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Abstract

The themes of this dissertation center around the influence of culture on development and democracy with applications in a large Muslim-majority nation, Indonesia. By culture, I mean groups shared beliefs and preferences which are shaped by religion, social identities, and norms. The first paper focuses on the practice of religious veiling and how it relates to female economic participation. Using human-coded data based on high school book pictures, the study demonstrates that the increasing veil take-up represents the effort by young women in negotiating their desire to benefit from the new economic opportunities and the prevailing social norms in society. The evidence shows that contrary to the simplistic views that identify veiling with religious fundamentalism or oppression/subjugation of women, I show that this practice does not imply a lack of education or social backwardness. If anything, education increases the probability of a young female to wear a veil. Moreover, using an instrumental variable method, I show that an increase in the availability of economic opportunities for females has caused an increase in the adoption of headscarves. To establish this idea further, I show that economic opportunities that do not necessarily require women to leave their domestic compound do not correlate with veil take-up. In the second paper, I shift the focus on the determinant of religious violence. I show that the competition between factions within the religious majority group could predict the severity of religious conflicts. Perpetrating violence to groups that are considered "others" is an effective way to signal the group's commitment, hence to attract loyalty and followers. I devise a new index to capture this idea, which differs from the widely used polarization and fractionalization indexes. I also deploy a simple machine learning method to categorize schools' affiliation into the Traditionalist and the Modernist faction

to estimate the relative strength of these factions. The evidence shows that this index has a robust relationship with the fatalities of religious conflicts. Interestingly, I also find that this index does not predict other types of violence, such as crimes, domestic violence, or other conflicts that are not religiously motivated. In the third paper, I move on to analyzing the impact of religious ideology on party competition and democratization in Indonesia. Using novel, hand-coded data of over 1500 reports of MPs' wealth declaration, I show that ideologist MPs (MPs who are coming from ideological, Islamist parties) differ from their non-ideologist MP fellows both in terms of selection and behavior during office. They are in general poorer, have a significantly larger number of offsprings, and are less likely to be women. Most importantly, I also show that they accumulate significantly less wealth while holding a parliamentary seat. Further analysis suggests that different vote gathering mechanisms and voter-politician linkages may explain this gap in behavior: Islamist politicians rely more on their ideological appeals rather than money to gather votes. Putting together these three pieces of work, I demonstrate how culture shapes and influences the process of development and democratization in a way that might challenge the current wisdom.

Contents

Chapter 1

Introduction

This dissertation comprises three papers which are linked together by the conviction that culture, i.e. shared beliefs and preferences by groups, exerts substantial impacts on economic and political development. However, even if most work in social science research shares this conviction, empirical analyses attempting to single out this effect is very challenging. One of the reasons is that this factor is not so easy to quantify (Fernández, 2013). I found this challenge especially evident when conducting the research on religious headscarves, where the available data that measures this cultural practice is often measured with bias arising from social desirability or simply not available systematically over time. The projects in this manuscript are attempts to fill this gap.

There are several contributions worth highlighting in this dissertation. First, the findings in this dissertation demonstrate that culture may shape the process and outcomes of development and democratization in a way that may seem counterintuitive at a first glance. For instance, in the paper on veiling, I show that, contrary to the common expectation, increasing veil take-up may in fact signify economic modernization which highlights the expansion of females in the formal sector of the economy. Moreover, the paper on religious conflict shows that it is not the differences *between* groups, but the competition *within* the majority groups which explain the severity of ethno-religious violence. Finally, in the third paper on the motivation of politicians, I show that having parties with strong religious ideology, which often is seen as incompatible with democracy, may catalyze the

building of political platforms that shy away from clientelism and patronage.

Second, I contribute several methodological advances, including innovative measurement methods of cultural variables, which are commonly not so easy to quantify. For instance, to avoid bias in the measurement of veil take-up, I measure the prevalence of veil by counting the number of female students recorded in public high school registry. The advantage of this method is that it is not only minimizing social desirability bias, but it also allows me to trace the evolution of this cultural variable over several decades. To my knowledge, this is the first study which deploys this method, which is a departure from (and an important complement to) the existing data and studies, e.g. based on interviews, surveys, and ethnographic method. Second, I apply a simple machine learning method to define the affiliation of schools to their respective factions within the Muslim majority groups in Indonesia. The variable that measures the strength of different factions/organizational affiliations is hard to obtain so this method could be seen as an innovation in the study of organizational dynamics within Muslim majority society like Indonesia.

Third, along with their analyses, I also contribute several original datasets that may be used by other researchers who are interested in the topics. First, the data on veil take-up is an original, arguably unbiased measure of the prevalence of veiling practice in a Muslim majority nation over several decades. To my knowledge, there is no comparable measure of this scale on this phenomenon to date. Second, the data on factional strength is a measure which is using an original method. Similar data from a restricted number of provinces is available from some large scale survey, like IFLS (Indonesian Family Life Survey) but this type of survey is not only extremely costly to perform but also may suffer from social desirability bias common in any survey of cultural phenomena. Third, the data used for the analysis in the paper on ideological politicians is derived from publicly available data but is hand-coded for this study so that it is now available in a format that allows its statistical analysis. To my knowledge, this is also the first study that leverages this particular data from Indonesia and uses it to study the behavior of politicians.

The manuscript is organized as follows: the next chapter analyzes the practice of

religious veil and its relationship with female participation in the economy. Meanwhile, in chapter 3, I focus on the dynamic within ethnic/religious groups in understanding sectarian conflict. In chapter 4, I analyze the impact of religious ideology in shaping the behavior of politicians. The last chapter provides conclusions and discussion.

Chapter 2

Portable shelter: Religious veil and the public role of women

Abstract

I re-examine a "generalized" symbol of female's religious expression—the Muslim headscarf. While veiling is commonly seen as a symptom of religious fundamentalism or women's oppression, the study highlights that the reasoning behind this practice is more complex. I collect a novel dataset, based on human coding of high school yearbook pictures, in 49 districts in Indonesia for more than two decades. The evidence shows that this practice implies neither poverty nor a lack of education. Using an instrumental variable method, I show that the increasing trend of veiling represents efforts by young women to reconcile their desire to benefit from new economic opportunities and the prevailing social norms in society.

2.1 Introduction

Although religious veiling is increasingly common among women in contemporary Muslim society, this practice is currently little understood. Today's popular Western imagination tends to view the veil as a symbol of oppression or subjugation of women. The desire to "save" Muslim women from the shackle of their tradition and culture is a recurring theme in Western debates about Muslim societies. This view could be traced, for instance, from the depiction of Muslim women in popular art. Important Orientalist collections housed by the world's finest museums[1] as well as twentieth-century Hollywood movies such as *The Sheik* (1921) or *The Thief of Baghdad* (1924) tend to show the image of veiled women locked up in *harem*s, waiting to be saved by Western heroes (Amer, 2014). For others, veils tend to be identified with religious fundamentalism. This view is particularly salient in the aftermath of the 9/11 tragedy and the rise of ISIS, where popular media often portrays veiled women as members of terrorist organizations or as wives of ISIS fighters.

However, the reasoning behind this practice if often complex. For instance, there is a growing body of literature sharing observations that the trend of veiling, particularly since the 1970s, was not initiated by old, rural, traditional women, but in fact, was championed by young, well-educated, urban middle classes (Carvalho, 2013; Smith-Hefner, 2007).[2] This is certainly the case in Indonesia, where this symbol of Islamic piety is increasingly adopted by the most educated generation in the country's modern history. This is the generation that enjoys unprecedented freedom in politics, media, and culture (Parker & Nilan, 2013). Moreover, Smith-Hefner (2007) reports that the female university students who chose to veil tended to study technical and medical programs; they are those who best equipped to reap the benefit of economic development. These observations compel us to re-examine the somewhat simplistic views about this practice.

This paper aims at shedding some light on this issue by offering new evidence on the practice of veiling from Indonesia and testing several competing hypotheses on this

[1] e.g. The Louvre in Paris, the Metropolitan Museum of Art in New York City, the more specialized Dahesh Museum of Art in Greenwich, Connecticut and many university art museums

[2] Smith-Hefner (2007) listed a number of research on women and veiling which shows this tendency in Jordan and Algeria (Jansen, 1998), Malaysia (Nagata, 1995; Ong, 1990), Egypt (Duval, 1998; Macleod, 1992), and Turkey (White, 2002).

social phenomenon. In particular, the evidence shows that the increasing veil take-up in contemporary Indonesia is, in fact, a sign of economic modernization which highlights the expansion of female participation in the formal sector of the economy that is shaped by the prevailing culture of gender relations. Importantly, this phenomenon demonstrates how culture–i.e. group shared beliefs and preferences–shapes economic development in a way that seems counterintuitive in the perspective of other cultures.

What is the logic? New economic opportunities provided by economic development induce women to join the labor market.[3] The generation of veil adopters discussed in this paper is in the best position to do this thanks to the expansion of female education in the previous decades. However, participation in the formal sector of the economy requires women to leave their domestic compound to pursue this aspiration. This act may generate female traits that are undesirable according to the prevailing gender norms. Part of this negative image may stem, for instance, from the fact that taking formal employment also means that women have to mingle and to interact with other males who are not family members. The veil comes to solve this dilemma through different channels: First, at the personal level, the veil serves as a disciplining mechanism, a *commitment device* in Carvalho (2013)'s language, based on religious rules and norms. For sincere believers, it helps to keep themselves away from conducts (or even thoughts) which are not in line with religious morals. Second, the veil signals (albeit somewhat noisily) to the public the type of the girl who adopts it (even if they are not sincere). In particular, if this type–e.g. feminine, rule-abiding, faithful–is desirable according to the prevailing norms, then this would help them to compensate for the possible stigma attached to working women. Consequently, as the economy develops and there are more economic opportunities for women, more of them adopt the veil as they attempt to reconcile their desire to benefit from these opportunities, but at the same time want to avoid the negative personal and social image this act may generate.

It is important to note, however, that this kind of negative social attitude toward

[3]A similar line of argument is originally proposed by Becker (1981). He contends that newly available economic opportunities for women have changed the opportunity cost of staying at home, induced women to work, and consequently to have fewer children. This has led to a well-documented trend of declining fertility in the West in the 1970s

working women is not unique to Muslim societies, but has also been a feature of the evolution of female labor participation in the West. For instance, Goldin (1990) observed that at the turn of the 20th century, a majority of working women exit the labor force upon marriage because female employment by married women insinuates the inability of the husband to provide for the family. More recent discourse about working women in the West (and also elsewhere) is about the consequence of working mothers on children's intellectual and emotional development (Fernández, 2013). Moreover, in their paper "Acting Wife" Bursztyn, Fujiwara, and Pallais (2017) demonstrates that single women avoid career-enhancing actions because it signals undesirable traits, like ambition, to the marriage market. What is interesting here is culture shapes differently the way in which the conflict between these social norms and the public role of women is resolved. In this case, the veil is a negotiation tool that works and compatible with the setting in Muslim majority countries like Indonesia.

I build my argument through several steps: First, using both international and local, independent survey datasets, I show correlates of the veil and the socio-economic characteristics of the adopters. The evidence shows that veil does not signify low social status or lack of education. If anything, the probability of donning the veil is significantly and *positively* correlated with education and income. This finding is in line with observations from several independent studies on the topic. Importantly for the argument in this paper, these findings imply that veil adopters are those whose characteristics allow them to benefit more from joining the labor market.

Second, I show that shocks in the availability of female pertinent jobs have caused the adoption of the veil to increase among female youth. In particular, to establish a causal connection between female economic opportunity and veil take-up, I build a Bartik-style instrument based on cross-district industrial specialization, gender labor composition, and the international demand for Indonesian products. The idea is that international demand may create a plausibly exogenous shock in the availability of economic opportunity for females by switching on "the treatment" in the district which specialized in female-intensive industries, but not in others. Hence, it allows the identification of the causal effect of fe-

male labor demand on veiling. Controlling for district fixed effects, district-specific time trends, and other potential confounders, I find that shocks in the formal job opportunity for young females have a positive, significant effect on veil take-up. Specifically, one percentage point increase in formal job participation by young women is associated with approximately a two percentage point increase in veil take-up.

Third, I perform a placebo analysis showing that economic shocks in the informal sector do not have a similar effect on veil take-up. This suggests that economic opportunities that do not necessarily require women the leave their homes do not induce the adoption of the veil in the same way formal employment does. This evidence supports the mechanism I propose about veiling and the "public-facing" nature of the economic opportunity. Another placebo test shows that this effect is also not found for jobs that are more pertinent for males. I also find that the effect of economic shocks on veiling varies according to the initial gender norms. The coefficient follows a reverse U-shape, where the positive effect of economic shocks is lower when gender norms are very strong and take its peak when the norm of gender relation is more ambiguous. Interestingly, this transition-smoothing effect of the veil is not different from zero in areas where gender norms are more equal in the first place.

This study speaks to a broad range of literature in social science. First, the hypothesis of the study is in line with the spirit of the theoretical model of veiling proposed in Carvalho (2013) and the recent survey-based empirical analysis by Aksoy and Gambetta (2016). While my study is empirical as opposed to theoretical, it differs in two ways: First, using a simple but original way to measure this cultural practice, I contribute new hard data, backed by the official record of subject's personal information, on the historical evolution of veiling in the past three decades across different generation in Indonesia. To my knowledge, this is the first study to deploy this method, which provides a pivotal departure (and important complement) from the currently available data and evidence, e.g. based on interviews, surveys, and ethnographic work. Second, this study applies causal inference to focus explicitly on a major outcome of economic development, i.e. female participation in the economy. To my knowledge, this is one of the first

contemporary studies which applies causal inference to establish the relationship in this particular direction. An exception is a study by Abdelgadir and Fouka (in press) on the impact of the French headscarf ban on Muslim girls' educational attainment.

Second, my study contributes to the literature on the historical evolution of female participation in the economy (Boserup, 1986; Fernández, 2013; Goldin, 1990). These studies highlight the role of culture and social norms, not so easy to quantify factors, a perspective my study shares. My study also related to the literature on social norms and female labor force participation in conservative societies, e.g. Bursztyn, González, and Yanagizawa-Drott (2018). I contribute to this strand of literature by showing how local culture/norms may shape the evolution of female engagement in the economy in a way that seems counterintuitive at a first glance. In particular, I show that the sweeping social change in the form of veiling is a cultural strategy used by Muslim women in weathering gender-related social norms prevailing in their society.

This study also contributes to the general debate on the relationship between religion and economic development (Bénabou, Ticchi, & Vindigni, 2015; Guiso, Sapienza, & Zingales, 2003; Squicciarini, 2019). In particular, it offers a re-examination of the secularization hypothesis which postulates that economic development is associated with decreased religiosity. For instance, using analysis based on survey data, Norris and Inglehart (2004) and Voas and Crocket (2005) show a declining pattern of religiosity in Western Europe. This hypothesis was largely accepted by Sociologists, until it was challenged by scholars, such as Iannaccone, Stark and other (Iyer, 2016).[4] My contribution to this debate is twofold: first, while previous studies mainly center on developed economies with a Christian background, I concentrate on a completely different setting, i.e. an economically developing country with Islamic cultural background. To my knowledge, evidence of the secularization hypothesis from this later setting is currently scant. In particular, by focusing on the relationship between female economic outcomes and Muslim women's religious practice, the study targets the crux of widespread curiosity about the position of

[4]For instance Iannaccone (1998) shows that religiosity in the US, arguably one of the most developed countries is much higher than in many less-developed nations. Moreover, Stark (1999) argues that despite rapid modernization, there is no demonstrable long-term decrease of religiosity in Europe.

women within Islamic culture. Second, the study speaks directly to the literature in this field by providing evidence which suggests that economic modernization does not always go hand in hand with secularization and marginalization of religion.

The paper will proceed as follows. I discuss the background of the study in section 2.2, then the measurement of headscarf take-up and other data sources are elaborated in section 2.3. I then discuss the regression model and the construction of the instrument in section 2.4. In section 2.5, I elaborate and discuss the results of the main analyses; section 2.6 concludes.

2.2 Background

Indonesia provides an excellent "laboratory" for research in religious culture and economic development. It currently hosts more than 230 million Muslims, more than any other nation in the world. The country is not only intriguing because of the size of its Muslim population, but also because Indonesians are arguably some of the most religious people on earth. Data from the World Value Survey (WVS) for Indonesia reveals over 95 percent stated that religion is "very important" in their life. This number is higher than any other country covered by the survey[5]. In 2008, a survey by Pew Research Center shows that 80 percent of Indonesian Muslims perform five daily prayers. This is also higher than of other Muslim countries involved in the survey, including Egypt, Jordan, Pakistan, and Turkey. Using the Indonesian Family Life Survey, Masuda and Yudhistira (2020) shows that the proportion of Muslims who only eat *halal* food in Indonesia is high and stable across periods at over 95 percent.

At the same time, the country has charted a robust economic growth in the past decades[6]. Indonesia today is the world's tenth-largest economy[7] and a member of G-20. Despite considerable challenges such as uneven quality of public health and education

[5]The option scale in this survey goes as: 1. Very important, 2. Rather important, 3. Not very important, and 4. Not at all important. The exact proportion of respondents who choose option one is 98 percent in wave 4 and 94 percent in wave 5 respectively

[6]With the exception of during the Asian financial crisis year of the late 1990s

[7]In terms of purchasing power parity

provision, it has cut the poverty rate by half to less than ten percent by 2019 (*World Bank Indonesia Country Overview*, n.d.). Since 1999, the country has also transformed from a military autocracy into one of the most vibrant, fledging democracy in contemporary East Asia. Despite some allegations of government failure of minority group protection, by the time this study is written, the country has held five democratic elections considered open and fair by international standards. In 2014 the country has peacefully and successfully transitioned power from one directly elected president to another, marking the maturity of the country's democracy.

Clearly, this development has been accompanied by social and economic changes. These include rapid expansion of universal education (especially for female), reduction in total fertility rate, and a transformation of female participation in the economy. In particular, there has been a process for "formalization" of female involvement in the labor force. In their analysis, Schaner and Das (2016) shows that there has been a shift in the type of work that young female workers engaged in: younger women participate more in the formal sector of the economy (wage employment), especially in urban areas. While at the same time, younger women in rural areas, opting out of informal, unpaid employment. They argue that this trend is explained by the increasing access of young, highly educated female workers into lucrative and appealing jobs. This observation provides a central background for the analysis of this paper, where formalization of female engagement in the economy is the backdrop of the expansion of veil take-up.

2.2.1 Women status in the country's history

Given the ethnic and cultural diversity in the archipelago, one needs to be very cautious when making a blanket statement about women's status within the country's culture. However, some general remarks could be made: Scholars tend to agree that compared to those from the neighboring regions, i.e. East and South Asia, women generally enjoy a higher degree of economic and social liberty in Southeast Asia. This is certainly the case of Indonesia women, who have a long tradition of participation in the economy, e.g. in

agriculture and food production, as well as other aspects of public life (Andaya, 2018).[8]

However, the unfolding of more recent historical events, which entailed pervasive armed conflicts, foreign occupations, and military dictatorship, has not produced favorable outcomes for women. For instance, Andaya (2018) describes that during centuries of Dutch occupation (and a short-lived Japanese one later on) many women were maintained as barrack concubines. This practice was legalized by the colonial government, even for lower ranks soldiers. In fact, by the end of the 19th Century, half of the European men in the Netherland Indies[9] was living with a local mistress. Some women who are "lucky" may acquire a job as *Nyai* or female housekeepers who assisted European men with managing the household and played the role of a cultural broker. Even with this position, many women were forced into prostitution due to low wages. Women were also kept in agricultural plantations and were made available to serve the sexual and domestic requirements of male workers (Andaya, 2018).

Following independence in 1945 and a tumultuous period thereafter, the New Order regime took power in 1965. Being able to maintain political stability, this regime delivered fast and steady economic growth. In particular, it expanded universal education (including for girls) and established local healthcare facilities which have delivered long-run advancement in the living condition of women in many parts of the country.

However, the regime was running on an ideology which placed a strong emphasis on the differing role of men and women. Referred to as the ideology of *State Ibuism*[10] in Suryakusuma (2011), it provides the basis for the social construction of Indonesian womanhood within the household domain. In particular, it asserts women's role within their domestic compound, by celebrating them as mothers, educators of children, and guardians of the family (Andaya, 2018; Suryakusuma, 2011). This view was spread through national propaganda using mainly government-sponsored wives organization, the *Darma Wanita* (Women's Service), and the Family Welfare Association (PKK). Through

[8] Andaya (2018) argues that this favorable position of women owes, among others, to the cultural practice of bride price, which is common in many parts of the archipelago. Another reason for this position is due to the birth-and-healthcare-related knowledge possessed by (elderly) women.

[9] The territory encompasses what we call Indonesia today

[10] *Ibu* means mother in Indonesian

their regular meetings, they encouraged women to devote their attention and energies to husband and children (Suryakusuma, 2011). Another manifestation of this ideology took form in the product of law from this era. For instance, the 1974 Marriage Law states that a wife "has the responsibility of taking care of the household to the best of her ability" and polygamy is authorized in case the wife fails to give birth (Martin-Anatias, 2019).

Importantly, the legacy of these gender norms could also be traced in today's public opinion. A UNDP survey in 2010 revealed that 94 percent thought that women should not work outside the home without prior permission of their husbands. The same survey showed that 95 percent thought that men should be leaders of households. Another poll by CSIS shows that 86.3 percent agreed that "women's primary responsibility was to take care of the household" and 83.6 percent thought that women should not work at night (Robinson, 2018). A recent survey about gender roles in the Indonesian household reveals that only eight percent think that earning a living is part of the ideal role of a wife and 70 percent agree that doing household chores are wife's responsibility (Jakpat Survey Report, 2020). These statistics demonstrate that these politically-driven social norms from the previous era are instilled and still have strong impacts in many parts of Indonesia today.

2.2.2 The practice of veiling in Indonesia

In this study, veiling is defined as various types of head coverings and modest female attire commonly donned by Muslim women. This could range from veils that cover the head, neck, and bosom, to the use of *chador*/*burqa* that covers the whole female bodies, with only a mesh in the front the wearer's eyes which allow her to see. The popular style of veil in Indonesia, called *hijab* or *jilbab*, is less extreme/enveloping than *burqa*. Some of the current styles, called *hijab gaul*, even tend to be more transgressive where the headscarves are at times combine with (tight) jeans and body-revealing top/dress.

Unlike in many countries in the Middle East, veiling in Indonesia is not a deeply rooted cultural practice.[11] In the previous generations, some women who wore a veil tended to be

[11] In contrast, veiling has a long tradition among women who inhabited the area we call the Middle East

the older members of rural traditional classes or Muslim merchant classes (Smith-Hefner, 2007). The style was also very different: the veil of those generations was mainly made from somewhat translucent fabrics which formed a drape that covers the female head but still showing neck and some part of hair and ears (Brenner, 1996; Smith-Hefner, 2007).

Indonesia's social commentators argue that the Islamic resurgence in other parts of the Muslim world has inspired the adoption of a new form of veiling[12]. Scholars noticed the visibility of the new veil in Indonesia since the late 1970s (Brenner, 1996; Smith-Hefner, 2007). During this time, the veil is mostly adopted by female university students and it is mainly worn strategically to symbolize opposition to the then authoritarian regime (Brenner, 1996; Johari, 2020).[13] Until the 1990s, veiling was a marginal practice which in fact, tended to be identified with an extreme form of religious piety by the general public. As part of the regime's political agenda, this negative view on veiling was pushed even further. This was done through government regulation which implicitly forbade the use of headscarves in public high school. The decree SK 052/C/Kep/D.82 which formalized the rule for high school students uniform was announced by the Director-General of Lower and Middle Education on March 17 1982 (Johari, 2020). These rules induced many parents to disapprove of veil adoption by their daughters.

However, the steady economic growth in the 1980s brought the rise of a new middle class. This development induced president Suharto to change the course of his political strategy. While consistently banning formal political forces based on Islamic ideology, he attempted to co-opt various Muslim groups by showing more friendly gestures to the Muslim community. For instance, he issued a regulation which lifted the ban on the use of headscarves in public high school: SK.No.100/C/Kep/D/1991 on 16 February 1991.

today, with reference to the Assyrian legal text as early as the thirteenth century BCE. This practice was established among Jews and Christian women before (and after) the birth of Islam in the 7th century CE (Amer, 2014). Following independence in the 1940s-1960s, there was a de-veiling movement in Arab societies (Ahmed, 2011). During this time, the veil is seen as a representation of backwardness and antithesis to modernity. The European style of clothing is adopted by educated women and those with high social status. However, the course has changed dramatically in the late 1970s. Along with the rise of the Islamic revival movement, veiling practice has been resurging.

[12]The new form of veiling from this era on is more enveloping, mainly made from an opaque material and covering hair, neck, and ears of the wearer while only showing the face

[13]In the early years of the New Order Regime, President Soeharto was very hostile to any political aspiration from Islamic forces. Thus, the veil is seen as a symbol of opposition to this hostile attitude

In the same year, he also paid pilgrimage to Mecca and following his return, added "Mohammad" to his official name.[14]

Following this new regulation, the stigma attached to the veil began to fade and its popularity rose. This trend continued after the fall of the regime in 1998. The veil became even more widespread, popular not only among university and high school students but also started to be adopted by older generations. As we will see in the coming sections, two decades after the lifting of the ban, the adoption of the veil is unprecedented today.

2.3 Data

I combine various data sources for this study, including surveys and censuses by Statistics Indonesia–BPS (Badan Pusat Statistics), a novel primary data originally collected by the author, and data from the UN-Comtrade database and other sources.

Veil take-up. The main outcome variable in this study is the proportion of women who wear a religious veil in the population, over several decades. Measuring a cultural practice such as veiling is not a simple task. Previous studies rely on surveys to elicit information about the veiling status of the subject by directly asking female respondents whether they are wearing a veil. Alternatively, it is measured by simply observing if the respective respondent wearing it during the interview. One potential problem with this method is that it could suffer from several measurement biases. For instance, if the surveyors are female or if they conduct the survey at home, then the respondent who regularly wears a veil in public may not put the headscarf on during the survey.[15] In other settings, if the surveyor, deliberately or not, perceived by the respondents as having a certain degree of religious commitment, e.g. if the surveyor is wearing a headscarf herself, then this may also lead to biases in respondent answers as documented, for instance, in Blaydes and Gillum (2013). The second weakness of the currently available data is that the source which systematically traces the evolution of this cultural practice over time is simply not

[14]The official new name is Haji Mohammad Suharto

[15]Commonly, headscarves are only be worn outside the home, where interaction with males who are not part of family members is pertinent.

available. Most of the surveys are ad-hoc and conducted at different times by different institutions.

To overcome this problem, I measure the headscarf take-up by directly observing the portrait of female students attached in the public high-school register book.[16] Hence, this study provides hard data measuring the take-up of veil which is backed by official records of subject personal details. Schools in Indonesia normally keep a large book where information on each student, including a 3x4 cm picture, is recorded. I simply count the fraction of female pupils who wore a headscarf and who did not. From these data, I can create a proxy of veil take-up at a given year, in a given school-district over more than two decades period.

I collected these data in 49 randomly selected districts in the island of Java and Sumatra.[17] The number of districts sampled in each province is proportional to the population in the province. The procedure for data collection as well as the list and the geographic distribution of the sampled district is reported in appendix section A.3.

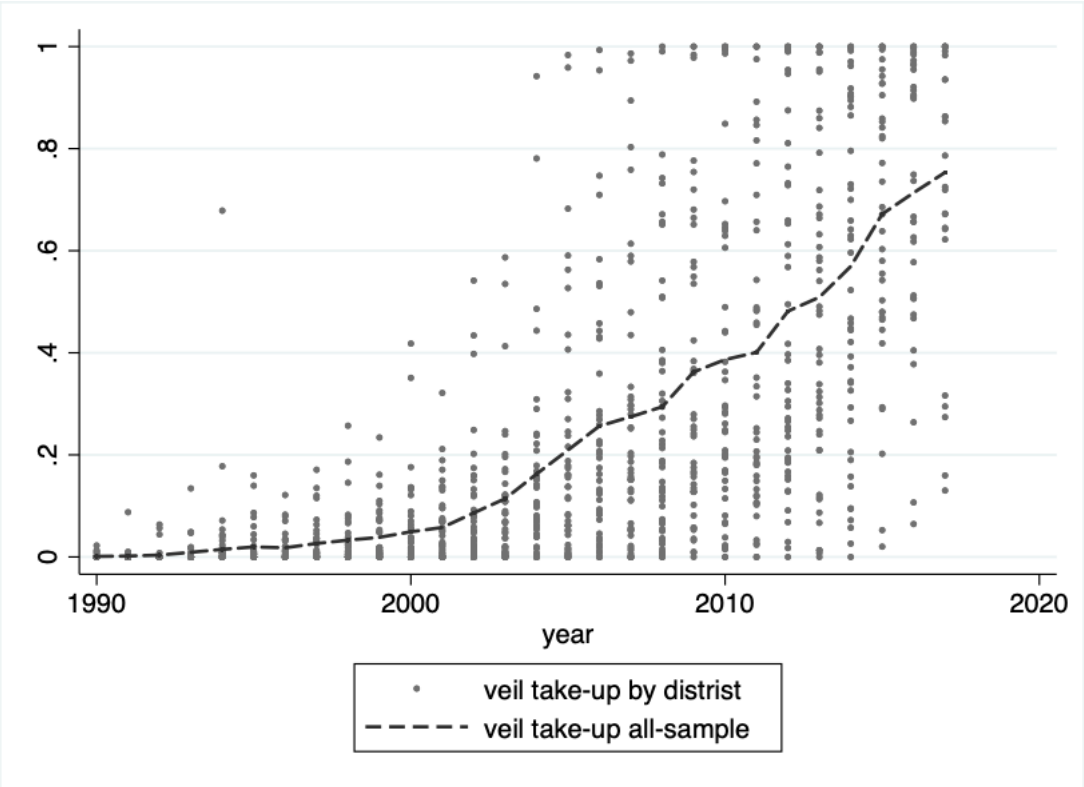
The evolution of veil take-up from the 1990s can be observed in figure 2.1. There are very few female students in the early 1990s who wear a headscarf. The use of the veil started to pick-up in the mid-1990s and rapidly increases over time. Interestingly, even if we observe a sharp increase in the prevalence of the veil at the national level, we also observe a high degree of variation where some districts have very high prevalence while others stay at low prevalence.

Crucially, when observed separately by districts, there is considerable variation across districts not only regarding the starting point of the upward trend but also with the shape of the evolution and at which point the prevalence stabilizes. One could observe in figure 2.2 that some districts showed an initial increase in the early 1990s, but some others started late, after the year 2000. Some district does not even start at all (low and

[16]There could be a concern that these pictures do not represent the behavior of the student in daily life. For instance, they may sometimes wear the veil and sometimes not or they might strategically use (or not use) the veil during the photo session. I argue, however, that this is not likely since Indonesian high school pupils are required to wear school uniforms so that this inconsistent action is very costly. The decision to wear the veil is usually preceded by long and heavy deliberation since it requires the students to remake the whole set of their school uniform based on this decision.

[17]According to Statistics Indonesia, in 2010, 78.7 percent of the Indonesian population lives in these two islands.

Figure 2.1: The proportion of pupils with veil all sample



Note: The figure displays the evolution of the veiling trend in all sample districts. Each dot in the figure represents the fraction of female students who wear a veil in a given district, in a given year. The dashed line represents the fraction of veiled student among all female students in the sample district

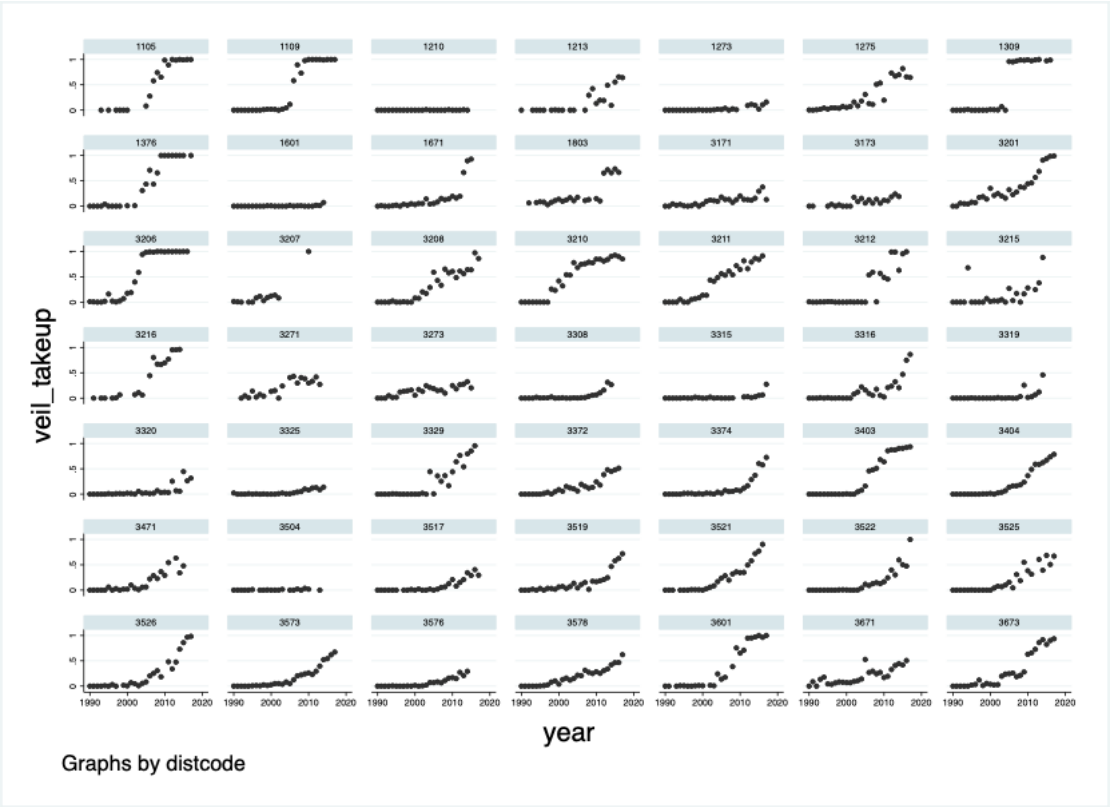
flat). Some districts show an evolution that looks like an S shape, while others look more like a long-tailed J curve. Finally, in some districts, the prevalence of the practice goes up to 100 percent (all female students are wearing a veil), but in some districts, the increase stops even before reaching half of the population. This crude observation informs us that there is a general tendency of increasing veil adoption, however, this trend varies from one district to another.

Labor force information. The data on female (and male) participation in the economy are sourced from the Annual National Labor Force Survey, the SAKERNAS. This survey is performed by Statistik Indonesia and is rich with information related to working, schooling, and other activities performed by respondents representative of the population aged 10 and above. It also records information related to the characteristics of the job performed, e.g. the hours worked, if it is paid, information on personal characteristics of respondents, e.g. age, education level, and marital status, as well as respondents' location and its characteristics, e.g. whether the respondent lives in urban or rural areas.

District industrial and gender composition. These variables are used to construct the instrument, and are calculated using the information from the Medium and Large Manufacturing census (the SI-Statistik Industri). This census is performed annually by Statistik Indonesia and covers the universe of firms with at least 20 employees. It provides rich information about the statistics of industrial establishments including the composition of industrial inputs: such as the number and gender composition of labor employed, electricity and fuel used; as well as the detailed composition of products/industrial output categorized by standardized classification (which could be matched to the ISIC–International Standard Industrial Classification). Using the information in this survey, I calculate the industrial composition of a district as well as the gender composition of workers employed by factories in a given industrial sector. In figure A.1 of the appendix, one could observe the mix of industries operated in different districts. Meanwhile, female scores of the different industry in the early 1990s is reported in table A.3.

International demand for Indonesian products. This variable is another component of the instrument. I use the information on international trade values to proxy the inter-

Figure 2.2: The proportion of female students with veil, by district



Note: The figure displays the evolution of the veiling trend, separated by district. Each dot in the figure represents the fraction of female students who wear a veil in a given district, in a given year.

national demand for Indonesia's products sourced from the UN Comtrade. In particular, I am using the WITS (World Integrated Trade Solutions), a user-friendly, query-based platform that maintains the UN Comtrade database on international trade statistics. It allows us to trace the development of international trade statistics at a different level of aggregation of nomenclatures (standardized industrial classification) which could be matched with the data from Indonesia's industrial census previously introduced.

Independent surveys and other controls. I also perform some analyses using independent survey data that contain information about the use of religious headscarves conducted by both international and local polling firms. In the main analysis, I add some additional control variables using data from various other sources. I report the complete list in Appendix A.2

2.4 Empirical framework

We are interested in testing whether shocks in female-pertinent economic opportunities correspond to the veiling trend. Naturally, the outcome variable of interest is veil take-up, which is directly derived from the data introduced in section 2.3 and operationalized as the proportion of female students who wear a veil in public high school book pictures. As these pupils are between 16 - 19 years old, this variable is meant to capture the general tendency of veiling practice among the young female population. The main variable of interest is female labor demand, which is proxied by the fraction of young females (aged 20-24 years old) who work in the formal sector. I choose this age group to represent the population of interested, i.e. young females. I do not use the measure for the younger age group (16-19 years old) because the labor force participation of this group is biased in current years because they are mostly still in high school. I choose specifically the formal sector to capture the mechanism we are interested in. Apart from requiring a certain level of formal education[18], formal employment is more likely to require the workers to leave their homes since they should work in a factory or an office provided by the company. Using general

[18]Most factories required their workers to be at least high school graduates.

labor force participation may dilute these effects since many independent/informal jobs do not require the workers to leave their homes, e.g. if they work for a family business or running an independent enterprise from home.

The baseline analysis is performed by estimating:

$$Veil_{sdt} = \beta_1 \ FemJob_{dt} + \lambda \ \mathbf{X}_{dt} + \theta_d + \pi_d T + \epsilon_{sdt} \tag{2.1}$$

Where the dependent variable is the proportion of girls who are wearing a headscarf in school s in district d at time t. $FemJob$ is female job market opportunity, $\mathbf{X}$ is a vector of control variables, θ_d is district fixed effects, $\pi_d T$ is district-specific time trend and ϵ is an error term.

In this specification, we are exploiting the variation within district over time, after partialing out the drift from the increasing time trend of veil take-up specific to the district. This specification is motivated by the observation from figure 2.2 where we observe that different districts experience a different level of (increasing) time trend throughout the observation period.

2.4.1 The instrument

The estimator introduced above might be biased due to some (un)observed characteristics which lead the district with a higher female job opportunity to also have a higher prevalence of veil-take up.[19] For instance, it might be the case that districts with more vibrant economic activity are also inhabited by more religious people, so we see more veiling.

To address this problem, I build a Bartik-style instrumental variable (IV) to instrument female labor demand. The identification strategy is to use plausibly exogenous international demand shocks for Indonesia's products, which are weighted by district industrial and gender labor composition to predict female labor demand or more precisely female-pertinent economic opportunity.

[19]Empirically, there could also be reverse causation problems, which in this case, is not very relevant. Reverse causation means that higher veil take-up induces higher female participation in the formal sectors. It would basically capture the "supply" side of the story. In this paper, what I am aiming to show is the "demand" side of veiling.

The logic is the following: assume there is an increase in the demand for tobacco products in international markets. This induces tobacco industries to hire more labor. Importantly, tobacco industries systematically hire more women than men. As a result, districts with a large share of the tobacco industry experience higher demand shocks while other districts do not. Since international demand is by and large exogenous, the changes it induces in female labor demand by "switching on" the treatment in districts that specialize in female intensive industries is plausibly also exogenous.

The instrument, $Export\_Shock$, is calculated as the product of 3 components:

$$Export\_Shock_{dt} = \sum_{k=1}^{K} Value_{kt} \ * \ Fem\_Score_{k} \ * \ Sect\_Share_{kd} \tag{2.2}$$

where d is the identifier for district, t is for time, k is the sector in the economy and K is the number of sectors in the economy.

- $Value_{kt}$ is the normalized real value of export commodity produced by sector k at time t. This variable fluctuates from year to year, but is constant across districts within a given year.

- Fem_Score_{k} is an index which captures the relative importance of female as oppose to male labor force in a given industry k. In particular,

$$Fem\_Score_{k} = \frac{L_{fk,t=0}}{L_{k,t=0}} \tag{2.3}$$

  where $L_{fk,t=0}$ is the number of female workers in sector k at time $t = 0$ and $L_{k,t=0}$ is the number of all workers in sector k at time $t = 0$. This score is constant across districts and time but varies across sectors. For instance, textile and tobacco manufactures tend to have higher score (more females), while steel and heavy machinery manufacture tend to have lower score (fewer females).

- $Sect\_Share_{kd}$ is the historical share of a sector in district d at $t = 0$, calculated as:

$$Sect\_Share_{kd} = \frac{L_{kd,t=0}}{L_{d,t=0}} \tag{2.4}$$

where $L_{kd,t=0}$ is the number of workers in sector k and district d at time $t = 0$ and $L_{k,t=0}$ is the number of all workers in district d at time $t = 0$

This number captures the relative importance of each industry in each district, hence, its value varies from district to district but stays constant for each district overtime.

Given its structure, the *Export_Shock* affects different districts in different years based on the fluctuation in the international demand by switching on the "treatment" in areas that specialize in female-intensive industries. Details of the calculation of these components are discussed further in appendix A.2

2.4.2 2SLS estimates

To identify the effect of shocks in economic opportunity for young female on veil take-up, I run 2SLS regression with the following functional form:
First Stage:

$$FemJob_{dt} = \delta\ Export\_Shock_{dt} + \omega\ \mathbf{X}_{dt} + \theta_d + \ \pi_d T + \varepsilon_{dt} \tag{2.5}$$

Second Stage

$$Veil_{sdt} = \beta_2\ \widehat{FemJob}_{dt} + \lambda\ \mathbf{X}_{dt} + \theta_d + \pi_d T + \epsilon_{sdt} \tag{2.6}$$

where *Export_Shock* is the international demand shocks and the rest of the notation is similar to equation 2.1.

Our parameter of interest here is β_2: a positive and statistically significant value indicates that the increase in economic opportunity for women increases the prevalence of veil use among young Muslim women. In the analysis, I standardize the main variables of interest to make the interpretation easier.[20]

[20]A standardized variable has a mean of zero and a standard deviation of one. The unit of the

2.5 Results

This section is divided into two parts: the first is an exploration of the main hypothesis by showing correlates of the main variable of interest using two independent survey datasets. The second part shows the main analysis using the novel data collected by the author. I use different datasets to triangulate the evidence to get a more comprehensive picture of the phenomenon at hand.

2.5.1 Observations from survey data

I use two survey datasets to get a first look at the demographic and economic characteristics of veil adopters among young Muslim females. The first data is the Pew Research Institute, which conducted the Muslim world survey in 2012. The survey is nationally representative and Indonesia is one country included in the survey.

In table 2.1, I conduct a simple t-test to see whether the group of respondents who are wearing a veil is similar to the group without a veil. The results show that the two groups are very similar in terms of observable characteristics such as age, income, the number of children, the use of technology like internet, cellphone and landline phone, as well as the use of social media. However, the veil group is **less** likely to be married and has, on average, **more** education. This trend is even stronger if we restrict the analysis to the younger group (less than 30 years old).[21]

The second survey data is from JAKPAT, a private marketing company based in Jogjakarta, which in 2016 conducted a national poll on the trend of religious headscarf. Compare to the PEW survey, the respondents of the JAKPAT survey are relatively younger and more educated. It includes very few respondents older than 40 and has a higher proportion of respondents with university education. However, since we have information

instrument is not easy to interpret since it is the sum of real increases in international demand weighted by industrial specialization and the share of female labor.

[21]Note that the veil variable is based on interviewers' observation about the respondent during the interview. Therefore, the number of females with headscarves in this survey is severely underestimated, e.g. if the interview is conducted inside the house of the respondent, she would feel ok not to wear a headscarf, especially if the interviewer were also female. Consequently, these measurement errors would deflate the difference estimated in the t-test. Hence we could consider these coefficients as a lower bound.

Table 2.1: Socio-economic characteristics of female respondents by veil-use

Variables	Less than 40			Less than 30		
	No Veil	Veil	Difference	No Veil	Veil	Difference
age	29.06	29.74	-0.68	24.83	24.55	0.28
			(-0.59)			(0.48)
married	0.82	0.75	**0.07****	0.74	0.61	**0.13****
			(0.04)			(0.06)
education	5.34	5.66	**-0.31***	5.47	6.02	**-.56****
			(0.17)			(0.22)
income group	6.14	6.21	-0.06	6.05	5.9	0.14
			(0.28)			(0.37)
children	1.79	1.86	-0.06	1.4	1.5	-.09
			(0.12)			(.17)
internet	1.86	1.8	0.05	1.83	1.76	.07
			(0.03)			(.049)
facebook	1.08	1.04	0.04	1.02	1	.019
			(0.06)			(.033)
cellphone	2.01	2	0.01	2.02	2	.018
			(0.02)			(.038)
landline	1.97	1.97	0.003	1.98	1.97	.009
			(0.014)			(.017)
religiosity	7.18	7.21	-.035	7.12	7.15	-.033
			(0.138)			(0.19)
Islamist party	0.29	0.3	-.006	0.27	0.31	-.037
			(.0547)			(0.07)
urban	0.47	0.38	.085*	0.45	0.39	.062
			(.046)			(0.06)
Observation	513	149		307	80	

Source: Author's calculation based on The Muslim World Survey, 2012 by Pew Research Institute. *Note*: Standard error in parentheses. *** p<0.01, ** p<0.05, *p<0.1. The age of repondent in this analysis is restricted to 40 years or younger. Married is a dummy for being married, education is grouped into 9 categories from low to high, income group is categorized into 8 brackets. Children is the number of children, the other 4 variables is a dummy of whather or not having access/using the application, religiosity consists of 8 categories and calculated based on how many times the respondent pray in a day, Islamist party is preference toward Islamic political party. Veil in this survey is coded based on surveyors' observation about the repondents during the interview, hence the number of respondent with veil is most likely understated.

for these demographic characteristics, we can control them so we have more comparable results to the previous survey.

The first important piece of information from the JAKPAT survey is presented in table 2.2. According to this survey, 71.4 percent of Indonesian Muslim women were wearing a headscarf in 2016.[22] Only 2.4 percent of respondents say they will not wear it. The prevalence is stable across different levels of educational attainment. In fact, it tends to be higher for a higher level of education. Another interesting observation has to do with the reason why the respondent wears a veil, which is reported in table 2.3. According to this survey, the vast majority of the respondents wear the veil due to their own willingness rather than being requested by parents or spouses. Interestingly, this applies across all level of education.[23]

Next, I run a simple logistic regresssion to test whether education predicts the likelihood of wearing a headscarf. Consistent with the previous results, table 2.4 shows that both surveys confirm that education has a positive effect on the likelihood of young female respondents to wear a veil. This positive relationship is robust across different age groups, and also after controlling for relevant socio-economic and demographic characteristics.

Importantly, these results are in line with the findings of recent survey-based studies. For instance, in Fossati et al. (2017), the proportion of female Muslims who answer "yes" when asked if they wear a headscarf is 78.2 percent. This proportion is even higher among the highly educated (94.5 percent) as compared to the low educated (78.4 percent). Moreover, this survey also shows that the prevalence of veil is higher among the high-income group (84.9 percent) as compared to the low-income group (75.6 percent). In another recent study which predicts who wears the veil in the area of greater Jakarta, Utomo et al. (2018) shows that veil use is significantly correlated with higher education level. These patterns indicate that the veiling practice, especially among young females, is not a symptom of lower education, lower income, or social backwardness.

[22]This number is not too far from the number obtained by the author using a different method presented in the next subsection.

[23]There may be a concern that the answer to this question if biased. However, there are reasons to think that the bias may not be strong since this survey is conducted through a mobile app, where the identity of the respondents is anonymized, hence reducing the social desirability bias

Table 2.2: The prevalence of veil by education level

Wearing a veil?	Education Attainment				Total
	Elementary	Secondary	Undergraduate	Graduate	
Yes	64.7	67.3	70.2	85.7	**71.4**
No, but I definitely will	5.9	8.9	7.2	9.5	8.3
No, but maybe I will	17.6	7.0	8.2	0.0	7.9
Sometimes	11.8	13.8	5.1	4.8	10.0
No, and I will not	0.0	2.9	1.7	0.0	2.4
Total	100	100	100	100	100

Source: Author's calculation based on Jakpat Poll on the trend of religious headscarf, conducted in 2016. The survey is conducted using a smartphone app on the Jakpat network and the sample is a non-probability sample from this network. The question is "Are you personally wearing *Hijab* (a religious headscarf)?"

Table 2.3: Reason to veil by education level

Reason to veil	Education Attainment				Total
	Elementary	Secondary	Undergraduate	Graduate	
Requested by parents	9.1	4.0	0.9	5.6	2.7
Requested by spouse	0.0	0.6	0.6	0.0	0.6
Respondent's own will	90.9	87.6	90.4	83.3	**88.8**
Following trend	0.0	0.9	0.6	0.0	0.7
Others	0.0	6.9	7.5	11.1	7.2
Number of observation	100	100	100	100	100

Source: Author's calculation based on Jakpat Poll on the trend of religious headscarf, conducted in 2016. The survey is conducted using a smartphone app on the Jakpat network. The question is "What is your reason to wear *Hijab* (a religious headscarf)?" Answer category "Others" include answers such as "commanded by the Quran", "fear of God's punishment", etc.

Table 2.4: Logit regression of veil use on education attainment

	Pew Survey		**Jakpat Survey**	
	age <41	age <31	age <41	age <31
VARIABLES	veil	veil	veil	veil
education	0.257**	0.486***	0.45***	0.44***
	(0.124)	(0.189)	(0.11)	(0.13)
Observations	658	385	970	859

Note: The table reports logistics regression of whether the respondent is wearing a veil or not on education attainment. For Jakpat survey: SE is clustered at the district level and all regression is controlling for age and dummies for spending group (proxy for income). For Pew survey: all regression is also controlling for age and dummies for income group. I rescale the coding for education category so that they are comparable between different surveys. *** p<0.01, ** p<0.05, * p<0.1.

Table 2.5: Logit regression of wearing veil on working status

	Age group			All ages
VARIABLES	< 21	21-30	>30	
	veil	veil	veil	
Base category : Not working				
Cat. 2 : working	-0.94**	0.36**	0.53***	0.30***
	(0.46)	(0.14)	(0.20)	(0.11)
Cat. 3: student	0.95**	0.37		0.51***
	(0.45)	(0.23)		(0.18)
Observations	215	651	130	996

Note: The table shows logistics regression of veil on working status using the data from Jakpat Poll in 2016. Standard error is clustered at the province level. The unit of analysis is individual respondent. Dependent variable is a dummy valued 1 if wearing a veil. The main variable of interest is working status category, where the baseline category is not working, while category 2 and category 3 is "working" and "student" resepectively. All regression is controlling for age and socio economic status variables. *** p<0.01, ** p<0.05, * p<0.1.

Since the JAKPAT survey also includes a question about working status, we can gauge initial evidence of the relationship between the use of the veil and working status. I run a logistic regression of the binary variable for whether the respondent wears a veil on different dummies for working status. The result of this analysis is presented in table 2.5. Relative to women who are working, women who are not working, are significantly less likely to wear a headscarf. This is especially true for girls above 20 years old of age. Meanwhile, for girls below 20, it is very likely that those who have activities outside the house are still in high school. Therefore, we can see that the student category has a highly significant and positive coefficient.[24] These coefficients are robust to controlling for age and socio-economic category of the respondent.

From this initial evidence, some insights follow:

- The practice of veiling does not seem to signify low education. If anything, the data suggest the reverse: there are more girls with veil among the more educated group of the young female population.
- The practice of veiling does not seem to signify low income/poverty
- There is a strong association between veiling and the working status of women: those who are more likely to have activities outside the house (working or studying) are more likely to wear the headscarf.

The initial evidence motivates a deeper analysis of the central question, i.e. the relationship between the availability of job opportunities for women and the prevalence of the veil.

2.5.2 Main regression results

In this section, I use the novel measure of veil take-up introduced in section 2.3. I construct a dataset with school-district-year as a unit of analysis, containing schools

[24]This is saying that the girls who are working at this age group are most likely to work in low-skill jobs.

located in 49 districts within the timespan of 1993 - 2014.[25] Since the main analysis is using an instrumental variable, it would be helpful to look at the relationship between variables of interest in the first stage and the reduced form format. To this purpose, in figure 2.3 I show the scatter plot and fitted value of these correlations of interest. The graph provides us an indication that the strategy is potentially fruitful in answering the question at hand. First, the export shock has a positive and significant relationship with the formal job opportunity for females. Second, the intention to treat is also strong: export shock is positive and significantly associated with veil take-up. Importantly, these relationships are obtained after partialing out time-invariant district characteristics as well as district-specific time trends.

I run the 2SLS regression following model 2.6 and report the estimates in table 2.6. The results show that the availability of formal jobs for females has caused an increase in veil take-up among young females. One standard deviation increase in female job is associated with approximately one standard deviation increase in veil take-up. To put in their original unit, one percentage point increase in the availability of female job opportunity is associated with two percentage point increase in veil take-up.[26] This relationship is robust to controlling for district fixed effect, district-specific time trend as well as other potential confounders. The magnitude of the effect is stable across specifications and is statistically significant.

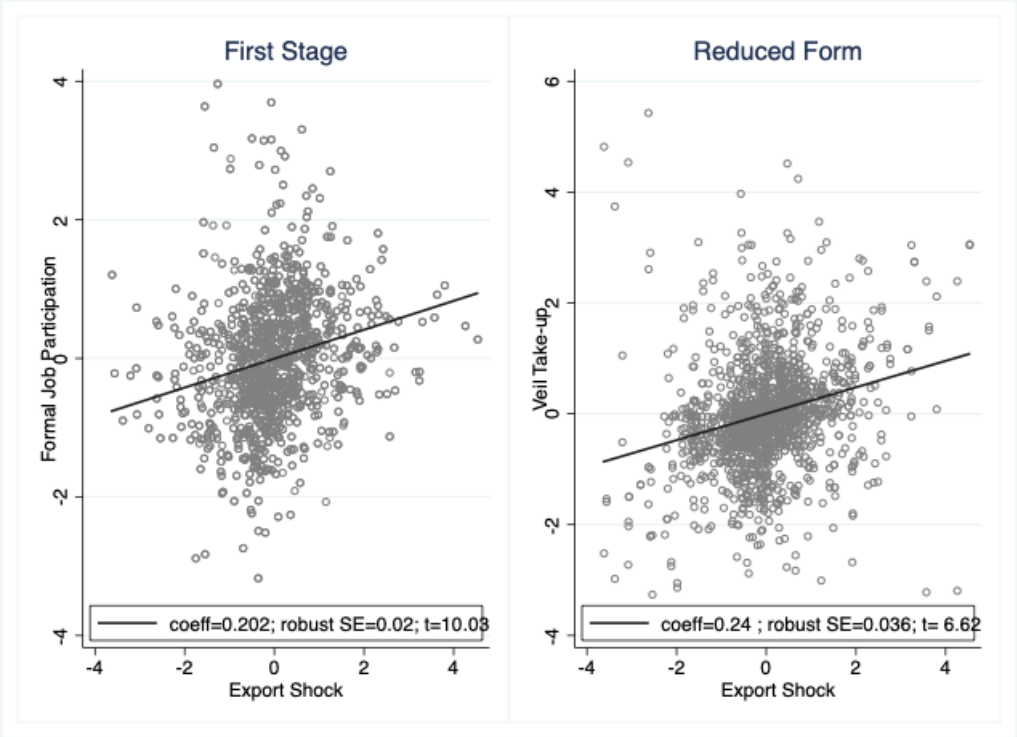
From the table, the readers may also observe that the first stage relationship is strong and significant. The results show that one standard deviation of export shock is associated with a 0.2 standard deviation of female participation in the formal sector. Importantly, the reported K-P-F-Statistics are larger than 10 in all specifications, attesting to the strength of the instrument.

One may be concerned that the characteristics of the districts, e.g. whether it mostly comprises urban or rural areas, may affect the dynamic between the economic opportunity

[25]The reasoning for this time span is twofold: first, the information on female labor composition from the SI statistics is only available from 1993. This starting year is also good to avoid the censoring effect of the government ban on the veil in public high schools which was lifted only in 1991

[26]The number seems large, but to see in perspective, one could imagine that an announcement for a single job would induce more than one applicant to apply, hence the adoption of the veil by multiple numbers of girls.

Figure 2.3: The first stage and reduced form



Note: This figure displays the correlation of the first stage on the left hand panel and of the reduced form on the right hand panel. The variables are residualized (of district fixed effect and district-specific time trend) and standardized (with mean of zero and standard deviation of one) to make the scale comparable across different variables

Table 2.6: Main results: 2SLS estimates

	Dep. Var: Veil take-up					
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Formal job partcp	1.012***	1.060***	1.012***	1.043***	1.040***	1.059**
	(0.314)	(0.332)	(0.336)	(0.362)	(0.360)	(0.436)
Percent urban		✓	✓	✓	✓	✓
Islamist vote			✓	✓	✓	✓
Economic growth				✓	✓	✓
Female school partcp					✓	✓
Log population						✓
Observations	1,546	1,546	1,469	1,469	1,469	1,469
R-squared	0.539	0.526	0.522	0.505	0.509	0.498
First Stage						
Dep. var : Formal job partcp						
Export_Shock	0.288***	0.275***	0.281***	0.268***	0.268***	0.242***
	(0.059)	(0.061)	(0.061)	(0.060)	(0.059)	(0.067)
K-P F-Statistic	23.87	20.50	21.35	19.75	20.36	13.03
Reduced Form						
Dep. var : Veil Take-up						
Export_Shock	0.300***	0.292***	0.284***	0.279***	0.279***	0.257***
	(0.058)	(0.060)	(0.062)	(0.064)	(0.064)	(0.068)

The table reports 2SLS regression results of veil take-up rate and female participation rate in formal occupation, instrumenting the later with export shock from international market. The first panel presents the second stage regression, while the second and the third panel present the first stage and the reduced form respectively. All the three main variables are standardized to have a mean zero and standard deviation of one. All regressions includes district fixed effects and district specific time trends. Standard errors for all regressions are clustered at the district level; *** p<0.01, ** p<0.05, * p<0.1

and veil take-up. To control for this possibility, I add the percentage of the population who live in urban areas in the specification of column 2. Moreover, the specific taste of the population in the formal expression of religion may also affect the relationship of interest. To address this concern, I add the vote for Islamist parties to capture this tendency in column 3.

One may also think that general economic growth which increases the population standard of living might affect veil take-up by allowing the population to think about higher-order needs beyond necessity, e.g. fashion. To control for this, I add economic growth at the national level as an additional control variable. One may also worry that the increase in work participation is induced by higher female attendance at school, and higher female attendance is correlated to veil take-up. I address this concern by adding female high school attendance rates. Finally, one may be concerned that different districts may display a different relationship due to the size of their population, and to address this, I control for (log) value of population in column 6.

Validity of the instrument. Since I fix the industrial share at the base year, the validity of the instrument hinges on the assumption that export shock should be independent of initial features of the district. This assumption could be violated if there are some characteristics of the districts which make them systematically receive higher (or lower) shocks in the subsequent periods.

To gauge the validity of the instrument, I perform the following exercises:

1. Adding several possible confounders in the main analysis and showing that the coefficient of interest is robust to performing this exercise. I report the results in table 2.6 from the second column onwards. It suggests that the instrument is independent of various pertinent socio-economic features of the districts.

2. Showing that future export shocks cannot predict past veil take-up. If there is some systematic correlation between past veil take-up and future economic shocks, then one may suspect that the instrument is not independent of the initial condition of the districts. I report this analysis in table A.5 and it shows that future export

shock is not correlated to past veil take-up. The coefficients are tiny and unstable across different specifications and importantly; they are not statistically different from zero.

3. Showing that economic shocks are balanced on several past characteristics of the district. The intuition of this exercise is similar to the previous exercise but is performed on other pertinent variables, not on the outcome. I report the results in table A.6 and show that there is no systematic correlation between future shock and the initial characteristics of the district, such as the balance of gender composition, male employment, percentage of the population living in urban areas, the log of population and female high school participation. These results strengthen the argument that the instrument is plausibly exogenous.

Table 2.7: Main results: OLS estimates

	Dep. var: Veil take-up					
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Formal job partcp	0.086***	0.087***	0.080***	0.076***	0.077***	0.065**
	(0.029)	(0.026)	(0.025)	(0.024)	(0.025)	(0.025)
Percent urban		✓	✓	✓	✓	✓
Islamist vote			✓	✓	✓	✓
Economic growth				✓	✓	✓
Female school partcp					✓	✓
Log population						✓
Observations	1,546	1,546	1,469	1,469	1,469	1,469
R-squared	0.788	0.788	0.782	0.783	0.783	0.786

The table reports OLS regressions of the veil take-up and female participation in formal occupation. Both variables of interest are standardized to have mean zero and standard deviation of one. All regressions includes district fixed effects and district specific time trends. Standard errors for all regressions are clustered at the district level; *** p<0.01, ** p<0.05, * p<0.1

Comparison to OLS estimates. The analysis using ordinary least squares is presented in table 2.7. The result shows that the conclusion we derived from the 2SLS regression is robust even when we are using an ordinary least square method. In all model specifica-

tions, the availability of formal jobs for females is positively and significantly associated with veil take-up.

Although similar qualitatively, the magnitude of the coefficient resulting from the two methods differ. These differences are most likely to be contributed by two factors. First, at the theoretical level, the phenomenon we are trying to capture is female labor demand. This is likely to be only noisily measured in the OLS regression by formal female job participation. This later variable, in fact, is the equilibrium of the supply and demand of labor, while what we aim to measure is the demand. International demand shock seems to be a much better proxy for labor demand. Second, the first stage regression analysis reported in figure A.4 shows that there is large heterogeneity among districts. The effect is diluted in the OLS regression since in the OLS estimator, we average over all observations which may include groups with null or even opposite coefficient. Meanwhile, the estimate from the 2SLS regression is mostly applied to compliers (local treatment effect). This is the effect of job opportunities that are affected by export-driven "booms" and "busts" in areas that specialize in female-intensive commodities.

2.5.3 Placebo tests and robustness check

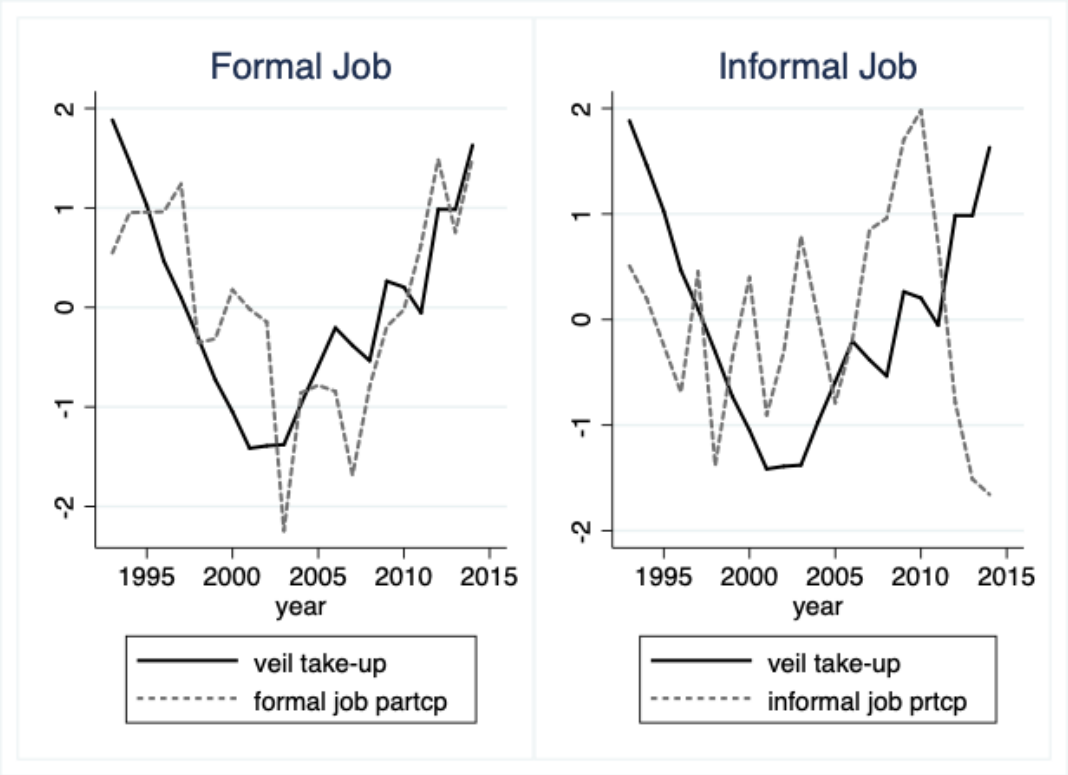
In this section, I run two placebo analyses, on informal job opportunities and on male job opportunities respectively. Then I summarize the results from robustness checks.

Informal jobs

One concern about the results reported above is the possibility that the trend of veiling is influenced not by specific job opportunities for women, but by a general increase in income. One may suspect that, as income increases, people may have more means to think about consumption that goes beyond basic necessities, like fashion. So an alternative explanation for the positive relationship between labor demand and veiling is that the increases in veil take up are due to improvement in the general income, and not necessarily related to economic opportunities that compel women to leave their home.

To address this concern, I test whether the availability of *informal* jobs for the young

Figure 2.4: The evolution of veil take-up and formal vs. informal job participation



(a) *Note*: The graph shows the evolution of veil take-up againts the evolution of formal and informal work participation by female population aggregated from all sample districts. The evolution across time is detrended, to partial out the time trend, and standardized, to have mean of zero and standard deviation of one so that the values are comparable across different variable of interest.

female population is significantly correlated to the use of headscarves. As informal job opportunities increase female income but do not necessarily compel women to leave their homes, it would not induce an increase in veiling the same way formal employment does.

This exercise also provides an excellent opportunity to test the possible mechanism. Formal employment requires the workers to be on the job site, e.g. factory or office.[27] Meanwhile, informal jobs are more flexible in terms of time and location, e.g.tailoring at home as contractors or taking jobs as freelancers. Hence, the headscarf as a signaling tool is needed more in the context of a formal job than in the informal one. As a result, we

[27]Hence, it increases the intensity of interaction with men who are not family members. This type of interaction is what mainly causes the stigma for women who work outside their house without the company or supervision of their male family members. Sometimes, the workers need to commute to the job site, so they need to take crowded public transportation. These job characteristics increase the possibility for harassment both on the worksite as well as along the journey to work, which leads to social stigma.

Table 2.8: OLS results - informal job

	Dep. var: Veil take-up					
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Informal job partcp	-0.003	-0.001	0.002	-0.001	-0.001	-0.007
	(0.034)	(0.033)	(0.031)	(0.030)	(0.030)	(0.031)
Percent urban		✓	✓	✓	✓	✓
Islamist vote			✓	✓	✓	✓
Economic growth				✓	✓	✓
Female school partcp					✓	✓
log population						✓
Observations	1,546	1,546	1,469	1,469	1,469	1,469
R-squared	0.786	0.786	0.780	0.781	0.781	0.785

The table reported OLS regressions of veil take-up on female participation in informal occupation. Both variables of interest are standardized to have mean zero and standard deviation of one. All regressions includes district fixed effects and district specific time trends. Standard errors for all regressions are clustered at the district level; *** p<0.01, ** p<0.05, * p<0.1

would expect informal job opportunities to not correlate, or even negatively associated with the use of headscarf if female workers pull out of informal jobs to get formal ones, a phenomenon documented in Schaner and Das (2016).

To illustrate this reasoning, I plot the evolution of veil take-up and both formal and informal job participation rate by the young female population. As one may observe in figure 2.4, the formal job participation rate goes hand-in-hand with veil take-up, while this is not the case for the informal job. Moreover, I establish this argument further by running an ordinary least square regression of veil take-up on female informal job participation rate.[28] I present this analysis in table 2.8 and the results show that veil take-up has no association with the availability of informal job opportunity. The coefficients actually tend to be negative.

Male economic opportunity

A similar concern related to a general increase in income could come from the income of other members of the family. If family resources are pooled within a single household, and

[28] An IV regression for this analysis is not possible using the instrument we deploy in the main regression.

female family members are entitled to spend from this common pool, then the general income effect could go through this mechanism. It could push veil take-up by altering the taste of fashion of the girl as her family is getting richer.

To address this concern, I run a placebo regression, where I regress veil take-up on improvement in family income that is less pertinent to female. In particular, I show that economic shocks that increase job availability for men, which increase general family income, do not have a similar effect as the shock in job opportunities pertinent for women. In table 2.9, I report a regression following specification in regression 2.6 but replacing female participation with male work participation and instrument this with the mirrored instrument for males. As it turns out, the coefficients on the male job opportunity is not only much smaller but also are not significant.

Table 2.9: Male job opportunity

	Dep. var: Veil take-up					
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Job male	0.587*	0.585*	0.531*	0.549	0.540	0.542
	(0.313)	(0.311)	(0.307)	(0.343)	(0.339)	(0.378)
Percent urban		✓	✓	✓	✓	✓
Islamist vote			✓	✓	✓	✓
Economic growth				✓	✓	✓
Female school partcp					✓	✓
Log population						✓
Observations	1,469	1,469	1,469	1,469	1,469	1,469
R-squared	0.653	0.654	0.663	0.654	0.659	0.658

The table reported 2SLS regressions of veil take-up rate on work participation rate by young male population, instrumenting the later variable with export shock for male intensive industry. All regressions includes district fixed effects and district specific time trends. Standard errors for all regressions are clustered at the district level; *** p<0.01, ** p<0.05, * p<0.1

Robustness analyses

In this section, I summarize several robustness checks to support the validity of the argument proposed at the beginning of the paper. For the interest of space, I present tables reporting the results in the appendix.

Removing outliers. We may be concerned that there are some districts that require their female pupils to wear headscarves, e.g. some districts apply *sharia* law that requires public servants and female pupils in public schools to wear headscarves on Friday. If these areas happen to also display high economic participation in the formal sector, we may pick up the effect of these regulations instead. To address this concern, in table A.7, I rerun the analysis in table 2.6, removing the observation that has a hundred percent of female pupils with a veil. This is a good proxy of the existence of mandatory veil regulation in the school/district. This is also one way to trim off the outliers in our sample. The results are robust to the exclusion of these observations. In fact, the coefficient of interest is actually larger.

Removing observation with higher variance. Because in some districts, I can only collect the data from a single high school, this may cause higher uncertainty on the veil take-up data from these districts. It could be the case that the results we observe in the previous section are driven by these districts, then lower precision of the data available for these districts may reduce our confidence in the results. To address this, I perform the analysis without districts with only single high school observations and report the results in table A.8. The estimates in this analysis are very similar to the ones resulting from the main analysis.

Jakckknife resampling estimation. Finally, I performed a Jackknife re-sampling procedure to make sure that the results observe above are not driven by any single district or any single year of observation. This procedure is done by subsequently forming a fresh sample set by leaving one observation out of the sample (from a single district or a single year) and re-estimate the coefficient presented in the main analysis.

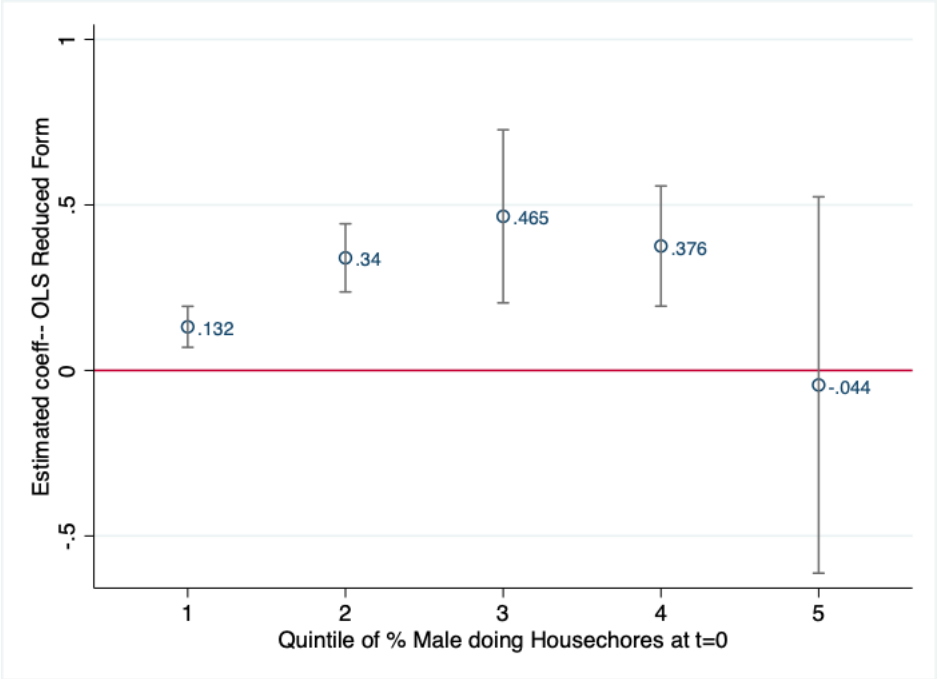
I present the resultsA.5 and A.6 for the estimates resulting from removing district dimension and year dimension, respectively. This analysis purported further the main analysis as we can observe that the coefficients are stable and systematically different from zero.

2.5.4 Heterogeneity effect

An interesting exercise would be to see how the positive effect of the veil differs according to the initial characteristics of the district. In particular, to see how the effect of economic shocks on veiling varies depending on the prevailing initial gender norms in the area.

For this purpose, I create a new variable which captures the strength of gender norms, i.e. the norms about the differing ideal role for men and women. I proxy this variable by the share of the male respondent in the SAKERNAS who declare that doing house chores are their main activities in the previous week. Doing house chores in many societies, as well as in the Indonesian context, is considered as a "female" ideal role: Hence, male declaration of performing this task could be a good proxy for how salient are the norms about different gender roles in society. I calculated this share at the base period (time t=0) and divide them into quintiles. I then re-estimate the reduced form regressions at different quintile groups.

Figure 2.5: Heterogeneity effect based on initial gender norms in the district



(a) *Note:* The figure displays the OLS estimate of the reduced form at different levels of initial quintile of gender norms strength. This strength is proxied by the percentage of males (age 15 - 39) who declare performing house chores as main activities in the previous week.

I present the result in figure 2.5. We could observe that the estimates are following a

reverse U-shape where they tend to be higher toward the middle of the distribution. It suggests that the benefit of the veil may reach its peak when the initial gender norms are more ambiguous. Although smaller, the estimate is still positive and very precise at the lowest quintile, indicating the positive benefit of the veil in places where gender norms are strongest. More importantly, the analysis suggests that the veil is not consequential in the place where the gender norms are not embedded in society in the first place; the estimate is not different from zero and is very dispersed.

2.6 Conclusions and Discussion

The practice of veiling is increasingly common among women in contemporary Muslim societies. However, this practice is not fully understood. While the common understanding of this practice is to see it either as a symbol of religious fundamentalism or subjugation of women, I attempt to demystify this practice and showing that the motivation and interpretation of this religious symbol are shaped by local norms and economic development.

Using unique novel data from Indonesia, I provide several pieces of evidence to shed light on this practice. First, I show that veil does not necessarily signify low education or income. If anything, the data shows that education and income increase the probability of young females to don the headscarf.

Second, using a Bartik-style instrument, I show that this practice is driven, at least in part, by the increase in female participation in the formal sector. The instrument, which takes advantage of the historical district industrial composition, the female labor composition of sectors, as well as plausibly exogenous shocks in the international demand, allows me to identify the effect of shocks in the economic opportunity for women on veil take-up. The evidence shows that increasing participation of young females in the formal sector of the economy is significantly associated with the increase in veil take-up. Importantly, this effect could not be attributed, for instance to increasing general income or taste for fashion. Similar economic shocks on informal job opportunities for females as

well as shocks on job opportunities for males do not produce a similar effect on veil take-up. Moreover, heterogeneity analysis shows that the benefit of the veil in smoothing the transition of young female workers to the formal economy is relatively more pronounced in areas where gender order norms are at best ambiguous. In areas where gender norms are more equal, to begin with, the benefit of the veil is negligible.

How cultural traits hinder, improve, or shape various development outcomes is not fully understood. Importantly, cultural values and social norms might shape the process of economic development in ways that are counter-intuitive at a first glance. The story of veiling in this paper represents an example of how religious value shapes the economic modernization of society in a way that may challenge the current wisdom.

Chapter 3

Sectarian violence and identity formation under consolidating democracy

Abstract

This study postulates that the degree of competition between factions within the politically influential (majority) group in society could explain the severity of ethnic conflicts. Competing factions engage in various activism, including violence against "others", to signal their commitment towards the group, to gain sympathy and support. I devise a new index of factional competition to capture this phenomenon. Using the context of Indonesia's consolidating democracy and its religious organizational dynamics, I show that this index is strongly correlated with the severity of religious conflicts, measured by the number of fatalities from religious violence. This relationship is robust to controlling for widely used fragmentation and polarization indexes as well as a wide range of confounders. In placebo tests, I show that this index has no relationship with other types of violence, such as crimes or domestic violence, or even other conflicts that are not religiously motivated.

3.1 Introduction

Although many –if not most– conflicts we witness today are ethnic in nature, this type of conflict is not fully understood. Most works on this theme concentrate on the degree of ethnic diversity within a country and look at how it relates to the probability of conflict. These studies mostly are based on the assumption that different ethnic groups have different aspirations and preferences, and this creates conflict among them.

However, there are many instances where differences and disputes are actually fiercer within a group rather than between groups. In particular, competition between factions within the majority group is fiercer when each of the factions attempts to win the political support of the majority group. Very few studies, however, focus on the within-group dynamics in explaining ethnic violence. An exception to this is the work by Esteban and Ray (2011) which highlights economic inequality within a group to explain the salience of ethnic conflict.

Motivated by the work on violence and the construction of ethnic identity (Fearon & Laitin, 2000), this project aims to shift the discourse and concentrate instead on the within-group dynamics which might be a stronger predictor of the salience of ethno-religious conflict. An observation of the pattern of religious violence in Indonesia, especially following the fall of the New Order regime in 1998, may offer an opportunity to explore this insight. In particular, the current study attempts to explore the idea that ethno-religious violence could be understood as a by-product of competition between factions *within* the majority group. This issue is gaining even more salience under the context of consolidating democracy, where various groups and factions within society are competing for influence to gain political leverage.

The logic is simple. Because the majority of voters in Indonesia are (at least nominally) Muslim, using identity politics (religion) is an appealing strategy to win the political competition. Under democracy, different groups use various tactics to stand out in the crowds and to present themselves as an appealing choice. One of such strategies is to engage in activism, including violence toward other groups that are considered as "the other", such

as groups of different faiths or Muslim minorities whom they label as "heretics". They do so to signal their commitment to the general (Muslim) audience, to convince them that they are the true defender of religion. Examples of these activities are protesting the building of a new community church, raiding discotheques and restaurants during the fasting months, or attacking the member of "heretic" groups or homosexual groups. They frame all these as efforts to protect religious purity.

There are two innovations I deploy for this study. First, I define a new index (Factional Competition index – The FC index) to measure the extent of factional competition within the Muslim majority group. This index captures the degree of competition between the two strongest Muslim factions/organizations existing in each of 497 districts in the country. Importantly, it conveys a different underlying intuition than the fractionalization index or the polarisation index, two measures widely used in the study of conflict. Second, I apply a simple machine learning method to categorize the organizational affiliation of the universe of private schools in the country. I do this to gauge the relative strength of different factions/organizations within the Muslim majority group in a given geographic area, e.g. administrative district. I do this by taking advantage of the characteristics of private schools affiliated to each one of these organizations, in particular the words used in the naming of the schools.

I find that the Factional Competition index is positively and statistically associated with the severity of religious violence. This relationship is robust even after controlling for widely used measures of polarization and fractionalization, population size, the level of GDP, poverty rate, Human Development Index, the share of the primary sector in GDP as well as the level of unemployment.

Importantly, this robust relationship is not present when using similar measures for conflicts that are not religiously motivated. The FC index has no significant relationship with the fatalities from crimes or domestic violence, or even from other types of conflicts, e.g. electoral conflict or land disputes. All of this evidence supports the idea that within-group power dynamics can explain the severity of religious violence.

3.2 Background

Nine out of every ten Indonesians are Muslim. This and the fact that the country currently hosts more than 270 million people ranks Indonesia as the most populous Muslim country on earth. Another interesting fact is that Indonesians consider religion as "very important in their life".[1] Not surprisingly, religion (and ethnicity) has gained salience in the recent electoral competition in the country (Pepinsky, 2019; Shofia & Pepinsky, 2019). Political elites often craft their electoral message along ethnic and religious lines.

Islam in Indonesia has a wide array of expressions that are not well known to the outside world (Van Bruinessen, 2013). Most Indonesian Muslims are affiliated with one of the various religious mass organizations established in the country. These religious organizations are important actors in the socio-religious dynamics in the country. Some of these organizations, such as NU and Muhammadiyah, the two largest, have been established even before the independence of the nation. (Van Bruinessen, 2013).

While these two older organizations are mainly moderate[2], a new, reformist Islamist movement has flourished since the democratization of 1999. The emergence of this new strand of organizations (which tend to be more puritan in nature) has, in many cases, created a backlash due to ideological disagreement. The most puritan end of this spectrum even believes that democracy is not compatible with Islam and advocates for transnational worldwide Khilafah, which undermines the sovereignty of the Indonesian state.

Someone who travels around the country would notice the ubiquitous existence of these organizations by simply looking at the name boards in front of thousands of private schools across the archipelago. Indeed, the provision of public goods, such as healthcare and education, is the primary activity of these religious mass organizations. It is obvious that the provision of education would lead to the inculcation of the religious ideology

[1] According to various waves of WVS (World Values Survey), over 94 percent of Indonesian respondents declare religion as "very important" in their life

[2] The term "moderate" here may not be very precise. One might prefer to think in terms of an inclusiveness spectrum, as we are focusing on how a group projects their position toward other groups, i.e. non-Muslims. Moderate organizations are more inclusive than puritan groups. But this does not necessarily mean that they are less observant in practicing the religion, such as fulfilling the obligation to pray five times a day or observe fasting during Ramadhan. They are just more welcoming to other groups (non-Muslim) and do not express outright animosity toward the symbols of groups considered as "others".

carried by each of them. Each of these schools has a specific curriculum, activities, and symbols inspired by the religious ideology of the affiliate organization.

Apart from Islamic private schools, there are other private religious schools, e.g. Pasraman–Hindu schools, Christian schools, and Catholic schools. Most of these schools have names and labels that show clearly which religion are they affiliated to. Some of these schools are under the auspices of the Ministry of Education and some others are under the Ministry of Religious Affairs.

3.3 Data and methodology

This study combines two data sources on violence. The first is the National Violence Monitoring System (NVMS). This data source records various types of violence based on the coverage of newspapers, both at the local and national level. The data are collected by a team under the auspices of the World Bank Group and the government of Indonesia. These data have the advantage of providing a very detailed account on the incidence of violence, e.g. the date, location, the actors, affiliation of the actors, a short narrative about how the incident took place, various outcomes such as the number of fatalities, including people kidnapped, injured, killed and the number of damaged buildings, etc. The time coverage is from 1998 up to 2014. However, in the early years, only a small number of provinces are covered, hence I am using this source only from 2005 onwards.

The second data source on violence is The Armed Conflict Location and Event Data Project (ACLED). Even though the information about violent incidents is less detailed than in the NVMS, the advantage of these data is that they provide real-time data on political violence and protests across the developing world. In this paper, I use the data up to 2019. Importantly, this data source also provides information about time, location, actors, the affiliation of actors, and a brief story about the incident. Another feature of this dataset is that it is geo-coded, so mapping the location to the name of the district is more straightforward using a GIS technique. From both datasets, we could back out the location and the type of violence, in particular, to determine whether the violence is

religiously motivated or perpetrated by actors affiliated to a religious organization. This is how I define religious conflict in this study.

3.3.1 Conflict related indexes

Any serious study on religious conflict should include the widely accepted measures of religious fragmentation and polarization. I use the data on the 10 percent representative sample of the Indonesian population census in 2010 provided in IPUMS International, a project by the University of Minnesota. Using these data, I calculate the religious fragmentation and religious polarization. Since the unit of analysis is district, I calculate these measures for each district included in the sample.

Following Alesina et al. (2003) fragmentation (both religious and ethnic) is calculated as follows:

$$Fragmentation = 1 - \sum_{i=1}^{n} s_i^2 \tag{3.1}$$

Meanwhile, the polarization index (both religious and ethnic) is calculated based on Reynal-Querol (2002) and Montalvo and Reynal-Querol (2005) as follows:

$$Polarization = 4 \sum_{i=1}^{n} (1 - s_i) s_i^2 \tag{3.2}$$

where s_i is the share of group i and n is the number of groups in the population.

3.3.2 Index of factional competition–The FC Index

In this study, I focus on the competition within (intra-group) rather than between (inter-group). I argue that in order to attract sympathy from the floating masses (or general Muslim population), violence is committed mainly by abusing the minority groups – either groups of other religions or Muslim groups labeled as heretics such as Ahmadiyah – within the region. The intuition that lies behind this index is that we would expect to see a higher degree of violence in places where a) inter-organizational competition is severe, i.e. the strength of the two strongest organizations is almost balanced, b) the share of Muslims

(the potential masses to be attracted) is high and c) the share of minority population (non-Muslim or minor Muslim sect) is relatively small, hence it is vulnerable to abuse.

Since the concept of "competition" in this sense differs from the idea of either polarization or fragmentation, I devise a new measure of competition between the two strongest organizations or factions:

$$FC\ Index = \frac{P_m}{\sqrt{F_1 - F_2}} \tag{3.3}$$

where F_1 and F_2 are respectively, the share of the largest and the second-largest faction in the district. The numerator of this index, P_m, captures the size of the "market", i.e. the potential masses that could be attracted by the different factions within the community, in this case is the size of the Muslim community in the district. Meanwhile, the denominator captures the degree of imbalance of power between the two dominant factions.

It is trivial to verify that this index has the following properties:

1. The index is higher, the larger the size of the market, P_m
2. It is higher when the strength of the two factions, F_1 and F_2 is balanced or almost balanced.
3. As a consequence of first two properties, the index should reach the maximum when the fraction of the group is approaching the maximum ($\lim_{P_m \to 1} P_m$) and the organizational strength is almost balanced $\left(\lim_{(F_1 - F_2) \to 0} (F_1 - F_2)\right)$

3.3.3 Calculating the strength of organizations by machine learning

One of the key challenges for the study is measuring the extent of influence of each religious organization. Any scholar who wants to study Indonesian religious mass organizations has to face the fact that off-the-shelf data with this measure are simply not available. Even if each organization has its own claims about its membership numbers, it is very hard to verify them.

I approach this problem by applying a simple machine learning method using the information about primary and secondary education institutions in a database maintained by the Ministry of Education (MOE). In this study, I estimate the strength of the two largest Muslim organizations in the country (NU and Muhammadiyah) and other Muslim organizations[3] by using the share of private schools affiliated to each of them in a given district.

The basis of this approach is that public goods provision, such as healthcare and education, are the primary activities of these mass Muslim organizations in Indonesia. Therefore, the existence of schools affiliated to these organizations can be use as a proxy for their local strength. Hospitals are not used in the analysis for two reasons: first, the data are less precise and harder to verify, and second, hospitals tend to be located only in big cities, while primary and secondary level schools are more ubiquitous, even in small cities and remote areas.

For a number of schools, there is explicit information about their organizational affiliation, but for many, this information is not available, hence it needs to be estimated. The basic idea of the method applied here is to let the machine learn about the common characteristics of schools affiliated to one or the other organizations, and estimate the probability of a given school to be affiliated to each organization. The detailed procedure is elaborated below:

- I scrape the detailed information about all schools in the country which has been recorded by the Ministry of Education on its website.[4]

- I drop public schools and keep only private schools, as clearly, private organizations could only manage private schools. The information on public schools would not be useful anyway to predict the affiliation of private schools.

- I define the organizational affiliation of the schools, which is possible for several schools. I call this group of schools as Group I. There are four affiliation categories: NU, Muhammadiyah, Islam others, and general others. This last category includes

[3]For a detailed account about religious organizations in Indonesia, see Bruinessen, 2013
[4]Since the data is continuously updated, for this study I collected the data up to July 2019

schools affiliated to other religious denominations (Christian, Catholic, and Hindu) and international schools. This is done by looking at the school labeling at the ministry register. For instance, Christian middle schools are labeled "SMPK", vs. "SMP" for general public schools. We can also define the affiliation by examining the name of the schools. For instance, schools affiliated to Muhammadiyah carry "Muhammadiyah" in the name, e.g. SMA Muhammadiyah 1, SD Muhammadiyah 2, etc. On the other hand, schools affiliated to NU will carry the word "NU" in the name, e.g. MA Banat NU, MI Muslimat NU, etc. Schools affiliated with other Islamic organizations also carry the name of the organization, e.g. "Hidayatullah" or "DDII".

- For schools whose affiliation is not identifiable according to the previous criteria –which I call Group II–, I apply this simple machine learning procedure to calculate the probability of being affiliated to a given organization. This is done in several steps:
  - I created a list of the 200 most commonly used words in the naming of the schools in group II. The words used in the naming of the schools are, in many cases, informative of the identity affiliation that the school organizers want to convey to the public.
  - I created a dataset comprising all private schools in the data universe (including both Group I and Group II), their name and characteristics –the year of establishment, the year of operation, the school timing (morning, afternoon, all-day), the government ministry by which the schools are accreditated (Ministry of Education or Ministry of Religious Affairs), school accreditation grade, and the development status of the village in which the school is located. I then add in this dataset dummy variables for the 200 most commonly used words as described in the previous point.
  - I run a logistic model for the probability of being affiliated to one organization on the characteristics of the schools and the dummy variables for the most

commonly used words. This step lets the model learn about how school affiliation is systematically related to its characteristics and the wording of its name. This is done separately for each affiliation category.

  - Using this model, I estimate the probability of being affiliated to each organization. This model performs very well to predict in-sample the school affiliation in Group I, for which we know the true value of the affiliation category. This is the measure of the predictive power of the model.
  - Next I attach the predicted probability to the schools in Group II, while I use the true value for schools in Group I.

- Based on these predicted probabilities, I calculate the share of the schools affiliated to each of the religious organizations as a proportion of the total private schools in each district.

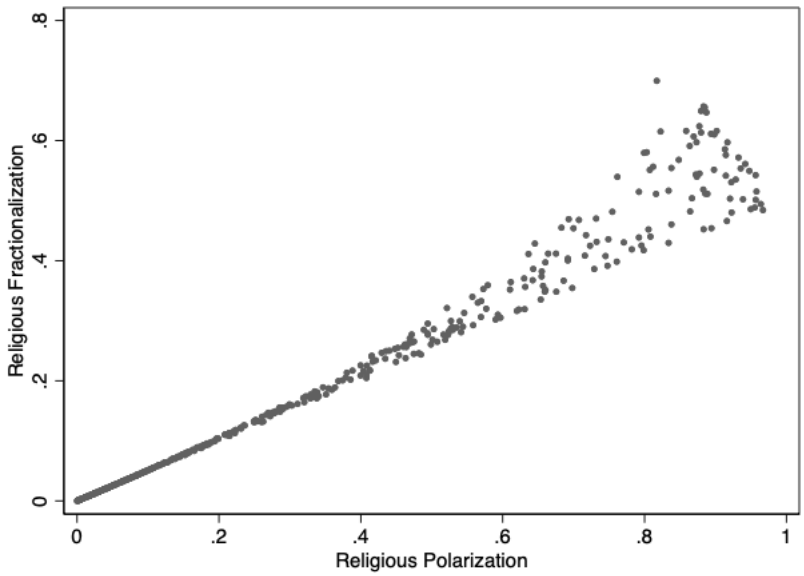
Further analysis shows that this model is powerful to predict the organizational affiliation of schools. In figure B.1 of the appendix, I report the distribution of the predicted probability of being affiliated to one category if the actual affiliation is known. The method correctly predict an overwhelming majority of the schools in-sample to be affiliated to their respective organization.

3.3.4 Comparing different indexes

One important preliminary exercise is to compare how different indexes correlate with each other. Figure 3.1 shows the relationship between the index of polarization and the index of fractionalization for religious groups in Indonesia. The value of the indexes is almost identical at the lower end and starts to diverge when passing the value of 0.5. This observation is in line with the finding in Montalvo and Reynal-Querol (2005)

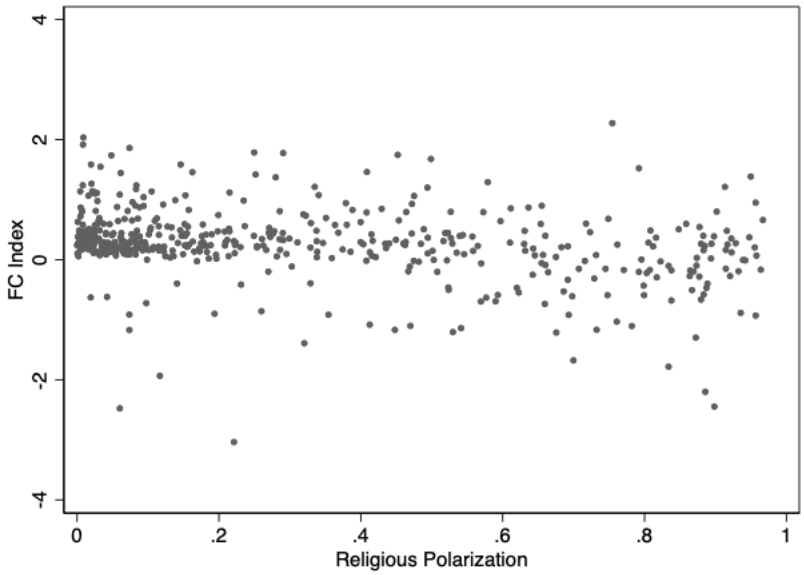
However, when we compare the factional competition index and the polarization index, we observe that the two virtually have no correlation at all. As confirmed in Figure 3.2, the correlation is indifferentiable from zero. This finding is unsurprising because the two indexes are indeed capturing very different concepts.

Figure 3.1: Comparing Fragmentation and Polarization Indexes



Note: The figure plots the value of the religious fractionalization index and the religious polarization index for Indonesia's district. Each dot represents the value of the index for one district

Figure 3.2: Comparing Faction competition and Polarization Indexes



Note: The figure plots the value of the religious polarization index on the x axis and the Factional Competition index on the y axis. Each dot represents the value of the index for one district

3.3.5 Method of analysis

I regress measures of the severity of religious conflict on the FC Index I introduced above. The regression will be cross-sectional analysis with district as the unit of analysis. The outcome variable is the severity of religious conflict, which is measured by the number of fatalities (human life lost or injured during the incidents). Both the NVMS and ACLED data contain this information for each of the incidents recorded in the dataset.

I expect the main variable of interest to move slowly during the period covered in the study. Moreover, the outcome variables in the NVMS dataset are collected for different sets of districts in different years. For these reasons, I take the total number of fatalities at the district level and divide it by the number of years for which the data are collected in that district. The complete dataset collapses 15 years of observation, from the period 2005 - 2014 (in the NVMS) and 2015 - (July) 2019 in the ACLED dataset. I conduct the analysis in 497 districts. In practice, what this variable is capturing is the average number of the annual victim of religious conflict in each district.

The main variable of interest is the FC Index introduced above. I take the logarithm of the FC Index for two reasons: a) The index does not have a straightforward unit and b) the range of the index is very large (between 0 to 23) and importantly, there is a large outlier that may skew the relationship of interest. Taking the logarithm would smoothen the value and hence enable the inclusion of all observations but at the same time, moderating the effect of the outliers. The functional form of the model is:

$$\text{Conflict}_d = \alpha + \beta \text{ FC Index}_d + \gamma_i + \delta \mathbf{X}_d + \epsilon_d \tag{3.4}$$

where Conflict_d is the average number of the annual victim of religious conflict in district d, FC Index_d is the factional competition index for district d, γ_i is a fixed effect for the island i in which district d is located, $\mathbf{X}$ is a vector of district characteristics and ϵ is an error term, which may potentially be correlated across districts within provinces. Please note that this is a cross-sectional regression with the district as the unit of analysis.

To construct vector $\mathbf{X}$, I use the rich information in the INDO-DAPOER dataset–

provided by the World Bank Jakarta. I add, in sequence, population size, religious fractionalization, ethnic fractionalization, the level of GDP, a measure of ethnic fractionalization, the share of GDP coming from natural resources sectors, the poverty rate, the Human Development Index and the log of unemployed population. To control for stable characteristics across districts, I add the fixed effects for the island since there may be unobserved characteristics of the island in which the district is located which affects the degree of violence in the district. We may also expect that the errors may be correlated within an administrative area, so for each of the regression models, I cluster the standard errors at the province level.

3.4 Results

To test the idea proposed in this study, I run regressions of the various measures of conflict on the factional competition index. Table 3.1 reports the estimates for the main measure of religious violence.

The index is positively associated with the severity of violence, and the coefficient is highly statistically significant. This relationship is robust to the inclusion of various other variables that may influence violence. The magnitude is also stable across different model specifications.

According to these estimates, one unit increase in the log FC Index is associated with about 0.4 increase in the number of fatalities from religious conflicts. To put these numbers in perspective, moving from the lowest value of the FC index to its median value would increase the expected number of fatalities by approximately one additional human life.

Table 3.1: The OLS regression of fatalities from religious violence on the FC Index

VARIABLES	Dependent Variable: Fatalities Relig Conflict (person)								
FC Index (Log)	0.406**	0.349**	0.409**	0.332**	0.399**	0.396**	0.392**	0.392**	0.390**
	(0.153)	(0.130)	(0.157)	(0.156)	(0.155)	(0.157)	(0.156)	(0.156)	(0.154)
Log_population		0.443***	0.423***	-0.005	0.234**	0.261**	0.251**	0.238**	-0.024
		(0.107)	(0.108)	(0.255)	(0.102)	(0.110)	(0.107)	(0.110)	(0.190)
Religious_polarization			0.642	0.480	0.588	0.594	0.583	0.583	0.681*
			(0.419)	(0.394)	(0.403)	(0.408)	(0.405)	(0.407)	(0.381)
Ethnic_Fractionalization			0.583	0.346	0.138	0.120	0.144	0.157	0.181
			(0.403)	(0.278)	(0.218)	(0.233)	(0.236)	(0.233)	(0.244)
Log_GDP				0.429*	0.201*	0.165	0.178	0.187	0.124
				(0.241)	(0.108)	(0.115)	(0.116)	(0.111)	(0.133)
Human_Dev_Index					-0.010	-0.012	-0.012	-0.012	-0.019
					(0.016)	(0.017)	(0.018)	(0.017)	(0.020)
Poverty_rate						-0.008	-0.008	-0.009	-0.011
						(0.011)	(0.011)	(0.012)	(0.012)
Share_resources_GDP							-0.158*	-0.158*	-0.157**
							(0.079)	(0.079)	(0.076)
Literacy_rate								-0.002	-0.005
								(0.006)	(0.015)
Log_unemployed_popul									0.296
									(0.198)
Observations	497	497	487	487	481	481	481	481	470
R-squared	0.071	0.119	0.152	0.175	0.158	0.159	0.161	0.161	0.171

The table presents OLS regression results of fatalities from religious violence on the FC Index. The outcome variable is on the level and the main variable of interest is in logarithmic scale. All models include island fixed effects. Standard errors are clustered at the province level. *** p<0.01, ** p<0.05, * p<0.1

3.5 Placebo and robustness

In this section, I run several placebo tests and robustness analysis. For the placebo test, I will rerun the main regression above but replacing the outcome variable with the number of fatalities from other types of violence, i.e. general crime, domestic violence and violence from other conflicts but are not religiously motivated. Since the range of the outcomes variable differs between these outcomes, e.g. the range of fatalities from religious violence is between zero and sixteen victims, while the range for domestic violence is from zero to over 500 victims, I will run the analysis using the standardized value of these variables so that they have a mean of zero and a standard deviation of one. Hence, it is easier to compare the results across different outcomes. Moreover, since we might expect that one type of violence is likely to be correlated to other types of violence, for each of the placebo analysis and the rerun of the main analysis, I also control for all other types of violence to control for the possibility that the different type of violence may evolve simultaneously. I report the rerun of the main analysis using the standardized outcome variable in table 3.2. In the standardized unit, one unit increase in the log of the FC Index is associated with about 0.12 increase in the standard deviation of fatalities from religious conflict. The number is robust to controlling of various variables pertinent to conflict and to controlling for other types of violence.

3.5.1 Alternative explanation: a culture of violence

One may wonder that the effect detected in the previous exercise emerges just from confounding. For instance, the effect estimated above might be driven by the fact that the districts with higher factional competition index happen to also have a higher "culture of violence" in general.

I order to address this doubt; I run similar regressions but instead of using fatalities resulting from religious violence; I use fatalities resulting from other types of violence. Fortunately, the NVMS data also contains information on other types of violence, namely violence due to crime and domestic violence.

I report the results of these analyses in Table 3.3 and Table 3.4. As the reader may observe, the relationship between the FC index and the number of victims from crime and domestic violence is never statistically significant with coefficients that are not only smaller than the baseline but also highly unstable from one model to the next. This evidence addresses possible concerns about the role of "the culture of violence" delineated above.

3.5.2 Alternative explanation: culture of conflict

Another alternative explanation for the relationship we found at the beginning of this section is that places with a higher degree of competition between Muslim factions are simply more prone to any type of conflict not necessarily related to religious groups.

Unlike the case of violent culture above where violent behavior may be part and parcel of the culture in the society, we could think of a place where people may not necessarily violent, but conflicts are easy to spark, for instance between political organizations, ethnic conflict or separatist movements.

If places that are more prone to conflict happen to also have a higher degree of competition between religious organizations, then one might be concerned that the relationship exhibited above is simply driven by the conflict-prone nature of the district and is not necessarily related to competition between Muslim factions.

To address this concern, I run another set of regression models, similar to the first analysis, but instead of using the severity of the religious conflict, I use a measure of other conflicts that are neither religiously motivated nor involve actors affiliated to religious groups. Both the NVMS and the ACLED dataset provide this information. For instance, other types of conflicts include disputes about natural resources, environmental issues, public facilities, corruption scandal, electoral dispute, land disputes, separatism, etc. I report the results of this analysis in Table 3.5. Similarly to the previous placebo test, the coefficients for this regression is also never statistically significant, much smaller than the baseline and also unstable from one specification to the next.

Table 3.2: The OLS regression of fatalities from religious violence (standardized) on the FC Index

VARIABLES	Dependent Variable: Fatalities Relig Conflict (std)								
FC Index (Log)	0.125**	0.123**	0.118*	0.119*	0.160***	0.158**	0.157**	0.157**	0.153**
	(0.055)	(0.053)	(0.064)	(0.070)	(0.057)	(0.058)	(0.058)	(0.058)	(0.062)
Log_population		0.069	0.075	0.083	0.166*	0.188**	0.186**	0.175*	0.026
		(0.046)	(0.045)	(0.110)	(0.083)	(0.089)	(0.088)	(0.086)	(0.117)
Religious_polarization			-0.003	-0.001	0.080	0.085	0.084	0.083	0.121
			(0.227)	(0.229)	(0.219)	(0.219)	(0.220)	(0.221)	(0.221)
Ethnic_Fractionalization			0.299**	0.303**	0.217	0.202	0.208	0.218	0.236
			(0.144)	(0.147)	(0.153)	(0.162)	(0.165)	(0.162)	(0.166)
Log_GDP				-0.010	-0.083	-0.114	-0.110	-0.102	-0.135
				(0.100)	(0.077)	(0.080)	(0.078)	(0.077)	(0.088)
Human_Dev_Index					-0.001	-0.003	-0.003	-0.004	-0.005
					(0.009)	(0.010)	(0.010)	(0.010)	(0.011)
Poverty_rate						-0.007	-0.007	-0.008	-0.009
						(0.005)	(0.005)	(0.006)	(0.006)
Share_resources_GDP							-0.038	-0.038	-0.038
							(0.049)	(0.049)	(0.047)
Literacy_rate								-0.002	-0.006
								(0.004)	(0.009)
Log_unemployed_popul									0.169
									(0.127)
Observations	497	497	487	487	481	481	481	481	470
R-squared	0.356	0.358	0.363	0.363	0.315	0.317	0.317	0.317	0.323

The table presents OLS regression results of fatalities from religious violence on the FC Index. The outcome variable is standardized to have a mean of zero and a standard deviation of one and the main variable of interest is in logarithmic scale. All models include island fixed effects, as well as controlling for fatalities from other types of violence, i.e. crimes, domestic violence and other conflicts which are not religiously motivated. Standard errors are clustered at the province level. *** p<0.01, ** p<0.05, * p<0.1.

Table 3.3: The OLS regression of fatalities from criminal violence (standardized) on the FC Index

VARIABLES	Dependent Variable: Fatalities from Crime (std)								
FC Index (Log)	-0.020	-0.027	-0.088	-0.095	-0.112	-0.109	-0.109	-0.110	-0.113*
	(0.061)	(0.052)	(0.062)	(0.062)	(0.067)	(0.066)	(0.066)	(0.065)	(0.066)
Log_population		0.212***	0.214***	0.162*	0.198*	0.171*	0.173*	0.134	0.176*
		(0.061)	(0.061)	(0.094)	(0.109)	(0.094)	(0.094)	(0.090)	(0.093)
Religious_polarization			-0.270	-0.281*	-0.322**	-0.327**	-0.326**	-0.327**	-0.334**
			(0.161)	(0.160)	(0.150)	(0.155)	(0.153)	(0.155)	(0.158)
Ethnic_Fractionalization			0.350***	0.323***	0.327**	0.343**	0.338**	0.374**	0.373**
			(0.104)	(0.109)	(0.123)	(0.130)	(0.133)	(0.142)	(0.151)
Log_GDP				0.060	0.030	0.067	0.063	0.092	0.095
				(0.076)	(0.085)	(0.069)	(0.069)	(0.063)	(0.065)
Human_Dev_Index					0.014	0.016*	0.016*	0.015**	0.018**
					(0.009)	(0.009)	(0.009)	(0.007)	(0.008)
Poverty_rate						0.008	0.008	0.006	0.005
						(0.007)	(0.007)	(0.006)	(0.006)
Share_resources_GDP							0.034	0.034	0.037
							(0.057)	(0.057)	(0.055)
Literacy_rate								-0.006*	-0.007
								(0.003)	(0.006)
Log_unemployed_popul									-0.035
									(0.055)
Observations	497	497	487	487	481	481	481	481	470
R-squared	0.511	0.530	0.540	0.541	0.524	0.526	0.527	0.529	0.530

The table presents OLS regression results of fatalities from criminal activities on the FC Index. The outcome variable is standardized to have a mean of zero and a standard deviation of one and the main variable of interest is in logarithmic scale. All models include island fixed effects, as well as controlling for fatalities from other types of violence, i.e. religious conflict, domestic violence and other conflicts which are not religiously motivated. Standard errors are clustered at the province level. *** p<0.01, ** p<0.05, * p<0.1.

Table 3.4: The OLS regression of fatalities from domestic violence (standardized) on the FC Index

VARIABLES	Dependent Variable: Fatalities Domestic Violence (std)								
FC Index (Log)	0.047	0.042	0.052	0.041	0.012	0.011	0.010	0.011	-0.002
	(0.077)	(0.081)	(0.086)	(0.086)	(0.093)	(0.092)	(0.092)	(0.089)	(0.094)
Log_population		0.122***	0.122***	0.049	0.009	0.022	0.016	0.064	-0.021
		(0.042)	(0.044)	(0.063)	(0.069)	(0.060)	(0.060)	(0.060)	(0.113)
Religious_polarization			0.183	0.165	0.119	0.123	0.117	0.120	0.118
			(0.115)	(0.109)	(0.105)	(0.106)	(0.106)	(0.106)	(0.115)
Ethnic_Fractionalization			0.188	0.150	0.216	0.207	0.224	0.173	0.185
			(0.117)	(0.118)	(0.128)	(0.137)	(0.139)	(0.144)	(0.151)
Log_GDP				0.084	0.121	0.102**	0.113**	0.074*	0.058
				(0.070)	(0.073)	(0.050)	(0.051)	(0.042)	(0.040)
Human_Dev_Index					0.011	0.010	0.010	0.011	0.011
					(0.012)	(0.013)	(0.013)	(0.011)	(0.011)
Poverty_rate						-0.004	-0.004	-0.001	-0.001
						(0.007)	(0.007)	(0.006)	(0.006)
Share_resources_GDP							-0.112**	-0.110**	-0.114**
							(0.051)	(0.051)	(0.054)
Literacy_rate								0.008***	0.008
								(0.002)	(0.006)
Log_unemployed_popul									0.091
									(0.094)
Observations	497	497	487	487	481	481	481	481	470
R-squared	0.656	0.662	0.668	0.669	0.679	0.679	0.681	0.685	0.686

The table presents OLS regression results of fatalities from domestic violence on the FC Index. The outcome variable is standardized to have a mean of zero and a standard deviation of one and the main variable of interest is in logarithmic scale. All models include island fixed effects, as well as controlling for fatalities from other types of violence, i.e. religious conflict, crimes and other conflicts which are not religiously motivated. Standard errors are clustered at the province level,*** p<0.01, ** p<0.05, * p<0.1.

Table 3.5: The OLS regression of fatalities from non-religious violence (standardized) on the FC Index

VARIABLES	Dependent Variable: Fatalities Non-religious Conflict (std)								
FC Index (Log)	0.035	0.034	0.090	0.060	0.087	0.088	0.088	0.087	0.100
	(0.049)	(0.048)	(0.060)	(0.071)	(0.071)	(0.070)	(0.070)	(0.069)	(0.071)
Log_population		0.036	0.049	-0.150	-0.086	-0.099	-0.099	-0.115	-0.069
		(0.050)	(0.053)	(0.104)	(0.089)	(0.095)	(0.094)	(0.101)	(0.087)
Religious_polarization			0.321*	0.264	0.294*	0.290*	0.290*	0.288*	0.315**
			(0.162)	(0.162)	(0.149)	(0.148)	(0.147)	(0.146)	(0.149)
Ethnic_Fractionalization			-0.171	-0.266*	-0.354**	-0.345**	-0.345**	-0.328**	-0.339**
			(0.170)	(0.150)	(0.132)	(0.130)	(0.131)	(0.124)	(0.128)
Log_GDP				0.228*	0.166*	0.184*	0.184*	0.196*	0.206*
				(0.116)	(0.094)	(0.104)	(0.102)	(0.110)	(0.116)
Human_Dev_Index					-0.014***	-0.013**	-0.013**	-0.013***	-0.017***
					(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Poverty_rate						0.004	0.004	0.003	0.003
						(0.005)	(0.005)	(0.005)	(0.005)
Share_resources_GDP							-0.005	-0.005	-0.006
							(0.064)	(0.064)	(0.062)
Literacy_rate								-0.003	0.000
								(0.002)	(0.003)
Log_unemployed_popul									-0.050
									(0.075)
Observations	497	497	487	487	481	481	481	481	470
R-squared	0.674	0.675	0.680	0.693	0.669	0.669	0.669	0.670	0.672

The table presents OLS regression results of fatalities from non-religious violence on the FC Index. The outcome variable is standardized to have a mean of zero and a standard deviation of one and the main variable of interest is in logarithmic scale. All models include island fixed effects, as well as controlling for fatalities from other types of violence, i.e. religious conflict, crimes, and domestic violence. Standard errors are clustered at the province level. *** p<0.01, ** p<0.05, * p<0.1.

3.5.3 Regression in levels

One may be concerned that the results presented in the main analysis are simply driven by the fact that the variable of interest is transformed into logarithmic values. As previously explained, one of the reasons for this transformation is that there is an outlier observation that is likely to skew the analysis. Hence, this transformation may moderate this problem while allowing the inclusion of all available observations.

To address this doubt, in this section, I rerun the main analysis in levels for both the outcomes and the main independent variable, but removing the outlier on FC Index.[5]. I present this analysis in Table 3.6. The results are virtually identical to the baseline, even if the magnitude is obviously different due to the different units.

3.5.4 Removing outliers

To make sure that the results are not driven by outliers on either side of the equation, I rerun the analysis by omitting the districts that exhibit the highest severity of conflict fatalities as well as districts that have the highest level of factional competition.

I report the results in Table 3.7 From the results we can conclude that the previous results are not driven by outliers in the data

3.5.5 Alternative measure

In Table 3.8 I rerun the analysis using a different measure of conflict, i.e. the count number of incidents of religious conflict in the district. The conclusion we can draw from this measure is in line with the results in the main analysis.

[5]There is a single observation with the value FC Index of 23, while other values are below 10

Table 3.6: The OLS regression of fatalities from religious violence on the FC Index (Level on Level)

VARIABLES	Dependent Variable: Fatalities Relig Conflict (person)								
FC Index	0.292**	0.267**	0.284**	0.247*	0.287**	0.288**	0.286**	0.286**	0.275**
	(0.127)	(0.112)	(0.119)	(0.124)	(0.122)	(0.121)	(0.121)	(0.121)	(0.127)
Log_population		0.441***	0.424***	0.011	0.248**	0.282**	0.273**	0.260**	0.033
		(0.105)	(0.108)	(0.262)	(0.115)	(0.124)	(0.120)	(0.121)	(0.208)
Religious_polarization			0.606	0.466	0.573	0.584	0.573	0.573	0.666*
			(0.408)	(0.387)	(0.400)	(0.403)	(0.402)	(0.403)	(0.380)
Ethnic_Fractionalization			0.585	0.347	0.142	0.117	0.138	0.151	0.187
			(0.400)	(0.268)	(0.201)	(0.215)	(0.219)	(0.215)	(0.230)
Log_GDP				0.412*	0.187*	0.141	0.152	0.162	0.109
				(0.242)	(0.106)	(0.110)	(0.110)	(0.105)	(0.129)
Human_Dev_Index					-0.013	-0.016	-0.016	-0.016	-0.023
					(0.016)	(0.018)	(0.018)	(0.017)	(0.020)
Poverty_rate						-0.010	-0.010	-0.011	-0.013
						(0.011)	(0.011)	(0.012)	(0.012)
Share_resources_GDP							-0.140*	-0.141*	-0.141*
							(0.075)	(0.075)	(0.073)
Literacy_rate								-0.002	-0.005
								(0.006)	(0.014)
Log_unemployed_popul									0.257
									(0.214)
Observations	496	496	487	487	481	481	481	481	470
R-squared	0.086	0.134	0.166	0.187	0.175	0.176	0.178	0.178	0.186

The table presents OLS regression results of fatalities from religious violence on the FC Index. Both the outcome variable and the main variable of interest is in level. The outlier observation on FC Index (index value=23) is omitted. All models include island fixed effects. Standard errors are clustered at the province level. *** p<0.01, ** p<0.05, * p<0.1.

Table 3.7: The OLS regression of fatalities from religious violence on the FC Index (without outliers)

VARIABLES	Dependent Variable: Fatalities Relig Conflict (person)								
FC Index (Log)	0.317**	0.271**	0.291**	0.225	0.284**	0.281**	0.278**	0.278**	0.266**
	(0.124)	(0.109)	(0.130)	(0.134)	(0.128)	(0.131)	(0.131)	(0.131)	(0.123)
Log_population		0.345***	0.327***	-0.049	0.207**	0.231**	0.223**	0.217**	-0.060
		(0.087)	(0.086)	(0.253)	(0.096)	(0.104)	(0.102)	(0.104)	(0.164)
Religious_polarization			0.553	0.412	0.495	0.500	0.491	0.491	0.571
			(0.405)	(0.385)	(0.384)	(0.387)	(0.385)	(0.386)	(0.364)
Ethnic_Fractionalization			0.596	0.387	0.192	0.176	0.196	0.202	0.238
			(0.386)	(0.268)	(0.218)	(0.233)	(0.233)	(0.224)	(0.238)
Log_GDP				0.378	0.124	0.092	0.102	0.107	0.046
				(0.247)	(0.083)	(0.085)	(0.085)	(0.094)	(0.110)
Human_Dev_Index					-0.003	-0.006	-0.005	-0.006	-0.011
					(0.012)	(0.013)	(0.013)	(0.013)	(0.014)
Poverty_rate						-0.007	-0.007	-0.008	-0.009
						(0.011)	(0.011)	(0.012)	(0.012)
Share_resources_GDP							-0.130**	-0.130**	-0.131**
							(0.054)	(0.054)	(0.052)
Literacy_rate								-0.001	-0.006
								(0.006)	(0.012)
Log_unemployed_popul									0.304
									(0.185)
Observations	495	495	486	486	480	480	480	480	469
R-squared	0.061	0.099	0.134	0.156	0.134	0.135	0.137	0.137	0.149

The table presents OLS regression results of fatalities from religious violence on the FC Index. The outcome variable is in level and the main variable of interest is in logarithmic scale. Outliers observation on the dependend and independent variable are omitted. All models include island fixed effects. Standard errors are clustered at the province level. *** p<0.01, ** p<0.05, * p<0.1.

Table 3.8: The OLS regression of the count of religious violence on the FC Index

VARIABLES	Dependent Variable: Count_Relig_Conflict								
FC Index (Log)	0.216**	0.179**	0.212**	0.158	0.185*	0.184*	0.182*	0.182*	0.179*
	(0.095)	(0.082)	(0.099)	(0.098)	(0.101)	(0.101)	(0.101)	(0.101)	(0.103)
Log_population		0.292***	0.282***	-0.016	0.091	0.100*	0.093*	0.090*	-0.045
		(0.067)	(0.068)	(0.120)	(0.055)	(0.054)	(0.050)	(0.050)	(0.107)
Religious_polarization			0.428*	0.316	0.363	0.365	0.357	0.357	0.410*
			(0.227)	(0.210)	(0.217)	(0.219)	(0.216)	(0.217)	(0.208)
Ethnic_Fractionalization			0.323	0.159	0.065	0.059	0.076	0.079	0.089
			(0.211)	(0.155)	(0.131)	(0.135)	(0.137)	(0.134)	(0.138)
Log_GDP				0.298**	0.201***	0.189***	0.197***	0.200***	0.167**
				(0.110)	(0.066)	(0.066)	(0.067)	(0.065)	(0.070)
Human_Dev_Index					-0.003	-0.004	-0.004	-0.004	-0.008
					(0.009)	(0.010)	(0.010)	(0.009)	(0.012)
Poverty_rate						-0.003	-0.003	-0.003	-0.004
						(0.007)	(0.007)	(0.007)	(0.007)
Share_resources_GDP							-0.111*	-0.111*	-0.111*
							(0.060)	(0.060)	(0.059)
Literacy_rate								-0.001	-0.001
								(0.003)	(0.007)
Log_unemployed_popul									0.154
									(0.093)
Observations	497	497	487	487	481	481	481	481	470
R-squared	0.078	0.152	0.195	0.233	0.210	0.210	0.214	0.214	0.224

The table presents OLS regression results of the count of religious violence on the FC Index. The outcome variable is in level and the main variable of interest is in logarithmic scale. All models include island fixed effects. Standard errors are clustered at the province level. *** p<0.01, ** p<0.05, * p<0.1.

3.6 Conclusions

The study has shown that focusing on the competition within politically influential (majority) groups is potentially fruitful in understanding religious/sectarian conflict. I deploy two innovations in this study. First, using a simple machine learning method, I gauge the strength of Muslim factions at the district level across Indonesia. By taking advantage of schools characteristics, in particular, the wording of the school names, I can predict the organizational affiliation of the school, and in turn, gauge organizational strength in the district. Importantly, this method performs well to predict the in-sample organizational affiliations of schools.

Second, I devise a new formula to capture factional competition within the Muslim majority group. This formula captures the intuition that the factional competition is higher when a) the size of the majority population if larger, b) the strengths of the two most prominent factions are more balanced and c) the size of the minority group is smaller. The analysis shows this index has virtually no relationship with the fractionalization and the polarization indexes, attesting to the fact that they capture completely different concepts.

The evidence presented in this study shows that religious conflicts are more severe in districts where the factional competition is higher. This association is robust even after controlling for a wide range of possible confounders, including population size, religious fractionalization, religious fractionalization, the level of GDP, a measure of ethnic fractionalization, the share of GDP coming from natural resource sectors, the poverty rate, the Human Development Index, the log of the unemployed population as well as the stable characteristics of the island where the district is located.

A set of placebo analyses show that this association does not emerge when we are using measures of fatalities from other types of violence (crime or domestic violence). Moreover, lending further support to the hypothesis tested, no robust association emerges when we are using measures of fatalities from other types of conflicts that are not religious in nature or perpetrated by actors that are not affiliated to religious organizations. This

study points to the central role of power dynamics within the politically dominant groups to explain violence or discrimination against religious or ethnic minorities.

Chapter 4

Money or Ideology: Politicians' motivation in a young democracy

Abstract

Which factors shape the behavior of politicians? Using a novel, hand-coded dataset of over 1500 reports of wealth declaration by Indonesia's Member of Parliament, I attempt to shed light on this question. Multiple reports submitted by individual MPs at a different point in time allow me to estimate the effect of sitting in a parliamentary position on personal wealth accumulation by holding individual characteristics constant. I find that politicians from ideological parties significantly differ from their non-ideological MP fellows in characteristics that are in line with their ideological tenets. Importantly, compared to non-ideological MPs, politicians from ideological parties have a significantly lower growth of personal wealth. Further analysis suggests that different mechanism of vote gathering is the driver for this gap in behavior. The findings suggest that ideology could play as a disciplining mechanism for politicians in a clientelistic political environment.

4.1 Introduction

Why do politicians run for office? What determines their behavior while in office? A large body of works has attempted to understand the motivation of politicians. Most of them focus on the financial return, both during and after the term in office, either legally or illegally acquired. Some works focus on salary (Gagliarducci & Nannicini, 2013; Kotakorpi & Poutvaara, 2011) as well as potentially non-legal wealth acquisition (Eggers & Hainmuller, 2009; Fisman, Schulz, & Vig, 2014). Others focus on how career concern influences the behavior of politicians while in office. Very few works, however, focus on non-materialistic incentives such as how party ideologies may determine different behavior among MPs.

Theoretically, the ideological appeal of politicians may lead to two opposite effects on their behavior. On the one hand, politicians who run on ideological platforms may have to stick to the party ideology, which translates to discipline in their behavior and less shirking while in office. On the other hand, ideology may be used by politicians to mask their actual performance. As the core constituents of these ideological MPs are mostly also ideological voters, who care more about the ideological position on key political issues rather than performance in office, self-interested politicians may maximize their utility by shirking more or concentrating more on accumulating wealth. In this study, we empirically investigate these competing hypotheses.

The question about how money and ideology affect politicians' behavior is even more salient in the context of young and consolidating democracy. It is an uncomfortable fact that newly democratized nation-states, especially those democratized during the second and the third wave of democratization, tend to be poorer than their more established counterparts. In these countries, universal suffrage is extended to the population, most of whom are in poverty. As a consequence, most young and consolidating democracies today are plagued by patronage and clientelism. Clientelism tends to reserve public offices to the wealthy and super-wealthy politicians. Meanwhile, ideas, programs, and ideologies are pushed to the sideline as they are not compatible with the incentive structure within

a clientelistic political system. In this work, I attempt to understand whether and how a clientelistic political system allows ideology and ideological politicians to survive.

Taking advantage of the Indonesian law that requires all public office holders to submit wealth declarations, I explore the behavior of different types of politicians. The evidence shows that politicians from ideological parties (in this case, Islamist parties) are significantly distinguishable from non-ideological politicians both in terms of selection and the behavior during office. First, ideological politicians possess characteristics that are in line with their ideological tenets: they are in general poorer, have a larger number of offspring, and are less likely to be women. Second, ideological politicians have significantly lower growth in personal net wealth. This effect is robust even after controlling for individual fixed effects, reporting year fixed effect, and incumbency advantage.

Importantly, further analysis shows that electoral incentives and voter-politicians linkages seem to explain this gap in behavior. If we believe that clientelism and money politics is rampant in a consolidating democracy like Indonesia, then we would expect that previously wealthier politicians would have greater financial power to get themselves elected. Otherwise, politicians need to have a real grass-root engagement or concrete ideological appeal to their voters to get elected. The analysis confirms this. Controlling for individual fixed effects, politicians who possess more wealth in the previous period tend to gather a larger number of votes. Interestingly, however, this positive effect of wealth dissipates for politicians coming from ideological parties.

This finding has a crucial implication on our understanding of party competition and politicians' motivations in young and consolidating democracy. The evidence presented in this paper suggests that ideology matters even in the context where money politics is pervasive, a characteristic plaguing most young democracies around the world today. Having ideologically driven parties, which also tend to be seen as extremist parties, may induce or at least secure some space for the creation of political platforms that shift away from clientelism and patronage.

4.2 Background: Indonesia's democracy and party ideology

Indonesia provides an excellent opportunity to study how (religious) ideology shapes party competition in a young democracy. There are several reasons: First, the nation's democracy is relatively young. Importantly, since clientelism is one of its main features, money politics is part and parcel of its democratic practices. Second, it is the third-largest democracy in the world and at the same time, the world's most populous Muslim country. These facts render the country ideal to study the role of (religious) ideology in shaping how democratic institutions operate. Indeed, as I will show later, the public role of religion is the single key political issue that defines party ideological divides. In short, this political context allows us to trace the role of both money and ideology in shaping the behavior of politicians.

Following an abrupt, but by and large peaceful, democratization in 1999, a plethora of political parties arises. There were 48 parties that participated in the first democratic election following the fall of the New Order Regime.[1] Apart from the three previously existing parties[2], several new parties were founded with various backgrounds and social groups representation. Some of these new parties rose and then fell immediately, but some survived and consolidated. Currently, nine parties whose ideologies I elaborate next, are sitting in Indonesia's Parliament.

Current literature establishes that the right-left ideological divide does not carry much meaning in the current Indonesian context.[3]. Using surveys on a representative sample of politicians and voters, Fossati et al. (2020) show that Indonesia's political parties are

[1] Among these, only six parties managed to pass the electoral threshold of 2 percent.

[2] Under the authoritarian rule of President Suharto (*New Order regime*: 1965-1998), all political parties in Indonesia were forced to merge into three parties: Golkar (Golongan Karya, *Functional Group Party*), PDIP (Partai Demokrasi Indonesia Perjuangan, *Indonesian Democratic Party-Struggle*) and PPP(Partai Persatuan Pembangunan, *Development Unity Party*). This policy is designed to abolish the competition between political groups, since obviously, the party of the government always won a landslide victory in *every* election. Golkar is the political vehicle of Suharto, PDIP is the merging of the first president, president Sukarno's, party, PNI, and other small non-Islamic religious parties, while PPP is the merging of all Islamic parties.

[3] This divide reminded us of the political cleavage during the early era of the United States, where the main contention is mainly religious and cultural and centers around the conception of public morality Lipset (1967)

indistinguishable in economic and social issues, while the only issue that distinguishes parties is the public role of religion (Islam). Along this ideological dimension, the secular-nationalist parties–which are advocating a more inclusive society–are at one end of the spectrum, and the Islamist parties–which envision a larger role of religion in the public sphere–are at the other end of the spectrum.[4].

For the purpose of this paper, I follow Kitschelt (2000) in categorizing parties. Ideological parties are defined as parties that are most cohesive in their position regarding the salient/divisive political issues. Theoretically, the ideological linkage between voters and politicians requires intraparty cohesion so that voters can discern the party's ideological commitment. In practice, cohesion can be measured by the standard deviation of the scores that politicians assign to their parties on key political issues. Using the data from Fossati et al. (2020), it can be shown that the most cohesive parties happen to also be the Islamist parties, i.e. PPP and PKS.[5] This way of categorization is also motivated by the fact that these parties are the only parties that openly declare Islam rather than Pancasila (national ideology) as their ideological base. They are also openly supporting the public role of religion. Although there are stark differences regarding the party structure and strategy[6], these parties are generally accepted to be categorized as "Islamist" parties. I do not categorize PAN and PKB as ideological parties for two reasons: First, they advocate neither conservative policies nor the society based on Sharia. On the other hand, they actually advocate a pluralist position and inclusive society (Mietzner, 2013). This is also reflected, for instance, by the fact that they also have non-Muslim cadres, sympathizers, and even non-Muslim MPs. Therefore, both of them are not particularly "ideological". Second, they score much below PPP and PKS in terms of party cohesiveness on key po-

[4]Secular-nationalist parties include PDIP, Golkar, Gerindra (Gerakan Indonesia Raya, *Great Indonesia Movement Party*), Partai Demokrat (*Democratic Party*), Nasdem (Nasional Democrat, *National Democrat Party*) and Hanura (Hati Nurani Rakyat, *People's Conscience Party*). Meanwhile, the nominally Islamic Parties includes PPP, PAN (Partai Amanat Nasional, *National Mandate Party*), PKB (Partai Kebangkitan Bangsa, *National Awakening* To put this ideological divide in perspective, traditionally "left' parties are literally absent following the purge of Indonesia Communist Party–Partai Komunis Indonesia (PKI) in 1965

[5]Another interesting observation is that the least cohesive parties, according Fossati et al. (2020) data are presidential parties. This is in line with Kitschelt's prediction that politicians with charismatic linkage to their voters care the least about ideas or ideology since they depend on the charisma of the leader.

[6]For a more detailed discussion about the similarities and contrast of these two parties, refer to Hwang (2014)

litical issues. PKB for instance scores even lower than other secular-nationalist parties in their position in Fossati et al. (2020)'s Political Islam index.

It is also important to note than PKS is a strongly constituency-based party and would be categorized as a classic "movement" party. Rooted in a previously apolitical *Tarbiyah* movement that developed in campuses in the 1980s, PKS is arguably the most *scripturalist* Islamist party (Bubalo & Fealy, 2005; Damanik, 2002; Mietzner, 2013). Inspired by the Muslim Brotherhood in Egypt, the party sought a state which has "at its core, pious, disciplined and professionally successful Muslims" (Fealy2010).

4.3 Data

The data I am using are based on the wealth declaration by public office holders required by Law No.30 in 2002. Each report is well preserved in pdf format and is open to the public. Any parties interested to scrutinize these documents can access them free of charge at the anti-corruption clearinghouse website: `https://acch.kpk.go.id/aplikasi-lhkpn/`.

All public-office holders, including parliament members, judges, public officials, the board of directors and executive directors of government-owned companies are required to submit this document. I manually encoded these documents to enable the statistical analysis of the data.

The subject of this study is individuals who at some point hold parliamentary office in three periods, 2004-2009, 2009-2014, 2014-2019, either through election or because of within term substitution. Some MPs are replaced by their party fellow if for any reason they cannot continue their duty as an MP, for instance, because of death, or because they are involved in criminal activity and have to serve terms in jail.

Each document provides a snapshot of the wealth owned by these individuals at a certain point in time. The submission time may differ from one individual to another depending on the cycle of their public office term. Importantly, the nature of this report enables us to track an individual's wealth before, during, and after becoming a parliament member.

It is also possible for us to see the changes or movement of individual wealth from time to time, so we can calculate the growth of wealth between any two points of reports. Due to the nature of the report, where we know the date and month of the submission, the growth of wealth can be computed as the Compound Annual Growth Rate (CAGR) and is calculated using the following formula:

$$\text{Growth} = \text{CAGR}(t_0, t_n) = \left(\frac{V(t_n)}{V(t_0)}\right)^{\frac{12}{t_n - t_0}} - 1 \tag{4.1}$$

where $V(t_0)$ is the start value, $V(t_n)$ is the end value, and $t_n - t_0$ is the length of the period in between the two values and 12 is the number of months in 1 year. (I am using the number of months to calculate the length between two reports, not years). Since there are a small number of outliers, I exclude the one percent lowest and highest growth of reported net wealth.

This wealth declaration also contains detailed information about each type of wealth, including land, vehicles, cash, jewelry, farming activities, stocks and financial papers, liabilities and receivables both in local and USD denomination.[7] Importantly, the report also provides the details about the source of each of these possessions, dividing it into three types: 1) own effort, if the wealth item is acquired through individual's own effort 2) inherited, in the wealth item is inherited from family/relatives and 3) donation/presents if the wealth item is acquired as presents or donation from other people/parties. The readers can observe an example of these declarations in the appendix C.3.

This wealth data is then complemented using the profile of politicians provided by the election committee (KPU) where we can see the detailed information about the gender, place and date of birth, education, last occupation, marriage status, number of children and the number of votes gathered at the national election. The statistical summary of the data as well as the definition of each variable can be observed in table C.1 and table C.2 respectively.

[7] I convert all denomination into local currency, Rupiah, to simplify the analysis

4.4 Empirical Framework

In previous studies, the main methodological concern in comparing different politicians who have a different background and life experience is that any differences are likely to arise from the fact that there are inherent differences among individuals. Previous studies mainly rely on using close elections: comparing two politicians, one who barely lost and one who barely won, to estimate the effect of holding parliamentary office. [8]

In this paper, I am taking advantage of the nature of the availability of the data, where multiple reports are available for a single individual MPs. I am using panel data with individual fixed effects to overcome the ubiquitous problem of selection I elaborated above. The idea is simple. The best control for an individual is the individual itself, so we are confident that we are comparing comparable entities. By controlling for individual fixed effect, we practically comparing an individual to themselves at a different point in time, or in this case, when they are holding a different job. Remember that the data is available such that we can trace the growth of individual wealth, some of which are available before, during, and after leaving the parliament office.

The main regression model where we investigate the effect of holding the parliament office is as follows:

$$\text{Growth}_{it} = \alpha + \beta\ Parliament_{it} + \mathbf{X}_{it} + \gamma_i + \lambda_t + \epsilon_{it} \tag{4.2}$$

Meanwhile, to investigate the different behavior between ideological and non-ideological

[8] This method may actually be no less problematic. These RDD estimates generally cannot isolate 2 effects: the value of holding office and the motivational effect of winning, instead of losing the election. It could be that the positive effect we observe from these studies is not the value of the office itself, but is because the winner, after winning the race, receives psychological boost and motivation, hence she will perform much better in many things, including in managing her assets and identify new investment opportunity which would accelerate the increase of her wealth. On the other hand, the loser may suffer from the lost and perform worse in many aspects of his life, including in assets management and finding business opportunities.

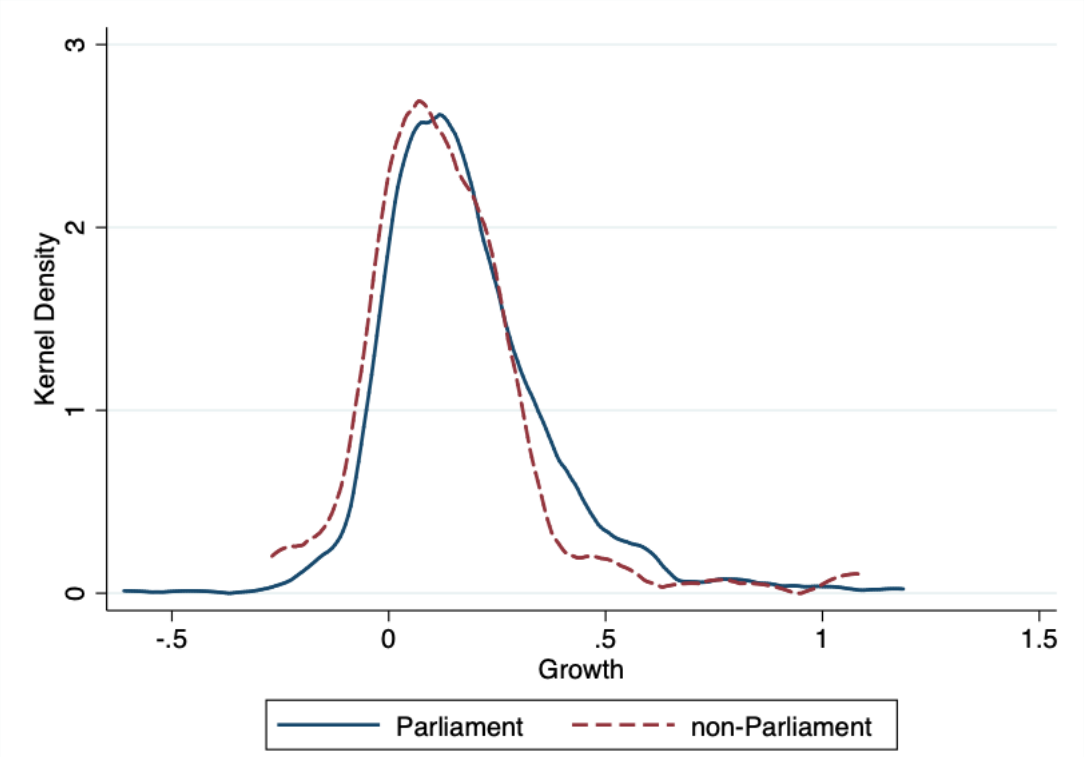
party MPs I use the following simple model:

$$\begin{aligned}\text{Growth}_{it} =& \alpha + \beta_1\ Parliament_{it} + \beta_2\ Ideological_i + \beta_3\ Parliament_{it} * Ideological_i \\ &+ \mathbf{X}_{it} + \gamma_i + \lambda_t + \epsilon_{it}\end{aligned} \tag{4.3}$$

where variable *Parliament* takes the value of one when the individual is holding parliamentary office when submitting the report at time t and take the value of zero when, s/he is holding any other public offices (but not parliamentary office) when submitting the report. $Ideological_i$ is a dummy variable takes the value of one of the individual is coming from ideological/Islamist party, $\mathbf{X}_{it}$ is a vector of other control variables, γ_i is the individual fixed effect and λ_t is report year fixed effects. A positive and significant value of β_1 signifies a positive effect of holding parliamentary office in wealth accumulation for non-ideological MPs. Meanwhile, a positive and significant value of β_3 signifies higher growth in net-wealth for ideological MPs as opposed to non-ideological MPs.

Please note that to identify β_1, we are comparing individuals who are holding parliamentary position when filing the report to their own selves when they are not holding parliamentary position (but holding other public offices) when filing the report, i.e. within effect. Meanwhile, the effect captured by β_3 is identified between individuals, i.e. by comparing the effect of holding parliamentary office by Islamist and non-Islamist politicians. Hence, the conclusion from this analysis only applies to groups of individuals who are holding parliamentary position at some point in time and otherwise, holding other, non-parliamentary public position (so they need to submit the report as well). In other words, I cannot say anything about the behavior of MPs who are not holding other public office when they are not an MP, e.g. people who only are private business owners when they are not an MP.)

Figure 4.1: Distribution of net-wealth growth: MPs vs. Non-MPs



Note: The figure displays the Kernel density distribution of net-wealth growth for individuals who are holding parliamentary position when filing the report (Parliament) and for individuals who are holding other, non-parliamentary, public office when submitting the report (non-Parliament) but is in the sample as they are an MP at some other points in time. 1 percent outliers on both ends are excluded

4.5 Results

4.5.1 Money as motivation

The evidence I found to support the claim that holding a parliamentary position boosts wealth accumulation is lukewarm at best. In figure 4.1 we can observe the distribution of the growth of net wealth, categorized by parliamentary status. Although we may observe that the net-wealth growth of MPs is slightly higher than those of non MPs, this difference is barely noticeable. The K-Smirnov test shows that the null hypothesis of the equality of the two distributions is only barely rejected at the conventional level.(see table 4.1).

Moreover, the regression results in table 4.2 do not provide supporting evidence for the advantage of holding a parliamentary position on wealth accumulation. It shows that being an MP does not significantly increase the growth of wealth accumulated while

Table 4.1: K-Smirnov test for equality of distribution function of net-wealth growth: MP vs Non-MP

smaller group	D	P-value
0:	0.1266	0.035
1:	-0.0129	0.966
Combined K-S:	0.1266	0.069

Table 4.2: Growth of net-wealth: MPs vs. Non-MPs

VARIABLES	Dep. var.: Growth of net-wealth				
Parliament	0.02	0.02	0.01	0.01	-0.01
	(0.04)	(0.03)	(0.03)	(0.04)	(0.04)
Wealth beginning			-0.19***	-0.19***	-0.19***
			(0.02)	(0.02)	(0.03)
Incumbent				-0.05*	-0.02
				(0.03)	(0.03)
Parliament#Incumbent				0.01	
				(0.05)	
Parliament#Private					0.18*
					(0.10)
Constant	0.16***	0.68***	2.12***	2.14***	1.31***
	(0.03)	(0.03)	(0.17)	(0.18)	(0.19)
Indiv. FE	Yes	Yes	Yes	Yes	Yes
Year FE	No	Yes	Yes	Yes	Yes
Observations	777	777	776	776	595
R-squared	0.00	0.10	0.34	0.35	0.35
Number of MPs	482	482	481	481	356

The table presents OLS regression of the compound annual growth of individual net wealth at time t on a dummy for holding a parliamentary position at time t. Wealth beginning is the log wealth at time $t-1$, Incumbent is a dummy variable for incumbency, Private is a dummy variable for having a position in private companies or business activities in the past.Standard errors are clustered by individual MP. *** p<0.01; ** p<0.05; * p<0.1

serving as MPs. Albeit positive, the coefficient on the variable *Parliament* is very small and not significant. This result is surprising since we would expect that in the context of young democracy with strong clientelistic features, a powerful position like an MP would enable the holder to accumulate more wealth during the term.

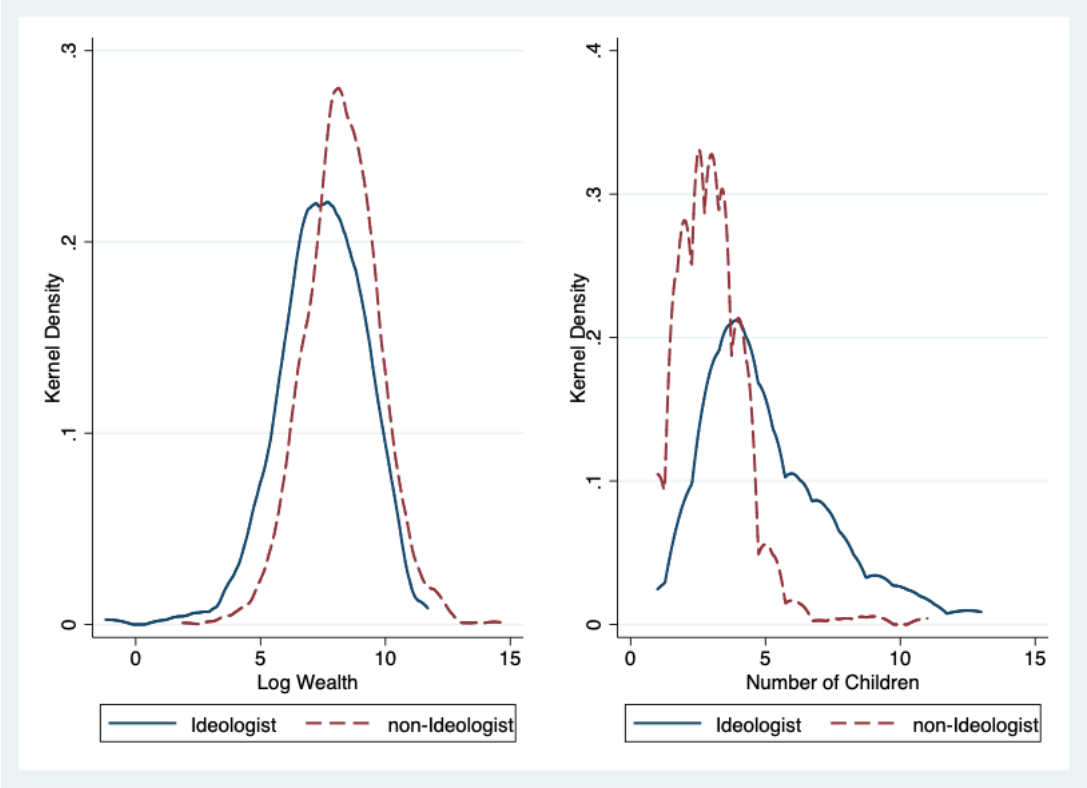
The possible explanation for this trend is that higher wealth accumulation may not happen during the term, but after serving as MP. Being an MP may be considered as an investment in order to build a business connection and network that would be useful when these MPs leave office. For instance, Eggers and Hainmuller (2009) find that the winner of the election on average experience higher wealth growth than the loser; however, they are taking into account the wealth accumulated during the lifetime of the MPs. Thus, in this case, it is possible that wealth accumulation happens after the MPs leaving the office and not during their term. Nonetheless, this result is not inconsistent with the previous findings. Fisman et al. (2014) also find that the effect of being a (backbencher) MP on the accumulation of wealth is meager, if any. They argue that the benefit would be pronounced only if the MP is then allocated a position in a lucrative ministry position.

I also investigate the effect of being incumbent: is an incumbent better able to accumulate wealth? The analysis in table 4.2 shows that there is no advantage of incumbency. If anything, the sign is actually negative. I also investigate if MPs who had previously also owned a business or held a position in private- or government-owned companies would accrue benefit while sitting in office. The analysis suggests that there is a slight advantage for these individuals, but the effect is only significant at the 10 percent level.

4.5.2 Ideological motives

As a starting point for the analysis of ideological motives, it would be interesting to get a glimpse of what type of characteristics politicians from ideological parties possess. The data show that ideological MPs significantly differ from non-ideological MPs, in a way that is consistent with their ideological tenets, in this case, Islamist values. First, ideological/Islamist politicians are less likely to be women: while around 17 percent of politicians from non-Islamist parties are female, female politicians make up less than 10

Figure 4.2: Comparing characteristics: Islamist vs. Non-Islamist



(a) *Note*: The figure display the Kernel density distribution of log Wealth on the left hand side and of the number of children on the right hand side for each ideological category of MP

percent of Islamist politicians. Second, ideological politicians are, in general, poorer. In figure 4.2 we can see on the left-hand-side figure that Islamist MPs are in general less wealthy. The position of the wealth distribution is significantly far left of the non-Islamist MPs, indicating a lower value of net wealth. Moreover, the modal value of the wealth of Islamist politicians is also lower. Third, it is interesting to observe that these MPs have significantly more children. As we can observe in the right-hand side of figure 4.2 the modal value for Islamist MPs is 5 children (as opposed to 2 for non-Islamist) and the distribution reaches a maximum of 13 children.[9] This indicates that ideology has a selection effect, where there is a specific type of MPs who are selected by ideological type.

Now that we know ideological MPs do differ in terms of selection, in the next analysis, I attempt to understand whether the behavior of these ideological MPs differs from non-

[9]the K-Smirnov test for both of these distributions is significant rejection at 1 percent level of the null hypothesis of equal distribution

Table 4.3: Net-wealth growth Ideological vs. Non-ideological MPs

VARIABLES	Dep. var: Growth of Net-Wealth					
Parliament	0.02	0.05	0.06	0.04	0.06	0.04
	(0.03)	(0.05)	(0.04)	(0.04)	(0.04)	(0.04)
Parliament#Ideologist		-0.11*	-0.14**	-0.12**	-0.13**	-0.11**
		(0.06)	(0.06)	(0.05)	(0.06)	(0.05)
Wealth_beginning				-0.19***		-0.19***
				(0.02)		(0.02)
Incumbent					-0.06**	-0.04*
					(0.03)	(0.02)
Constant	0.68***	0.15***	0.67***	2.11***	0.71***	2.12***
	(0.03)	(0.03)	(0.03)	(0.17)	(0.04)	(0.17)
Indiv. FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	No	Yes	Yes	Yes	Yes
Observations	777	777	777	776	777	776
R-squared	0.10	0.01	0.11	0.35	0.12	0.35
Number of MPs	482	482	482	481	482	481

The table presents OLS regression of the compound annual growth of individual's net wealth at time t on a dummy of holding a parliamentary position at time t and its interaction with a dummy for member of Islamist parties. Wealth_beginning is the value of log wealth at time $t-1$. Incumbent is a dummy variable for incumbency. Standard errors are clustered by individual MP. *** p<0.01; ** p<0.05; * p<0.1.

ideological MPs during office term, especially in terms of wealth accumulation. To do this, I run a simple panel regression following model 4.3 and I present the result in table 4.3

The results in table 4.3 suggest that ideological MPs do differ in terms of wealth accumulation. The rate of net-wealth growth is significantly lower for MPs coming from ideological parties. This relationship is robust even after controlling for individual fixed effect, reporting year fixed effects, incumbency advantage, as well as the value of wealth in the previous period. This analysis challenges the hypothesis that ideological MPs may use the loyalty of their ideological voters to gain more wealth or to shirk while serving in office. On contrary, ideology seems to discipline the politicians by making them shirk less and hence accumulating less wealth while serving in office.

4.5.3 Electoral incentives

Following the hypothesis on the possible mechanism of clientelistic relation and vote-buying, in this section I run an analysis asking whether richer politicians would gather more votes. The logic is simple. In the context of a consolidating democracy like Indonesia, elections are vulnerable from money politics and vote-buying. As a result, richer politicians would have more means to buy the voters off and hence would gather more votes. On the other hand, politicians who have better grass-root engagement and stronger party network at the grassroots level may need less money to mobilize voters. As a result, the votes that she gathered have a much weaker relationship, if any, with the amount of wealth she possesses.

I present the result of this analysis in table 4.4. It shows that controlling for fixed effects, a higher amount of wealth significantly increases the number of votes gathered by MPs. However, this positive relationship is almost completely wiped out when the MP is an Islamist politician. The relationship between wealth and the number of votes is much flatter (almost zero), indicating that wealth is not a significant factor in boosting the number of votes gathered by Islamist MPs.

Another interesting observation is about the effect of incumbency on the number of votes. We may expect that once holding a seat in parliament, the MPs need not to spend more wealth to buy voters off and could rely on their reputation as an incumbent. The analysis shows that incumbency does not give any advantage for MPs in terms of vote gathering. Meanwhile, even after controlling for incumbency, the effect of both wealth and party type is still robust. This indicates that in the context of Indonesian democracy, the effects of wealth and party affiliation on vote gathering are much more significant than the reputational effect of incumbency.

4.6 Validity

One concern that may undermine the result is the possibility that the MPs may manipulate the reports, for instance, by under-reporting their wealth while they are holding

Table 4.4: Impact of wealth on the number of votes: Islamist vs. Non-Islamist

Variables	(1) Votes	(2) Votes	(3) Votes
Wealth_beginning	0.10**	0.14***	0.14***
	(0.04)	(0.05)	(0.05)
Wealth_beginning#Ideologist		-0.17**	-0.17**
		(0.07)	(0.07)
Incumbent			0.07
			(0.15)
Constant	10.06***	9.95***	9.93***
	(0.35)	(0.33)	(0.32)
Individual FE	YES	YES	YES
Observations	378	378	378
R-squared	0.11	0.17	0.17

The table presents OLS regression of the log of votes received by an MP on his/her wealth at the previous period and its interaction with a dummy for members of Islamist parties. Incumbent is a dummy variable with value equal to one if the individual is sitting in parliament at t-1. Standart error is clustered at the individual level. *** p<0.01, ** p<0.05, * p<0.1.

parliamentary office. To address this concern, there are several defenses I put forward. First, the report is managed and monitored by the Corruption Eradication Committee– Komisi Pemberantasan Korupsi (KPK) and part of the procedure of the submission require the reporters have to sign an agreement letter which allows the committee to access the necessary information from the banks or other financial institution to validate the number reported in the document. Hence, this procedure decreases the incentive for manipulation, since any discrepancy of the reported and the actual number will be sanctioned. Second, the fact that this report is easily accessible by literally all constituents of the MPs reduces the incentive for misreporting since it is very costly for them to do so for two reasons: 1) The chance for detection is arbitrarily large (each politician has literally hundred-thousands of voters who can access the document online) and 2) Due to this number of voters, the cost of silencing all of them, in case of discrepancy, must be enormous. As it is highlighted in the ACCH website, anyone who sees or suspects a discrepancy between the report and the actual observation in the field could report this gap at basically no cost (the report can be made online).

Third, incentive structure. Naturally, public office holders, like members of parliament, would have an incentive to under-report their wealth possession, so they do not attract public attention and suspicion. If this incentive affects ideologist and non-ideologist MPs in a similar degree, then the results we obtain here are simply a lower bound of the actual effect. However, it will be a threat to the analysis if the ideologist MP under-report their wealth, while the non-ideologist MP do not. For instance, since a spartan lifestyle for leaders is considered "ideal" for ideological Muslim voters, ideological MPs may have the incentive to under-report their wealth.

However, given that the probability of detection is non-zero, this last scenario is highly unlikely: First, since ideologist MPs may need to rely on their reputation to win votes, the cost of being caught manipulating their report is substantially higher as compared to non-ideologist MPs. This may deter them from manipulating their report. Second, since we may expect that ideological voters are more likely to vote based on ideological leaning and personal qualities, they are more likely to scrutinize personal attributes of the

candidates, including their wealth possessions. Hence, this would increase the probability of detection. In contrary, we may think that non-ideological MPs voters care less about the personal atributes of the candidate (for instance, if the candidates engage in money politics), they are less likely to exert effort to scrutinize the candidate's profile, hence lower the probability of detection.

4.7 Conclusions

Using novel, hand-coded data on the wealth of politicians in Indonesia, I attempt to understand the motivation of politicians in the context of consolidating democracy. First, I find only lukewarm evidence to support the claim that holding a parliamentary office increases the ability of MPs to accumulate higher wealth. Moreover, incumbency does not seem to accelerate the accumulation of wealth either.

The most interesting result is obtained when we compare the MPs coming from ideological parties and those coming from non-ideological parties. Islamist MPs differ in terms of selection (they are poorer, have more children, and less likely to be women) and display lower wealth accumulation while serving in office. I argue that the electoral incentive seems to be the driver of this difference. Non-ideological MPs gather significantly more votes as they are richer, meanwhile, Islamist MPs votes do not increase together with their wealth. This suggests that MPs from different types of parties use a different mechanism to gather votes.

If the argument in this paper is correct, then it would also contribute to the literature on the consolidation of democracy. If it is true that ideological parties are better able to gather votes via grassroots engagement instead of money politics, then this would enrich the debate about the relationship between religious parties and democracy. The current wisdom often suggest that religious parties are inherently incompatible with democracy. Meanwhile, what the results suggest is actually that the strong ideological commitment of religious parties, if operating within the frame of democracy, may actually serve as a catalyst for building a less clientelistic electoral relationship.

Chapter 5

Conclusions and Discussion

The works included in this dissertation manuscript highlight the role of culture in shaping development and democratization. The substantial findings in each of the separate works would enrich the debate on various topics in social science by providing evidence that sometimes challenges the current wisdom. For instance, In chapter 2, I show that cultural preferences of the Indonesian public have shaped how the conflict between female public participation and the social norms that emphasize the domestic role of women is resolved by using headscarf as a negotiation tool. The findings in this chapter have important implications on our understanding of this religious practice that is increasingly adopted by women within Muslim societies in various parts of the world. One implication is that an increasing trend of veiling may actually represent economic modernization and not necessarily a slippage of society into social backwardness, a conclusion that might easily be derived from some of the widely held views.

Moreover, if the logic of headscarf as a technology that smoothens female integration in the public sphere could be transported to some degree to another context, then policies that prohibit the use of this technology, e.g. the ban on public use of headscarfs, would hinder female participation in public education and the economy[1]. Thus, this policy, which might have been designed with good intentions for female liberation, might backfire since it may lead to more isolation of women. This study also has a theoretical

[1] A resent study by Abdelgadir and Fouka (in press) confirmes this concern

contribution to the discourse on the "Secularization hypothesis", as it provides evidence that economic modernization does not necessarily go hand in hand with secularization and the marginalization of religion.

In chapter 3, I show that power dynamics within an influential (majority) religious groups define the severity of religious conflicts. The evidence shows that conflicts are more severe in districts where the factional competition is higher. This association is robust even after controlling for a wide range of confounders. This finding may lead to the shift in the discourse on inter-religious violence from focusing on differences *between* group to considering *within* group power relations as a crucial determinant of the severity of ethnic/religious conflicts.

In chapter 4, I show that ideologist (Islamist) MPs differ from their non-ideologist MP fellows in terms of selection and behavior during office. In particular, I show that they accumulate significantly less wealth while serving in office. I argue that the electoral incentive seems to be the driver of this difference. Non-ideologist MPs gather significantly more votes as they are richer, meanwhile, Islamist MPs votes do not increase together with their wealth. This suggests that MPs from different types of parties use a different mechanism to gather votes. If ideological parties are better able to gather votes via grassroots engagement instead of money politics, then this would enrich the debate about the relationship between ideological/religious parties and democracy. The current wisdom tend to see religious parties as inherently incompatible with democracy. Meanwhile, what this work suggesting is actually that strong ideological commitment of religious parties, if working within the frame of democracy, may serve as a catalyst in building stronger, less clientelistic electoral relationships.

Apart from the substantial findings, this dissertation also contributes to several methodological advances, including some innovations in measurement methods for cultural variables, which are not so easy to quantify. For instance, I deploy an original way to measure the prevalence of the cultural practice of veiling by using records from public high school books. Moreover, I apply an original method, a simple machine learning analysis, to estimate the relative strength of factions within the Muslim majority group in Indonesia

using the publicly available data on the universe of private schools in the country. This method may be applied in a different setting to estimate a similar variable of cultural affiliation within an ethnic group.

Needless to say, the substantive findings, the methodological innovations as well as novel datasets contributed by different projects in this dissertation have important implications both on our understanding of the impact of culture on development and democratization as well as on pushing the frontier of research on this topic.

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Appendix A

Appendix for Portable shelter: Religious veil and the public role of women

A.1 Summary Statistics

Table A.1: Summary statistics

VARIABLES	N	mean	sd	min	max
Veil take-up	1,621	0.200	0.288	0	1
Veil take-up (std)	1,621	0	1.000	-0.692	2.776
Formal job partcp	1,950	0.204	0.140	0	1
Formal job partcp (std)	1,950	0	1.000	-1.456	5.696
Informal job partcp	1,950	0.132	0.125	0	1
Informal job partcp (std)	1,950	0	1.000	-1.053	6.939
Job male	1,948	0.609	0.159	0	1
Job male (std)	1,948	0	1.000	-3.826	2.460
Export Shock	2,046	1.933	1.447	0.168	11.44
Export Shock (std)	2,046	0	1.000	-1.220	6.570
Share female	1,950	0.505	0.0237	0.377	0.671
Percent urban	1,950	0.516	0.345	0	1
Islamist vote	1,953	4.187	5.203	0	28
Economic growth	2,046	4.658	4.162	-13.13	8.220
Log population	1,950	13.03	0.791	10.21	14.95
Female school partcp	1,950	0.534	0.163	0	1
Year	2,046	2,004	6.346	1,993	2,014
Distcode	2,046	2,920	870.6	1,105	3,673

A.2 Variable definition, calculation and data source

Table A.2 reported short description of the variables used. While more detailed explanation of calculation of variable export shock follows

Table A.2: Variable definition

VARIABLES	Details	Source
Veil take-up	Fraction of female pupils who wear a headscarf in school book pictures	see text and part A.3 below
Formal job partcp	Fraction of female aged 20-24 who held a formal job. Holding a formal job is defined as satistifying two criteria: 1. Working is the activities taking most time in the previous week. 2.Occupation status is employee = code 4 in SAKERNAS coding	SAKERNAS
Share female	Fraction of female in the population aged 10 and above	SAKERNAS
Informal job partcp	Share of female aged 20-24 who held an informal job. An informal job is defined as satisfying two criteria: 1. Working is the activities taking most time in the previous week. 2. Occupation status do not fall into category 4 (employee). This includes independent workers (with or without employees), casual workers (in agriculture or non agricultural sector) and (unpaid) family workers	SAKERNAS
Job male	Fraction of male population aged 20-24 who hold a job. This is defined as declaring working as the main activity in the previous week	SAKERNAS
Export Shock	Demand shock for the product produced by Indonesian based firms in international market	See text and part A.2 below
Percent urban	Fraction of population aged 10 and above who live in urban areas	SAKERNAS
Islamist vote	Share of Islamist party, PKS at the electoral college level	KPU
Economic growth	Economic growth at the national level	The World Bank
Log population	The log value of the number of population aged 10 and above	SAKERNAS
Female school partcp	Fraction of female population aged 15-19 years old whos main activities is going to school in the previous week	SAKERNAS

A.2.1 International trade data

The first component of variable used to measure **the international demand shock** for Indonesian product is sourced from UN-COMTRADE database which is available through **World Integrated Trade Solution (WITS)** and can be accessed at `https://wits.worldbank.org/`. After setting up a user account, this interface allows the user to customize the query, for instance by choosing the reporting country, trade partner, the year of report, as well as the nomenclature of product classification. The nomenclature used for the variable in this paper is ISIC Revision 2 at 3 digits level, which could be matched to the industrial classification of Statistics Indonesia for Large and Medium Industry census in 1993.

The trading values acquired is then transformed into its constant value in 1990 USD using GDP deflator for the United States downloaded from **Penn World Table-international comparisons of production, income and prices 9.1** which could be accessed at `https://febpwt.webhosting.rug.nl/`.

After deflated so that the value are comparable across years, these numbers are then normalized to 100 in the base year so that they are comparable across different industrial sector. This way, what we essentially capturing is the real increase in the demand for specific product across different time period.

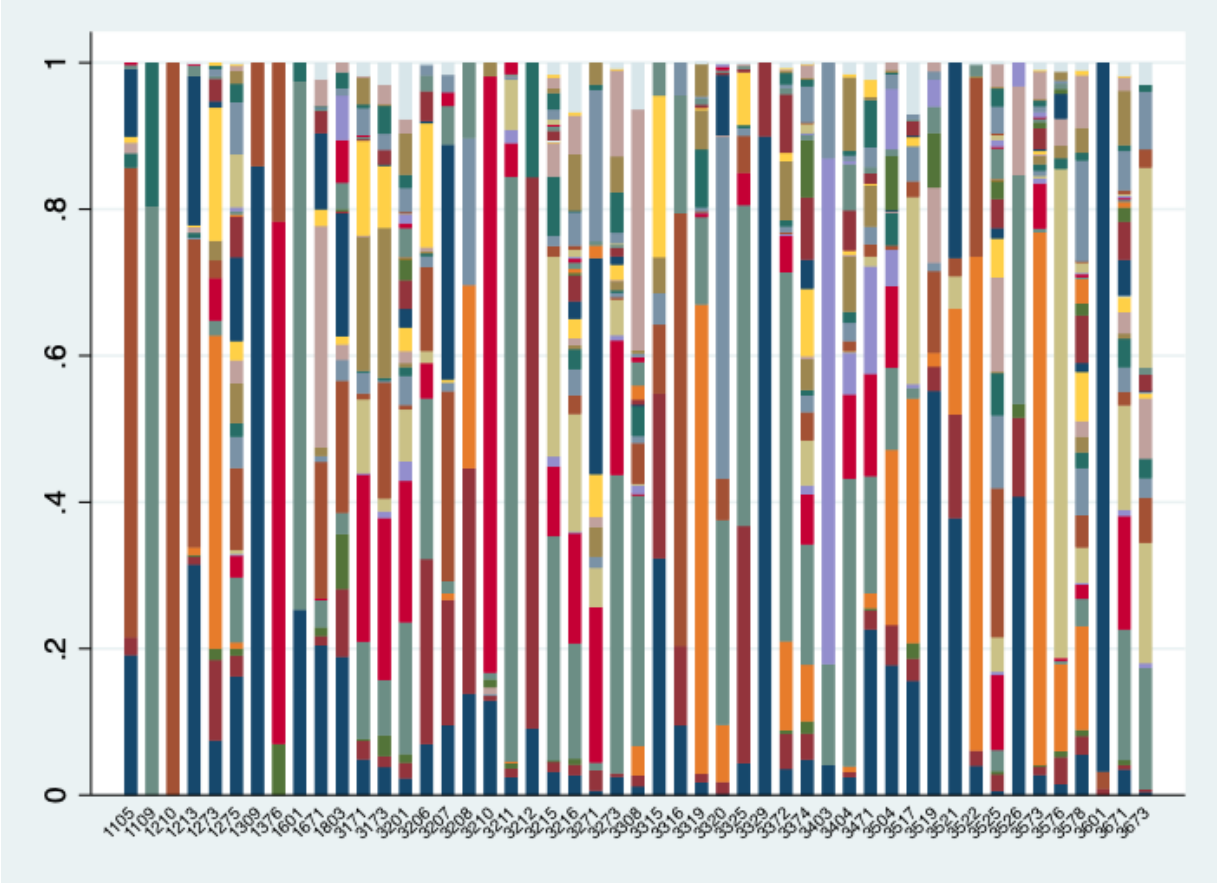
A.2.2 District sectoral composition and industrial female scores

The second and the third component of variabale *Export_Shock* are the female score of the industry and district Industrial composition. They are calculated using the Medium and Large Manufacturing census by Statistics Indonesia (Badan Pusat Statistik-BPS) which is conducted annually. The census provides information about the location, output/product classification, and since 1993, the breakdown of male and female labor used in the production of the firm.

The historical sectoral composition is calculated as the ratio of labor force who work in a given sector in a given district and the total worker of of manufacturing sector in the district in the base year, i.e. year 1993. In figure A.1, one could observe the variation

in historical industrial composition for districts included in the sample.

Figure A.1: Historical industrial compostion by district



The figure shows the industrical composition in each district (district code in x axis) at the base year (1993) disaggregated by 3 digit ISIC Rev.2 industrical classification. Each color represent one industrial sector

While **industrial female score** is calculated by the ratio of female worker and the total worker in a given industry at the national level. This is also calculated for the base year, ie. the year 1993. The value of this scores could be observed in table A.3

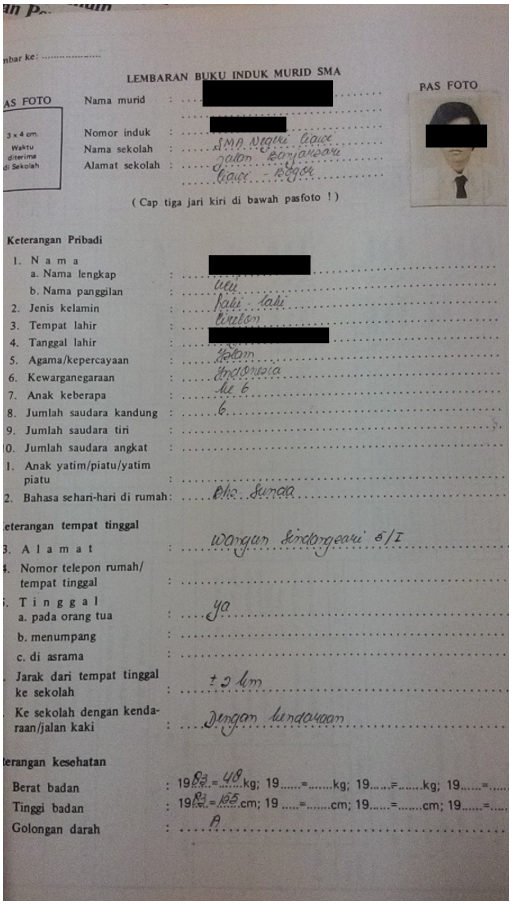
Table A.3: Industry score (share of female workers) at 3 digit ISIC Rev.2

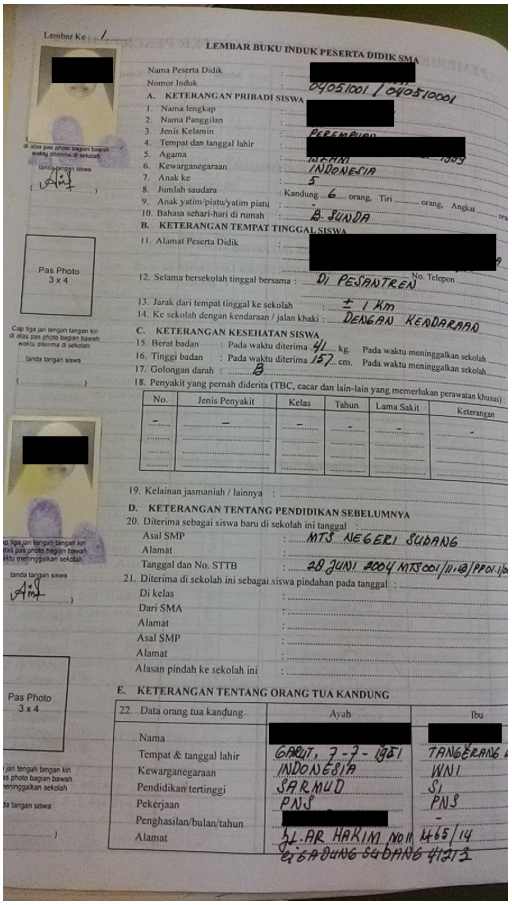
Code	Description	Female Share
371	Iron and steel basic industries	.053
369	Manufacture of other non-metallic mineral products	.099
363	Manufacture of other non-metallic mineral products	.100
354	Manufacture of miscellaneous products of petroleum and coal	.108
384	Manufacture of transport equipment	.119
382	Manufacture of machinery except electrical	.124
351	Manufacture of industrial chemicals	.198
372	Non-ferrous metal basic industries	.216
381	Manufacture of fabricated metal products, except machinery and equipment	.238
341	Manufacture of paper and paper products	.239
362	Manufacture of glass and glass products	.240
355	Manufacture of rubber products	.249
342	Printing, publishing and allied industries	.309
332	Manufacture of furniture and fixtures, except primarily of metal	.322
361	Manufacture of pottery, china and earthenware	.373
331	Manufacture of wood and wood and cork products, except furniture	.374
313	Beverage industries	.374
311	Food manufacturing	.378
323	Manufacture of leather and products of leather, leather substitutes and fur, except footwear and wearing apparel	.378
312	Food manufacturing	.423
364	Manufacture of other non-metallic mineral products	.464
385	Manufacture of professional and scientific, and measuring and controlling equipment not elsewhere classified, and of photographic and optical goods	.480
356	Manufacture of plastic products not elsewhere classified	.506
352	Manufacture of other chemical products	.510
383	Manufacture of electrical machinery apparatus, appliances and supplies	.519
321	Manufacture of textiles	.531
390	Other Manufacturing Industries	.686
324	Manufacture of footwear, except vulcanized or moulded rubber or plastic footwear	.739
322	Manufacture of wearing apparel, except footwear	.763
314	Tobacco manufactures	.793

A.3 Veil take-up : Data collection procedure

The data on veil take-up is obtained by calculating the number of female pupils who wear a headscarf the high-school book pictures as a proportion of all female pupils. This book is a register, a document normally kept by administrative office of public schools in Indonesia. Examples of pages from this document is presented in figure A.2

Figure A.2: Page samples of high school book



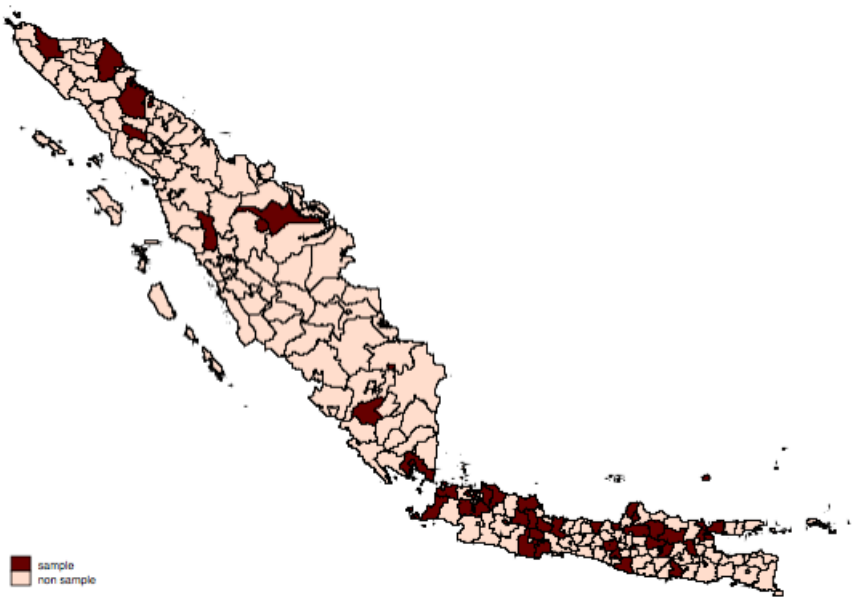


A.3.1 Sampling

The sample frame is all district located in Java and Sumatera (two main islands in Indonesia). The data collection is performed between March - August 2017. The number of districts included in the original sample is 50. They are randomly chosen with the number proportional to the size of population inhabited the province in 2014. From each of the district chosen in the sample, two schools are randomly selected. Out of 50 districts

originally planned, 1 district dropped due to logistical problem, no reliable enumerator is found to perform data collection in this district. Out of 49 district successfully sampled, 5 districts only resulting in single school. The list of the district samples and the number of schools sampled is reported in table A.4, meanwhile, the geographic distribution the district sample could be observed in figure A.3

Figure A.3: Geographic distribution of sample districts



Note: The figure displays the location of districts sampled in two main islands: Java and Sumatera. Since the number of districts sample is proportional to the number of population in the province, more districts are sampled in Java (bottom right) than in Sumatera (top left)

A.3.2 Data collection procedure

Enumerators are given a randomly ordered list of schools and visit the schools based on the order.

The instruction procedure of data collection at the school level is as follows:

1. Obtain permission from school administration to collect data by showing the necessary documents from the PI and the government authorities. If permission is not obtained, go to the next school in the list.

2. Check if the quality of register book pass the standard (readable, fairly organized and available for many cohort years). If the quality of material below standard, go to the next school in the list, otherwise, go to the next step.

3. Count the number of students in each cohort, male and female and register them in the data collection sheets provided by PI.

4. Count the number of female students who wear a headscarf and register them in the data collection sheets provided by PI.

5. Scan/take pictures of randomly selected pages of the register book. Enumerators takes scans of every other page of the available books, to ease the work, PI set the rules that odd pages are to be taken for odd year cohorts and even pages are to be taken for even year cohort.

6. Upload all information collected and the pictures/scan in the dedicated online server.

7. Data quality control by PI and team, approval if quality is accepted and the scans matched the information in the data collection sheets.

8. Amend or collect the missing information/data if necessary.

9. Repeat the procedure for the next school.

A.4 Validity of the instrument

Table A.4: List of sample districts

No	District code	District name	Province name	# schools sampled
1	1105	Aceh Timur, Kab.	Aceh	2
2	1109	Pidie, Kab.	Aceh	2
3	1210	Dairi, Kab.	Sumatera Utara	2
4	1213	Langkat, Kab.	Sumatera Utara	2
5	1273	Pematang Siantar, Kota	Sumatera Utara	2
6	1275	Medan, Kota	Sumatera Utara	2
7	1309	Pasaman, Kab.	Sumatera Barat	2
8	1376	Payakumbuh, Kota	Sumatera Barat	2
9	1471	Pekanbaru, Kota	Riau	dropped
10	1601	Ogan Komering Ulu, Kab.	Sumatera Selatan	2
11	1671	Palembang, Kota	Sumatera Selatan	2
12	1803	Lampung Selatan, Kab.	Lampung	1
13	3171	Jakarta Selatan, Kota	DKI Jakarta	2
14	3173	Jakarta Pusat.	DKI Jakarta	1
15	3201	Bogor, Kab.	Jawa Barat	2
16	3206	Tasikmalaya, Kab.	Jawa Barat	2
17	3207	Ciamis, Kab.	Jawa Barat	1
18	3208	Kuningan, Kab.	Jawa Barat	2
19	3210	Majalengka, Kab.	Jawa Barat	2
20	3211	Sumedang, Kab.	Jawa Barat	2
21	3212	Indramayu, Kab.	Jawa Barat	2
22	3215	Karawang, Kab.	Jawa Barat	2
23	3216	Bekasi, Kab.	Jawa Barat	2
24	3271	Bogor, Kota	Jawa Barat	2
25	3273	Bandung, Kota	Jawa Barat	2
26	3308	Magelang, Kab.	Jawa Tengah	2
27	3315	Grobogan, Kab.	Jawa Tengah	2
28	3316	Blora, Kab.	Jawa Tengah	2
29	3319	Kudus, Kab.	Jawa Tengah	1
30	3320	Jepara, Kab.	Jawa Tengah	2
31	3325	Batang, Kab.	Jawa Tengah	2
32	3329	Brebes, Kab.	Jawa Tengah	2
33	3372	Surakarta, Kota	Jawa Tengah	2
34	3374	Semarang, Kota	Jawa Tengah	2
35	3403	Gunung Kidul, Kab.	D.I. Yogyakarta	2
36	3404	Sleman, Kab.	D.I. Yogyakarta	2
37	3471	Yogyakarta, Kota	D.I. Yogyakarta	2
38	3504	Tulungagung, Kab.	Jawa Timur	2
39	3517	Jombang, Kab.	Jawa Timur	1
40	3519	Madiun, Kab.	Jawa Timur	2
41	3521	Ngawi, Kab.	Jawa Timur	2
42	3522	Bojonegoro, Kab.	Jawa Timur	2
43	3525	Gresik, Kab.	Jawa Timur	2
44	3526	Bangkalan, Kab.	Jawa Timur	2
45	3573	Malang, Kota	Jawa Timur	2
46	3576	Mojokerto, Kota	Jawa Timur	2
47	3578	Surabaya, Kota	Jawa Timur	2
48	3601	Pandeglang, Kab.	Banten	2
49	3671	Tangerang, Kota	Banten	2
50	3673	Serang, Kab.	Banten	2

Table A.5: OLS reduced forms and 2SLS using lead instrument

VARIABLES	Dep. Var: Veil take-up					
	OLS reduced form			2SLS		
	(1)	(2)	(3)	(4)	(5)	(6)
F10.Export Shock	0.002	0.009	0.023			
	(0.017)	(0.059)	(0.060)			
Formal job partcp				0.073	0.070	0.176
				(0.419)	(0.399)	(0.385)
Percent urban		✓	✓		✓	✓
Islamist vote			✓			✓
Observations	862	790	790	790	790	790
R-squared	0.646	0.655	0.661	0.616	0.651	0.616

The first three columns of the table reports the OLS reduced form regressions of veil take-up rate on 10 years lead instruments. While the last three columns shows the 2SLS regressions of veil take-up on female participation in formal occupation, instrumented the later by 10 years lead export shock. All regressions includes district fixed effects and district specific time trends. Standard errors for all regressions are clustered at the district level; *** p<0.01, ** p<0.05, * p<0.1

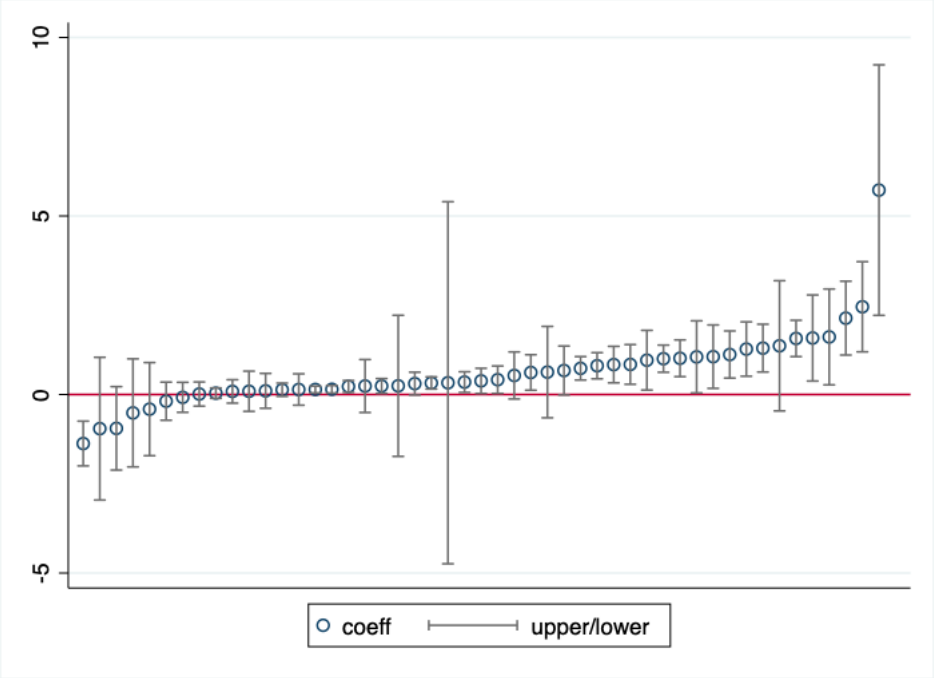
Table A.6: Balance tests

VARIABLES	(1) Share female	(2) Job male	(3) Percent urban	(4) Log population	(5) Female school partcp
F10. export shock	0.001	0.009	-0.007	-0.028	-0.010
	(0.005)	(0.020)	(0.016)	(0.027)	(0.019)
Observations	1,023	1,021	1,023	1,023	1,023
R-squared	0.243	0.644	0.933	0.901	0.667

The table displays the OLS regression of various characteristics of districts on 10 years lead of instruments. All regressions includes district fixed effects and district specific time trends and standard errors are clustered at the district level.; *** p<0.01, ** p<0.05, * p<0.1

A.5 Robustness checks

Figure A.4: First stage heterogeneity effect



Note: The figure display the heterogeneity of the coefficients of the first stage regressions. Each dot represent the coefficient of the OLS regression of female formal job participation (standardized) on export shock (standardized) by district

Table A.7: 2SLS results-trimming off the outliers

	Dep. var: Veil Take-up					
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Formal job partcp	1.101***	1.143***	1.112***	1.154***	1.150***	1.205***
	(0.301)	(0.324)	(0.329)	(0.354)	(0.350)	(0.432)
Percent urban		✓	✓	✓	✓	✓
Islamist vote			✓	✓	✓	✓
Economic growth				✓	✓	✓
Female school partcp					✓	✓
Log population						✓
Observations	1,511	1,511	1,439	1,439	1,439	1,439
R-squared	0.398	0.386	0.364	0.333	0.341	0.299

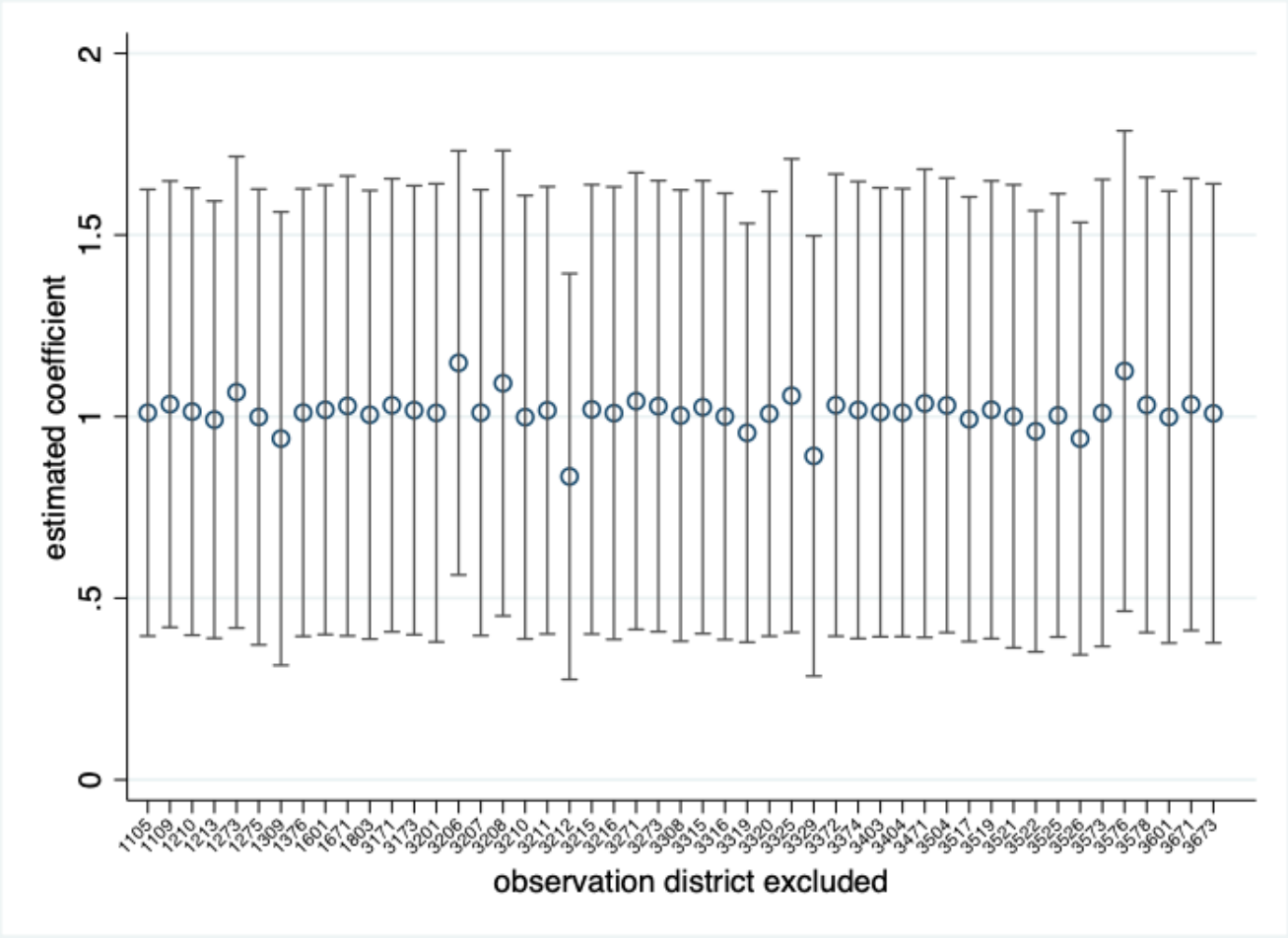
The table reports 2SLS regressions of veil take-up on female participation in formal occupation, instrumenting the later variable with export shock. The analysis exclude outliers observation (with 100 percent of veil take-up). Main variables of interest are standardized. All regressions includes district fixed effects and district specific time trends. Standard errors for all regressions are clustered at the district level; *** p<0.01, ** p<0.05, * p<0.1

Table A.8: Trimming off observations with lower precision in outcome variables

	Dep. var: Veil take-up					
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Formal job partcp	0.934***	0.985***	0.959***	0.983***	0.982***	0.996**
	(0.296)	(0.315)	(0.324)	(0.348)	(0.347)	(0.413)
Percent urban		✓	✓	✓	✓	✓
Islamist vote			✓	✓	✓	✓
Economic growth				✓	✓	✓
Female school partcp					✓	✓
Log population						✓
Observations	1,467	1,467	1,390	1,390	1,390	1,390
R-squared	0.588	0.576	0.560	0.548	0.551	0.544

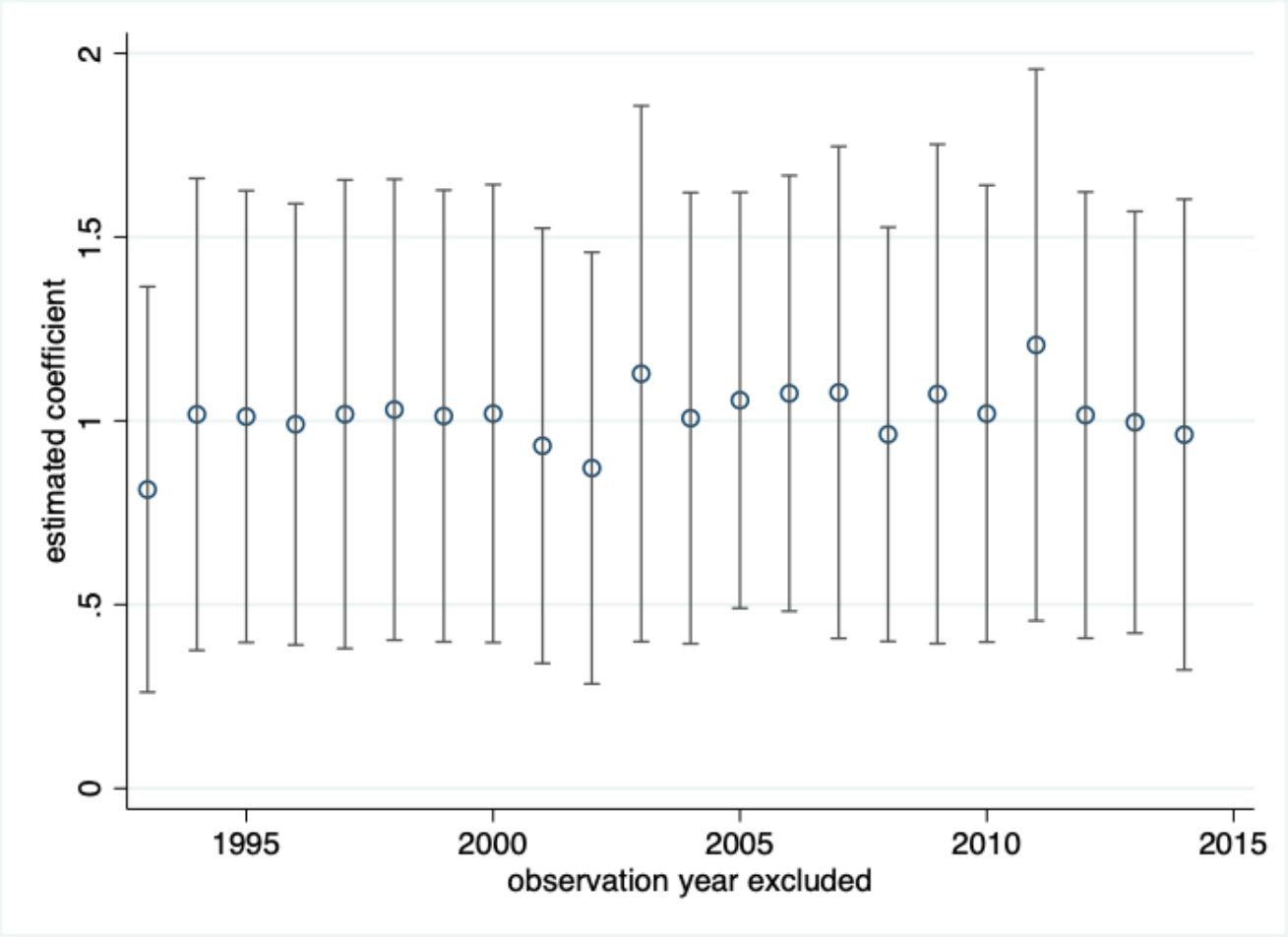
The table reports 2SLS regressions of veil take-up on female participation in formal occupation, instrumenting the later with export shockt. Observations from districts with only one school sample is removed. Main variables of interest are standardized to have a mean of zero and standard deviation of one. All regressions includes district fixed effects and district specific time trends. Standard errors for all regressions are clustered at the district level; *** p<0.01, ** p<0.05, * p<0.1

Figure A.5: Jackknife resampling estimates by district



(a) *Note*: This figure displays the re-estimation of the coefficient (within 95 percent confidence interval) in the main regression presented in table 2.6–model 1, using a jackknife resampling method over district dimension.

Figure A.6: Jackknife resampling estimates by year



(a) *Note*: This figure displays the re-estimation of the coefficient (within 95 percent confidence interval) in the main regression presented in table 2.6–model 1, using a jackknife resampling method over year dimension.

Appendix B

Appendix for Sectarian violence and identity formation under consolidating democracy

B.1 Summary Statistics

B.2 Variable Definition

Table B.1: Summary Statistics

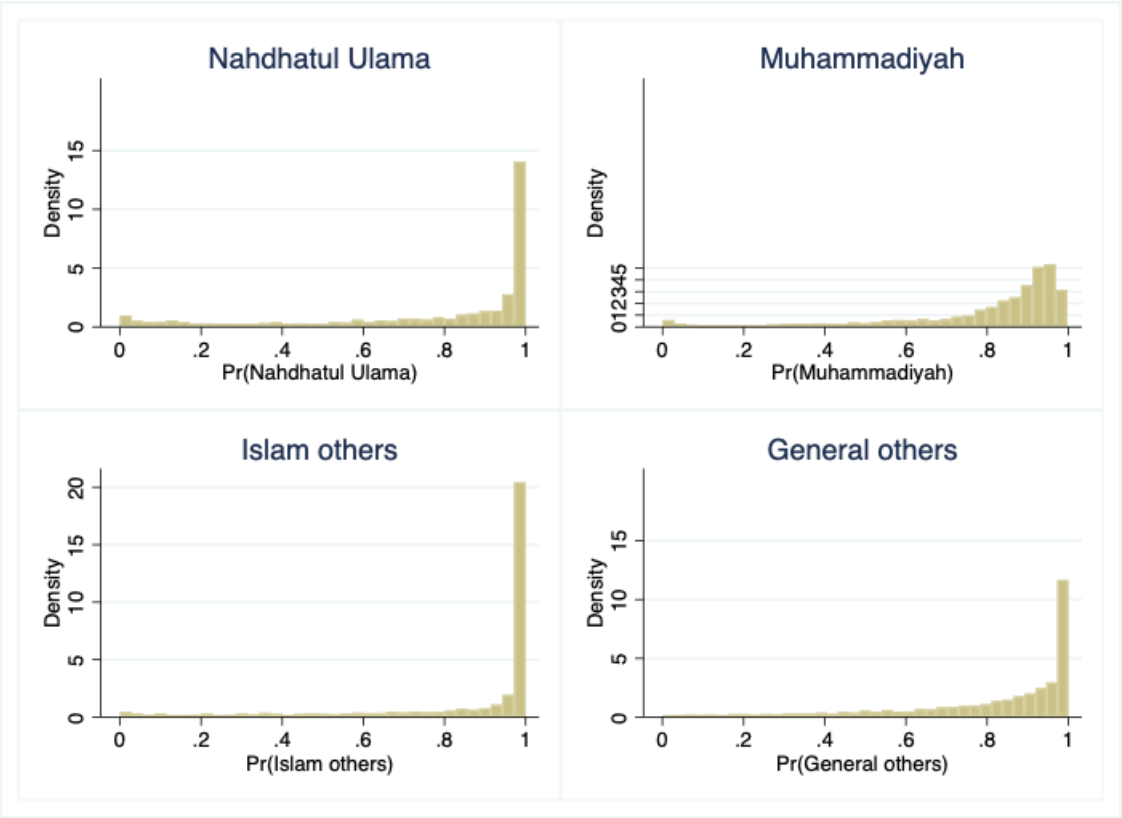
VARIABLES	N	mean	sd	min	max
FC Index (Log)	497	0.266	0.631	-3.037	3.174
FC Index	497	1.590	1.458	0	23.91
Ethnic_Fractionalization	487	0.446	0.314	0.00682	0.941
Religious_polarization	487	0.316	0.303	0	0.967
Human_Dev_Index	491	71.06	5.239	48.43	79.89
Literacy_rate	497	91.35	11.65	13.26	99.74
Poverty_rate	497	14.54	8.908	1.500	47.44
Log_unemployed_popul	486	8.844	1.274	4.635	12.31
Share_resources_GDP	497	0.111	0.475	0	7.029
Log_population	497	12.56	1.045	9.485	15.41
Count_Relig_Conflict	497	0.267	0.786	0	9.933
Fatalities_Relig_Conflict	497	0.412	1.478	0	16.07
Fatalities_Other_Conflict	497	8.732	20.78	0	248.6
Fatalities_crime	497	4.913	10.01	0	124
Fatalities_domestic_violence	497	26.47	50.20	0	547.8
Log_GDP	497	14.33	1.301	9.876	18.52
Fatalities_Religious_std	497	0	1.000	-0.279	10.59
Fatalities_Other_std	497	0	1.000	-0.420	11.54
Fatalities_Crime_std	497	0	1.000	-0.491	11.90
Fatalities_DomesticViolence_std	497	0	1.000	-0.527	10.39

Table B.2: Variable definition and data source

VARIABLES	Definition	Source
FC_Index	See text	Author's calculation
Ethnic_Fractionalization	See text	Author's calculation, data: IPUM International
Religious_polarization	See text	Author's calculation, data: IPUM International
Count_Relig_Conflict	Count of incidents of religiously motivated violence or from conflicts perpetrated by actors affiliated to religous organization	NVMS & ACLED
Fatalities_Relig_Conflict	The number of victims (kidnapped, injured, killed) from religiously motivated violence or from conflicts perpetrated by actors affiliated to religous organization	NVMS & ACLED
Fatalities_Other_Conflict	The number of victims (kidnapped, injured, killed) from non-religiously motivated violence, including dispute about natural resources, environmental issues, public facilities, corruption scandal, electoral dispute, land disputes, separatism, etc	NVMS & ACLED
Fatalities_crime	The number of victims (kidnapped, injured, killed) from criminal activities	NVMS
Fatalities_domestic_violence	The number of victims (kidnapped, injured, killed) from domestic violence	NVMS
Log_GDP	Logarithmic value of Gross Domestic Product at the district level	INDO-DAPOER WB Jkt
Human_Dev_Index	See WB definition	INDO-DAPOER WB Jkt
Literacy_rate	See WB definition	INDO-DAPOER WB Jkt
Poverty_rate	See WB definition	INDO-DAPOER WB Jkt
Log_unemployed_popul	Logarithmic value of number of unemployed population	INDO-DAPOER WB Jkt
Share_resources_GDP	Fraction of GDP coming from natural resources	INDO-DAPOER WB Jkt
Log_population	Logarithmic value of number of population	INDO-DAPOER WB Jkt

B.3 Goodness of fit: Machine learning model

Figure B.1: Goodness of fit



(a) *Note:*The figure shows the distribution of predicted probability of affiliation if true affiliation=1 (schools of group I) for each of the categories.

Appendix C

Appendix for Money or Ideology: Politicians' motivation in a young democracy

C.1 Summary Statistics

C.2 Variable Definition

Table C.1: Summary Statistics

Variables	Obs	Mean	Std. Dev	Min	Max
Report_year	1,688	2,008	4.622	2,001	2,016
Growth Net-Wealth	786	0.209	0.633	-0.927	15.66
Wealth	1,688	8.147	1.573	-1.204	14.64
Wealth beginning	786	7.970	1.523	-1.204	12.35
Children	881	3.356	1.790	1	13
Parliament	1,688	0.836	0.370	0	1
Private	1,161	0.345	0.475	0	1
Incumbent	1,688	0.354	0.478	0	1
Vote	822	10.81	0.778	7.771	14.76
Ideologist	1,688	0.164	0.370	0	1

Table C.2: Variables definition

Variables	Denifition
Report_year	The year of submission of wealth declaration
Nominal_wealth	Nominal value of net wealth (posessions net of liabilities, both in USD and local currency, all converterted to Million Rupiahs)
Growth of Net Wealth	Compound Annual Growth Rate calculated following the formula 4.1
Wealth	Log value of nominal wealth
Wealth_beginning	Log value of the wealth at time t-1
Parliament	Dummy variable: valued one if the individual is sitting in parliament, zero otherwise
Private	Dummy variable: valued one if the individual was holding managerial position in private/government owned companies before running for office, zero otherwise
Incumbent	Dummy variable: valued one if the individual is sitting in parliament in the previous term, zero otherwise
Votes	Log value of the number of votes gathered by MPs at the current term
Ideologist	Dummy variable: valued one if the individual is coming from ideological islamist parties, PPP and PKS, zero otherwise

C.3 Sample of wealth declaration document

2016

KOMISI PEMBERANTASAN KORUPSI
REPUBLIK INDONESIA

B2

Tambahan Berita Negara R.I Tanggal 4 Maret 2016 No. 18

Melalui Pengumuman ini maka Penyelenggara Negara telah memenuhi kewajiban mengumumkan harta kekayaan sesuai dengan ketentuan Undang Undang Republik Indonesia Nomor 28 Tahun 1999 Tentang Penyelenggara Negara yang Bersih dan Bebas dari Korupsi, Kolusi, dan Nepotisme.

PENGUMUMAN HARTA KEKAYAAN PENYELENGGARA NEGARA
(Perubahan atas Laporan Harta Kekayaan yang dilaporkan sebelumnya)

BIDANG : LEGISLATIF
LEMBAGA : DEWAN PERWAKILAN RAKYAT (DPR)

I. DATA PRIBADI

1. Nama : H. BIEM TRIANI BENJAMIN, B.Sc., M.M.
2. Jabatan : ANGGOTA - DPR RI PERIODE 2014 - 2019
3. NHK : 51758
4. Alamat Kantor : Jl. JEND. GATOT SUBROTO NO. 6, JAKARTA PUSAT
5. Tanggal Pelaporan : 12 Maret 2012, 24 Nopember 2014

II. DATA HARTA

	Status Laporan	
	12 Maret 2012	**24 Nopember 2014**
A. HARTA TIDAK BERGERAK (TANAH DAN BANGUNAN)	**Rp. 9.845.992.800**	**Rp. 16.093.031.000**
1. Tanah & Bangunan seluas 676 m2 & 100 m2, di Kabupaten KARAWANG, yang berasal dari HASIL SENDIRI , perolehan dari tahun 1995 sampai dengan 2008 (Perubahan Atas Data yang dilaporkan sebelumnya)	Rp. 158.750.000	Rp. 156.528.000

51758	Status Laporan	
	12 Maret 2012	24 Nopember 2014
2. Tanah & Bangunan seluas 230 m2 & 300 m2, di Kabupaten PANDEGLANG, yang berasal dari HASIL SENDIRI , perolehan dari tahun 1992 sampai dengan 2003 (Penghapusan Data Karena Pemecahan)	Rp. 113.730.000	-----
3. Tanah & Bangunan seluas 100 m2 & 242 m2, di Kabupaten PANDEGLANG, yang berasal dari HASIL SENDIRI , perolehan tahun 1996 (Penambahan Data karena Pemecahan)	-----	Rp. 211.966.000
4. Tanah & Bangunan seluas 130 m2 & 242 m2, di Kabupaten PANDEGLANG, yang berasal dari HASIL SENDIRI , perolehan tahun 1996 (Penambahan Data karena Pemecahan)	-----	Rp. 215.806.000
5. Tanah seluas 1.845 m2 , di Kabupaten PANDEGLANG, yang berasal dari HASIL SENDIRI, perolehan dari tahun 1994 sampai dengan 2012 (Perubahan Atas Data yang dilaporkan sebelumnya)	Rp. 220.000.000	Rp. 49.815.000
6. Tanah & Bangunan seluas 378 m2 & 128 m2, di Kota CIREBON, yang berasal dari HASIL SENDIRI , perolehan dari tahun 2008 sampai dengan 2012 (Perubahan Atas Data yang dilaporkan sebelumnya)	Rp. 620.000.000	Rp. 213.572.000
7. Tanah & Bangunan seluas 500 m2 & 100 m2, di Kota PALEMBANG, yang berasal dari HASIL SENDIRI , perolehan dari tahun 2008 sampai dengan 2012 (Perubahan Atas Data yang dilaporkan sebelumnya)	Rp. 850.000.000	Rp. 212.500.000
8. Tanah & Bangunan seluas 78 m2 & 140 m2, di Kota SERANG, yang berasal dari HASIL SENDIRI , perolehan dari tahun 2003 sampai dengan 2012 (Perubahan Atas Data yang dilaporkan sebelumnya)	Rp. 350.000.000	Rp. 222.756.000

	Status Laporan	
	12 Maret 2012	24 Nopember 2014
9. Tanah & Bangunan seluas 1.036 m2 & 400 m2, di Kota JAKARTA SELATAN, yang berasal dari HASIL SENDIRI , perolehan dari tahun 1989 sampai dengan 2012 (Penghapusan Data Karena Pemecahan)	Rp. 2.362.828.000	-----
10. Tanah seluas 408 m2 , di Kota JAKARTA SELATAN, yang berasal dari HASIL SENDIRI, perolehan tahun 2003 (Penambahan Data karena Pemecahan)	-----	Rp. 1.133.832.000
11. Tanah & Bangunan seluas 628 m2 & 214 m2, di Kota JAKARTA SELATAN, yang berasal dari HASIL SENDIRI , perolehan tahun 1993 (Penambahan Data karena Pemecahan)	-----	Rp. 2.216.012.000
12. Tanah & Bangunan seluas 1.106 m2 & 200 m2, di Kota JAKARTA SELATAN, yang berasal dari HASIL SENDIRI , perolehan dari tahun 1993 sampai dengan 1994 (Perubahan Atas Data yang dilaporkan sebelumnya)	Rp. 2.106.338.000	Rp. 3.513.574.000
13. Tanah & Bangunan seluas 357 m2 & 300 m2, di Kota CILEGON, yang berasal dari HASIL SENDIRI , perolehan tahun 2007 (Penghapusan Data Karena Penggabungan)	Rp. 646.509.000	-----
14. Tanah seluas 240 m2 , di Kota CILEGON, yang berasal dari HASIL SENDIRI, perolehan tahun 2007 (Penghapusan Data Karena Penggabungan)	Rp. 535.500.000	-----
15. Tanah & Bangunan seluas 597 m2 & 291 m2, di Kota CILEGON, yang berasal dari HASIL SENDIRI , perolehan tahun 2007 (Penambahan Data karena Penggabungan)	-----	Rp. 853.992.000

	Status Laporan	
	12 Maret 2012	24 Nopember 2014
16. Tanah & Bangunan seluas 358 m2 & 600 m2, di Kota TANGERANG SELATAN, yang berasal dari HASIL SENDIRI , perolehan dari tahun 1989 sampai dengan 2012 (Perubahan Atas Data yang dilaporkan sebelumnya)	Rp. 123.187.800	Rp. 506.928.000
17. Tanah & Bangunan seluas 1.500 m2 & 700 m2, di Kota JAKARTA SELATAN, yang berasal dari HASIL SENDIRI , perolehan dari tahun 2004 sampai dengan 2012 (Perubahan Atas Data yang dilaporkan sebelumnya)	Rp. 881.400.000	Rp. 5.708.000.000
18. Tanah & Bangunan seluas 585 m2 & 120 m2, di Kabupaten OGAN KOMERING ILIR, yang berasal dari HASIL SENDIRI , perolehan dari tahun 2010 sampai dengan 2012 (Perubahan Atas Data yang dilaporkan sebelumnya)	Rp. 435.000.000	Rp. 435.000.000
19. Tanah & Bangunan seluas 585 m2 & 350 m2, di Kabupaten OGAN KOMERING ULU, yang berasal dari HASIL SENDIRI , perolehan dari tahun 2003 sampai dengan 2012 (Perubahan Atas Data yang dilaporkan sebelumnya)	Rp. 442.750.000	Rp. 442.750.000
B. HARTA BERGERAK		
a. ALAT TRANSPORTASI DAN MESIN LAINNYA	**Rp. 630.000.000**	**Rp. 755.000.000**
1. Mobil, merk NISSAN SERENA, tahun pembuatan 2010, yang berasal dari HASIL SENDIRI, perolehan tahun 2010	Rp. 290.000.000	Rp. 290.000.000
2. Mobil, merk DAIHATSU GRAN MAX, tahun pembuatan 2009, yang berasal dari HASIL SENDIRI, perolehan tahun 2009	Rp. 90.000.000	Rp. 90.000.000
3. Mobil, merk TOYOTA AVANZA, tahun pembuatan 2010, yang berasal dari HASIL SENDIRI, perolehan tahun 2010	Rp. 125.000.000	Rp. 125.000.000

51758	Status Laporan	
	12 Maret 2012	24 Nopember 2014
4. Mobil, merk NISSAN GRAND LIVINA, tahun pembuatan 2009, yang berasal dari HASIL SENDIRI, perolehan tahun 2009 (Perubahan Atas Data yang dilaporkan sebelumnya)	Rp. 125.000.000	Rp. 100.000.000
5. Mobil, merk TOYOTA AVANZA, tahun pembuatan 2013, yang berasal dari HASIL SENDIRI, perolehan tahun 2013 (Penambahan Data Baru)	-----	Rp. 150.000.000
b. PETERNAKAN, PERIKANAN, PERKEBUNAN, PERTANIAN, KEHUTANAN, PERTAMBANGAN DAN USAHA LAINNYA	-----	-----
c. HARTA BERGERAK LAINNYA	**Rp. 60.000.000**	**Rp. 60.000.000**
1. LOGAM MULIA, yang berasal dari WARISAN, perolehan tahun ---	Rp. 20.000.000	Rp. 20.000.000
2. BENDA BERGERAK LAINNYA, yang berasal dari HASIL SENDIRI, perolehan tahun ---	Rp. 40.000.000	Rp. 40.000.000
C. SURAT BERHARGA	**Rp. 23.214.332.368**	**Rp. 10.101.977.368**
1. Tahun investasi 2011, yang berasal dari HASIL SENDIRI	Rp. 5.390.490	Rp. 5.390.490
2. Tahun investasi 2011, yang berasal dari HASIL SENDIRI	Rp. 2.980.626	Rp. 2.980.626
3. Tahun investasi 2011, yang berasal dari HASIL SENDIRI	Rp. 2.980.626	Rp. 2.980.626
4. Tahun investasi 2011, yang berasal dari HASIL SENDIRI	Rp. 2.980.626	Rp. 2.980.626
5. Tahun investasi dari 2001 sampai dengan 2012 yang berasal dari HASIL SENDIRI (Perubahan Atas Data yang dilaporkan sebelumnya)	Rp. 500.000.000	Rp. 240.000.000
6. Tahun investasi dari 1997 sampai dengan 2012 yang berasal dari HASIL SENDIRI (Perubahan Atas Data yang dilaporkan sebelumnya)	Rp. 1.000.000.000	Rp. 375.000.000

51758	Status Laporan	
	12 Maret 2012	24 Nopember 2014
7. Tahun investasi dari 1997 sampai dengan 2012 yang berasal dari HASIL SENDIRI (Perubahan Atas Data yang dilaporkan sebelumnya)	Rp. 1.000.000.000	Rp. 250.000.000
8. Tahun investasi dari 2000 sampai dengan 2012 yang berasal dari HASIL SENDIRI (Perubahan Atas Data yang dilaporkan sebelumnya)	Rp. 2.800.000.000	Rp. 500.000.000
9. Tahun investasi dari 2000 sampai dengan 2012 yang berasal dari HASIL SENDIRI (Perubahan Atas Data yang dilaporkan sebelumnya)	Rp. 2.800.000.000	Rp. 700.000.000
10. Tahun investasi dari 1991 sampai dengan 2012 yang berasal dari HASIL SENDIRI (Perubahan Atas Data yang dilaporkan sebelumnya)	Rp. 500.000.000	Rp. 712.500.000
11. Tahun investasi dari 2004 sampai dengan 2012 yang berasal dari HASIL SENDIRI (Perubahan Atas Data yang dilaporkan sebelumnya)	Rp. 2.400.000.000	Rp. 300.000.000
12. Tahun investasi dari 1990 sampai dengan 2012 yang berasal dari HASIL SENDIRI (Perubahan Atas Data yang dilaporkan sebelumnya)	Rp. 9.000.000.000	Rp. 3.000.000.000
13. Tahun investasi dari 1990 sampai dengan 2012 yang berasal dari HASIL SENDIRI (Perubahan Atas Data yang dilaporkan sebelumnya)	Rp. 500.000.000	Rp. 300.000.000
14. Tahun investasi dari 2002 sampai dengan 2012 yang berasal dari HASIL SENDIRI (Perubahan Atas Data yang dilaporkan sebelumnya)	Rp. 1.500.000.000	Rp. 500.000.000
15. Tahun investasi dari 1997 sampai dengan 2012 yang berasal dari HASIL SENDIRI (Perubahan Atas Data yang dilaporkan sebelumnya)	Rp. 1.200.000.000	Rp. 500.000.000
16. Tahun investasi 2011, yang berasal dari HASIL SENDIRI (Penambahan Data Baru)	-----	Rp. 4.352.000
17. Tahun investasi 2012, yang berasal dari HASIL SENDIRI (Penambahan Data Baru)	-----	Rp. 5.793.000

51758	Status Laporan	
	12 Maret 2012	24 Nopember 2014
18. Tahun investasi --- yang berasal dari HASIL SENDIRI (Penambahan Data Baru)	-----	Rp. 2.700.000.000
D. GIRO DAN SETARA KAS LAINNYA	**Rp. 19.564.168**	**Rp. 75.820.092**
1. Yang berasal dari HASIL SENDIRI (Penambahan Data Harta Kekayaan, Perubahan atas data yang dilaporkan sebelumnya)	Rp. 19.564.168	Rp. 75.820.092
E. PIUTANG	**Rp. 0**	**Rp. 0**
TOTAL HARTA (II)	**Rp. 33.769.889.336**	**Rp. 27.085.828.460**

III. HUTANG	**Rp. 740.700.000**	**Rp. 1.019.475.705**
1. Hutang dalam bentuk PINJAMAN UANG (Penambahan Hutang baru, Perubahan atas data yang dilaporkan sebelumnya)	Rp. 740.700.000	Rp. 935.471.210
2. Hutang dalam bentuk PINJAMAN BARANG (Penambahan Hutang baru)	-----	Rp. 84.004.495
IV. TOTAL HARTA KEKAYAAN (II - III)	**Rp. 33.029.189.336**	**Rp. 26.066.352.755**

51758	Status Laporan	
	12 Maret 2012	24 Nopember 2014

Jakarta,1 Desember 2015

MENGETAHUI,
DEPUTI BIDANG PENCEGAHAN
PLH. DEPUTI

DIREKTORAT PENDAFTARAN
DAN PEMERIKSAAN LHKPN
PLH. DIREKTUR

TTD

SUJANARKO

TTD

MISBAH TAUFIQURROHMAN

Rincian harta kekayaan dalam pengumuman ini sesuai yang dilaporkan oleh Penyelenggara Negara dan tidak dapat dijadikan dasar oleh Penyelenggara Negara atau siapapun juga untuk menyatakan bahwa harta yang bersangkutan tidak terkait tindak pidana.