson & Kuncoro (2011) who find

[68] Only the 2007 IFLS wave had information on crime.

that this link existed in national elections in the 2000s.

Table A.3: Crime perception in 2007 and probability of Sharia regulations in 2013

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Any crime | -0.0441 | | 0.174 | |
| | (0.0289) | | (0.172) | |
| Violent crime | | -0.0358 | | 0.224 |
| | | (0.0432) | | (0.199) |
| Property crime | | -0.108** | | 0.162 |
| | | (0.0495) | | (0.497) |
| Constant | 0.345*** | 0.343*** | 0.239*** | 0.247*** |
| | (0.0682) | (0.0683) | (0.0553) | (0.0458) |
| Observations | 12712 | 12712 | 159 | 159 |
| Unit | Person | Person | Region | Region |

Table showls OLS regressions of the incidence of religious policies in 2013 in a region on different crime perception measures. Columns 1-2 use individual level data of respondents in the IFLS. The sample is all Muslim respondents who lived in 2007 in a region without a Sharia policy. The standard errors clustered at regional borders in parenthesis. The question was whether the respondent or his or her family was a victim of crime. Columns 3-4 show responses from "informants" in the community facility survey. The sample is all regions that had no religious policy in 2007. Robust standard errors in parenthesis. The question is whether the respondent's village experienced incidence of the given crime.

Table A.4: Religious participation and Sharia regulations

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | Pr(Donation) | Pr(Arisan) | Pr(Event occurence) | Pr(Participation) |
| Religious policy | -0.00580* | -0.0179* | -0.0141 | -0.00662 |
| | (0.00348) | (0.0102) | (0.0192) | (0.0306) |
| Observations | 13631 | 13667 | 13598 | 13598 |

The table contains OLS regressions of individual religious participation measures of respondents in the IFLS on a dummy indicating if they lived in a region with a religious policy in 2013. Sample: all Muslim respondents who lived in regions which had their first religious policy between 2007 and 2013. Standard errors clustered at regional borders in parenthesis. The outcomes are dummies indicating if the person received any donation from a religious organization (Column 1), participated in a religious microfinance group (Column 2), if religious events happened in the village (Column 3) and if the respondent participated (Column 4)

Table A.5: Corruption perception in 2007 and probability of Sharia regulations in 2013
Panel A

Table A.6: Corruption incidence in 2007 and religious policies by 2013

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| CorruptionPresent | 0.100 | -0.0625 | -0.0934* | -0.113** | 0.00226 | -0.164** | -0.0584 |
| | (0.0798) | (0.0743) | (0.0508) | (0.0492) | (0.0550) | (0.0659) | (0.0688) |
| Observations | 331 | 331 | 331 | 331 | 331 | 331 | 331 |
| definition | Village gov. | Subdist gov. | Dist. gov. | Dist. parl. | Dist. police | Healthcare | State schools |

Robust standard errors in parenthesis.

Panel B

Table A.7: Corruption trends in 2007 and religious policies by 2013

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| GotWorse | 0.0569 | -0.0286 | -0.111* | -0.186*** | -0.0219 | -0.00540 | 0.0310 |
| | (0.160) | (0.156) | (0.0642) | (0.0560) | (0.0830) | (0.137) | (0.131) |
| Observations | 331 | 331 | 331 | 331 | 331 | 331 | 331 |
| definition | Village gov. | Subdist gov. | Dist. gov. | Dist. parl. | Dist. police | Healthcare | State schools |

Robust standard errors in parenthesis.

The tables show OLS regression of the religious policy dummy in 2013 on Informant respondents in the IFLS community survey in 2007. The sample is all regions that had no religious policies in place in 2007. The explanatory variable in Panel A is a dummy indicating if the respondent said that corruption was present in a specific layer of government (each column corresponds to a different layer). The explanatory variable in Panel B is a dummy indicating if the respondent said that the situation in terms of corruption got worse since 2007. Robust standard errors in parenthesis.

# Appendix - Figures

Figure 16: Central vs peripheral villages in regions with RP

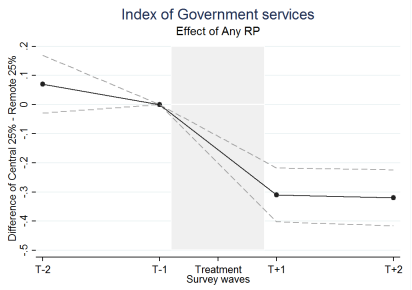
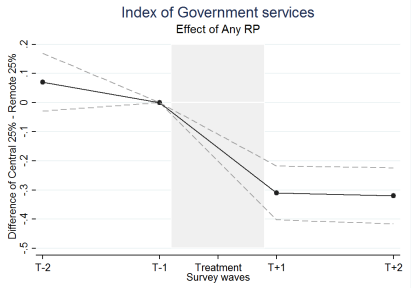
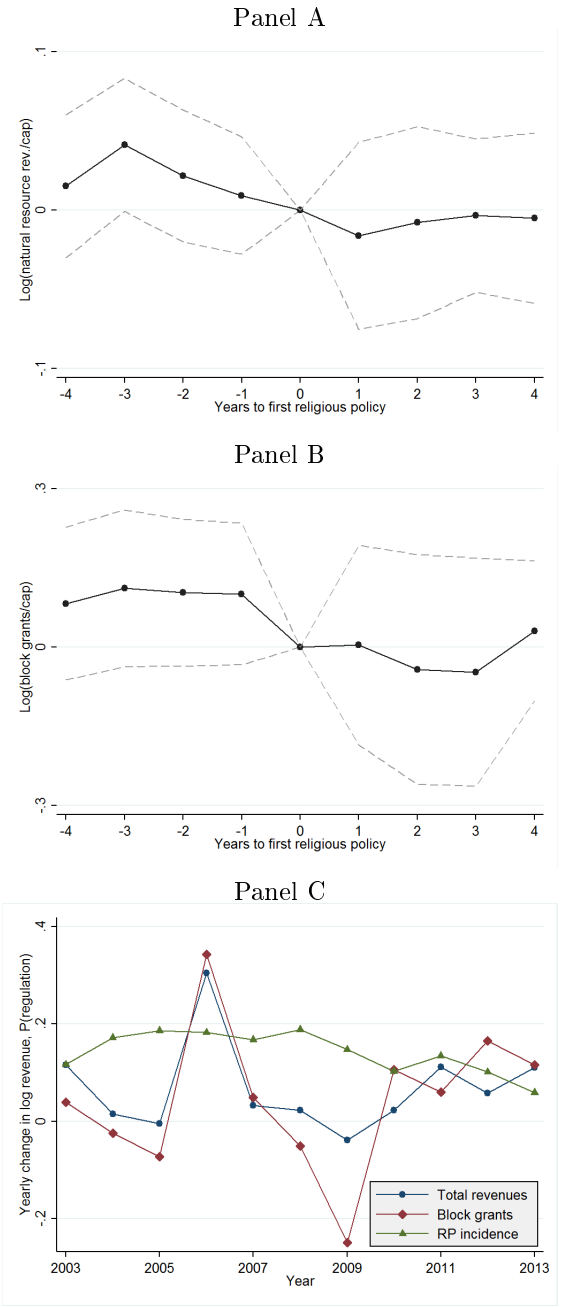



Figure 17: Villages with and without local police in regions with RP




In this specification the sample is the villages in districts that had a religious policy between two survey waves. The event is defined as being in the quartile that is closest to the district center, while the control group is the most remote quartile in panel A. The event is defined as being in in a village that had a police unit which is supervised by the district government in panel B. The confidence interval is based on standard errors clustered at the regional level.

Figure 18: Revenue event studies




Panel A and B replicate Figure 8 but the outcome variable is now revenue, not expenditure (revenue from natural resources and from bloc grants, respectively). Panel C plots the yearly change in different revenue sources and the yearly incidence of religious policies against time.

# Appendix - Tables

*Hererogeneity analysis*

Table A.8: Content heterogeneity

| | (1) infra | (2) Gov. services | (3) P(slum) |
|---|---|---|---|
| General RP | -0.180*** | -0.151*** | 0.0103 |
| | (0.0692) | (0.0516) | (0.0110) |
| Prohibitive RP | 0.0511 | -0.00199 | 0.0136* |
| | (0.0548) | (0.0456) | (0.00749) |
| Observations | 273450 | 273450 | 273450 |

Standard errors clustered at 1996 regional borders in parantheses.

Controls:Village+Time FE, Log(Islamic schools),Log(Pop)

This table shows the same regression as Table 4 but instead of a single dummy on the religious policies, two separate dummies are used for the presence of Normative and Prohibitive regulations.

Table A.9: Distance interactions

| | (1) Gov. services | (2) P(slum) |
|---|---|---|
| Religious policy | -0.260*** | 0.0259*** |
| | (0.0477) | (0.00906) |
| Any RP X Dist(100km) | 0.579*** | -0.0340 |
| | (0.119) | (0.0212) |
| Observations | 273432 | 273432 |
| distance | 0.449 | 0.760 |
| distanceSE | 0.0860 | 0.356 |

Standard errors clustered at 1996 regional borders in parantheses.

Controls:Village+Time FE, Log(Islamic schools),Log(Pop)

This table shows the same regression as Table 4 but also includes the distance from the regional center (in 100 kms) interacted with the religious policy dummy.

Table A.10: Content heterogeneity + distance interaction

| | (1) Gov. services | (2) P(slum) |
|---|---|---|
| General RP | -0.165*** | 0.0210 |
| | (0.0621) | (0.0145) |
| General RP X Dist(100km) | 0.0170 | -0.0335 |
| | (0.159) | (0.0306) |
| Prohibitive RP | -0.185*** | 0.0155* |
| | (0.0558) | (0.00916) |
| Prohibitive RP X Dist(100km) | 0.623*** | -0.00708 |
| | (0.144) | (0.0210) |
| Observations | 273432 | 273432 |
| distance1 | 9.714 | 0.627 |
| distanceSE1 | 88.67 | 0.443 |
| distance2 | 0.297 | 2.184 |
| distanceSE2 | 0.0745 | 5.845 |

Standard errors clustered at 1996 regional borders in parantheses.

Controls:Village+Time FE, Log(Islamic schools),Log(Pop)

This table shows the same regression as Table 4 but uses regulation type dummies instead of a single regulation dummy, and their interactions with the distance from the regional center (in 100 kms)

**Government expenditure and clientele regressions**

Table A.11: Inequality control

| | (1) Log(wbill) | (2) Log(imp. emp.) | (3) Imp. emp. / pop. |
|---|---|---|---|
| Religious policy in cycle | -0.0351* | -0.0389** | -0.0267 |
| | (0.0189) | (0.0181) | (0.0257) |
| Observations | 3174 | 3194 | 3194 |
| MeanY | 25.53 | 12.82 | 1.443 |
| hastrend | Yes | Yes | Yes |

| | (1) Log(wbill) | (2) Log(imp. emp.) | (3) Imp. emp. / pop. |
|---|---|---|---|
| Religious policy in cycle | -0.107*** | -0.112*** | -0.136*** |
| | (0.0295) | (0.0290) | (0.0363) |
| Observations | 2061 | 2081 | 2081 |
| MeanY | 25.53 | 12.82 | 1.443 |
| hastrend | Yes | Yes | Yes |

This is a version of Table 3 where I control for lagged measures of inequality.

Table A.12: Unemployment rate control

| | (1) | (2) | (3) |
|---|---|---|---|
| | Log(wbill) | Log(imp. emp.) | Imp. emp. / pop. |
| Religious policy in cycle | -0.0423** | -0.0458*** | -0.0404* |
| | (0.0177) | (0.0171) | (0.0238) |
| Observations | 3051 | 3068 | 3068 |
| MeanY | 25.53 | 12.82 | 1.443 |
| hastrend | Yes | Yes | Yes |

| | (1) | (2) | (3) |
|---|---|---|---|
| | Log(wbill) | Log(imp. emp.) | Imp. emp. / pop. |
| Religious policy in cycle | -0.119*** | -0.123*** | -0.156*** |
| | (0.0306) | (0.0301) | (0.0378) |
| Observations | 2242 | 2259 | 2259 |
| MeanY | 25.53 | 12.82 | 1.443 |
| hastrend | Yes | Yes | Yes |

This is a version of Table 3 where I control for lagged measures of the unemployment rate.

Table A.13: Sectoral change control

| | (1) | (2) | (3) |
|---|---|---|---|
| | Log(wbill) | Log(imp. emp.) | Imp. emp. / pop. |
| Religious policy in cycle | -0.0381** | -0.0390** | -0.0281 |
| | (0.0181) | (0.0175) | (0.0249) |
| Observations | 3684 | 3705 | 3705 |
| MeanY | 25.53 | 12.82 | 1.443 |
| hastrend | Yes | Yes | Yes |

| | (1) | (2) | (3) |
|---|---|---|---|
| | Log(wbill) | Log(imp. emp.) | Imp. emp. / pop. |
| Religious policy in cycle | -0.123*** | -0.120*** | -0.149*** |
| | (0.0300) | (0.0299) | (0.0374) |
| Observations | 2504 | 2525 | 2525 |
| MeanY | 25.53 | 12.82 | 1.443 |
| hastrend | Yes | Yes | Yes |

This is a version of Table 3 where I control for lagged measures of change in the sectoral composition of the GDP.

Table A.14: Does violence predict religious policies?

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| No. of incidents (T-1) | -0.000117 | | | | | |
| | (0.000106) | | | | | |
| Δ No. of incidents (T-1) | | 0.000104 | | | | |
| | | (0.000156) | | | | |
| No. of incidents/1000 people (T-1) | | | -0.000331 | | | |
| | | | (0.000346) | | | |
| Δ No. of incidents/1000 people (T-1) | | | | -0.000122 | | |
| | | | | (0.000276) | | |
| Log(No. of incidents) (T-1) | | | | | -0.0202 | |
| | | | | | (0.0127) | |
| Δ Log(No. of incidents) (T-1) | | | | | | -0.00411 |
| | | | | | | (0.00733) |
| Observations | 921 | 799 | 919 | 796 | 921 | 799 |

The table shows Fixed Effect regressions of a dummy indicating if the region had a Sharia policy in the year, regressed on different lagged measures of violence: the number of all incidents in the previous year, the incident number / 1000 people, the natural log of the number of incidents, and changes in these variables. The source of the data is the SNPK dataset, and the sample includes all regions that were covered by the SNPK. (See Figure 2 for details). The specifications include regional and time fixed effects. Standard errors clustered at regional borders.

**Assessing the potential for public-private substitution**

Table A.15: Effect of religious policies on the Infrastructure Index

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Religious policy | -0.0622 | -0.155*** | | |
| | (0.0520) | (0.0591) | | |
| Any RP X Dist(100km) | | 0.309*** | | |
| | | (0.118) | | |
| General RP | | | -0.180*** | -0.214*** |
| | | | (0.0692) | (0.0814) |
| General RP X Dist(100km) | | | | 0.0963 |
| | | | | (0.170) |
| Prohibitive RP | | | 0.0511 | -0.0356 |
| | | | (0.0548) | (0.0637) |
| Prohibitive RP X Dist(100km) | | | | 0.295** |
| | | | | (0.128) |
| Observations | 273450 | 273432 | 273450 | 273432 |
| distance | | 0.502 | | |
| distanceSE | | 0.195 | | |
| distance1 | | | | 2.227 |
| distanceSE1 | | | | 3.551 |
| distance2 | | | | 0.121 |
| distanceSE2 | | | | 0.194 |

Standard errors clustered at 1996 regional borders in parantheses.
Controls:Village+Time FE, Log(Islamic schools),Log(Pop)
This is a version of Tables 4 to A.10 where I use a version of the Government services which only has the source variables on infrastructure.

Table A.16: Infrastructure Index - IV

| | Baseline | | + Political vars. | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| | FE | IV FE | FE | IV FE |
| Religious policy | -0.0596 | -0.250 | -0.0589 | -0.250 |
| | (0.0526) | (0.347) | (0.0524) | (0.349) |
| Islamic schools (log) | | | | |
| Administrative village | | | -0.0349 | -0.0371 |
| | | | (0.0462) | (0.0468) |
| Remote village | | | -0.0536 | -0.0390 |
| | | | (0.0647) | (0.0681) |
| Village has Hansip police | | | -0.0120 | -0.0116 |
| | | | (0.0134) | (0.0136) |
| Observations | 269552 | 269552 | 269201 | 269201 |

This is a version of Table 9 where I use a version of the Government services which only has the source variables on infrastructure.

Table A.17: Infrastructure Index - First stage and reduced form

| | First stage | | Reduced Form | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Islamic schools / 1000 people (other villages) | 0.360*** | 0.358*** | -0.0899 | -0.0895 |
| | (0.110) | (0.110) | (0.131) | (0.131) |
| Islamic schools (log) | | | | |
| Administrative village | | -0.00337 | | -0.0363 |
| | | (0.0228) | | (0.0463) |
| Remote village | | 0.0661** | | -0.0555 |
| | | (0.0275) | | (0.0648) |
| Village has Hansip police | | 0.00385 | | -0.0126 |
| | | (0.00651) | | (0.0134) |
| Observations | 269552 | 269201 | 269552 | 269201 |

This is a version of Table 10 where I use a version of the Government services which only has the source variables on infrastructure.

**Specification test: villages in same subdistrict left out from leave-out-mean**

Table A.18: IV regression: Government services

| | Baseline | | + Political vars. | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| | FE | IV FE | FE | IV FE |
| Religious policy | -0.0855** | -0.876*** | -0.0861** | -0.885*** |
| | (0.0425) | (0.308) | (0.0423) | (0.310) |
| Islamic schools / 1000 people | 0.0188 | 0.0470*** | 0.0186 | 0.0469*** |
| | (0.0170) | (0.0179) | (0.0170) | (0.0179) |
| Administrative village | | | -0.00889 | -0.0180 |
| | | | (0.0366) | (0.0401) |
| Remote village | | | 0.0271 | 0.0884 |
| | | | (0.0603) | (0.0696) |
| Village has Hansip police | | | 0.0689*** | 0.0700*** |
| | | | (0.0141) | (0.0157) |
| Observations | 269552 | 269549 | 269201 | 269198 |

This is a version of Table 9 where the leaveout mean is constructed with the ommission of immediate neighbors (villages within the same subdistrict).

Table A.19: First stage and Reduced form

| | First stage | | Reduced Form | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Average of schools in dift. subdist. | 0.0818*** | 0.0813*** | -0.0717*** | -0.0719*** |
| | (0.0208) | (0.0208) | (0.0255) | (0.0255) |
| Islamic schools / 1000 people | 0.00200 | 0.00212 | 0.0452*** | 0.0450*** |
| | (0.00597) | (0.00596) | (0.0166) | (0.0165) |
| Administrative village | | -0.0105 | | -0.00874 |
| | | (0.0234) | | (0.0370) |
| Remote village | | 0.0595** | | 0.0357 |
| | | (0.0287) | | (0.0602) |
| Village has Hansip police | | 0.00239 | | 0.0678*** |
| | | (0.00654) | | (0.0141) |
| Observations | 269549 | 269198 | 269549 | 269198 |

This is a version of Table 10 where the leaveout mean is constructed with the ommission of immediate neighbors (villages within the same subdistrict).

Table A.20: IV regressions: Prevalence of slums

| | Baseline | | + Political vars. | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| | FE | IV FE | FE | IV FE |
| Religious policy | 0.0160** | 0.182** | 0.0159** | 0.183** |
| | (0.00687) | (0.0767) | (0.00688) | (0.0770) |
| Islamic schools / 1000 people | 0.00598** | 0.0000832 | 0.00606** | 0.000147 |
| | (0.00264) | (0.00208) | (0.00266) | (0.00209) |
| Administrative village | | | 0.0290*** | 0.0309*** |
| | | | (0.0104) | (0.0115) |
| Remote village | | | 0.00686 | -0.00593 |
| | | | (0.00880) | (0.0114) |
| Village has Hansip police | | | 0.00125 | 0.000913 |
| | | | (0.00315) | (0.00328) |
| Observations | 269552 | 269549 | 269201 | 269198 |

This is a version of Table 11 where the leaveout mean is constructed with the ommission of immediate neighbors (villages within the same subdistrict).

Table A.21: First stage and Reduced form

| | First stage | | Reduced Form | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Average of schools in dift. subdist. | 0.0818*** | 0.0813*** | 0.0149*** | 0.0148*** |
| | (0.0208) | (0.0208) | (0.00448) | (0.00445) |
| Islamic schools / 1000 people | 0.00200 | 0.00212 | 0.000446 | 0.000533 |
| | (0.00597) | (0.00596) | (0.00184) | (0.00184) |
| Administrative village | | -0.0105 | | 0.0290*** |
| | | (0.0234) | | (0.0104) |
| Remote village | | 0.0595** | | 0.00494 |
| | | (0.0287) | | (0.00877) |
| Village has Hansip police | | 0.00239 | | 0.00135 |
| | | (0.00654) | | (0.00316) |
| Observations | 269549 | 269198 | 269549 | 269198 |

This is a version of Table 12 where the leaveout mean is constructed with the ommission of immediate neighbors (villages within the same subdistrict).

Table A.22: Placebo: Government services

| | Cross-section IV | | | 1996-2000 panel |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| | RP | IV | RP+IV | IV |
| Ever RP | -0.0170 | | -0.0154 | |
| | (0.0363) | | (0.0388) | |
| Average of schools in dift. subdistr.(log) | | -0.0151 | -0.00927 | 0.217 |
| | | (0.0575) | (0.0615) | (0.191) |
| Observations | 45556 | 45553 | 45553 | 91040 |

This is a version of Table 13 where the leaveout mean is constructed with the ommission of immediate neighbors (villages within the same subdistrict).

Table A.23: Placebo: Prevalence of slums

| | Cross-section IV | | | 1996-2000 panel |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| | RP | IV | RP+IV | IV |
| Ever RP | 0.0138 | | 0.0161 | |
| | (0.00984) | | (0.0101) | |
| Average of schools in dift. subdistr.(log) | | -0.00880 | -0.0149 | -0.176*** |
| | | (0.0122) | (0.0125) | (0.0380) |
| Observations | 45556 | 45553 | 45553 | 91040 |

This is a version of Table 14 where the leaveout mean is constructed with the ommission of immediate neighbors (villages within the same subdistrict).