

# SHARIA, DEVELOPMENT AND POLITICAL ECONOMY: EVIDENCE FROM INDONESIA\*

Attila Gáspár<sup>†</sup>

December 15, 2017

## Abstract

This paper is the first to identify the economic effects of introducing strict religious rules of conduct in the most populous Muslim majority country, Indonesia. I use three different identification strategies. The first is fixed effects estimation based on spatial and temporal variation in the adoption of Sharia-inspired local government regulations. The second is an instrumental variables strategy that makes use of cross-sectional differences in support for a party that advocated Islamic Law in the 1950s. Finally, I use a rich panel of village level data on public services and indicators of wellbeing. I document that introducing religious regulations increased poverty and decreased the quality of government services.

JEL codes: O1 Z12 H0 D7

---

\*This research was supported by a grant from the CERGE-EI Foundation under the Regional Research Competition 2016 of the Global Development Network. I also benefitted from a Review of Economic Studies student fellowship in 2016. All opinions expressed are those of the author and have not been endorsed by CERGE-EI or the GDN. I would like to thank Adam Szeidl, Balazs Reizer, Botond Koszegi, Timur Kuran, Arieda Muco, Andrea Weber and seminar participants at CEU and Duke University for the helpful comments and feedback. I also thank Giannisa Novi Budiutami, Ilma Fadhil and Zsolt Hegyesi for the excellent research assistance. All errors remain my own.

<sup>†</sup>PhD Candidate, Central European University, Department of Economics. Contact address: Central European University, Department of Economics, 1051 Nador utca 9, Budapest, Hungary; Email: gaspar\_attila@phd.ceu.edu; Phone: +36 305267196

# I INTRODUCTION

In 2011, 23% of the population of the world (over 1.6 billion people in absolute terms) followed some branch of the Islamic faith, which is also the fastest growing religious community (Grim *et al.*, 2011). One of the basic concepts of Islam is Sharia, the divine law governing the world, which is understood as a source of lawmaking in five of the ten most populous countries on Earth.<sup>1</sup> These worldly laws regulate many aspects of life, from charitable giving and financial transactions to elements of family law, such as marriage and inheritance, and also penal punishments. However, the non-Muslim observers often regard these as constituents of a legal framework that is fundamentally irreconcilable with Western ideals of personal freedom and social organization. Through its many meanings and possibilities of (mis)interpretation Sharia became a perhaps equally powerful symbolic tool in the hands of Islamists and Islamophobes alike. However, despite their widespreadness and apparently controversial nature we actually know quite little whether policies that regard themselves as “Sharia based” have any welfare implications.

My study aims at filling some of this gap. I am looking at the economic and social effects of a widespread religious turn in the most populous Muslim majority country, Indonesia. Indonesia offers very rich variation in the application of Islamic regulations in both time and space and within otherwise very similar local communities. Crucially, I can exploit this variation in the implementation religiously motivated policies. I can also use a plausibly exogenous, historical source that explains cross-regional differences in the inclination towards religious extremism. Finally, a set of very detailed administrative microdata provides additional geographical variation (distance from the political center) and helps explaining the underlying mechanisms that drive the effects. With a portfolio of different empirical designs I report that introducing Sharia-based regulations was welfare decreasing: it had a negative impact on poverty and public good provision. However, there is no evidence that these effects are in any way inherent in Islamic teachings; rather, it is more likely that religion is used as a verification of welfare-reducing policies.

Despite the considerable number of countries that derive their legal systems from Islamic law, the problem of assessing the impact of the actual policies is problematic, as legal systems usually apply universally for all citizens (as in Saudi-Arabia, Iran, Afghanistan etc.), or for the community of all Muslims

---

<sup>1</sup>Those are India, Indonesia, Pakistan, Nigeria and Bangladesh.

within a country (as in the case of Pakistan, Israel etc.). For this reason, many studies use cross-country comparisons to assess whether there is any “development effect” of Islam over other religions.<sup>2</sup> The main problem with this approach is that cross-country estimates are confounded by a range of institutional, cultural, ethnic and economic differences. To control for these, one would have to look at within-country variation in the application of Islamic policies. I can do exactly that. As the Suharto regime collapsed in 1998, Indonesia transitioned from dictatorship to democracy, and also from having a unitary government to having a very decentralized one. This institutional setting generated the necessary within-country variation in religiously motivated lawmaking. I am aware of only one paper which uses within-country heterogeneity, Alfano (2017), which identifies effects of Sharia on parental behavior in Nigeria, where some states started Sharia-based legislation in the 2000s. My study has different goals and makes use of a very different empirical setting. First, I am looking at a range of Sharia-oriented policies and estimate an overall effect on welfare. Second, this paper concerns the political economy of the introduction of the religious policies, while the other takes a more reduced-form approach. Third, I am able to compare Muslim regions that adopted religious policies to both non-adopting Muslim regions and non-adopting non-Muslim regions, whereas the identifying variation in Alfano (2017) is the discontinuity at the border of the Muslim-majority and the Christian-majority states.

My project identifies the effects of strict religious rules of conduct in Indonesia that were adopted in an increasing number of regions over the span of more than a decade since 1999, which were designed with the intention to be in accordance with Sharia. <sup>3</sup>There are two main types of religious policies: those which aim to control behaviour deemed unlawful (prostitution, selling and drinking alcohol, opening up the shops during Ramadan etc.), and those which positively seek to transform society to be more Islamic (fostering Islamic education, enforcing attire regulations, public morals etc.). The two potentially work very differently. Restricting retail in any form hurts economic activity, but if the consumption of the good in question had negative externalities (as is the case with drugs and alcohol), the overall effect might be beneficial. Setting up strict attire regulations might keep away women from the labor market either by directly discouraging participation, or by reducing the signaling value of wearing Islamic clothing (Carvalho, 2012). Islamic education might increase or decrease overall human capital depending on whether it is a

---

<sup>2</sup>See Grier (1997), Barro & McCleary (2003), Pryor (2007) and in particular on social values Ross (2008), Groh *et al.* (2012). Another approach is to take a long historical perspective on Islamic institutions (Kuran 2004)

<sup>3</sup>By “region” I mean the middle level of public administration, which is the level of *kabupaten* and *kota*. These are called “regencies” and “cities” in English, respectively. I will use the words “region” and “regional” referring to this level of public administration throughout the paper. The number of these regions has been increasing since decentralization from 327 in 1998 to 545 in 2014, but it did not stop there.

complement or a substitute for secular education.

The first research design is a straightforward fixed effects estimation where I exploit within-region variation in the implementation of religious regulations and find that regions affected by the religious turn were less effective in poverty reduction. I also find that GDP growth rates are (weakly) significantly higher in the implementing districts, which, together with the poverty result, sets up a puzzle. The estimated effects vary a lot across the two main categories. Also, implementing these two types are triggered by different factors; in particular, the correlation between restrictive Sharia-based regulations, GDP and the fiscal capacities of the government suggest a reverse causality story, where local governments implement rent-seeking policies in economic booms under the guise of religion.

My second research design aims to overcome the reverse causality and the potential omitted variable bias by implementing an instrumental variables estimation strategy. I exploit historical variation in the support for Masyumi party, the Islamic reform party of the 1950s. This party was advocating a constitution for the newly independent Indonesia that is based on Islamic law. The vote share of the party is correlated with long-term religiosity through the local institutional structures, but not with short-term economic or political shocks. The IV estimations yield qualitatively similar, but much stronger effects on poverty, while the spurious correlation between growth and religious policies disappear.

My third research design shows how the policies affect outcomes. I present evidence using microdata, a rich panel from an administrative survey of villages (the PODES dataset). I show both in panel regressions and visually in a set of event studies that public good provision and the performance of the local economy are suffering greatly after the implementation of the Sharia-based regulations. Prohibitive regulations have a distinctive spatial pattern where effects are stronger the closer a village is to the regional political center, suggesting a costly enforcement story. They also have a negative impact directly on welfare indicators. Normative regulations do not have a specific spatial pattern, they are associated with a reduction in government services everywhere within the region. If preference for less redistribution and preference for more conservative religious policies were correlated (as they are in the US), I could measure spurious correlation between Sharia-based regulations and economic outcomes. Controlling for government expenditures, however, make the results stronger, so this interpretation can be ruled out.

The paper contributes to a growing literature on religion and economy (Iannaccone 1998, McCleary & Barro 2006, Iyer 2016) by estimating the effects of religion in policymaking; and within that, to a narrow set of papers trying to understand the recent resurgence of religiousness in Islamic communities (Binzel &

Carvalho 2016,Chen 2010,Henderson & Kuncoro, 2011). It is also closely related to the increasing number of papers in development economics and political economy that makes use of some aspect of the richness of the institutional setting of Indonesia, such as decentralization (Burgess *et al.* 2012,Kis-Katos & Sjahrir 2017), its transition to democracy (Martinez-Bravo 2014,Martinez-Bravo *et al.* 2017), or its long and well documented institutional history(Dell & Olken, 2017).

The rest of the study is organized as follows. Section 2 provides historical and institutional background. Section 3 presents the data and shows the empirical evidence on the effects of Sharia-based religious regulations. Section 4 discusses potential mechanisms and concludes.

## II BACKGROUND

### *II.A The context of Islam in Indonesia*

According to the 2010 census, 87% of the population of Indonesia identifies as Muslim. Though they are almost exclusively Sunni, there are considerable differences in the role religion plays within the lives of people. The anthropologist Clifford Geertz was perhaps the first to document the differences between religious practices of the main cultural “streams” within Javanese society (the santri, abangan and priyayi communities), which have their roots in colonial era economic and social development (Geertz, 1976). Regions which benefited from colonial capitalist progress earlier on developed a sense of belonging together and formed a middle class with its own vision on Islam which is much closer to the one professioned in Mecca than the traditional and syncretic Islam of the peasantry and the elites of the pre-colonial Javanese kingdoms. This socially reformist and morally conservative Islam became the driving force of progress just as socially reformist and morally conservative Christianity was the driving force of progress in 16th century Europe.

The santri Islam was the main driving force of the independence movement from the late 19th century. Crucially, however, the future they envisioned for the nascent republic was an Islamic future, not a secular one. The institutional structures they created (such as local Islamic networks, schools etc.) show a great continuity over the subsequent decades (Buehler, 2016), which created big regional differences in preference for Islamic laws within the Indonesian Muslim community.

Spatial patterns of support for this movement are reflected by vote shares of the Masyumi party, which came second on the country’s first democratic election in 1955. In that election four big parties carried

80% of the total votes, with more or less equal share of votes: the nationalist party (PNI), the Communist party (PKI) and the two Islamic parties, Masyumi and Nahdlatul Ulama (Feith, 1955). Both of them had their origins in the Javanese santri, but managed to become national political movements. Importantly, only Masyumi advocated an Islamic constitution over the secular one, so the decision to choose Masyumi over NU can be thought of as reflecting the voter's preference for Sharia-based laws.<sup>4</sup>

Masyumi was banned in 1960 under Sukarno and the Suharto regime, while co-opted mainstream religious movements, did not tolerate the re-emergence of any movement similar to Masyumi. Thus political preferences were passed on only through local institutional memory and the reinforcing effects of episodes such as the Darul Islam revolt in the 1960s (Buehler, 2016). I will exploit the geographic patterns of the political preferences carried on in these local institutions. Looking at the patterns of Masyumi support in 1955 in figure 1 and the map of Sharia-based regulations in figure 2 highlight how close the two are related.

Indonesia has been experiencing a religious revival at least since the fall of Suharto in 1998. This has been amplified by the shock of the Asian financial crisis (Chen, 2010). Landmark events of the process include the 2002 Bali bombings when more than 200 people, mostly tourists were killed, or the adopting of a Sharia-based constitution in the province of Aceh after the 2004 Boxing Day tsunami. The most recent of these events was the ousting of Jakarta's Christian governor on (false) blasphemy charges in May 2017.<sup>5</sup>

While the state in Indonesia remains secular, the decentralization following the fall of the Suharto regime in 1998 allowed for regional entities to adopt by-laws which aimed to conform some aspects of Sharia law (such as rules of inheritance, regulation of clothing, prohibition of prostitution and the selling of consumption of alcoholic beverages). In general, however, government is organized on secular principles. Importantly for this study, this turn of events made Indonesia one of the few countries which has regional variation in the application of Islamic law.

---

<sup>4</sup>This is highlighted by the fact that NU was initially a member organization of Masyumi, but withdrew in 1952 to join mainstream politics and the cabinet. (Bush, 2009 p11)

<sup>5</sup>The blasphemy charges first cost him the re-election for the gubernatorial seat in April, then he was sentenced for two years in prison in May. See: <https://www.ft.com/content/4771536e-24e1-11e7-8691-d5f7e0cd0a16> and <https://www.theguardian.com/world/2017/may/09/jakarta-governor-ahok-found-guilty-of-blasphemy-jailed-for-two-years> (accessed July 28)

## *II.B The institutional heritage of the Suharto regime*

In this subsection I give a brief account of how politics evolved in post-independence Indonesia. I do this to give a better understanding how the country came to be ruled under a unified and rigid institutional structure for 30 years and why it had to end in a rapid decentralization when the underpinning authoritarian power structure crumbled. Also, this will put into context the historical information I am using for economic identification in the next section.

The Republic of Indonesia had to endure a lot in the 1950s, its first decade of existence. Having achieved the common cause of independence there was not much left to hold together the many visions on how the actual independent Indonesia should look like. The unity of the republic was contested by many forces, including regional, economic, political and of course, religious ones. Some regions sought different degrees of autonomy from what they saw as a Javanese-dominated Indonesia. Some regions wanted an Islamic state instead of a secular one, which, of course, incited other, non-Muslim regions to seek independence from what they saw as Muslim-dominated Indonesia. Communism was also a significant political force with 2-3 million active party members by the mid-1960s. These internal fault lines generated the full spectrum of political conflicts ranging from local skirmishes (as the Makassar Rebellion of April 1950), to regional independence movements (in the mostly Christian Republic of South Maluku and the zealously Islamic Aceh), religious rebellions (the Darul Islam movement of South Sulawesi, Central Java and Aceh) and actual genocide (the Communist Purge and mass killings of ethnic Chinese in 1965-66).<sup>6</sup>

From the chaotic first two decades emerged the dictatorial rule of a strongman, Major General Suharto. Not refraining from measures that qualify as crimes against humanity (such as the aforementioned Communist Purge or the East Timor genocide<sup>7</sup>) he solidified his grip over Indonesia, which also meant the solidification of the institutions of the unitary state.

The Indonesian state was a centralized structure under Suharto's rule. Regional administrators were appointed by the central government in Jakarta. Though the multi-party system was nominally in place, parties were prohibited from operating on a local level, which had a lasting impact in their institutionalization and overall effectiveness.<sup>8</sup> Politics was and remained centered around individuals, and not on formal institutions.

---

<sup>6</sup>Vickers (2013) gives an account of the centrifugal forces at play in the nascent country (p. 142-145).

<sup>7</sup>IPT (2016)

<sup>8</sup>Essentially, as Buehler (2016) notes, parties are not present on a local level; aspiring career politicians are basically buying party endorsements not unlike franchisors do design elements of chain stores. As a consequence, the party endorsements have very limited analytical value in studies like mine.

The Asian financial crisis of 1997 put and end to Suharto's rule and showed that the many faceted ethnic, social, religious and political conflicts of the 1950s and 1960s had not been solved, merely put under the lid of state repression. With the lid removed the conflicts reappeared (in Aceh, for example). To simultaneously tackle the task of democratization and the threat of centrifugal forces the Indonesian government decided to dismantle most of the centralized authority of the government and thoroughly decentralize public administration. Most authority was delegated to the level of kabupaten/kota (mid-level units of public administration headed by a bupati, or regent in mostly rural regions, or a walikota, or mayor, in mostly urban regions), except for those which were explicitly retained by the central government (which has a exclusive authority in monetary policy and national defense, a preeminent role in development planning, and the final say in justice and policing).

The decentralization of Indonesia took place in several steps. The most important pieces of legislation were passed as early as 1999, but did not become effective until 2001. Bupatis and walikotas became elected by their respective regional legislative bodies while New Order bupatis were allowed to serve their term. In 2004 a law was passed which mandated the bupatis/walikotas to be elected directly; however, office holders were again allowed to complete their ongoing terms. As a result, the first direct regional elections took place in waves: elections for bupati/walikota were held in each year between 2005 in 2008 in different parts of the country.<sup>9</sup> It was not until very recently that the central government took measures to organize local elections according to a country-wide common schedule.

Decentralization had two main effects which are interesting for the purposes of this paper: one is the proliferation of autonomous districts and the other is the local implementation of regulations based on Islamic Law.

### *II.C District proliferation*

A district head (bupati or walikota) has historically been a very important person since colonial times, but since 2001 it is not just a locally important agent of the central power but an elected official on its own right, and as such a central figure of local politics who can implement his or her own political agenda. These local bureaucracies also have the potential to provide relatively well-paid, secure and high-esteem public sector jobs for the lucky few who are close to the bupati. Local democracy is financed generously by the central governments through funds that are partly allocated automatically based on socio-economic

---

<sup>9</sup>Source: original data compiled from public pages of regencies and regional news.



indicators. In 2010, the average Indonesian regency had on average about 6.5% of its revenue generated locally. The lion’s share (57%) of the revenues come from the General Allocation Fund, which is calculated based on each regions’ comparative income and development levels. The rest is made up from natural resource revenue sharing (7%) , tax revenue sharing (7.8%), or the Specific Allocation Fund which is earmarked for specific development purposes set by the central government (7%).<sup>10</sup>

The combination of fiscal generosity for local governance, enthusiasm for newly found local identities and sheer rent-seeking of the regional elites caused the number of self-governing regions to almost double between 2000 and 2010 (from 300 to 500) and the process of administrative fragmentation is far from over. This poses empirical challenges which I am addressing in Section 3. <sup>11</sup>

#### *II.D Sharia-inspired religious policies*

The other result of the increased authority of the local governments was that many implemented regulations which are based on and making explicit references to the principles of Islamic law and a broadly (and often vaguely) defined Islamic morality. I categorize these pieces of legislation into two broad groups, which I call prohibitive and normative. I collected these based on the list provided by Buehler (2016). In Appendix A I provide a lengthier overview of how these relate to the concept of Sharia, the data collection and some examples on actual regulations.

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 which is independent of the actual content of the legislation.

---

<sup>10</sup>Source: INDO DAPOER Dataset, World Bank (2015)

<sup>11</sup>The political and economic consequences of district proliferation on ethnic conflict (Bazzi *et al.*, 2016), public overspending (Sjahrir *et al.*, 2014), corruption (Burgess *et al.*, 2012) public good provision and overuse of natural resources (Alesina *et al.*, 2014) have recently been documented.

### III EMPIRICAL STRATEGY

#### *III.A Outline*

In this section I estimate the economic and social effects of the regional religious policies adopted in Indonesia since 1999. By the “effect of these policies” I mean the overall difference between outcome variable  $y$  in the case when the region adopted religious policies and in the unobserved counterfactual case where the same region does not implement such policies. The main outcomes I am looking at throughout the paper are economic activity (regional GDP) and poverty, as these are widely regarded as the most important benchmarks, together with different indicators of public good provision, which are an important factors determining poverty.

In order to estimate the effects of religious policies, the first exercise I am undertaking is a fixed effects strategy, where I am regressing the regional outcome variables on dummies indicating whether the region in a given year had any Sharia-inspired religious policies in place. Then I look at whether the effects are different if I look at prohibitive and normative religious policies separately.

Though I can control for many potential confounders, I address the remaining concerns of omitted variable bias and reverse causality by instrumenting the religious policy variable with the 1955 vote share of Masyumi party (which advocated Islamic law as a basis for the Indonesian constitution), which is a proxy for the long-term support for religious policies. Since my instrument only has cross-sectional dimension, I use the decade-long evolution of the same outcome variables instead of a panel. Since I only have a single instrument, I cannot study heterogenous effects in this case.

In a set of regressions where the explained variable is the probability of implementing a religious policy, I analyze what are the most important driving factors behind their adoption.

Then I turn to microdata in order to get a deeper understanding of the underlying mechanisms. I use a rich panel of all Indonesian villages over 15 years. Fixed effects regressions on the village panel paint a similar picture: religious regulations are associated with worse public good provision and worse level of wellbeing indicators. Finally, using both the village-level and the regional panel, I show that regions that implemented religious policies decrease their relative spending on staff and education.

### III.B Data

#### III.B.1 Election data

In the analysis I rely on election data for two purposes. First, I use local party list outcomes from the first democratic election of the post-colonial era in 1955. Second, I collect candidate characteristics from present-day election data to be able to control for important district head characteristics.

The 1955 vote share of Masyumi party (an abbreviation for Council of Indonesian Muslim Associations) is central to my analysis. I use it as a proxy for the regional support for Islamic law, as this party openly supported turning Indonesia into an Islamic republic. It is important to note, that 4 main parties got around 80% of the total vote (around 20% each), of which there was another Islamic party, Nahdlatul Ulama, which was not less devoted, but was conforming the political institutions. Thus, the Indonesian voter had the opportunity to vote Islamic even if he or she did not support the full-scale Islamic turn of the polity.

Historical election data comes from the website pemilu.asia which I cross-checked with original documentations from the 1950s.<sup>12</sup> The close correspondence between Masyumi vote share and the extent of religious policymaking can be seen in 1 and 2. I impute the missing values (black areas except for Aceh, Papua and Jakarta) using provincial averages in Feith (1955).

Data for present-day local elections since 2005 was hand-collected using publicly available data.<sup>13</sup> Where possible<sup>14</sup> I cross-checked my data with the corresponding variables from the The Indonesian Sub-National Growth and Governance Dataset (McCulloch, 2011) which has the same information up until 2007. The information I am using is the name of the elected district head and the fact whether he or she is elected directly. Direct election of the officials was introduced from 2005 onwards.<sup>15</sup> The name tells whether the bearer has completed the pilgrimige to Mecca already, as former pilgrims can use the title of Haji (men) or Hajjah (women). This is an important signal of social status and piety.

---

<sup>12</sup>Feith (1955),di Republik Indonesia (1955)

<sup>13</sup>These include official pages of the Indonesian regencies, news articles from local news outlets and corresponding articles of the Indonesian Wikipedia.

<sup>14</sup>That is, for the years 2005, 2006 and 2007

<sup>15</sup>The timing of the elections was not synchronised across regions, thus each indirectly elected district head who completed term after 2005 had his or her successor elected directly. By 2009 all district heads were elected directly.

### III.B.2 Economic and social outcomes on the regency/city level

The main sources of economic and social indicators come from the World Bank’s INDO DAPOER<sup>16</sup> dataset which provides regency level aggregates for the main economic and social statistics coming from main data sources such as SUSENAS, SAKERNAS, PODES and SIKD<sup>17</sup> and the yearly census. Though it condenses the main official data sources, INDO DAPOER is still troubled by occasional missing observations for some variables and regions.

The length of the time series for each region differs a lot across data sources. Most social and economic indicators that come from SUSENAS are only covered from the middle of the decade. Where this is the case, I complete the data using the Subnational Growth and Governance Dataset which covers the period between 2000 and 2007. (McCulloch, 2011)

I also extend the INDO DAPOER data with an index for social values that I derive from the Demographic and Health Survey (DHS). I do this because I want to check whether regions which adopt religious regulations are fundamentally different in how they think about the status of women in the family and in the society and whether introducing religious regulations have any effect on these values.

Though this questionnaire mainly concerns women’s health and maternity, there are a few questions which ask about different aspects of the empowerment of women. Specifically, one set of questions asks in which case a woman feels that her being beaten by her husband is justified (e.g. if she leaves the house without consent, burns the food, etc.). Another set of questions asks what major decisions concerning the woman is *not* being made by her (e.g. who decides over her healthcare). I construct an index as a sum of the number of times the woman answers that her beating is justified or the decision is not made by her, and I average the index over each region. The resulting number is a “disempowerment index” with a value of 0 to 8, where a higher number indicates that women have lower social status in the region. I can only use this indicator in the second empirical design since the DHS is only published three times over the study period.

District proliferation is a condition of Indonesian regional data which has to be tackled in every empirical design, as the units of observation will change in numbers and in content over time when one looks at regional aggregates. To tackle this issue, I implement 3 different strategies:

---

<sup>16</sup>Indonesia Database for Policy and Economic Research, World Bank (2015)

<sup>17</sup>The Indonesian statistical agency’s thematic surveys on socioeconomic conditions in general (SUSENAS), labor (SAKERNAS), village infrastructure and wellbeing (PODES), and the regional public finance dataset (SIKD).

- Unbalanced panel: when looking at regional data, I create an unbalanced panel where a cross-sectional observation exists as long as its borders are unchanged. That is, if region “A” splits to “A” and “B” in year 2005, I will treat the region “A” before 2005 as a different region than region “A” after 2005. The advantage is that with panel data estimation I can be sure that a region fixed effect will correspond to a specific, homogenous geographical and political unit. The disadvantage is that the number of observations per year varies heavily.
- Aggregation: when looking at differences in outcomes over the long run, I aggregate the data to pre-splitting borders. In doing so I simply add up the numbers where the variable corresponds to a total figure (such as population and total GDP), and I do population weighting when the variable is an average (such as GDP per capita). The disadvantage of this approach is that it assumes that changes of political boundaries are essentially not changing the underlying data generating processes themselves, which is not very realistic.
- Using village level data: when looking at village level data the unit of observation does not change over time, so the only way district borders can change the outcome is through correlated shocks within regions. To account for that, I am clustering the village data on the pre-proliferation borders. (Abadie *et al.*, 2017)

### III.B.3 Microdata

I use the Village Potential Survey (PODES) waves to get a more fine-grained picture of the channels through which Sharia regulations might have an effect on welfare. PODES offers a variety of data ranging from availability of basic services to details on economic activity and public safety, so it is a very useful source of information to understand the underlying channels through which religious policies have their effect. Also, I use 6 waves of this data (from 1996 to 2011), so I am able to look at the evolution of outcomes before and after exposure to the regulations. It is important to note that the term “village” is an administrative concept; rural and urban communities (*desa* and *kelurahan* in Indonesian) are both surveyed.

Using PODES poses two major empirical challenges. First, the village identifier variables are 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 had to identify all variables that are mostly consistent over years. Even this reduced set of variables is of the order of magnitude of one hundred, which raises the prospect of multiple inference with a single explanatory variable. In order to avoid that, I grouped variables by broad topics, and then created additive indices based on the topics in the vein of Anderson (2008).<sup>18</sup> The topics are:

- Prosperity - overall measures of poverty and wellbeing (number of poor people, share of households that are located in slum areas etc.)
- Infrastructure - roads, lighting, access to water and sanitation etc.
- Services - the availability of services that are mostly provided by the market (how many shops, restaurants and other types of venues there are; the size and diversity of the local industry etc.)
- Education - Educational infrastructure (number of schools on all educational level)
- Religion - Religious infrastructure, encompassing the number of mosques, prayer rooms and religious schools, such as *pesantren* (religious boarding schools of mixed curriculum) and *madrasah diniyah* (institutions providing extracurricular religious schooling for pupils participating in secular education)

To condensate the data further, I defined the following two indices:

- Wellbeing index: consisting of all variables which measure the overall shape in which local society and economy is (the Prosperity and Services groups)
- Government services index: consisting everything which is directly affected by policy (the Infrastructure and Education groups)

---

<sup>18</sup>I omit the variables related to healthcare, as over the study period Indonesia started experimenting with central government-financed healthcare schemes which grew steadily in coverage and funding, thus the data on healthcare infrastructure mostly reflects central, and not local government policies.

I keep the Religion index separately, as it does not fit into any of the previous categories perfectly. The local government can fund the building of new mosques and religious schools, but religious institutions are by their nature private (since there is no equivalent of a Church in Islam). Also, the point of including the index will be to demonstrate that even though regions that would implement “Sharia-inspired” regulations are more religious at the beginning of the study period, there are no changes over time in the relative status of religious infrastructure.

Besides the indices I create there are a couple of other variables in PODES which I am using as either control variables (such as population, and village distance from regional centers), or as outcome variables, when I am looking at the evolution of village incomes (own source revenues and aids from the regional governments).

### *III.C Panel regressions on regional data*

First, I am using within-region variation over time to estimate whether the outcome variables of interest are different after religious policies are implemented. In particular, when I look at (the log of) per capita GDP (in constant prices), and the share of people living under the poverty line (the poverty rate) and the average of depth poverty (average distance from the poverty line for the poor, the poverty gap index). Since poverty reduction in developing countries is largely driven by access to basic public goods such as education and healthcare, I also look at the most basic healthcare and education outcomes. These are the morbidity rate (understood as the incidence of certain diseases per 1000 people), and the net enrolment ratio in junior secondary school. The reason for using the latter is that it is the lowest level of education with significant variation in time and across regions within Indonesia, as primary school enrollment was practically universal by the period of the analysis. By limiting my attention to a few key variables the choice of which are driven by ex ante considerations, I am able to avoid cherry-picking among possibly dozens if not hundreds of outcomes, and the econometric pitfalls of multiple inference.

For that I am estimating the following Fixed Effects model:

$$y_{it} = \mu_i + \lambda_t + \beta_1 RP_{it} + X_{it}\beta_2 + \varepsilon_{it}$$

Where  $y_{it}$  is the outcome variable of interest,  $\mu_i$  and  $\lambda_t$  are respective region and time fixed effects,  $RP_{it}$  is a dummy indicating whether religious policies were in place in region  $i$  and time  $t$ , and  $X_{it}$  is a set

of controls. The outcomes I am looking at are the growth rate of GDP, the poverty rate, the poverty gap, the net enrolment ratio into junior secondary schools and the morbidity rate.

The controls include the size of the budget as a fraction of GDP, logarithm of constant price per capita GDP, a set of dummies indicating that the region would be splitting later on. I also interact the time fixed effects the religious fragmentation index (the Herfindahl-index of the share of each religious community in the region), and a dummy indicating whether the size of the budget as a fraction of GDP is above the median of the given year.

Before interpreting the estimation results, I have to address the question why the observation numbers are different across specifications in Table 1 and Table 2. The reason is the nature of the INDO DAPOER dataset, which is a collection of data from different sources. GDP figures come from national accounting data, poverty is from the annual poverty reports of the Indonesian Statistical Office, while the source of healthcare and education data is SUSENAS, a yearly survey. Each of the data sources has its own limitations, and comes with missing values. The differences in the number of observations reflect this.

The estimates for this specification can be found in Table 1. The results show in years when a region had religious policies were in place, poverty rate was higher by 1 percentage points and the poverty gap index was higher by 0.2. Religious policies are associated with lower school enrollment, higher incidence of diseases, and a higher growth rate of GDP, but these latter coefficients are not significant if the main explanatory variable is the dummy for any kind of religious policy. However, once I estimate separate effects for prohibitive and normative religious policies (Table 2), the picture changes. Prohibitive regulations are now significantly associated with lower enrollment rate (column 4), while the normative religious policies are having a significant impact on the incidence of diseases (column 5). Interestingly, the average growth rate of the economy is significantly associated with a substantially higher growth rate of the GDP (1.2 percentage points, while the average growth rate is 4.8 percentage points). The poverty coefficients are quite consistent across specifications.

As an (unreported) robustness check I include controls for state spending in general, and staff and education in particular to see if expenditure cutting can account for the poverty results. The significance of the coefficients of interest actually increase in this case. The reason why I omitted expenditure controls from the baseline anyway is that the fiscal data in INDO DAPOER comes with many missing values, so including them reduces the sample size by 10-15% depending on the specification.

If important variables are missing from the specification which are correlated with the policy dummy,



the coefficients of interest will not be consistently estimated. Also, reverse causality might plague our results. In particular, prohibitive regulations might create rents for politicians and the legal basis for extortion rackets, which are hardly efficiency enhancing, so the higher GDP growth rates associated with these measures are quite striking. On the other hand, if the economy is booming, there could be more room for rent seeking, creating an incentive for adopting prohibitive measures. If this is indeed the case, we are facing a classic reverse causality story.

### *III.D Exploiting exogenous historical variation*

In order to identify the effects of religious policies more reliably by overcoming reverse causality and potential omitted variable biases, I use a historical instrument, the Masyumi vote share in the 1955 legislative elections.

The main limitation with the instrument is that it does not have a time dimension. Thus, with IV estimation I will not look at panel variables, but the long difference in the evolution of the variables of interest, which is a cross-section. Also, since I am taking differences, I have to ensure that the panel is balanced, thus I have to aggregate the results to previous borders. I am, however, able to augment my data with the data from DHS on social values (the “women disempowerment index”), since it is available in 2002 and 2012 only, so I could not look at it in the panel estimations.

First I estimate the following regression in OLS as a baseline:

$$\Delta y_{2012-2002} = \beta_0 + \beta_1 \Delta RP_{2012-2002} + X_i \beta_2 + \varepsilon_i$$

Then, with the IV regression, the first stage will look like the following:

$$\Delta RP_{2012-2002} = \delta_0 + \delta_1 \% Masyumi_{1955} + \eta_i$$

Where  $\Delta RP_{2012-2002}$  is a dummy that takes the value of one if the region did not have a Sharia-based policy in 2002 but had one in 2012,  $X_i$  is a vector of controls which include population growth over the decade, initial GDP, index of religious fractionalization, index of women disempowerment in 2002 and a set of dummies indicating how many times the region split over the decade.

The identifying assumptions of the IV regressions are the following. Masyumi vote share indicates

a preference for Sharia over a secular constitution, and not just personal religiosity or a preference for being governed by religious scholars. The reason for this is that a voter who was conservative, devout Muslim who had a preference for being governed by like-minded religious people had the option to vote for the political wing of Nahdlatul Ulama.<sup>19</sup> NU as a movement was specifically established in the 1920s to provide a traditionalist counterbalance for the rising tide of Saudi-inspired Islamic movements and Islamic modernists, such as Masyumi in Indonesia (Bush, 2009). Masyumi, on the other hand, advocated a constitution based on Islamic principles and Sharia, and actively supported religious revolutionary groups during the tumultuous Old Order era. It has been banned even before Suharto grabbed power, and was never really revived, though many smaller movements claimed to be carrying the spiritual heritage of Masyumi.

The second identifying assumption is that the Masyumi vote only affects current outcomes through the implementation of religious policies. Buehler (2016) argues that even though Islamist movements were repressed since the later years of Sukarno, and no national political party ever gained such popularity as NU or Masyumi in the 1950s, there is a local institutional continuity between Islamist networks in mid-20th century and the groups that are lobbying for the adoption of Sharia-inspired religious regulations on a local level. If this is true, one has not to be concerned too much about potential confounders such as migration in- and outflows over decades, assuming that migrating people adapt to the institutional structures they find locally.

To further assess the validity of the assumptions, in Table 3 and Table 4 in Appendix B I assess whether there is any systematic correlation between the main outcome variables of interest and outcomes before religious policies were being made. I regress the outcomes in either 2001 or 2002 (depending on data source) on a dummy for being treated later on, the percentage vote share of Masyumi in 1955, and their interactions. There are three things worth noting. First, regions that would adopt Sharia-based regulations are significantly more developed economically, but this is not correlated with the Masyumi vote share. Second, the variables are either not correlated with the variables of interest (column 2 of Table 3 or column 1 of Table 4 ), or the effect is miniscule (column 3 of Table 3 ), or goes the other way as the estimated treatment effect later on (column 2 of Table 4 ). Third, regions where Masyumi is strong, women's status is lower in society (column 3 of Table 4), but that effect explains very little in the total

---

<sup>19</sup>The socio-religious branch of the organization still exists, and with its 40 million members it is the largest independent Islamic organization in the world.

variation of such attitudes across regions.

The results from the simple OLS regression on long differences can be found in Table 3. The poverty results are robustly there, and are quite substantial in magnitude: the total poverty reduction over a decade was -7.4 percentage points, and the regions with Sharia-inspired regulations reduced poverty less by more than a quarter of that. The other coefficients are not significant. Notably, the coefficients of the net enrolment ratio and the disempowerment index are of the opposite sign than expected. According to the OLS regression, the disempowerment of women decreases more in regions with a religious policy, though this effect is not significant.

The IV regression estimates are in Table 4. The poverty coefficients are substantially bigger and significant, while the results on educational and healthcare outcomes now have the same signs as in the panel regressions and also are significant. It is noteworthy that the women disempowerment index also switched sign, and the coefficient on GDP growth is not significant, so it indeed seems to be the case that the Fixed Effects coefficients were driven by reverse causality.

### *III.E The determinants of religious policies*

In this section I provide a deeper understanding how religious policies work in practice by running a “horse race” between potential factors explaining the introduction of religious regulations. In particular, I estimate linear regressions of the following form:

$$RP_{it} = \beta_0 + X_{it-1}^1\beta^1 + X_{it}^2\beta^2 + \beta^3 Masyumi_i + \varepsilon_{it}$$

Where  $RP_{it}$  is an indicator if region  $i$  had a religious policy in year  $t$ ,  $X_{it-1}^1$  is a vector of economic characteristics of the region in the preceding year, which includes unemployment rate, percentage change in per capita GDP, size of the budget relative to local GDP and the interaction of the latter two. I use lagged variables to mitigate reverse causality concerns.

$X_{it}^2$  is a vector of politician specific characteristics. I include a dummy indicating if the regional leader is elected directly. Originally after the decentralization regional legislatures elected the district head (regent, or bupati) in rural regions, and the mayor (walikota) in urban ones. However, it soon turned out that the key power players would be the district heads instead of the bodies that elected them, thus, the national parliament decided to codify the de facto situation by turning mayors and regents into directly elected

officials starting from 2005. However, each leader in office was able to fill out his or her complete 5 year term in office. Thus, even though the first direct elections took place in 2005, and each year after that saw another round of elections. Thus, the “directly elected” dummy has takes the value of 0 for all regions before 2005; the yearly average gradually increases then up until 2009, the first year in which all regional leaders are lected directly.

A political variable indicates if the leader has already completed the Fifth Pillar of Islam, the pilgrimage to Mecca. I can do this, because I know the names of the leaders from my hand-collected election data, and pilgrims in Indonesia add a honorific title of “Hajji” (for males) or “Hajjah” (for females) to their name. Thus, if a person name starts with “H.” or “Hj.”, I classify him or her as a pilgrim. I also include the interaction of these two variables. This is an important joint signal of religiousness and social status within the Indonesian society.

Three main conclusions can be drawn from the set of regressions in Table 7. First, economic downturns are associated with a higher probability of adopting religious regulations, although not uniformly. We see from the first row: for all types of regulations, a higher unemployment level is associated with a higher probability of introducing Shara-inspired regulations. The effect is in the same ballpark as that of Masyumi support, as having the median unemployment rate (6.8%) in a year would have an extra 3.3 percentage point probability of introducing a regulation, while the median Masyumi support (34.7%) is associated with a 2.8 percentage point probability. However, in (unreported) robustness checks I found that unemployment is not associated with the introduction of Sharia-based regulations in either the Fixed Effects, or the cross section of long differences or the Instrumental Variables estimations. Thus it seems that an increase in unemployment might help explaining the timing of a regulation, but has nothing to do with long run effects.

The second conclusion is that when it comes to the GDP and the fiscal opportunities of a region, the content of the regulations matter the most. Let’s consider prohibitive regulations first. Here the marginal effect of a change in GDP equals  $-0.05 + 0.067BudgetToGdp$  which is positive if the size of the income size of the budget is bigger than 74.6% of total GDP (less then 5% of all regency-year observations). This means that the regencies that are hurt by an economic downturn are more likely to introduce religious regulations, but the size of the actual effect is inversely proportional to the fiscal elbow room of the government. On the other hand, the marginal effect of the budget size is  $-0.03 + 0.067\Delta\log(GDP)$  which is *increasing* in the change of log GDP (the additive term is not significant). This means that as long

as the GDP is growing, an increase in the budget size (which probably means a revenue windfall) will increase the probability of having prohibitive regulations in a region. This finding is consistent with the hypothesis that prohibitive regulations are actually at least partly driven by rent-seeking concerns. Also, it is interesting to see that prohibitive regulations are the ones which are least correlated with the vote share of Masyumi, providing another case that the motivation here is not the piety of the locals, but the elite’s more mundane considerations.

This is not the case with normative religious policies (column 3). Interestingly, changes in GDP here are not correlated with the introduction of the regulation. What matters is the budget size. The bigger the budget, the less likely the region is going to make a normative religious regulation.

Last but not least, it is interesting to see that politician characteristics almost never matter in the adoption of Sharia regulations. Though pilgrims are more likely to adopt such regulations, the effect is never significant. Also, directly elected pilgrims (the interaction term) are actually *less* likely to adopt such regulations; the coefficients are of the same magnitude but negative (also insignificant). This is stressing Buehler’s remark (2016), who notes that candidates of Islamic parties and clerics who stand for election usually *distance themselves* from Islamic policies, rather than endorsing them. The only case where direct election matters is with the normative type of regulations.

These results suggest that the two regulation types are products of very different political dynamics, while the normative type seem to reflect social demand and electoral bargaining (reflected by the coefficients on Budget size, Masyumi support and the direct elections), the restrictive type seems more to be driven by rent seeking considerations.

### *III.F Using village data to understand the underlying channels*

Now I use the PODES village panel to understand if Sharia-based regulations are associated with worse public good provision locally. The models I am going to estimate take the following form:

$$index_{it} = \alpha_i + \beta RP_{it} + \gamma X_{it} + \epsilon_{it}$$

$X_i$  is the single control, which is the log of population. I do not include time fixed effects, since the outcome variables are standardized indices of wellbeing and government services which have zero mean and variance of unity each year, thus there is no trend the time dummies could capture.  $RP_{it}$  takes the

value of 1 if the region  $i$  had a religious policy in place in year  $t$ .

I am also experimenting with a different specification where I am interacting the religious policy dummy with each village's distance to the center of the district head's office (the variable also from the PODES survey).

$$index_{it} = \alpha_i + \beta RP_{it} \times Distance_i + \gamma X_{it} + \epsilon_{it}$$

I estimate the regressions with standard errors clustered on the (pre-treatment) regional boundaries to account for the fact that the treatment happens on a regional level and allow for correlated shocks within regions even if they split over time.

I also provide both specifications for prohibitive and normative religious policies taken separately. Then I replicate the specifications for Java only, which is the population center, and relatively homogenous culturally and economically; then I do this also for the provinces outside of Java, which are very diverse in both ways, and show a much bigger variation in budget size, too.

In Table 5 I show the results for the effects of religious policies for the whole village panel dataset. Columns 1-4 show the estimated coefficients in the four specifications for the outcome of the Government Services index. Columns 5-8 show the four specifications for the Wellbeing index. We see that religious policies are associated with a substantially worse outcomes for both wellbeing and government services, however, in the baseline setting only the latter is significant. Interestingly, when I interact the effect with the distance measures, the effect for both outcomes become strong and significant. Also, it turns out that the negative effect of religious policies decreases the further away a village is from the center. In the last four rows of the table I provide the estimated distance at which the policy effect becomes zero (the ratio of the two coefficients, along with a standard error for the ratio). It cannot be ruled out that the effects of the policy practically vanish as one gets close to the border as the median distance from the regional center for the whole country is 28 kms, the 9th decile of the distance distribution is at 80 kms. This suggests that enforcing policies is costly, and it is harder to enforce them further away from the city centers.

Columns 3-4 and 7-8 highlight the importance of the heterogeneity of regulation types. As it turns out, Government services are hurt by both kind of policies, but the effect on Wellbeing is driven by the Prohibitive policies. This makes perfect sense, as prohibitive measures are effectively designed to have

an effect on retail and certain services (e.g. retail of alcohol). It is also important to highlight that the previous spatial pattern with the effect diminishing the closer one gets to the border is only true for the Prohibitive policies. This again is a meaningful result pointing to an enforcement explanation.

Looking at the pre-existing differences of villages by eventual treatment status in Table 5 in Appendix B reveals that regions adopting the regulations later were quite similar in 1996 except for religious infrastructure. Important to see that the periphery is relative underdeveloped compared to the core.

I also present the previous results for the subset of the villages in Java (Table 6). The reason for this is to limit the potential pitfall of comparing too heterogeneous regions to the minimum. Such heterogeneity can be cultural, economic and institutional in a multi-religious, diverse, polyglot country like Indonesia. Java, however, is mainly populated by three major ethnic groups (Javanese, Sundanese and Madurese) which makes it much more homogenous than any other major island of the country. The recent years of natural resource revenue boom on the local government level is much less important in Java than in the other islands. Also, the island has been developing under the same institutional setting for about 200 years, as here the Dutch consolidated their presence by the 19th century, whereas in many parts of today's Indonesia population was sparse until recently. The solidified institutional structures might have contributed to the stable borders during the period of the district proliferation in the 2000s. As the island of Java has more than 50% of the country's population and also it is its economic powerhouse, this would roughly be equivalent to looking at the East Coast of the US, which is not very restrictive. Not surprisingly, for Java the same equations are estimated much less noisily.

One argument against the set of results presented here would be that both the adoption of religious regulations and the estimated changes on outcomes are driven by an omitted third factor. Let's take an example from outside Indonesia: religious conservatism in the US is correlated with economic conservatism, a preference for smaller state and less public expenditure. In a hypothetical setting where local communities could set any kind of policy agenda they liked, one would plausibly see that school prayer regulations would be correlated with cuts to spending in infrastructure and education. The results presented here could reflect a similar case: after the fall of Suharto the regions have a possibility to adjust their policies according to local preferences, resulting in religious policies, and a range of other, unobserved changes that drive the effects on government services and ultimately - the poverty rate. However, what we see here is that while the estimated treatment effects are higher in the core areas of a region, the more religious villages are not concentrated around the center. The lack of any robust treatment effect for the Religion index suggests

that there is no wide-scale increase of religiousness over time associated with the regulations.

Also, if the outcomes are not driven by the religious policies themselves, but by readjusting the whole set of policies to the underlying preferences, we should see nothing around the time of the actual adopting of policies, but a long and steady trend starting right after the decentralization. Using event studies I will show in the next subsection that this is not the case.

### *III.G Event studies*

Now I check the time dynamics of the changes in the indices around the implementation of prohibitive religious policies. I look at the subsample of villages which are in regions that implemented their first religious policy either the years preceding 2003 or the years before 2005, since for these villages I am able to see two PODES waves before and after the one right after the first religious policy is adopted. This is 17% of the original sample, 53190 village-year observations. A vast majority, almost two-thirds of these is from Java, so I will look at these villages only.

Since we saw that the effect of prohibitive policies are diminishing the further away from the center, I am comparing the 25% of villages in each region closest to the center to the 25% of villages which are the furthest away, where the estimated treatment effects are practically zero. Thus, I am using within-region geographical variation for identification and I use the peripheral villages of the treated regions as the control group. I am estimating the following regression without a constant:

$$index_{ij} = \alpha_i + \lambda_y + \sum_{j=t-2\dots t+2} (\beta_j year_j + \gamma_j year_j \times close_i) + \varepsilon_{it}$$

where  $year_j$  are year dummies,  $close_i$  is a dummy taking the value of 1 if the village is in the close quartile of the distance distribution and  $t \in \{2003, 2005\}$ ;  $\alpha_i$  and  $\lambda_y$  are regional and calendar year fixed effects, respectively. The coefficients  $\gamma_j$  will measure the average difference in the outcome between the core and the periphery for year  $j$ . In the event study I plot these along with their 95% confidence interval with  $\gamma_{j-1}$  normalized to 0.

The event studies for the indices ( Figure 3 and Figure 4 ) paint a picture that is very much in line with the story told so far. We see a sharp drop for the government services right after introduction, and a modest one for the wellbeing index. Thus, we can conclude that the changes we experience in the outcomes are indeed happening around the event of the introduction.



### III.H Regional expenditures and local revenues

Finally, I am checking whether regions which implement religious policies spend less on specific expenditures which could explain the previous results. I single out education and health expenditures, as potential driving forces of poverty reduction, and also the wage bill of the local government, as it is a proxy for the size of the bureaucracy. I estimate the following equation:

$$Exp_{it} = \alpha_i + \lambda_t + \beta RP_{it} + X_{it}\gamma + \varepsilon_{it}$$

Where  $Exp_{it}$  is the expenditure share to GDP,  $\alpha_i$  and  $\lambda_t$  are regional and year fixed effects,  $RP_{it}$  is a dummy indicating if in year  $t$  region  $i$  had a religious policy in place, and  $X_{it}$  is a vector of controls, including the size of the budget (all revenues over total GDP) and log of per capita real GDP. The observation numbers are not consistent over the outcome variables due to missing data (the budget variables of INDO DAPOER are particularly edentate). In Table 8 we see that regions with religious policies in place spend less on education and employing people. The coefficient on education indicates drastic changes as it amounts to more than 7.5% of the mean education spending of all regions. When I allow for treatment heterogeneity (Table 9), it becomes evident that practically all significant coefficients on expenditures come from the normative, and not the prohibitive type of religious regulations - with education spending almost 10% below the mean, and personnel spending almost 5% below the mean.

Then I look at the other side of the coin, namely, how village finances are affected by the policies. Here I am looking elements of per capita revenue of villages from the PODES data, which are included except for the 2000 and 2005 years. All expenditures are in thousand Indonesian rupees in 1996 prices.

I am focusing on two elements: one is the revenue the villages are able to raise from the local economy (own source revenues), and the revenue they get from the region as development aid. I interpret a change in own source revenue as the change in the performance of the local economy. Rising revenues in this case are an indicator of a rising tax base. Aid from the regional budget shows changes in policy preferences.

I estimate the following fixed effect models:

$$RevPC_{it} = \alpha_i + \lambda_t + \beta RP_{it} + X_{it}\gamma + \varepsilon_{it}$$

$$RevPC_{it} = \alpha_i + \lambda_t + \beta RP_{it} \times Distance_i + X_{it}\gamma + \varepsilon_{it}$$

Where  $RP_{it}$  is a dummy indicating if in year  $t$  region  $i$  had a religious policy in place and the control is now population. I estimate both for the joint religious policy, and the two main types separately. In Table 10 and Table 11 I present the results. Both revenue types experience a sharp decline. A coefficient of 1 means a 1000 IDR change in 1996 prices, which roughly translates to 37 US cents on 2017 prices. So in Table 10 we see that in years in regions where a religious policy was in place, a village had more than 40 cents less own revenue, and 50 cents less regional aid per each villager, though the second is not significant, and the first is only marginally significant too. The picture changes though if we look at the usual distance interactions: massive drops in both revenue types which are smaller the closer one gets to the border.

The picture gets more interesting once I look at heterogenous policy effects ( Table 11). Without distance interactions, the normative policy type drives the effect on own source revenues, and the prohibitive policies drive all effect on financial assistance from the regional center. Interestingly, when interacted with the distance, both policy types are associated with a fall in own source revenue, though weakly. The sign of the distance interaction is different though. Prohibitive policies have a positive coefficient on distance, so the effect is smaller the closer one gets to the border, hinting again towards Sharia policies being enforced to a lesser extent further away from the political center. Also, when looking at the effect of prohibitive policies on aid from the regions we do not see a spatial pattern, which makes perfect sense, as there is no enforcement going on here, just cutting spending.

## IV DISCUSSION AND CONCLUSION

In this paper I presented evidence on the negative effects of a large-scale policy shift towards religiously motivated legislation that affected the lives of more than one hundred million people. I showed that content matters as the umbrella of “Sharia-based regulations” covers actual policies that work quite differently. But how should we interpret the estimated coefficients? What does it mean that “Sharia-policies” affect outcomes such as public good provision or poverty? Actually, the coefficients I estimated throughout the

paper represent an effect which would be the sum of several channels:

1. Direct effects of a policy (those which were intended by the lawmakers)
2. Indirect effects created by current institutions (while implementing the policies, the state apparatus' performance changes in unintended ways)
3. General equilibrium effects (the politicians campaign on ideology instead of something else, so they will do that "something else" less)
4. Indirect effects originating from outside the institutional structure.

Take an example where the region starts to provide extracurricular religious education for the people. The direct, intended effect could be an increase in social capital through increased community activities, maybe drop in delinquency due to people becoming more pious (1). An indirect effect could then be that the outcomes in formal education become worse, as the students are dividing their fixed time and attention capacity between more objectives (2). A general equilibrium effect would be that the local government spends more on schooling, and consequently spends less for other services (3). The groups that lobbied or voted for such a policies could be then become emboldened by their success, and push for, say, another regulation for closing the local shops on Ramadan, or enforce the closure themselves (4).

Another example (inspired by the stories in Pisani, 2014) can be alcohol restriction rules. The rule bans local venues from selling alcohol, except for a few, licenced places, mostly frequented by tourists. The direct, intended effect of the policy would be reduction in selling, and hopefully, consumption of alcoholic beverages (1). The indirect effect of the second bullet point then might be that rent seeking opportunities arise for politicians through the distribution of booze licences (2). If these revenues can be used to finance the costly reelection efforts, the politicians might face less incentive for offering other, more costly policy proposals, such as investing in local infrastructure - that would be a general equilibrium effect (3). On the other hand, limiting the sale of such a good and rising rent-seeking opportunities might give rise to criminal groups, creating considerable negative externalities elsewhere (4).

The main results of this study are estimates for the average of the total effect through these four channels. Even if the understanding of the exact causal links is limited, the overall estimates are interesting in themselves, as the underlying main research question is whether there is welfare effect in these local communities which is driven by Sharia-inspired lawmaking in the Indonesian regions.

It is important to note that the religious turn is orchestrated by secular career politicians (Pisani & Buehler, 2016), so it is unclear why they would implement Sharia-based regulations which are estimated to be welfare reducing. Buehler & Muhtada (2016) show that these regulations tend to be passed predominantly in election years or after election years when the elected district head is qualified for running for reelection.<sup>20</sup> Sharia-based regulations arise in a political equilibrium where candidates try to maximize their electability taking into account political and material costs of her decisions. To be able to disentangle the four channels discussed previously, this has to be taken into account.

If, for example, candidates can muster votes and substantial organizational support from Islamic pressure groups under the flag of Sharia, they might not need to pay off voters and middlemen directly, which is an important part of the election process in Indonesia (see Sjahrir *et al.*, 2013). By catering to ideological demands of instead of material ones, the politician might be able to prevent some of this efficiency loss<sup>21</sup>

Also, the room for public good provision might be limited by factors, such as current level of development (if the marginal cost of public goods is not constant); availability of public resources (mechanisms such as natural resource revenue sharing generate huge differences in the fiscal opportunities of the regencies) and exogenous events such as natural disasters and economic downturns which might have an effect on governance and religiosity simultaneously which complicates the picture.<sup>22</sup>

While giving insights on the overall effects of policies and the mechanisms through which they operate, the paper points to two further research questions. One is the understanding of the political equilibrium which produces Sharia-based regulations. Once the political equilibrium is understood, one could structurally estimate the demand for and the supply of Sharia-based regulations to be able to answer questions on counterfactual outcomes. For example: we see that a bigger budget makes it less likely that the regions would implement these regulations. What would thus be the “cost” for the central government if it wanted to give such amount of money that the regions avoid religious policies altogether? Or: how would the outcomes and the extent of of Sharia-policies change if corruption and rent seeking became more costly?

The other main research question would be to understand how the demand side of the support for Islamic Law evolved over time, the manifestation of which is the support for Masyumi Party I used as

---

<sup>20</sup>Buehler (2016) also looked at all elections between 1998 and 2013 to find that only a handful of elected district heads came from a religious background and none of them ended up introducing a Sharia regulation (see Appendix 3 of the book)

<sup>21</sup>This might be a reason why regions with historically higher corruption levels tend to vote more for religious parties in general elections. See Henderson & Kuncoro (2011).

<sup>22</sup>Earthquakes kept theocrats in their seats in Medieval Italy (Belloc *et al.*, 2016); Islamic institutions provided ex-post insurance for the 1998 financial crisis in Indonesia both in psychological and material terms Chen (2010); and losing faith in social mobility motivated Egyptian middle class youth to gain faith in God (Binzel & Carvalho, 2016).

an instrument. What are the economic and social roots which cause some communities to advocate a fundamental change in the institutional structure? These questions have to be addressed by future research.

## REFERENCES

- Abadie, Alberto, Athey, Susan, Imbens, Guido W, & Wooldridge, Jeffrey. 2017. *When Should You Adjust Standard Errors for Clustering?* Tech. rept. National Bureau of Economic Research.
- Alesina, Alberto, Gennaioli, Caterina, & Lovo, Stefania. 2014. *Public goods and ethnic diversity: Evidence from deforestation in Indonesia.* Tech. rept. National Bureau of Economic Research.
- Alfano, Marco. 2017. *Islamic Law and Investments in Children: Evidence from the Sharia Introduction in Nigeria.* Tech. rept. Centre for Research and Analysis of Migration (CReAM), Department of Economics, University College London.
- Anderson, Michael L. 2008. Multiple inference and gender differences in the effects of early intervention: A reevaluation of the Abecedarian, Perry Preschool, and Early Training Projects. *Journal of the American statistical Association*, **103**(484), 1481–1495.
- Barro, Robert J, & McCleary, Rachel. 2003. *Religion and economic growth.* Tech. rept. National Bureau of Economic Research.
- Bazzi, Samuel, Gudgeon, Matthew, *et al.* 2016. *Local government proliferation, diversity, and conflict.* Tech. rept. Boston University-Department of Economics.
- Belloc, Marianna, Drago, Francesco, & Galbiati, Roberto. 2016. Earthquakes, religion, and transition to self-government in Italian cities. *The Quarterly Journal of Economics*, **131**(4), 1875–1926.
- Binzel, Christine, & Carvalho, Jean-Paul. 2016. Education, social mobility and religious movements: The Islamic revival in Egypt. *The Economic Journal*.
- Buehler, Michael. 2016. *The Politics of Shari'a Law: Islamist Activists and the State in Democratizing Indonesia.* Cambridge University Press.

- Buehler, Michael, & Muhtada, Dani. 2016. Democratization and the diffusion of shari'a law: Comparative insights from Indonesia. *South East Asia Research*, **24**(2), 261–282.
- Burgess, Robin, Hansen, Matthew, Olken, Benjamin A, Potapov, Peter, & Sieber, Stefanie. 2012. The political economy of deforestation in the tropics. *The Quarterly Journal of Economics*, **127**(4), 1707–1754.
- Bush, Robin. 2008. 10 REGIONAL SHARIA REGULATIONS IN INDONESIA: ANOMALY OR SYMPTOM? *Expressing Islam: Religious life and politics in Indonesia*, 174.
- Bush, Robin. 2009. *Nahdlatul Ulama and the struggle for power within Islam and politics in Indonesia*. Institute of Southeast Asian Studies.
- Carvalho, Jean-Paul. 2012. Veiling. *The Quarterly Journal of Economics*, **128**(1), 337–370.
- Chen, Daniel L. 2010. Club goods and group identity: Evidence from Islamic resurgence during the Indonesian financial crisis. *Journal of Political Economy*, **118**(2), 300–354.
- Dell, Melissa, & Olken, Benjamin A. 2017. The Development Effects of the Extractive Colonial Economy: The Dutch Cultivation System in Java.
- di Republik Indonesia, Press Officer Parlemen. 1955. Hasil Rakjat Memilih Tokoh-Tokoh Parlemen (pemilihan umum pertama - 1955) di Republik Indonesia.
- Feith, Herbert. 1955. The Indonesian Elections of 1955.
- Geertz, Clifford. 1976. *The religion of Java*. University of Chicago Press.
- Grier, Robin. 1997. The effect of religion on economic development: a cross national study of 63 former colonies. *Kyklos*, **50**(1), 47–62.
- Grim, Brian J, Karim, Mehtab S, *et al.* 2011. The future of the global Muslim population: projections for 2010-2030. *Washington DC: Pew Research Center*.
- Groh, Matthew, Rothschild, Casey, *et al.* 2012. Oil, Islam, women, and geography: A comment on Ross (2008). *Quarterly Journal of Political Science*, **7**(1), 69–87.
- Hallaq, Wael B. 2009. *An introduction to Islamic law*. Cambridge University Press.

- Henderson, J Vernon, & Kuncoro, Ari. 2011. Corruption and local democratization in Indonesia: The role of Islamic parties. *Journal of Development Economics*, **94**(2), 164–180.
- Iannaccone, Laurence R. 1998. Introduction to the Economics of Religion. *Journal of economic literature*, **36**(3), 1465–1495.
- IPT. 2016. Findings and Documents of the International Peoples Tribunal on Crimes against Humanity Indonesia. *IPT 1965 Foundation, The Hague-Jakarta*.
- Iyer, Sriya. 2016. The new economics of religion. *Journal of Economic Literature*, **54**(2), 395–441.
- Kis-Katos, Krisztina, & Sjahrir, Bambang Suharnoko. 2017. The impact of fiscal and political decentralization on local public investment in Indonesia. *Journal of Comparative Economics*, **45**(2), 344–365.
- Kuran, Timur. 2004. Why the Middle East is economically underdeveloped: historical mechanisms of institutional stagnation. *The Journal of Economic Perspectives*, **18**(3), 71–90.
- Martinez-Bravo, Monica. 2014. The role of local officials in new democracies: Evidence from Indonesia. *The American Economic Review*, **104**(4), 1244–1287.
- Martinez-Bravo, Monica, Mukherjee, Priya, & Stegmann, Andreas. 2017. The Non-Democratic Roots of Elite Capture: Evidence From Soeharto Mayors in Indonesia. *Econometrica*, **85**(6), 1991–2010.
- McCleary, Rachel M, & Barro, Robert J. 2006. Religion and economy. *The Journal of Economic Perspectives*, **20**(2), 49–72.
- McCulloch, Neil. 2011. *The Indonesian sub-national growth and governance dataset*.
- Pisani, Elizabeth. 2014. *Indonesia, Etc.: Exploring the Improbable Nation*. WW Norton & Company.
- Pisani, Elizabeth, & Buehler, Michael. 2016. Why do Indonesian politicians promote shari’a laws? An analytic framework for Muslim-majority democracies. *Third World Quarterly*, 1–19.
- Pryor, Frederic L. 2007. The economic impact of Islam on developing countries. *World Development*, **35**(11), 1815–1835.
- Ross, Michael L. 2008. Oil, Islam, and women. *American political science review*, **102**(1), 107–123.

- Sjahrir, Bambang Suharnoko, Kis-Katos, Krisztina, & Schulze, Günther G. 2013. Political budget cycles in Indonesia at the district level. *Economics Letters*, **120**(2), 342–345.
- Sjahrir, Bambang Suharnoko, Kis-Katos, Krisztina, & Schulze, Günther G. 2014. Administrative overspending in Indonesian districts: The role of local politics. *World Development*, **59**, 166–183.
- Vickers, Adrian. 2013. *A history of modern Indonesia*. Cambridge University Press.



## TABLES

*Strategy 1: Panel data*

### Fixed effects with single policy variable

	(1)	(2)	(3)	(4)	(5)
	Log(GDP pc)	Poverty rate	Poverty gap	NER J2ND	Morbidity rate
Religious policy	0.00954* (1.65)	1.057*** (3.50)	0.212*** (2.93)	-1.146* (-1.74)	0.451 (0.92)
Observations	4054	3928	3928	4179	4179
MeanY	0.0479	15.55	2.717	64.11	28.49

Standard errors are clustered at the regency level (2000 borders). \* p<0.10, \*\* p<0.05, \*\*\* p<0.01 Controls: Regional and year fixed effects; Year fixed effects interacted with religious fragmentation index and with dummy for revenue-rich areas; Size of the budget as a fraction of GDP; Constant price log GDP per capita (columns 2-5); District proliferation dummies.

Table 1: Fixed effects with single treatment variable

**Fixed effects with heterogenous policy variables**

	(1)	(2)	(3)	(4)	(5)
	Log(GDP pc)	Poverty rate	Poverty gap	NER J2ND	Morbidity rate
Prohibitive RP	0.0127* (1.96)	0.810** (2.27)	0.223*** (2.88)	-1.615** (-2.19)	-0.0804 (-0.15)
Normative RP	0.00326 (0.47)	1.124*** (2.85)	0.214** (2.17)	0.426 (0.47)	1.516** (2.17)
Observations	3979	3881	3881	4095	4095
MeanY	0.0479	15.55	2.717	64.11	28.49

Standard errors are clustered at the regency level (2000 borders). \* p<0.10, \*\* p<0.05, \*\*\* p<0.01 Controls: Regional and year fixed effects; Year fixed effects interacted with religious fragmentation index and with dummy for revenue-rich areas; Size of the budget as a fraction of GDP; Constant price log GDP per capita (columns 2-5); District proliferation dummies.

Table 2: Fixed effects with two treatment variables

*Strategy 2: Instrumental variables estimation in cross section*

**Baseline OLS**

	(1)	(2)	(3)
	GDP Growth	Poverty Rate	Poverty Gap
Religious policy	0.0350 (1.42)	2.125*** (3.78)	0.470*** (3.50)
Observations	298	297	298
MeanY	0.473	-7.395	1.327
FirstYear	2002	2002	2002
LastYear	2012	2012	2012

Robust t-stats in parentheses. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01  
 Additional controls: Population growth; initial GDP; religious fractionalization index; women disempowerment in 2002; district proliferation dummies.

	(1)	(2)	(3)
	NER J2ND	Morbidity	Disempowerment of women
Religious policy	0.416 (0.31)	0.688 (0.73)	-0.0298 (-0.50)
Observations	298	298	298
MeanY	9.828	4.982	0.133
FirstYear	2001	2001	2002
LastYear	2012	2012	2012

Robust t-stats in parentheses. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01  
 Additional controls: Population growth; initial GDP; religious fractionalization index; women disempowerment in 2002; district proliferation dummies.

Table 3: Long difference, OLS

### Instrumental variables

	(1)	(2)	(3)
	GDP Growth	Poverty Rate	Poverty Gap
Has any Sharia	0.123 (1.21)	7.478* (2.43)	2.690** (2.97)
Observations	295	294	295
OLSCoeff	0.0350	2.125	0.470

Robust t-stats in parentheses. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01

Additional controls: Population growth; initial GDP; religious fractionalization index; women disempowerment in 2002; district proliferation dummies.

	(1)	(2)	(3)
	NER J2ND	Morbidity	Disempowerment of women
Has any Sharia	-16.15* (-2.31)	9.479 (1.81)	0.415 (1.44)
Observations	295	295	295
OLSCoeff	0.416	0.688	-0.0298

Robust t-stats in parentheses. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01

Additional controls: Population growth; initial GDP; religious fractionalization index; women disempowerment in 2002; district proliferation dummies.

Table 4: Long difference, IV

Strategy 3: Village panel

Whole Indonesia

	Government Services			Wellbeing				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Religious policy	-0.0706* (-1.72)	-0.246*** (-5.27)			-0.0228 (-1.13)	-0.0791*** (-2.79)		
Any RP X Dist		0.00585*** (4.66)				0.00188*** (3.44)		
Normative RP			-0.138*** (-2.75)	-0.148** (-2.42)			0.0136 (0.48)	-0.0276 (-0.67)
Normative RP X Dist				0.0000552 (0.03)				0.00129 (1.58)
Prohibitive RP			0.00740 (0.16)	-0.175*** (-3.21)			-0.0292 (-1.28)	-0.0589* (-1.84)
Prohibitive RP X Dist				0.00628*** (4.27)				0.00101 (1.63)
Observations	301146	301128	301146	301128	301146	301128	301146	301128
distance1		42.04		2678.3		42.08		21.37
distanceSE1		8.190		80351.1		10.78		23.70
distance2				27.89				58.24
distanceSE2				7.074				26.01

t-statistics based on standard errors clustered at 1996 regional borders in parentheses. Village fixed effects and log of population included as controls. The left hand side variables are standardized indices.

Table 5: Village panel regressions (whole country)

**Java only**

	Government Services			Wellbeing				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Religious policy	-0.142** (-2.56)	-0.277*** (-4.61)			-0.0379 (-1.39)	-0.0999*** (-3.25)		
Any RP X Dist		0.00514** (2.35)				0.00235*** (2.80)		
Normative RP			-0.186*** (-2.85)	-0.169** (-2.20)			-0.00333 (-0.09)	-0.0243 (-0.49)
Normative RP X Dist				-0.00110 (-0.42)				0.000522 (0.51)
Prohibitive RP			-0.0626 (-1.00)	-0.217*** (-3.26)			-0.0386 (-1.28)	-0.0916*** (-2.86)
Prohibitive RP X Dist				0.00614** (2.46)				0.00208** (2.30)
Observations	130140	130140	130140	130140	130140	130140	130140	130140
distance1		53.95		-154.2		42.54		46.55
distanceSE1		19.24		413.8		14.37		76.56
distance2				35.34				44.01
distanceSE2				12.57				18.83

t-statistics based on standard errors clustered at 1996 regional borders in parentheses.

Village fixed effects and log of population included as controls. The left hand side variables are standardized indices.

Table 6: Village panel regressions (Java)

*Driving forces of religious regulations*

	(1)	(2)	(3)
	P(any RP)	P(prohibitive RP)	P(general RP)
L.Unemployment rate	0.485*** (3.89)	0.205** (2.34)	0.337*** (3.58)
L.Dlog(GDP) over year	-0.0303 (-0.93)	-0.0533*** (-3.09)	0.0152 (0.57)
L.Budget to GDP	-0.0739*** (-2.93)	-0.0297 (-1.37)	-0.0492*** (-4.11)
L.Dlog(GDP) over year × L.Budget to GDP	0.0411 (0.93)	0.0674*** (2.84)	-0.0148 (-0.41)
Masyumi votes in 1955 (pp)	0.0797*** (3.01)	0.0365* (1.84)	0.0456** (2.30)
Pilgrim	0.0211 (1.32)	0.0168 (1.35)	0.0176 (1.59)
Directly elected	0.0144 (1.24)	0.00122 (0.14)	0.0176** (2.13)
Pilgrim X Directly elected	-0.0234 (-1.32)	-0.0176 (-1.27)	-0.0190 (-1.50)
Constant	-0.00597 (-0.39)	0.0104 (0.81)	-0.0213** (-2.34)
Observations	3094	3094	3094
MeanY	0.0489	0.0313	0.0207

Standard errors clustered on 2000 borders. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01

Table 7: Determinants

*Expenditures of regions*

**Expenditure regressions with single policy variable**

	(1)	(2)	(3)
	Educ. exp./RGDP	Health. exp./RGDP	Personnel exp./RGDP
Has any RP	-0.00398*** (-2.96)	-0.0000340 (-0.05)	-0.00191* (-1.65)
Incomes/RGDP	0.193*** (10.44)	0.120*** (4.49)	0.311*** (5.05)
Log GDP pc	-0.0166*** (-3.56)	0.00569* (1.74)	-0.0207** (-2.23)
Observations	3822	3818	4098
MeanY	0.0536	0.0154	0.0812

Standard errors clustered on 2000 borders.

Time and Region FE included.

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

Table 8: Expenditures - Any regulation



### Expenditure regressions with heterogenous policy variables

	(1)	(2)	(3)
	Educ. exp./RGDP	Health. exp./RGDP	Personnel exp./RGDP
Has general RP	-0.00523*** (-4.10)	-0.000208 (-0.31)	-0.00384*** (-3.04)
Has prohibitive RP	-0.00221* (-1.71)	-0.000308 (-0.47)	-0.000317 (-0.24)
Incomes/RGDP	0.193*** (10.43)	0.120*** (4.49)	0.311*** (5.04)
Log GDP pc	-0.0168*** (-3.60)	0.00567* (1.73)	-0.0208** (-2.24)
Observations	3822	3818	4098
MeanY	0.0536	0.0154	0.0812

Standard errors clustered on 2000 borders.

Time and Region FE included.

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

Table 9: Expenditures - Heterogenous effects

*Village revenue*

**Revenue regressions with single policy variable**

	(1)	(2)	(3)	(4)
	Own Rev.	Own Rev.	Aid fr. Region	Aid fr. Region
Religious policy	-1.097* (-1.94)		-1.381 (-1.13)	
Religious policy=1		-1.498** (-2.41)		-4.324*** (-3.33)
Religious policy=1 × Km		0.0130 (0.71)		0.0955 (1.44)
Observations	159370	159370	159370	159370

Standard errors are clustered at 1996 borders

Table 10: Revenue - Any regulation

### Revenue regressions with heterogenous policy variables

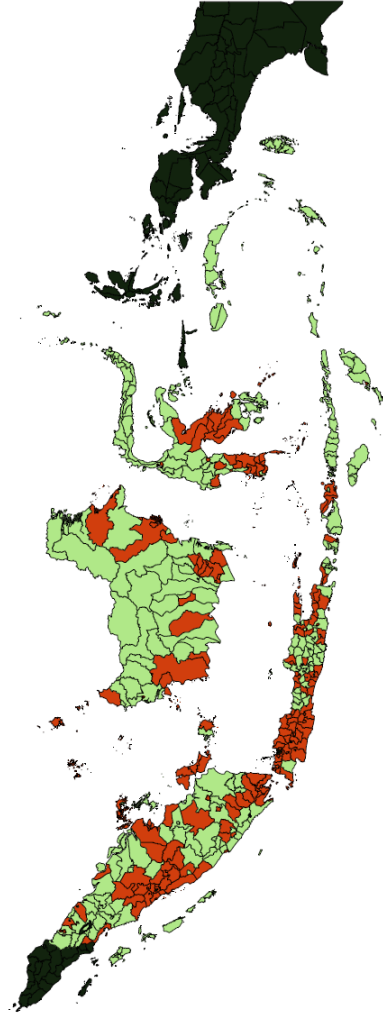
	(1)	(2)	(3)	(4)
	Own Rev.	Own Rev.	Aid fr. Region	Aid fr. Region
Normative RP	-2.125*** (-3.48)		0.763 (0.30)	
Prohibitive RP	-0.240 (-0.37)		-3.086*** (-2.66)	
Normative RP=1		-1.248* (-1.89)		-2.607 (-1.50)
Prohibitive RP=1		-1.440* (-1.79)		-3.053*** (-2.88)
Normative RP=1 × Km		-0.0302 (-1.63)		0.104 (0.86)
Prohibitive RP=1 × Km		0.0410 (1.35)		-0.00415 (-0.07)
Observations	159370	159370	159370	159370

Standard errors are clustered at 1996 borders

Table 11: Revenue - Heterogenous effects

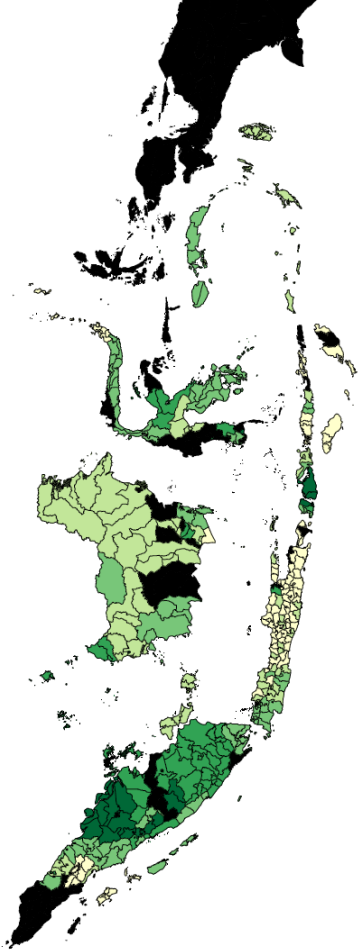


# FIGURES



Black indicates excluded regions (Aceh, Papua and Jakarta). Regions indicated with red have at least 1 religious policy in place.

Figure 1: Religious regulations in Indonesia



Black indicates excluded regions (Aceh, Papua and Jakarta) and missing data. A darker shade of green indicates a higher vote share for Masyumi party (1% to 55%).

Figure 2: Masyumi support

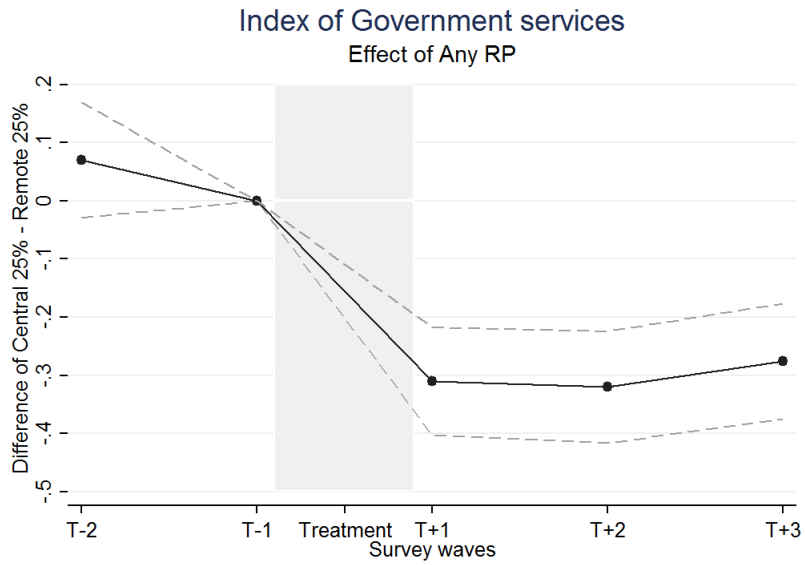


Figure 3: Event study: Prosperity index



Figure 4: Event study: Infrastructure index

## V APPENDICES

### *V.A Appendix : Sharia-inspired religious policies*

The word Sharia which we usually translate as “Islamic Law” actually means many things, such as the abstract notion of living a virtuous life (not unlike the concepts of “American values” or “European values” which are also subject to wide range of interpretation); the way how justice was deliberated and served in traditional Islamic communities which mostly lacked a central state in the modern sense; and a range of policies that are currently identified with “Sharia Law” in contemporary political discourse (e.g. rules on proper attire; interaction between genders; ban on paying interests etc.).<sup>23</sup>

I will use the term “Sharia-based regulations” for the religiously inspired local regulations in accordance with the political science literature on the subject<sup>24</sup>. One has to note, however, that these are regulations passed by secular governments, and political authority is hardly transferred or subordinated to religious bodies as, for example, in the case of Iran. What happens is that the democratic political process responds to demand for religious policies by the electorate or some pressure groups.

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<sup>25</sup>
- 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 their hips and ankles.<sup>26</sup>

---

<sup>23</sup>For a thorough description on the meaning and its history, see Hallaq (2009)

<sup>24</sup>Starting from Bush (2008).

<sup>25</sup><http://www.jdih.setjen.kemendagri.go.id/download.php?KPUU=13882>

<sup>26</sup><http://www.jdih.setjen.kemendagri.go.id/download.php?KPUU=16542>

- Regulation 2001/5 of the city of Cilegon makes it illegal to gamble; to run brothels; to manufacture, store or sale alcoholic beverages or narcotics; all on the grounds that these acts are contrary to religious teachings and local customs. <sup>27</sup>
- Regulation 2008/1 of the same region sets up compulsory extracurricular Islamic educational schemes for pupils learning in secular elementary schools.<sup>28</sup>

My main source for getting a local measure of the extent of religion-based lawmaking comes from the data in Buehler (2016). For almost a decade studies have been trying to give an account of the increasing number of Sharia inspired regulations in Indonesia , but Buehler went through all the official catalogues of local regulations to give the most complete picture. The appendix of his book provides a list with the index numbers of all regulations by regency and year which make a reference to Islamic law and morality. What I did next was the following. First, I looked up the complete text of all regulations. Then I categorized them based on the aspect of life they are trying to regulate. I grouped them into two main categories.

The group of normative policies include regulations that wish to strengthen (mostly vaguely defined) “Islamic principles” or “Islamic morality”, or they aim do ensure “peace and public order”. I also categorize here attire regulations, which set up a religious “dress code” for the society, or certain subgroups. Of course, a signature part of these regulations is covering the hair of women by wearing a *hijab*. Rules that set up extracurricular religious education and requirements to be able to read the Qur’an (in Arabic) also come here, along with regulations on almsgiving (such as *zakat*).

The group of “prohibitive policies” includes all regulations that prohibits activities such as buying, selling and consuming alcohol; drugs; prostitution; or providing services during religious holidays. There is anecdotal evidence that these policies create lucrative economic rents in the hands of those who decide over the enforcement of the rules, and provide grounds for extortive practices (Pisani, 2014).

The 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 which had a reference and the text of which I was able to access.

---

<sup>27</sup><http://www.jdih.setjen.kemendagri.go.id/download.php?KPUU=6686>

<sup>28</sup><http://www.jdih.setjen.kemendagri.go.id/download.php?KPUU=7057>



V.B Appendix: Robustness

	(1)	(2)	(3)
	P(Sharia)	GDP Growth	Poverty Rate
Masyumi pp.	0.00715*** (3.63)	0.000928 (1.21)	0.0566*** (2.87)
Observations	295	295	294

Robust t-stats in parentheses. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01

Additional controls: Population growth; initial GDP; religious fractionalization index; women disempowerment in 2002; district proliferation dummies.

Table 1: First stage and reduced forms (I.)

	(1)	(2)	(3)	(4)
	Poverty Gap	NER J2ND	Morbidity	Disempowerment of women
Masyumi pp.	0.0204*** (4.23)	-0.124*** (-2.91)	0.0753** (2.17)	0.00314 (1.51)
Observations	295	295	295	295

Robust t-stats in parentheses. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01

Additional controls: Population growth; initial GDP; religious fractionalization index; women disempowerment in 2002; district proliferation dummies.

Table 2: First stage and reduced forms (II.)

	(1)	(2)	(3)
	Log(GDP PC)	Poverty Rate	Poverty Gap
Masyumi pp.	0.00667 (1.62)	-0.0633 (-1.52)	-0.0189** (-2.26)
RP by 2013=1	0.376** (2.18)	-0.500 (-0.25)	-0.143 (-0.33)
RP by 2013=1 × Masyumi pp.	-0.00512 (-1.01)	-0.0940 (-1.61)	-0.0130 (-1.07)
Observations	272	271	272
Year	2002	2002	2002
MeanY	1.460	18.57	3.143

Robust t-stats in parentheses. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01

Additional controls: Population; religious fractionalization index; district proliferation dummies.

Table 3: Pre-treatment correlations of the instrument (I.)

	(1)	(2)	(3)
	NER J2ND	Morbidity	Disempowerment of women
Masyumi pp.	-0.0589 (-0.78)	-0.309*** (-7.13)	0.0131*** (3.27)
RP by 2013=1	-3.092 (-0.81)	-2.777 (-1.60)	0.0845 (0.48)
RP by 2013=1 × Masyumi pp.	0.0786 (0.76)	0.132** (2.56)	-0.00300 (-0.56)
Observations	285	285	272
Year	2001	2001	2002
MeanY	60.17	25.48	1.059

Robust t-stats in parentheses. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01

Additional controls: Population; religious fractionalization index; district proliferation dummies.

Table 4: Pre-treatment correlations of the instrument (II.)

	(1)	(2)	(3)
	Wellbeing	Government services	Religion
RP by 2011	-0.0247 (-0.78)	0.00287 (0.08)	0.242*** (3.36)
Observations	47289	47289	47289

*t* statistics in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

	(1)	(2)
	Wellbeing	Government services
RP by 2011=1	0.0612 (1.42)	0.00297 (0.07)
RP by 2011=1 $\times$ Km	-0.00302*** (-3.43)	-0.000304 (-0.34)
Observations	47289	47289

*t* statistics in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 5: Pre-treatment differences in the village panel