Political Competition and Local Government Performance: Evidence from Indonesia*

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Abstract

This paper analyses the impact of political competition on district government performance in Indonesia. This study uses a new database that covers 427 districts in Indonesia, from 2000 to 2013. In Indonesia, district governments are largely responsible for fulfilling basic service delivery and, in this regard, they are extremely powerful. Political competition is measured using the Herfindahl Hirschman Concentration Index for the district parliament election. This variable is potentially endogenous, because political competition is likely to be non-random and correlated with unobservable variables. To solve this problem, I use the lag of the average political competition within the same province, as well as the political competition from the 1955 general election, as instrumental variables for political competition. The degree of political competition has been found to boost real Regional Gross Domestic Product (RGDP) per capita by 3.24%. Furthermore, a one standard deviation increase in political competition would increase RGDP per capita growth by approximately 1.11%. The results also support the findings of previous studies, which have found that stiffer political competition is associated with higher public spending (e.g. infrastructure spending) and pro-business policies.

Keywords: Political Competition, Regional Government, Indonesia, Economic Performance

JEL Classification: D78, H71, H72, O1

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1 Introduction

Economic theory often suggests that competition leads to improved economic welfare. Many studies consider this argument within a political context, asking whether competition in political systems, such as in parliaments or through elections, could benefit society (Downs, 1957; Becker, 1958; Stigler, 1972; Lindbeck and Weibull, 1987; Wittman, 1989; Osborne and Slivinski, 1996; Besley and Coate, 1997; Besley et al., 2010).[1] Studies on the nexus between political competition and economic performance in developing countries remain limited, however. Furthermore, there is little evidence on the role of political competition on policies in developing countries or in countries that are transitioning towards democracy, such as Indonesia.

Indonesia initiated a democratic government after 32 years of President Suharto's regime (*Order Baru* or New Order). Research on this country have been increasing, especially since the country held its first general election after Suharto's presidency in 1999. After the New Order era, Indonesia entered the *Era Reformasi* (Reformation Era), which signifies the beginning of its transition from an authoritarian country into a democracy. During this period, Indonesia passed two laws to decentralise the fiscal and administrative policies. Sub-national and especially district governments are now responsible for providing the majority of key public services, such as education, healthcare and infrastructure. District government expenditure covers almost 75% of total sub-national public expenditure (Lewis, 2016).

While studies on the role of district government in Indonesia have become more common, research is still limited. The majority of extant studies have examined the impact of directly elected sub-national executives (*Pemilihan Kepala Daerah Langsung*/PILKADA) on local government performance, but have neglected the impact of political competition. Sjahrir et al. (2013) have investigated political budget cycles at the district level, and discovered a significant relationship between political budget cycles and mayoral elections. Thus, the findings indicate that the current executive is likely to use their discretionary spending—such as financial assistance spending (*belanja bantuan sosial*) and financial assistance to sub-districts and donations (*hibah*)—to enhance their chances of being re-elected.

Previous studies on Indonesia have focused on sub-national elections and public service deliveries, although the majority did not address the potential endogeneity problems associated with political competition. Issues with endogeneity might arise due to two factors. First reverse

[1] Many studies have been expanding this argument, for example Polo (1998) and Svensson (2005) which agree that political competitiveness affects policies and welfare. Other studies have examined the relationship between political competition and other outcome variables: for example, economic performance (Padovano and Ricciuti, 2009), government efficiency (Ashworth et al., 2014), land supply (Solé-Ollé and Viladecans-Marsal, 2012), political rent (Svaleryd and Vlachos, 2009) and service delivery (Arvate, 2013; Nye and Vasilyeva, 2015).

causality due to the fact that districts with higher economic growth or income per capita might be correlated with the degree of political competition, and therefore bias the results. Previous studies have acknowledged this possible reverse causality between government performance and electoral competition (Besley et al., 2010; Padovano and Ricciuti, 2009). Second, political competition will be correlated the error term which would also affect the credibility of the estimation results. For example, some districts might have strong preferences to specific parties due to historical events or other cultural factors that are difficult to observe. The problem with this omitted variable issue will become the major concern for this study.

To discuss the role of political competition on government performance, I use data from three different sources. The first source is the district parliamentary election results from the General Election Commission of Indonesia (*Komisi Pemilihan Umum*/KPU). I also check the consistency of the data with data from Pemilu Asia.[2] Regarding the socio-economic indicators, I use data provided by the INDO-DAPOER dataset, which has collected extensive information about province and district characteristics in Indonesia from 1976 to 2014. Finally, the dataset used in this study consists of 427 of the 508 districts in Indonesia, and was collected between 2000 and 2013.

Political party concentration index (Herfindahl-Hirschman Index (HHI)) is the measurement for political competition. I find that higher political competition is indeed associated with pro-business and growth policies. In terms of outcome variables, both log real Regional Gross Domestic Product (RGDP) per capita and log real RGDP per capita growth increase with a higher degree of political competition. In terms of magnitude, a one standard deviation increase in political competition is estimated to increase RGDP per capita and RGDP growth by 3.24% and 1.11%, respectively. An increase in political competition by a one standard deviation is associated with lower log own source revenues per capita by 9.6%. This suggests that higher political competition reduces tax revenue. Moreover, an increase in political competition by a one standard deviation is associated with higher infrastructure expenditure per capita by 17%.

To address endogeneity problems caused by the non-random political competition variable and also reverse causality that could bias the estimation results, I employ an instrumental variable estimation strategy. I use the lag of the average political competition from the national parliamentary election in bordering districts within the same provinces, and of the historical political competition from the 1955 general election (which was held under democratic conditions prior to the Suharto regime) as the instruments. This strategy has also been used by Svaleryd and Vlachos (2009),

[2]Pemilu Asia is a non-governmental organisation (NGO) that aims to provide data for election results in several Asian countries, such as Indonesia, Malaysia, Singapore, India and Turkey. Their website can be accessed from this link http://pemilu.asia/.

Solé-Ollé and Viladecans-Marsal (2012) and Sørensen (2014). The results from 2SLS supports the initial findings.

In further support of these findings, the effect of higher political competition is also statistically significant when I employ additional control variables or introduce new dependent variables.[3] Moreover, I also use the vote margin between the winning party and the second-place party and effective number of parties (Laakso and Taagepera, 1979) as alternative explanatory variables for political competition. The results suggest that using the vote margin and effective number of parties do not change the baseline results.

The main contribution of this study is that it empirically tests the role of political competition in economic performance and policy choice (Besley et al., 2010; Padovano and Ricciuti, 2009; Ashworth et al., 2014; Svaleryd and Vlachos, 2009; Solé-Ollé and Viladecans-Marsal, 2012; Arvate, 2013; Nye and Vasilyeva, 2015), specifically in the developing country like Indonesia. Study about political competition in Indonesia and Southeast Asian countries in general remains understudied. Given the stark differences between the Indonesian and other well developed country political systems, this paper provides advance of political competition studies for proportionately representative democracies. Moreover, it is still unclear whether political competition would increase the incentive to implement reforms as Acemoglu and Robinson (2006) have suggested that political competition may lead to political instability and lower economic growth.

Moreover, this study constructs and documents a new dataset on the degree of political competition in Indonesia at the district level since the reformation period. Using an Indonesia dataset provides an alternative approach to what is typically performed in political economy literature, especially regarding whether political competition is beneficial in a young democracy and a decentralised country. Therefore, this study widens the narrow research conducted on political competition in a developing country. Previous studies using developing countries, for example in Brazil (Arvate, 2013; De Janvry et al., 2012; Chamon et al., 2018), Russia (Nye and Vasilyeva, 2015), India (Arulampalam et al., 2009; Crost and Kambhampati, 2010; Besley et al., 2011; Nath, 2014; Mitra and Mitra, 2017), Mali (Gottlieb and Kosec, 2017) and Mexico (Clearly, 2007; Díaz-Cayeros et al., 2014). Nevertheless, these countries have a different institutional set up than Indonesia, which might provide an alternative perspective for this particular context.

The aim of the present research is to fill a gap in the political economy literature on Indonesia, by focusing on the impact of political competition on government performance. One of the few examples of study on political competition in Indonesia is study by Toha (2016) and Daxecker and

[3]For example, arbitrary thresholds for vote margins as proposed by Arulampalam et al. (2009).

Prins (2016). Unlike previous studies (Olken, 2010; Burgess et al., 2012; Sjahrir et al., 2013; Martinez-Bravo, 2014; Skoufias et al., 2014), this study focuses on the impact of district parliamentary political competition on local government performance. Previous studies have primarily investigated the mayor's role in delivering necessary services through a direct mayoral election. However, the mayor alone cannot implement a policy without enough support from parliament. Hence, I want to determine whether districts with increased political competition push their mayors to implement policies that will improve the economy and public spending.

This study also extends the analysis on whether, after the decentralisation era, there has been any improvement to political competition in Indonesia. A previous study investigated the role of fiscal decentralisation on public good provision in Indonesia. For example, Pal and Wahhaj (2017) have found that fiscal decentralisation is associated with higher spending on social infrastructure. However, the main objective of their study was to explore the role of fiscal decentralisation; It does not elaborate the impact of political competition on government spending.

This study in some ways also related to the elite capture phenomenon in a decentralized government (Bardhan and Mookherjee, 2000; Alatas et al., 2012, 2019). As it has been shown by Alatas et al. (2019), elites in Indonesia in some way use their power to capture some benefits from certain welfare programs. Political competition will clearly affect this capture, nevertheless there is still limited evidence in the context of Indonesia and in Southeast Asian countries in general.

This paper proceeds as follows: Section 2 provides the conceptual framework. Section 3 discusses the institutional background within both an administrative and political context. The data is explored in Section 4, and the results are discussed in Section 5. Finally, Section 6 concludes this study.

2 Conceptual Framework

Based on the previous literature on the association between sub-national government performance and political competition, I explored the following two hypotheses. The first investigates whether political competition enhances economic performance. The second hypothesis proposes that government policy is associated with political competition.

There are different forces at play between the effects of political competition and policy choices. First, as documented in Besley et al. (2010) and Padovano and Ricciuti (2009), political competition is associated with higher income per capita and income per capita growth. Conversely, Man (2016) has suggested that, in a cross-country panel, the empirical relationship between political competition and economic growth is inconclusive. The study has found that the political competition variable

displays a U-shaped partial relationship with growth. Furthermore, Acemoglu and Robinson (2006) have suggested that political competition can cause political instability and reduce government incentives to implement reforms that enhance economic growth.

In the context of Indonesia, it is unclear whether political competition enhances economic growth or, on the other hand, may lead to political and economic instability. However, political competition - and political decentralisation – is likely to decrease the incentive to engage in rent-seeking behaviours, since it is easier for voters to punish incumbents who perform poorly. When voters are given several options in an election, politicians need to implement policies that will benefit voters' welfare. In the present study, I predict that political competition will drive the government to promote pro-growth policies, and therefore increase GDP per capita. Given the fact that political competition in a newly democratised country like Indonesia would also increase political instability in that country, it might provide the opposite result as Besley et al. (2010) and Padovano and Ricciuti (2009).

One example where political competition will affect policies is related to local tax (own source revenue). Vehicle ownership tax is one of the significant contributors for local tax. Many political parties proposed some policies to reduce or even to abolish this tax. This strategy mainly to gather votes from the median voters and it leads to the change in political competition. Therefore, I predict that higher political competition will increase the incentive for political parties to propose some policies that will reduce own source revenue.[4]

Another potential implication of increased political competition is that it increases pressure on the government to provide more public goods. As previously mentioned, political competition is associated with government policies. In general, higher political competition increases the provision of public goods, such as education and health expenditure in Russia (Nye and Vasilyeva, 2015), number of teachers, students and free immunisation in Brazil (Arvate, 2013), spending on infrastructure in the US (Besley et al., 2010), public provision in Italy (Padovano and Ricciuti, 2009), government efficiency in Flanders (Ashworth et al., 2014), and land supply in Spain (Solé-Ollé and Viladecans-Marsal, 2012).

Notwithstanding, higher spending is not always associated with better government performance, because policy-makers can spend more money in unproductive sectors (e.g. civil servant salaries or general administrative spending), which is associated with rent-seeking behaviour. In this context, I want to specifically observe the impact of political competition on government expenditures by sectors. District governments in Indonesia have more power and also responsibility with

[4]The Prosperous Justice Party (PKS) for example has proposed to abolish the tax on motor vehicles as their main campaign proposal. See https://tinyurl.com/y2pcfl3r

regard to public goods provision. Therefore, an increase in government spending on infrastructure, health and education is associated with more public goods. For example, district governments are responsible for providing health care facilities, improving basic education services and social and public infrastructure. Thus, I expect that as political competition increases, pressure on the government to provide more public goods also increases.

It is also possible that higher spending on public goods provision is not associated with improved quality of public goods. Unlike other developed countries, where the initial quality of the goods provided by the government are already good, Indonesia still has problems with infrastructure. Based on the Global Competitiveness Report, in 2018 Indonesia ranked 71st of 140 countries in terms of infrastructure development.[5] Therefore, an increase in the provision of public goods can be interpreted as an improvement in government performance.

3 Institutional Background

3.1 Administrative Context

During the almost three decades of President Suharto's administration, Indonesia's government was profoundly centralised and autocratic: everything was decided in the capital city. The Golkar party was the main ruling party, which competed—in a loose sense—with two weak opposition parties. Despite the predominantly centralised rule, Suharto did allow some sub-national governments to perform limited political activities, in accordance with Law No. 5/1974. Even though this law provided a framework for decentralisation, lower levels of government possessed limited authority and power.

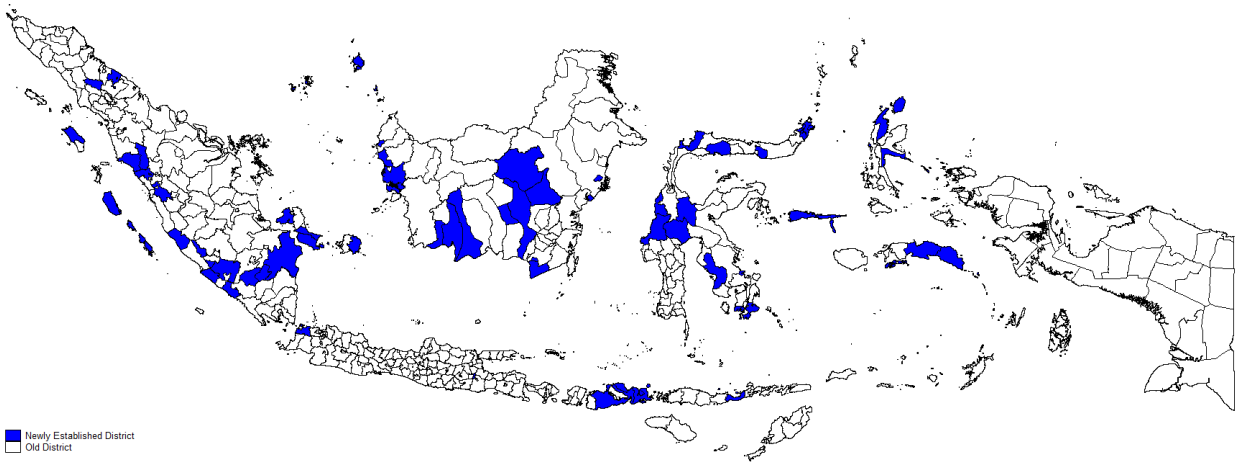
In 1999, following the regime change, two laws (Law No. 22/1999 on regional governance and Law No. 25/1999 on regional fiscal balance) on decentralisation were passed by the government. These laws made district governments responsible for basic services, integrated the de-concentrated structure into sub-national government and provided them with grants and natural revenue sharing (Skoufias et al., 2014).[6]

The fiscal and political decentralisation took effect in January 2001. Administrative decentralisation involved the granting of autonomy to two levels of the government: provinces and *Kabupaten* and *Kota* (i.e. regencies and cities: for simplicity, referred to as district governments). Administrative decentralisation preceded an increase in the number of district governments, from 340 in 1999 to

[5] See http://reports.weforum.org/global-competitiveness-report-2018/.

[6] In 2015, the funds transferred from the central government to provincial and district governments was approximately 31.7% of the total central government expenditure (Ministry of Finance, 2016).

Figure 1: District Boundaries in Indonesia



Notes: This is Indonesia's district boundaries based on Home Office, 2014.

514 in 2014 (Ministry of Home Office, 2014) (See Figure 1 and Table 1). Most of the newly formed districts are located outside the island of Java. In total, 174 new districts have been formed since the decentralisation period. Districts were primarily split due to fiscal incentives, although political division and interest in natural resources also played a part in the division (Fitrani et al., 2005). District proliferation gives new districts the power to manage their own revenues and expenditures. This mechanism helps rich districts that had previously depended heavily on parent districts to use their own resources independently.

Own-source revenues (*Pendapatan Asli Daerah*/PAD) and the transfer from central government (*Dana Perimbangan*) comprise district governments' revenue sources. The former is collected directly by district governments and comes from taxes and levies on businesses, service activities and vehicle ownership, while the latter is collected by the central government and comes from taxes and levies on natural resource extraction activities and personal income tax (World Bank, 2007). In the past five years, the proportion of PAD to total district governments' revenues was approximately 17% (Ministry of Finance, 2016).

Central government transfers form a large portion of district governments' total revenue. It comprises approximately three-quarter of a district's total revenue (Ministry of Finance, 2016). Government transfers assume three forms: the general allocation fund (*Dana Alokasi Umum*/DAU), the special allocation fund (*Dana Alokasi Khusus*/DAK), and the shared revenues fund (*Dana Bagi Hasil*/DBH). The DAU mainly covers civil servants' salaries. The DAK and the DBH provide funds for development activities. The difference between the DAK and the DBH is that the DAK is an earmarked budget, which means that the budget is allocated for specific spending, while the DBH is not. Only districts in which many people pay income tax and districts with abundant resources can earn a significant amount of DBH (World Bank, 2007). In 2015, the DAU's share of the national

budget was approximately 17.3%. For the DAK and the DBH, the share was approximately 1.7% and 6.2%, respectively (Ministry of Finance, 2016).

Table 1: Number of Districts in Indonesia

Year	Number of Districts	Number of District Excluding Districts in DKI Jakarta	Number of Regencies	Number of Cities
1999	340	335	268	72
2000	340	335	268	72
2001	353	347	269	84
2002	390	384	302	88
2003	439	433	349	90
2004	439	433	349	90
2005	439	433	349	90
2006	439	433	349	90
2007	464	458	370	94
2008	494	488	397	97
2009	496	490	399	97
2010	496	490	399	97
2011	497	491	399	98
2012	501	495	403	98
2013	511	505	413	98
2014	514	508	416	98

* Source: Own Calculation based on Home Office, 2014.

Following decentralisation, district governments became responsible for infrastructure, education, health, agriculture, trade and industry, transportation, the labour market, and the environment. In education, district governments are responsible for the first nine years of education (six years of primary school and 3 years of secondary education). In the health sector, district governments are responsible for providing primary health services and employing health workers. On average, district government expenditure covers almost 75% of the total district expenditures (Lewis, 2016). The rest of it comes from a special allocation grant. Furthermore, districts' nominal expenditures have doubled from 2001 to 2007 and increased significantly in both 2008 and 2009 (Sjahrir et al., 2014). In 2016, the ratio between the districts' total expenditures and the central government's total expenditures was 38% (Ministry of Finance, 2016). This is relatively higher than in the US and European countries, where sub-national government expenditures account for around 25% of total government expenditures (Ferraz and Finnan, 2011).

3.2 Political Context

The Indonesia parliament system uses proportional representation, in which citizens can vote for a party or specific candidates within a party. In the 1999 general election, 48 parties competed in the national and sub-national elections. In the national general election, five parties stood out: *Partai Demokrasi Indonesia-Perjuangan* (PDIP-P) won the election by 34% of the votes, followed by *Golongan*

Karya (Golkar) with 22% and *Partai Kebangkitan Bangsa* (PKB), *Partai Persatuan Pembangunan* (PPP) and *Partai Amanat Nasional* (PAN) which earned 13%, 11% and 7%, respectively.

The reforms made to Indonesia's administration occurred simultaneously with enormous development in politics at the sub-national level. Before 1999, local executives and local members of parliament at the district and provincial levels (*Dewan Perwakilan Rakyat Daerah*/DPRD) were chosen by the central government. The government changed this procedure gradually, by holding direct elections to choose local members of parliament and district heads/mayors (known as *bupatis* and *walikotas*). In 2004, the government introduced a new law on sub-national direct elections to strengthen local accountability. In 2005, the first direct mayoral election was held in Indonesia. In June 2005, 266 sub-national governments (49% of total sub-national governments; 11 provinces and 214 districts) participated in democratised elections. By the end of 2009, around 80% of the sub-national governments held their own direct elections. These reforms aimed to increase the accountability of all sub-national governments, because district/province leaders had previously been appointed by district/province parliaments.

Indonesia held its first direct presidential election in 2004, with Susilo Bambang Yudhoyono and Jusuf Kalla appointed as the first directly elected President and Vice President of the Republic of Indonesia. In the same year, 24 parties competed in the parliamentary election. During the 2009 general election, 44 parties participated in the election. Until 2014, years after the political transition, Indonesia had only four legislative elections (1999, 2004, 2009 and 2014) and three direct presidential elections (2004, 2009 and 2014), although it had numerous direct sub-national elections to choose district/province leaders.

4 Data and Specification

The analysis was conducted using an unbalanced panel dataset for all districts in Indonesia, except for those located in NAD, DKI Jakarta, Papua and Papua Barat.[7] The number of districts in this sample are 427 out of 508 districts, with many newly formed districts formed after 2001 (See Figure 1 and Table 1). Based on data availability, this study covers 14 years, from 2000 to 2013.[8] Table 2 provides the summary statistics of the data in this study.

[7] I excluded districts in the provinces of Nanggroe Aceh Darussalam, Papua and Papua Barat, because a significant amount of data was not available for the districts in these provinces. Moreover, DKI Jakarta was excluded because the districts in Jakarta are not autonomous. A previous study that used the same dataset, (Sjahrir et al., 2014), also excluded these districts for the same reasons.

[8] Most of the indicators in this study were collected from the INDO-DAPOER dataset that contains data, especially the socio-economic indicators for the district-level from 1976 to 2013. The data is accessible from this web page: http://data.worldbank.org/data-catalog/indonesia-database-for-policy-and-economic-research. This data was collected and shared by the World Bank group.

Table 2: Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Political Competition	5458	0.81	0.09	0.24	0.94
RGPD pc. (in million Rupiah)	5458	6.31	6.60	0.25	98.58
Log RGDP pc. Growth	5458	0.06	0.06	-0.78	1.99
Own Source Revenues pc. (in million Rupiah)	5042	0.12	0.21	0.001	5.21
Total Expenditure pc. (in million Rupiah)	5037	1.73	2.03	0.004	46.60
Total Infrastructure Expenditure pc. (in million Rupiah)	5031	0.32	0.68	0.0005	24.25
Total Education Expenditure pc. (in million Rupiah)	5031	0.49	0.40	0.0001	8.18
Total Health Expenditure pc. (in million Rupiah)	5031	0.14	0.16	0.002	2.10
Lag Neighbour HHI	5031	0.87	0.10	0.31	0.99
Historical HHI	5458	0.65	0.10	0.15	0.82
Log Total Population	5458	5.84	0.96	2.28	8.56
Urban Rate (%)	5458	66.80	28.02	0.52	100
Population Density (thousand people per km^2)	5458	1.06	2.23	0.00	32.64
Literacy Rate (% of total Population)	5458	92.02	6.81	50.08	99.94
Log Central Government Transfer pc.	5458	26.38	1.44	7.29	29.95
Resource Rich	5458	0.97	0.18	0	1
Log Natural Resource Revenue pc.	5422	9.26	2.88	-10.70	22.83
Log Province Real RGDP pc.	5355	15.54	0.401	13.53	17.46
Log Province Total Expenditure pc.	5355	13.70	0.586	11.82	15.31
Non Agricultural Share	5001	0.67	0.19	0.21	0.99
Vote Margin	5458	0.12	0.13	0.0002	0.80
Effective Number of Parties	5458	6.65	2.75	1.32	16.67

4.1 The Dependent Variables

I analysed seven separate dependent variables: (1) Log real Regional Gross Domestic Product (RGDP) per capita; (2) Log real RGDP per capita growth; (3) Log own source revenues per capita; (4) Log total expenditure per capita; (5) Log total infrastructure expenditure per capita; (6) Log total education expenditure per capita and (7) Log total health expenditure per capita. Some of these variables have been used in previous studies, such as: health expenditure variables by Padovano and Ricciuti (2009) and infrastructure expenditure in Besley et al. (2010). Moreover, real RGDP per capita and real RGDP per capita growth variables have been used in Besley et al. (2010) and Padovano and Ricciuti (2009).

The first dependent variable tested is log real district gross domestic product over total population (*RGDP per Capita*). Figure A1 depicts log RGDP per capita trends, based on Indonesia's main Islands, from 2000 to 2013. It is evident that Kalimantan exhibits the highest RGDP per capita during the given time period relative to other islands. The mean RGDP per capita in Kalimantan between 2000 and 2013 was Rp 9.8 million (US$ 654.44).[9] Notably, Kalimantan possesses the largest reserves of energy resources in Indonesia.

[9] US$ 1 $\approx$ Rp 15,000.

Figure A2 depicts RGDP per capita by district in Indonesia. Kediri (RGDP per capita = Rp 98.5 million ≈ US$ 6,572.28) in East Java has the highest RGDP per capita. On the other hand, Halmahera Barat district (RGDP per capita = Rp 247,913.22 ≈ US$ 16.52) in Maluku is the district with the lowest RGDP per capita. Based on the summary statistics in Table 2, the mean RGDP per capita is Rp 6.3 million (US$ 420.80) and the standard deviation is Rp 6.6 million (US$ 440.23)

Log real RGDP per capita growth (*growth*) is also used as a dependent variable. The mean value for RGDP per capita growth is 0.06 and the standard deviation is 0.06. Figure A3 depicts the trend of real RGDP per capita growth. Moreover, Figure A4 provides the average growth by district in Indonesia. We can see that districts in East Kalimantan, several districts in Sulawesi, and parts of Riau have performed relatively better than their neighbours. Labuhan Batu (North Sumatra Province) was the district with the highest real RGDP growth in 2008 (growth = 1.99 percent). Pontianak (West Kalimantan), on the other hand, had the lowest real RGDP per capita growth in 2006 (growth = -0.78).

The next dependent variable used to capture locally generated government revenues is own source revenues per capita (*PAD*). Based on the statistics provided in Table 2, the mean value for this dependent variable is Rp 120,203 (US$ 8.01) and the standard deviation is Rp 214,067 (US$ 14.27). South Lampung district had the lowest own source of revenues per capita in 2000 (*PAD* = Rp 1,726 ≈ US$ 0.12). The district with the highest own source revenues was Tana Tidung district with Rp 5.2 million (US$ 347.41) in 2011.

In terms of government expenditure, I used total government expenditure per capita and total government expenditure by sector. The mean for total expenditure per capita is approximately Rp 1.7 million (US$ 115.28) and the standard deviation is around Rp 2 million (US$ 135.45). The last three dependent variables used are total infrastructure per capita (mean = Rp 321,165/US$ 21.41; s.d. = Rp 683,147/US$ 45.54); total education expenditure per capita (mean = Rp 478,609/US$ 31.91; s.d. = Rp 400,857/US$ 26.72) and total health expenditure per capita (mean = Rp 145,454/US$ 145; s.d. = Rp 160,013/US$ 10.67). The share of total expenditure for infrastructure, education and health—relative to total government expenditure—is approximately 56.7%, which is quite substantial.[10]

[10]Other government expenditures that are not used in this study include spending on agriculture (4%), administrative activities (31.7%), social protection (0.7%), goods and services (18.3%) and other spending (11.4%). The figures inside the parentheses represent the shares relative to total government expenditure.

4.2 Explanatory Variables

Political competition measured in district parliaments are constructed using data from the General Election Commission of Indonesia (KPU) and Pemilu Asia, from 2000 to 2013. The data used comprise the vote shares for each party from the district parliament elections. As previously mentioned, Indonesia's electoral system is one of proportional representation. During the election, voters can vote for individual candidates or just the party. If voters choose to vote for the party, then the winning party will choose the member of parliament based on their rank in the party list.

Previous studies have used various approaches to define political competition: for example, the number of parties competing in the election (Polo, 1998; Arvate, 2013), the vote margin (Besley et al., 2010; Padovano and Ricciuti, 2009; Solé-Ollé and Viladecans-Marsal, 2012; Svaleryd and Vlachos, 2009) and political volatility (Ashworth et al., 2014). In this study, the main measure is the Herfindahl Hirschman Index (HHI), which is the sum of squares of the vote shares of each political party in the election at district d and time t, i.e. $\Sigma\, VS^2_{p,d,t}$. This variable reflects the strength of the party in the general election at the district level, as well as the political concentration in the district parliament.[11] Therefore,

$$Political\ Competition_{d,t} = 1 - \Sigma\, VS^2_{p,d,t} \tag{1}$$

where, $Political\ Competition_{d,t}$ is the political competition in district d at time t, which is equal to 1 minus the Herfindahl Hirschman Index. Since I subtracted the HHI from 1, an increase in the size of the political competition, leads to a higher degree of political competition. For example, if the value of political competition is close to one, political competition is high. On the other hand, if the political competition value is close to zero, there will be less political competition in the district. Using political competition fractionalisation as the explanatory variable is also for the simplicity when we interpret the estimation result.[12]

As presented in Table 2, politics in Indonesia are relatively competitive, and the distribution is skewed to the right. The mean value of political competition in Indonesia is 0.81 and the standard deviation is 0.09. Districts with the highest degree of political competition are Sintang, Bulukumba, North Tapanuli, Humbang Hasundutan and South East Maluku (Political Competition = 0.94) in

[11] Another possibility is to use the vote share margin between the mayoral candidates. However, the effects of political competition using data collected from the mayoral election is not within the scope of this study. Nevertheless, several potential links may affect a mayor's policies. For example, stiffer political competition at the parliamentary levels will affect a mayor's policies. Mayors with strong parliamentary support will also exert more discretion over which policies they choose to implement. Nonetheless, in the robustness check I also included a number of covariates to address the role of local executive powers.

[12] In the robustness check, I also us vote margin between the first and the second winning party at the district parliament and effective number of parties as alternative explanatory variables. The estimation result from using these two explanatory variables also support the baseline result.

the 2009 general election. Tabanan has the lowest political competition variable: 0.24 in the 1999 general election.

Figure 2, Figure 3 and Figure 4 reveal that the degree of political competition varies over time. From Figure 2, it can be seen that, during the 1999 general election, districts in Bali and South Sulawesi exhibited the lowest degree of political competition (smaller than 0.5). The mean political competition in Bali was 0.33 in the 1999 general election. Similarly, the mean political competition in South Sulawesi was 0.43 in 1999. By 2009, districts in Bali still had the lowest political competition relative to other districts, and the mean of the variable was 0.75, which was lower than the average political competition throughout the country (political competition = 0.87). On the other hand, political competition in South Sulawesi in 2009 was 0.88, which was higher than the average political competition throughout the country.

These two provinces have a long history of voting for certain political parties. For example, South Sulawesi has close ties with the Golkar Party, since many major political figures in the Golkar party came from South Sulawesi, such as the former President, B.J. Habibie, from *Kabupaten* Pare-Pare. Moreover, the current Vice President, Jusuf Kalla, came from *Kabupaten* Bone and was a well-known entrepreneur in South Sulawesi and Eastern Indonesia before entering politics. Bali also has a strong alignment with the PDI-P and, as a result, the PDI-P is the winner in almost every general election.

In general, political competition in Java, Sumatra, Kalimantan and Indonesia is quite heterogeneous between elections and districts. This heterogeneity makes it suitable to use fixed effects when conducting a regression analysis. Moreover, we can see that there is a consistent pattern where political competition has become more competitive across different election cycles. There is no clear explanation about it, but it is worth noting that as a young democracy country, Indonesia has able to maintain the process of democratisation period relatively smooth.

Figure 2: Political Competition by Districts in 1999

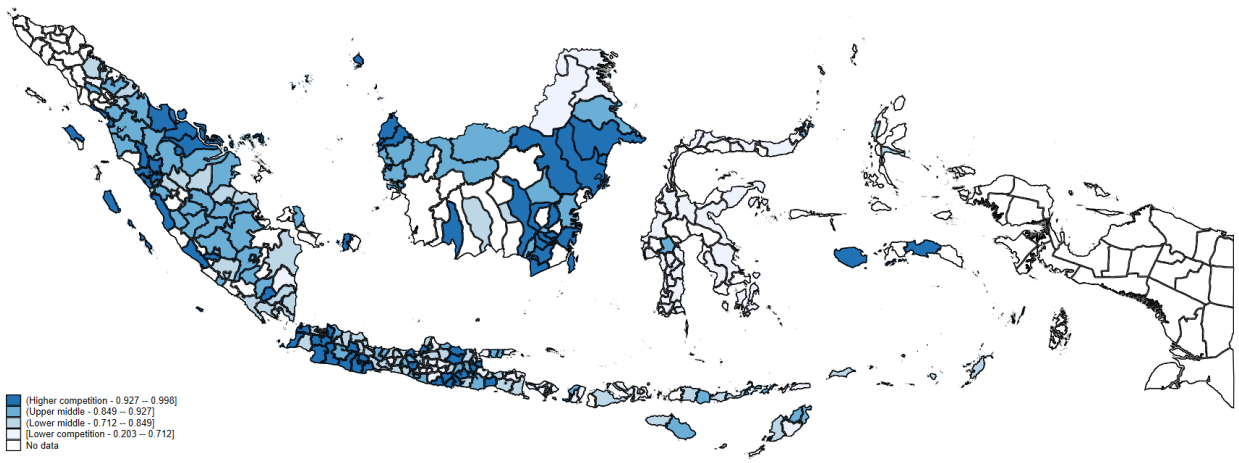


Figure 3: Political Competition by Districts in 2004

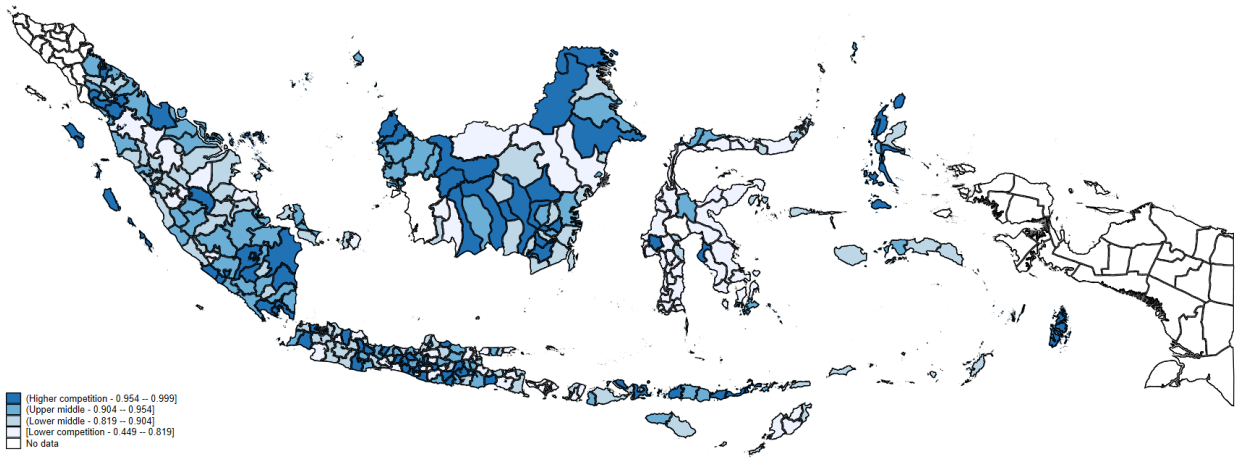
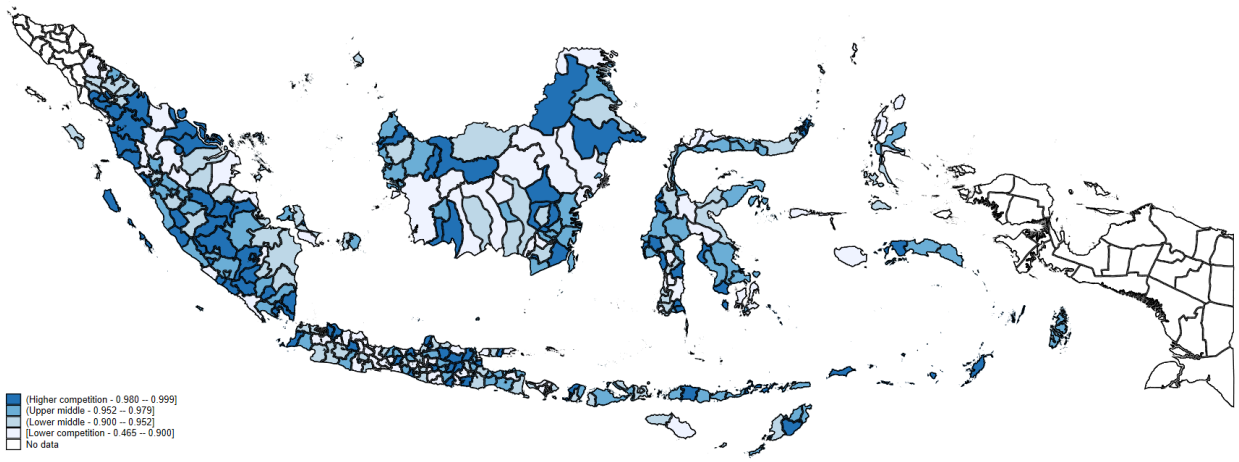


Figure 4: Political Competition by Districts in 2009



4.3 Specification and Identification

The objective of this study is to assess whether political competition produces more pro-development policies and better economic performance. Following Besley et al. (2010), the relationship between political competition and district government performance is modelled as follows:

$$Y_{d,t} = \beta + \delta Pol\ Comp_{d,t} + \gamma X_{d,t} + \theta_d + \vartheta_t + \epsilon_{d,t} \tag{2}$$

where $Y_{d,t}$ is the dependent variable in district d at time t, regressed on political competition (*Pol Comp*) and a vector of control variables (X). The dependent variables in this model are all in log, such as: log real RGDP per capita, log real RGDP per capita growth, log own source revenues per capita, log total expenditure per capita, log total infrastructure expenditure per capita, log total education expenditure per capita and log total health expenditure per capita.

$Pol\ Comp_{d,t}$ is political competition in district d at time t. The variable for political competition is

time invariant within each election cycle. For example, the political competition for year 2000-2003 at district d would be the political competition from the 1999 general election. Similarly, the political competition for district d during years 2004-2008 would the political competition from year 2004 and 2009 for t = 2009-2013.

One advantage of using the past election year is that it can mitigate the potential of reserve causality between political competition and dependent variables, because current government activities cannot affect past political competition. This is also the reason why the present study does not follow previous literature that used future political competition (Solé-Ollé and Viladecans-Marsal, 2012; Arvate, 2013).

Components that relate to a district government's ability to execute policies depend on the characteristics of the district, in terms of accessibility and possible scale economies. Therefore, several time variant control variables are included in this estimation. The controls include interpolated log of population, the urbanisation rate, population density, the literacy rate, the log of central government transfers, dummy variables for districts who have abundant natural resources and log natural resource revenue per capita.

I employed several control variables, in accordance with Clearly (2007), Ashworth et al. (2014) and Arvate (2013), subject to data availability. The logs of population and urbanisation rate are included, because areas with larger populations and a higher degree of urbanisation affect the decisions made regarding public goods provision. For instance, districts with larger populations will require more infrastructure compared to districts with smaller populations. Population density is included to capture economies of scale when providing public services (Oates, 1999). This is because each district government needs to implement a pro-growth agenda, and might end up investing more per unit of infrastructure or service because it would be operating in a smaller scale.

To capture fiscal capacity, the log of central government transfers, resource rich indicators and log natural resource revenue per capita are also included in the regression. Resource rich indicators is a binary variable for districts where one of their revenues come from natural resources, such as fishery, forestry, gas, mining, and oil. Any of these variables can be used as the indicator regardless of whether the district government has the fiscal ability to make improvements to public services. Districts that have abundant natural resources will be less dependent on the central government. Finally, literacy rate used to control for political and ideological influence.

The vector of controls is augmented with district fixed effect θ_d and time effects ϑ_t. By using district and time fixed effects, the political competition measures are differentiated across time and across districts. Therefore, it differentiates between unobserved fixed district characteristics and

removes common time effects. In addition, robust standard errors are clustered at the district level. Due to economic activity might be regionally clustered, I also include Island by year effects in the estimation specification to capture this spatial trend.

The lag of log real district RGDP per capita is also included to account for Solow convergence when district real RGDP per capita growth is the dependent variable. Theoretically, some districts exhibit a higher growth rate because they were initially poorer than other districts. However, due to the small T and large N in this study, there might be some issue which could bias the estimations (Nickell, 1981). Therefore, I also estimate this model using GMM estimator a la Arellano-Bond first difference (Arellano and Bond, 1991) as recommended by Caselli et al. (1996) and Besley et al. (2010). Other controls would be mentioned in the specific regressions.

4.4 Instrumental Variables

There are two major concern with the explanatory variable in this study. First, political competition is an endogenous variable and $Pol\ Comp_{d,t}$ may be correlated with $\epsilon_{d,t}$ in equation 2. This issue will plausibly biases the results from the OLS estimation (Angrist and Pischke, 2009; Wooldridge, 2010). Voters would have specific preferences to vote for certain parties for any unobservable reasons (e.g. historical, cultural, religions, etc.). For example, in some districts where the population are historically and culturally have close connection with Islamic movement, voters will have tendency to vote for Islamic parties. This phenomena will affect the degree of political competition and could potentially affect the outcomes and policy choices induced by the executive.

Second, a potential reverse causality problem exists, because not only do the votes affect the dependent variables, but it is possible that the dependent variables in the estimation would affect the degree of political competition. For example, it is possible that a higher income would affect political competition. Moreover, the government could use spending to influence political competition. For example, the government will increase the salary for civil servants to buy their votes and to increase the probability to be voted in the upcoming election. Therefore, an instrumental variable should be used to address these two concerns.

In this study, I use two plausibly exogenous instruments for political competition. The first is the lag of province political competition and the second is historical political competition in the 1955 general election, interacted with a time trend. Therefore, I will implement at two-stage least squares (2SLS), where the first stage is:

$$Pol\ Comp_{d,t} = \alpha_{d,t} + Z_{1,d,t-1} + Z_{2,d,1955} \times time\ trend + \gamma X_{d,t} + \theta_d + \vartheta_t + \mu_{d,t} \tag{3}$$

where $Z_{1,d,t-1}$ is the lag of province political competition during the election year t and $Z_{2,d,1955}$ is the historical political competition at district d and during the 1955 general election.

Lag of Province Political Competition Following Fiva and Natvik (2013), I created province political competition variable, which is computed from the political concentration index (HHI) for the national parliamentary election results of neighbouring districts within the same bordering province. A similar strategy was also employed by Svaleryd and Vlachos (2009) and Solé-Ollé and Viladecans-Marsal (2012). Indonesia has 34 provinces and approximately 514 districts, therefore one province has approximately 15 districts. To compute this instrument, I used the average of district political competition from the national parliamentary election results in all other districts in the provinces to which the districts d belong at *t-1*. Therefore, the instrument is calculated as follows:

$$Z_{1,d,t-1} = \frac{\sum_{n \neq d}^{P_d} Pol\ Comp_{n,t-1}}{P_{d,t-1}} \tag{4}$$

where P_d is the number of other districts in the province to which the district d belongs and $Pol\ Comp_{n,t-1}$ is the political competition from the national parliamentary election results of district n in year *t-1*. Following the previous strategy for the main explanatory variable, I also subtract the province political competition by 1. Therefore higher province political competition can be interpreted as higher political competition at the neighbouring district within the same province.

The voters movement across different parties can be attributed to the general trends, which are exogenous to local politics. For instance, the policies made by the central government or district governments in neighbouring districts may affect the political preferences at the district level that is entirely unconnected to district politics. Hence, using the national parliamentary election results for districts within the same provinces will provide the plausibly exogenous variation for use as the instrument of district political competition. The underlying assumption here will be that a change in political competition at the national level for neighbouring districts will affect the degree of political competition at district d and have an orthogonal relationship to the policies of district d. More specifically, if political competition in a neighbouring district increases, political competition in the district d will also increase. Similarly, if neighbouring districts have lower political competition, hence the political competition of district d will decrease.

The idea behind using this instrumental variable is that votes in district elections are driven by district conditions and other external factors, as mentioned above. Studies by Fiva and Natvik (2013), Svaleryd and Vlachos (2009) and Solé-Ollé and Viladecans-Marsal (2012) have suggested that local election results determine the strength of political parties at the highest levels (e.g. province

and central governments). In an Indonesian context, voters have different preferences for parties or candidates in the different levels of elections. Liddle and Mujani (2007) have observed that political figures shape voters' preferences in sub-national elections in Indonesia. Voters in Indonesia are significantly attached to national leaders, which is unrelated to district politics. Therefore, a change in the political landscape at the national level would affect the political competition at the district levels, although it rarely affects district government policies due to decentralisation, and also district governments have more power in regard to decision-making and are more autonomous. Another possible channel is due to the bad performance of specific parties at the national level or at neighbouring districts, voters want to punish these parties in their own districts which is unrelated to local politics. One example in other countries could be during Trump presidency in the US, where many of local mayors or governors won or loss the election due to Trump's policies or behaviour which is unrelated to local politics in the US.

Even though there is a clear evidence that this variable could be a credible instrument for our explanatory variable, but we might still have exclusion restriction problems. For example, some policies made by neighbouring districts (e.g. building inter-districts road, transfer of goods and services between districts, economic spillovers from rich districts) could affect the dependent variable in our model and therefore violate the exclusion restriction assumption. To address this issue I use province level covariates (log province RGDP per capita and log province expenditure per capita) to address this issue. Therefore, the exclusion restriction assumption for this instrument would be valid conditional on the inclusion of province-specific factors.

Another potential issue will be due to district proliferation, the political dynamics of neighbouring districts will impact the government's ability to oversee natural resources (Burgess et al., 2012) as well as conflict (Bazzi and Gudgeon, 2018), which could ultimately affect the outcomes and violate the exclusion restriction. In order to mitigate any violation of the exclusion restriction, additional robustness tests were conducted by including the resource rich indicators for the neighbouring districts as well as a dummy variable for the splitting districts interacted with time trend (See Table A1). Moreover, another robustness check was conducted by excluding Java from the sample (See Table A2) to estimate areas where the majority of district proliferation occurred after the decentralisation (See Figure 1). The lag of the province political competition was used to mitigate the potential reverse causality between outcome variables and the instrument.

The mean for lagged province HHI is 0.87 and the standard deviation is 0.10. Figure 5 is a scatter plot that illustrates the positive correlation between political competition and lag of province HHI.

Historical Political Competition This paper uses political competition at the district level from the 1955 general election, since many scholars have noted that it was the fairer election after the country achieved independence and before Suharto's regime (Feith, 1957; Liddle, 2000). Approximately 28 political parties competed during the election, with around 91.5% voter turnout (Ricklefs, 2008).

Political partisanship is found to have a persistent pattern in the US (Kaplan and Mukand, 2011). Similarly, in Indonesia, the results of the 1999 general election had a robust relationship with the results from the 1955 general election (Liddle, 2000; King, 2003; Liddle and Mujani, 2007). For example, in the 1999 general election, the PDI-P party won in areas where PNI (Indonesian Nationalist Party) was the winner of the 1955 general election.[13] There is also a persistent religious partisanship in Eastern Java. For example, the PKB (National Awakening Party), an Islamic party founded by NU (*Nahdatul Ulama*), won in areas where NU also won the 1955 general election. Therefore, political competition in 1955 can potentially be a credible predictor for current political competition.

To create this instrument, I followed the procedures outlined by Solé-Ollé and Viladecans-Marsal (2012), Svaleryd and Vlachos (2009) and Sørensen (2014). In previous studies, historical data was regressed in a cross-sectional analysis. Here, I interact the historical political competition and time trend to achieve the variation for the instrumental variable, and therefore am able to use time and district fixed effects for the analysis. The use of the interaction term generated a continuous difference-in-differences estimator that could identify the causal effect of time invariant variation from the 1955 political competition (Angrist and Imbens, 1995; Angrist, 1998).

To check whether this instrument is considered exogenous, the conditional covariance between historical political competition and ϵ should be zero. This may not satisfy the assumption if the current districts' socio-economic indicators and political environment are correlated with the conditions in 1955. For example, the exclusion restriction may be violated if a district exhibits a specific ethnic composition or repression of communist groups during Suharto's regime that affect current economic conditions.

Regarding this issue, in 1955 Indonesia was undergoing a transition period. The country had just achieved its independence in 1945, and it faced several military attacks from the Netherlands and the British. The economy was relatively poorer during that period, and there were no significant differences (in terms of economic conditions) between the districts. Moreover, during this period, Indonesian politics were volatile. President Sukarno was overthrown by the military and Suharto subsequently implemented an authoritarian and very centralised form of government.

[13] The party was founded by former President Sukarno, the father of former President Megawati, the chairman of the PDI-P party.

District governments in 1955 did not have the power to implement policies, because everything was decided by the central government. Moreover, since there was a fundamental change to district structures after the decentralisation era, political competition in the 1955 elections better reflects political sympathies that were less affected by the current socio-economic conditions. Moreover, as a result of the proliferation of districts and provinces, several may not have existed in 1955.

The concern of whether current district characteristics are correlated with the historical competition will occur if I am using historical competition as an instrument in a direct way (cross-sectional). In this study, because I am using the interaction between historical competition and a time trend conditional on district fixed effects, the violations of the exclusion restriction are more subtle. One way to interpret this instrument is, district with higher historical competition, political competition increases strongly over time. This would mean that there is divergence in political competition over time, with differences between districts becoming larger over time. This is the variation that I am using and allows me to control for district fixed effects that absorb initial difference in political competition between districts. The exclusion restriction here would be no independent diverging trends in the outcomes that mirror the diverging trend in political competition.

Similar to the strategy used for neighbouring political competition, dummy variable for splitting districts interacted with the time trend were used in the robustness checks in the appendix to mitigate the potential problems outlined above. The historical competition mean value is 0.65 and the standard deviation is 0.10. Figure 6 reveals to positive correlation between political competition and historical competition.

5 Results

In this section, I discuss the OLS and 2SLS estimations of equation (2), which analyse the effects of political competition on the dependent variables.

5.1 OLS Results

Table 3 illustrates the estimation results for log real RGDP per capita (columns (1) - (3))and log real RGDP per capita growth (columns (4) - (6)). All specifications include district and year fixed effects. All standard errors in the regressions are clustered according to district. In columns (1), regressing the dependent variables on political competition without adding any covariates yields a positive and insignificant association. However, once I include the covariates, the result in columns (2) suggest that political competition is positively associated with log real RGDP per capita and

it is statistically significant at 5%. Moreover, in column (3) adding island by year fixed effects, the estimation result suggests that political competition increases log real RGDP per capita and statistically significant at 1%. The preferred estimation in column (2) suggests that an increase in political competition by one standard deviation would increase log real RGDP per capita by 1.2% ($\approx 0.09 \times 0.131 \times 100$).

The second outcome variable is real RGDP per capita growth. For this estimation, lagged personal income is included in columns (4) - (6). The results demonstrate that real RGDP per capita growth is also positively correlated with political competition. The negative sign associated with lagged personal income suggests an income convergence. With regard to the magnitude itself, a one standard deviation increase in political competition increases economic growth by 0.4% or around 6.7% of one standard deviation.

Table 3: Economic Outcomes: OLS Panel Estimations

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Var.	Log RGDP pc			Log RGDP pc Growth		
Political competition	0.0893	0.131**	0.177***	0.0408**	0.0445**	0.0537***
	(0.0777)	(0.0554)	(0.0577)	(0.0173)	(0.0181)	(0.0191)
Log total population		-0.739***	-0.742***		-0.0307***	-0.0318***
		(0.0560)	(0.0574)		(0.0115)	(0.0119)
Urban rate		0.000829	0.000862		-0.0000602	-0.0000586
		(0.00104)	(0.00105)		(0.000183)	(0.000183)
Population density		-0.000238	0.00175		-0.000518	-0.000138
		(0.00226)	(0.00251)		(0.00102)	(0.00108)
Literacy rate		-0.000451	-0.000132		-0.000514	-0.000512
		(0.00166)	(0.00165)		(0.000391)	(0.000384)
Log central government transfer pc.		0.000709	0.00101		0.0000490	0.000172
		(0.00129)	(0.00119)		(0.000687)	(0.000715)
Resource rich indicator		0.000695	0.00194		-0.00560	-0.00569
		(0.00741)	(0.00742)		(0.00513)	(0.00518)
Log natural resource revenue pc.		0.00182	0.00148		-0.000436	-0.000480
		(0.00112)	(0.00110)		(0.000474)	(0.000464)
Lagged log RGDP pc.				-0.0609***	-0.0754***	-0.0759***
				(0.0205)	(0.0204)	(0.0206)
N	5458	5442	5442	5031	5018	5018
R^2	0.608	0.832	0.835	0.059	0.063	0.065
Estimation Method	OLS	OLS	OLS	OLS	OLS	OLS
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Island × Year FE	No	No	Yes	No	No	Yes

* Notes: Robust standard errors in parentheses and clustered at the district level. The dependent variables in this estimation are log real RGDP per capita for columns (1) - (3) and log real RGDP per capita growth for columns (4) - (6). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

The next dependent variable is log own source revenue which is presented in columns (1) - (3) in Table 4. As it has been mentioned in section 2, the association is expected to be negative because higher political competition usually increases the government's incentive to reduce tax revenues (e.g. abolishing tax for vehicles). Therefore, it could reduce the amount of revenue generated for district own source revenues.

In column 1, the relationship between political competition and log own source revenue (without adding control variables) was estimated to be negative and significant at 1%. In columns (2) - (3), after including the covariates into the OLS specifications and island by year fixed effects, the results remain negative and statistically significant at 1%. We can also see that the R-square becomes higher after including several covariates. In terms of magnitude, a one standard deviation increase in political competition is associated with a 6.1% to 6.4% (0.09 $\times$ -0.647 $\times$ 100; 0.09 $\times$ -0.710 $\times$ 100) decrease in log own source revenues per capita.

Because the total revenue generated locally by district governments has a negative result, it is interesting to determine the impacts on government expenditures. I use log total expenditure per capita the dependent variables in columns (4) - (6). The results indicate that the association between political competition and total government expenditure per capita is statistically insignificant in columns (4) and (6). Moreover the result in column (5) shows that log total expenditure per capita is positively correlated with political competition, however it is only statistically significant at 10%.

Moreover, although the results for total government expenditure are statistically insignificant, it is interesting to determine whether political competition affects government expenditure based on sector (e.g infrastructure, education and health). Table 5 provides the estimation results for log total infrastructure expenditure per capita (columns (1) - (2)), log total education expenditure per capita (columns (3) - (4)) and log total health expenditure per capita (columns (5) - (6)).

The association between political competition and log total infrastructure expenditure per capita is positive and statistically significant at 5%. A one standard deviation increase in political competition leads to an increase in infrastructure expenditure per capita by 17% - 18% or 11.5%, relative to the standard deviation. The estimation results for log total education expenditure per capita in columns (3) - (4) suggest that political competition does not affect government expenditure in education sectors. Even though there is a positive correlation between political competition and the dependent variable, it is not statistically significant.

The last dependent variable is log health expenditure per capita. Columns (5) - (6) depict the results for this dependent variable, which suggest that political competition results in an increase in health expenditure per capita, which is statistically significant at 5%. If I interpret the magnitude

Table 4: Government Revenues and Expenditures: OLS Panel Estimations

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Var.	Log Own Source Revenue pc.			Log Total Government Expenditure pc.		
Political competition	-0.679***	-0.674***	-0.710***	0.448	0.692*	0.648
	(0.147)	(0.135)	(0.145)	(0.411)	(0.384)	(0.422)
Log total population		-0.668***	-0.665***		-0.0699	-0.0693
		(0.0701)	(0.0703)		(0.108)	(0.107)
Urban rate		-0.00139	-0.00145		0.0126	0.0126
		(0.00195)	(0.00194)		(0.0125)	(0.0125)
Population density		0.00440	0.00324		0.0175	0.0153
		(0.00688)	(0.00743)		(0.0225)	(0.0231)
Literacy rate		0.00220	0.00209		-0.0141*	-0.0140*
		(0.00356)	(0.00363)		(0.00845)	(0.00847)
Log central government transfer pc.		0.252***	0.253***		-0.00171	-0.00105
		(0.0576)	(0.0578)		(0.0308)	(0.0310)
Resource rich indicator		-0.0103	-0.00753		0.0172	0.0210
		(0.0339)	(0.0346)		(0.0632)	(0.0630)
Log natural resource revenue pc.		0.00657*	0.00691*		0.132***	0.134***
		(0.00374)	(0.00379)		(0.0132)	(0.0134)
N	5042	5033	5033	5037	5026	5026
R^2	0.808	0.829	0.829	0.003	0.103	0.105
Estimation Method	OLS	OLS	OLS	OLS	OLS	OLS
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Island $\times$ Year FE	No	No	Yes	No	No	Yes

* Notes: Robust standard errors in parentheses and clustered at the district level. The dependent variable in this estimation is log own source revenue per capita in columns (1) - (3) and log total government expenditure per capita in columns (4) - (6). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

of the association between these two variables, then a one standard deviation increase in political competition leads to an increase in per capita government expenditure in health sector by 7.6% or around 6.93%, relative to the standard deviation. Results from Table 5 are consistent with previous studies in which stiffer political competition corresponds to higher public spending.

Table 5: Total Expenditure and Political Competition: OLS Panel Estimations

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Var.	Log Infrastructure Exp. pc.		Log Education Exp. pc.		Log Health Exp. pc.	
Political competition	1.90**	2.02**	0.45	0.43	0.84**	0.91**
	(0.82)	(0.87)	(0.35)	(0.37)	(0.37)	(0.43)
Log total population	0.0025	-0.0020	-0.032	-0.033	0.054	0.053
	(0.16)	(0.16)	(0.094)	(0.093)	(0.12)	(0.12)
Urban rate	0.011	0.011	0.0076	0.0077	0.011	0.012
	(0.020)	(0.020)	(0.0089)	(0.0089)	(0.011)	(0.011)
Population density	-0.018	-0.016	0.025	0.024	-0.0064	-0.0060
	(0.074)	(0.075)	(0.017)	(0.018)	(0.041)	(0.042)
Literacy rate	-0.012	-0.011	-0.011*	-0.011*	-0.015	-0.014
	(0.013)	(0.013)	(0.0063)	(0.0064)	(0.010)	(0.0100)
Log central government transfer pc.	0.011	0.011	-0.0012	-0.0014	0.028	0.028
	(0.043)	(0.043)	(0.018)	(0.018)	(0.045)	(0.045)
Resource rich indicator	0.088	0.095	-0.012	-0.010	0.030	0.034
	(0.098)	(0.098)	(0.047)	(0.047)	(0.071)	(0.072)
Log natural resource revenue pc.	0.16***	0.16***	0.082***	0.084***	0.12***	0.12***
	(0.020)	(0.020)	(0.0094)	(0.0094)	(0.015)	(0.015)
N	5020	5020	5020	5020	5020	5020
R^2	0.056	0.058	0.052	0.054	0.075	0.077
Estimation Method	OLS	OLS	OLS	OLS	OLS	OLS
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Island × Year FE	No	Yes	No	Yes	No	Yes

* Notes: Robust standard errors in parentheses and clustered at the district level. The dependent variable in this estimation is log total infrastructure expenditure per capita in columns (1) - (2), log total education expenditure per capita in columns (3)- (4) and log total health expenditure per capita in columns (5) - (6). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Overall, the estimation results indicate that political competition has a statistically significant correlation with several of the dependent variables. Nonetheless, the results do not fully establish a causal relationship. Indeed, the endogeneity problem with political competition might bias the results of the OLS estimation. Therefore, I use 2SLS to deal with this problem.

5.2 IV Results

The results presented thus far establish a robust statistical relationship between political competition and some of the dependent variables, after being controlled for with a substantial battery of covariates. However, there is still an issue with the endogeneity concern discussed in subsection

4.4. In an attempt to identify the causal relationship between political competition and outcomes, this section depicts the results for the two-stage least square (2SLS) estimations by using the lag of neighbouring political competition and political competition from the 1955 general election interacted with the time trend.

Table 6: First Stage Regressions

	(1)	(2)	(3)
Dependent var.	Political competition fractionalisation		
Lagged province political competition	0.38***	0.38***	0.36***
	(0.033)	(0.033)	(0.034)
Political competition 1955 × time trend	0.021***	0.021***	0.021***
	(0.0076)	(0.0077)	(0.0080)
N	5031	5018	4924
R^2	0.699	0.702	0.716
F	110.68	105.15	84.34
Estimation Method	OLS	OLS	OLS
Controls	No	Yes	Yes
Province level controls	No	No	Yes
District FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Island × Year FE	No	No	Yes

* Notes: Robust standard errors in parentheses and clustered at the district level. The dependent variable in this estimation is political competition fractionalisation. Political competition is instrumented by lag of political competition within the same bordering province and by the interaction between political competition from the 1955 general election and time trend. Control variables: log total population, urban rate, population density, literacy rate, log central government transfer per capita, resource rich indicator and log natural resource revenue per capita. Province level controls: log province RGDP per capita and log province expenditure per capita. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Before analysing the result from the 2SLS estimations, it is better to see the first stage regressions for the instruments. Table 6 depicts the results from the first stage in this study. Column 1 is the estimation method without control variables. In column (2), I include the same control variables that are being used in the previous tables and finally, in column (3) island by year fixed effects are included to capture unobservable regional trends. The point estimate for lagged province political competition suggest that higher political competition at the neighbouring districts within the same province increases district political competition conditional on various controls. Similarly, the second instrument for this study which is the interaction between historical political competition and time trend has a positive association with current political competition. It means that in districts with higher historical political competition, political competition increases even more strongly over time. It suggests that there is divergence in political competition over time, with differences between districts becoming larger over time.

Table 7 illustrates the 2SLS estimation results for log real RGDP per capita (columns (1) - (2)) and log real RGDP per capita growth (columns 3 - 5). Columns (1) and (3) are estimated by

Table 7: Economic Outcomes and Political Competition: 2SLS Estimation

	(1) Log RGDP pc.	(2) Log RGDP pc.	(3) Log RGDP pc. growth	(4) Log RGDP pc. growth	(5) Log RGDP pc. growth
Political competition	0.229*	0.360***	0.0938***	0.123***	0.0783***
	(0.121)	(0.132)	(0.0363)	(0.0424)	(0.0262)
Log total population	-0.698***	-0.670***	-0.0311***	-0.0311**	0.0172
	(0.0615)	(0.0658)	(0.0114)	(0.0129)	(0.0338)
Urban rate	0.000891	0.000658	-0.0000104	-0.0000749	0.000222
	(0.00106)	(0.00106)	(0.000186)	(0.000188)	(0.000278)
Population density	-0.00346	0.00196	-0.000426	0.000351	-0.00662
	(0.00500)	(0.00511)	(0.000988)	(0.00111)	(0.00583)
Literacy rate	-0.000922	0.0000314	-0.000648	-0.000504	-0.000867
	(0.00187)	(0.00185)	(0.000409)	(0.000411)	(0.000576)
Log central government transfer pc.	-0.000853	-0.000731	0.0000338	0.000135	-0.000236
	(0.00201)	(0.00201)	(0.000682)	(0.000738)	(0.000765)
Resource rich indicator	-0.00301	-0.00151	-0.00589	-0.00577	-0.00683
	(0.00782)	(0.00782)	(0.00513)	(0.00528)	(0.00617)
Log natural resource revenue pc.	0.00111	0.000556	-0.000415	-0.000485	-0.00112
	(0.00122)	(0.00121)	(0.000474)	(0.000477)	(0.000714)
Log province RGDP pc.		0.00803*		0.00480	0.00543
		(0.00449)		(0.00374)	(0.00429)
Log province expenditure pc.		0.0205**		0.000862	0.000900
		(0.00830)		(0.00447)	(0.00537)
Lagged log RGDP pc.			-0.0759***	-0.0855***	-0.0449**
			(0.0204)	(0.0221)	(0.0191)
N	5016	4922	5016	4922	4507
Estimation Method	2SLS	2SLS	2SLS	2SLS	Arrelano Bond
District FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Island × Year FE	No	Yes	No	Yes	Yes
First stage					
Lagged province political competition	0.377***	0.362***	0.377***	0.362***	
	(0.033)	(0.034)	(0.032)	(0.034)	
Political competition 1955 × time trend	0.020***	0.021***	0.021***	0.021***	
	(0.008)	(0.008)	(0.008)	(0.008)	
F	105.17	84.36	105.09	84.08	
Hansen's *J* Statistic (*p*-value)	0.6423	0.8586	0.3220	0.7734	

* Notes: Robust standard errors in parentheses and clustered at the district level. The dependent variable in this estimation is log real RGDP per capita for columns (1) - (2) and log real RGDP per capita growth in columns (3) - (5). Political competition is instrumented by lag of political competition within the same bordering province and by the interaction between political competition from the 1955 general election and time trend. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

including covariates used in OLS estimation method. Column (2) and (4) are estimated by including province level covariates and island by year fixed effects. In column (5), I use the Arellano-Bond first difference estimator, as recommended by Caselli et al. (1996) and Besley et al. (2010). In this specification, I use one additional lag of log RGDP per capita growth as the instrument for lagged dependent variable.

The results from the first stage between the instruments and political competition are positive and statistically significant. The Hansen's J statistic for the over-identification tests are not rejected, which supports the assumption of instrument exogeneity and the associated exclusion restrictions. In column 1, the results are statistically significant at 10% when the log RGDP per capita is regressed on political competition by adding control variables. Moreover, in column (2), the association between political competition and RGDP per capita is positive and statistically significant at 1% after controlled by province level covariates and regional trend to correct for spatial correlation . In terms of the magnitude, under the conditions of instrument validity, the estimated quantitative effect is quite substantial: a one standard deviation increase in political competition is estimated to cause an increase of RGDP per capita by 3.24%.

The 2SLS estimation results in columns (3) and (4) for log RGDP per capita growth suggest that political competition increases the outcome variable and is statistically significant at 1%. A one standard deviation increase in political competition is associated with an increase in RGDP per capita growth by 1.11% or 18.45% relative to the standard deviation. In column (5), the estimation results suggest a positive and statistically significant relationship between political competition and RGDP per capita growth. The results indicate that, in different estimation methods, the association between political competition and growth is robust and exhibits similar magnitudes. The results of the IV estimations for growth are similar to that of the OLS.

Table 8 presents the 2SLS estimation results for log own source revenue per capita (columns 1 - 2) and log total government expenditure per capita (columns 3 - 4). The first stage results for the instruments suggest that both lagged neighbour political competition and historical political competition have a positive and statistically significant relationship with the political competition variable. Moreover, the F statistics range from 81 to 104. I cannot reject the null hypothesis for the over-identification test, as the *p-values* for the Hansen's J statistics range between 0.0756 and 0.5778.

The estimated coefficients for log own source revenue per capita are -1.066 in column 1 and -1.043 in column 2; Both are statistically significant at 1%. The results are still robust after including province level covariates and island by year fixed effects in column 2. The point estimates from the 2SLS estimations are larger than the results obtained from the OLS regressions. The results

Table 8: Government Revenue and Expenditure: 2SLS Estimation

	(1) Log Own Source Rev. pc	(2) Log Own Source Rev. pc	(3) Log Total Expenditure pc	(4) Log Total Expenditure pc
Political competition	-1.066***	-1.043***	1.417	1.539
	(0.318)	(0.338)	(0.869)	(0.980)
Log total population	-0.624***	-0.642***	-0.113	-0.134
	(0.0697)	(0.0691)	(0.0993)	(0.0992)
Urban rate	-0.00254	-0.00196	0.0134	0.0136
	(0.00210)	(0.00201)	(0.0114)	(0.0114)
Population density	0.00187	0.00484	0.0437	0.0466
	(0.0130)	(0.0146)	(0.0393)	(0.0407)
Literacy rate	0.00218	0.00267	-0.00855	-0.00869
	(0.00384)	(0.00388)	(0.00886)	(0.00871)
Log central government transfer pc.	0.282***	0.271***	0.00351	0.00538
	(0.0488)	(0.0476)	(0.0318)	(0.0324)
Resource rich indicator	-0.00669	-0.0142	0.0541	0.0604
	(0.0385)	(0.0379)	(0.0566)	(0.0573)
Log natural resource revenue pc.	0.00692*	0.00426	0.159***	0.157***
	(0.00383)	(0.00366)	(0.0132)	(0.0135)
Log province RGDP pc.		0.0363*		-0.0358
		(0.0197)		(0.0386)
Log province expenditure pc.		0.00212		0.296***
		(0.0328)		(0.0755)
N	4768	4679	4631	4631
Estimation Method	2SLS	2SLS	2SLS	2SLS
District FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Island × Year FE	No	Yes	No	Yes
First stage				
Lagged province political competition	0.391***	0.374***	0.387***	0.367***
	(0.034)	(0.036)	(0.033)	(0.033)
Political competition 1955 × time trend	0.020**	0.021*	0.020**	0.020**
	(0.008)	(0.008)	(0.008)	(0.008)
F	103.80	80.61	103.72	83.593
Hansen's *J* Statistic (*p*-value)	0.5778	0.3149	0.2022	0.0756

* Notes: Robust standard errors in parentheses and clustered at the district level. Political competition is instrumented by lag of political competition within the same bordering province and by the interaction between political competition from the 1955 general election and time trend. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

obtained from the instrumental variables regression suggest that a one standard deviation increase in political competition leads to a decrease of own source revenue per capita by 9.6%, which is substantial. The results for log total expenditure per capita in columns 3 and 4 also support the OLS estimates, where political competition does not affect total government expenditure per capita.

Table 9: Government Expenditure and Political Competition: 2SLS Estimation

	(1) Log Infra. Expenditure pc.	(2) Log Infra. Expenditure pc.	(3) Log Education Expenditure pc.	(4) Log Education Expenditure pc.	(5) Log Health Expenditure pc.	(6) Log Health Expenditure pc.
Political competition	4.25**	4.84**	0.32	0.46	0.77	1.00
	(1.70)	(1.91)	(0.72)	(0.79)	(1.10)	(1.27)
Log total population	-0.16	-0.20	-0.033	-0.050	0.016	-0.0028
	(0.15)	(0.15)	(0.090)	(0.089)	(0.12)	(0.12)
Urban rate	0.011	0.011	0.0067	0.0067	0.011	0.011
	(0.018)	(0.018)	(0.0082)	(0.0082)	(0.010)	(0.010)
Population density	0.10	0.12*	0.033	0.037	0.030	0.036
	(0.068)	(0.068)	(0.025)	(0.027)	(0.034)	(0.037)
Literacy rate	-0.011	-0.0091	-0.0067	-0.0073	-0.012	-0.011
	(0.014)	(0.013)	(0.0068)	(0.0068)	(0.010)	(0.010)
Log central government transfer pc.	0.0046	0.0063	-0.0095	-0.0083	0.017	0.018
	(0.045)	(0.046)	(0.021)	(0.021)	(0.047)	(0.047)
Resource rich indicator	-0.0011	0.014	0.0058	0.0077	0.0081	0.013
	(0.088)	(0.090)	(0.051)	(0.051)	(0.072)	(0.073)
Log natural resource revenue pc.	0.19***	0.18***	0.097***	0.096***	0.14***	0.14***
	(0.021)	(0.021)	(0.0100)	(0.010)	(0.015)	(0.015)
Log province RGDP pc.		0.025		-0.071**		-0.016
		(0.057)		(0.030)		(0.047)
Log province expenditure pc.		0.38***		0.19***		0.24***
		(0.12)		(0.067)		(0.084)
N	4626	4626	4626	4626	4626	4626
Estimation Method	2SLS	2SLS	2SLS	2SLS	2SLS	2SLS
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Island × Year FE	No	Yes	No	Yes	No	Yes
First stage						
Lagged province political competition	0.387***	0.367***	0.387***	0.367***	0.387***	0.367***
	(0.033)	(0.034)	(0.033)	(0.034)	(0.033)	(0.034)
Political competition 1955 × time trend	0.020**	0.021**	0.020**	0.021**	0.020**	0.015***
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
F	103.71	83.59	103.71	83.59	103.71	83.59
Hansen's *J* Statistic (*p*-value)	0.8564	0.6783	0.2663	0.1115	0.1453	0.0750

* Notes: Robust standard errors in parentheses and clustered at the district level. Political competition is instrumented by lag of political competition within the same bordering province and by the interaction between political competition from the 1955 general election and time trend. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 9 provides the results for total government expenditures based on sector. Columns 1 and 2 contain the results for log infrastructure expenditure per capita. Columns 3 and 4 depict the results for log education expenditure per capita, and columns 5 and 6 provide the results for log health expenditure per capita. The first stage results in all columns suggest that lagged neighbour political competition and political competition from the 1955 general election could be the source of exogenous variation for the instrumental variables strategy. The association between these two instruments and political competition is positive and statistically significant. The *F* statistics pass

the robustness checks for weak instruments. The over-identification test results also permit me to use both variables as instruments, since the *p-values* for the Hansen's J statistics indicate that the null hypothesis cannot be rejected.

Importantly, political competition is still found to be positive and statistically significant for log infrastructure expenditure per capita. The estimated coefficients increase in relation to the OLS estimates, and range from 4.25 (column 1) to 4.84 (column 2). The results for log education expenditure per capita in columns 3 and 4 also support the results from the OLS regression: there is no statistically significant evidence that political competition affects total government expenditure on education. These results are in accordance with the study conducted by Skoufias et al. (2014), which found no association between directly elected mayors and education funding. Finally, the 2SLS estimation results for log health expenditure per capita are statistically insignificant. This contradicts the results from the OLS regression, which suggests a statistically significant, positive relationship at 5%. This implies that the association between political competition and log total health expenditure per capita observed in this study might be just a correlation, rather than a causal relationship.

5.3 Extensions

Lagged Dependent Variables To capture the dynamic effects for the dependent variables, I augmented the analysis by including the lagged dependent variables in the estimation. One reason for using lagged dependent variables is that the current level of dependent variables is probably determined by past levels. Therefore, including these variables could minimise the potential of omitted variable bias in this estimation. Table A3 depicts the results for this estimation. The association between political competition and the dependent variables for both OLS and 2SLS specifications are similar to the estimation results from the baseline specification. Indeed, past levels of the dependent variable effects their current values. Nevertheless, the inclusion of the lagged dependent variables does not change the association between political competition and the variables of interest.

Lagged Political Competition An alternative specification uses lagged political competition. Here, we have an even larger lagged independent variable compare to the independent variable in the baseline specification. The previous value of political competition might affect policy makers' performance. Indeed, if politics had previously been more competitive, they would expect it to be so again, and the parliament and voters would urge policy makers to perform well and produce better policies. Table A4 illustrates that the lag of political competition affects current policies. Lagged

political competition is associated with lower log own source revenues per capita for OLS and 2SLS estimation. It also determines log total infrastructure expenditure per capita.

Regarding the outcome variables, both log real RGDP per capita and log RGDP per capita growth positively correlate to lagged political competition. The lagged value of political competition increases the incentives for policy makers to implement policies that increase RGDP per capita and RGDP growth. These findings confirm that previous political competition is a key determinant for policy makers to produce certain policies.

Old Districts District proliferation might affect how political competition affects the outcome of an election. As mentioned in section 3.1, 174 new districts have been created since the decentralisation era. Most of them are located outside the Java Islands, such as Sumatra, Kalimantan, Sulawesi, Nusa Tenggara, and Maluku. According to this analysis, districts that were established before the decentralisation might have better institutions than newly established districts. Keefer and Vlaicu (2008) have found that younger democracies tend to be more unproductive and have low quality bureaucracy. In this study, I find that heterogeneous effects exist between political competition and outcomes, if the sample is split into districts that were established before the decentralisation era in 2001 and districts that were established after 2001. We can see from Table A5 that, in old districts, political competition affects log RGDP per capita growth, log own source revenue per capita and log total infrastructure expenditures per capita. For newly formed districts, however, although political competition does affect log RGDP per capita, the effect on other variables is not significant.

Non Agricultural RGDP relative to Total RGDP In theory, increased political competition leads the government to allocate policy-promoting resources to modern sectors or non-agricultural sectors (Besley et al., 2010). Therefore, I used the share of non-agricultural RGDP relative to total RGDP as the dependent variable. Table A6 reveals that political competition has a robust and positive association with larger, non-traditional sectors. For example, in column (4), it can be seen that the association between political competition and the modern sectors is significant at 1%. A one standard deviation increase in political competition increases the share of non-agricultural sectors by roughly 0.99%.

5.4 Robustness Checks

To check that these findings are robust, I performed further robustness checks by introducing additional control variables related to several political aspects. The first aspect is the timing of

district mayoral elections, which is a dummy variable equal to one for years during which districts held a mayor election. This variable captures the possibility that government policies differ during the election period. Another additional control variable is a dummy that indicates whether the mayor comes from the majority party in the parliament. If the mayor has political support from the parliament, this might affect government policies by minimising the likelihood that the parliaments would reject the policy. I also add 4 dummies for close elections following the arbitrary thresholds suggested by Arulampalam et al. (2009). The dummy variable will *vote margin 1* if the difference between the first and the second party during the parliament elections is less than 1%, *vote margin 2* if the difference is less than 2%, *vote margin 5* if it less than 5% and finally *vote margin 10* if the margin between the first two parties is less than 10%.

Table A7 contains the estimation results for the main dependent variable. I employ the same specifications used in the baseline estimation methods. We can see that, even including the additional political covariates, the impact of political competition on the dependent variables remains unaltered and statistically significant.

Another robustness check includes alternative explanatory variables: in particular, the vote margin between the first winning party and the second winning party and the effective number of party as proposed by Laakso and Taagepera (1979). The results for these robustness checks are presented in Table A8 for vote margin and in Table A9 for effective number of parties. The evidence in Table A8 indicates that log RGDP per capita, log RGDP per capita growth and log total infrastructure expenditure are negatively related to the vote margin. It means that higher vote margin or less political competition will lead to lower economic outcomes and lower spending on infrastructure, vice versa. Moreover, log own source revenue per capita decreases in accordance with the vote margin. The estimation results are robust and statistically significant for both OLS and 2SLS methods.

Table A9 depicts the evidence for the effective number of party. The 2SLS estimation methods suggest that the effective number of party which is used as a proxy of political competition has a causal relationship with the dependent variable in this study. For example, a one standard increase in effective number of parties is associated with an increase in log RGPD per capita by 0.21 percentage points. Moreover, the effective number of party increases log RGDP per capita and log total infrastructure expenditure per capita and decreases log own source revenue per capita. The estimation results for effective number of parties support the results from our baseline estimation methods.

These findings reveal that, when other factors and alternative measure of political competi-

tion are considered, there is consistent evidence that political competition has a positive impact on government performance and voters' economic welfare. These results support the previous literature, which has found that higher political competition improves pro-growth policies (Besley et al., 2010; Padovano and Ricciuti, 2009), increases supply of public goods (Svaleryd and Vlachos, 2009; Solé-Ollé and Viladecans-Marsal, 2012; Fiva and Natvik, 2013; Arvate, 2013) and improves government efficiency (Ashworth et al., 2014).

6 Conclusions

This paper investigates whether political competition improves policies in Indonesia. Since 1999, the number of political parties able to compete in the national and sub-national elections has increased. Before 1999, only three parties could compete in elections, while in the latest election in 2014, 10 parties participated in the election. Beginning in January 2001, district governments became largely responsible for providing basic services in Indonesia. A higher degree of political competition could encourage the government to reduce opportunistic behaviour and more efficiently allocate resources (Wittman, 1989).

I use district-level data from 2000 to 2013 in Indonesia to examine the role of political competition on district government performance. Political competition is measured using the Herfindahl-Hirschman political concentration index (HHI). However, as has been elaborated in many previous studies, political competition is also an endogenous variable (Besley et al., 2010; Padovano and Ricciuti, 2009; Svaleryd and Vlachos, 2009; Fiva and Natvik, 2013; Solé-Ollé and Viladecans-Marsal, 2012; Ashworth et al., 2014; Sørensen, 2014). To resolve this issue, political competition is instrumented using lagged province political competition and the interaction between political competition in 1955 and a time trend.

This study confirms that political competition increases the incentive for policy makers to produce policies that increase RGDP per capita and improve RGDP per capita growth. I further find that stiffer political competition reduces own sources revenue per capita. Moreover, higher political competition is associated with increased spending on infrastructure and health, even though the results for the latter do not hold in the IV estimations. By extending the analysis to only include districts that had been established long before the decentralisation era, the findings again indicate that political competition matters. Moreover, stiffer political competition increases the number of community health centres and primary schools, and increases the share of non-agricultural income relative to total income. The results are robust to several additional tests. Therefore, the relationship between political competition and policy choices in this study is statistically significant

and economically important. These findings could be useful for an Indonesian political context, and may be a starting point to enhance the degree of political competition and reform the current political system.

There is clearly more work to be done on this area. Whilst it is clear that political competition is related to several outcomes, a further exploration into the mechanisms would be especially useful to improve this chapter. One limitation of this study is that I do not consider the role of mayors in this analysis. Extending the data into the mayoral election results could also improve the analysis. Exploring some alternative outcome variables will give some perspectives into the importance and effectiveness of an increase in political competition in a newly democratised country.

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Figures and Tables

Figure 5: Political Competition vs Lag Neighbour Competition

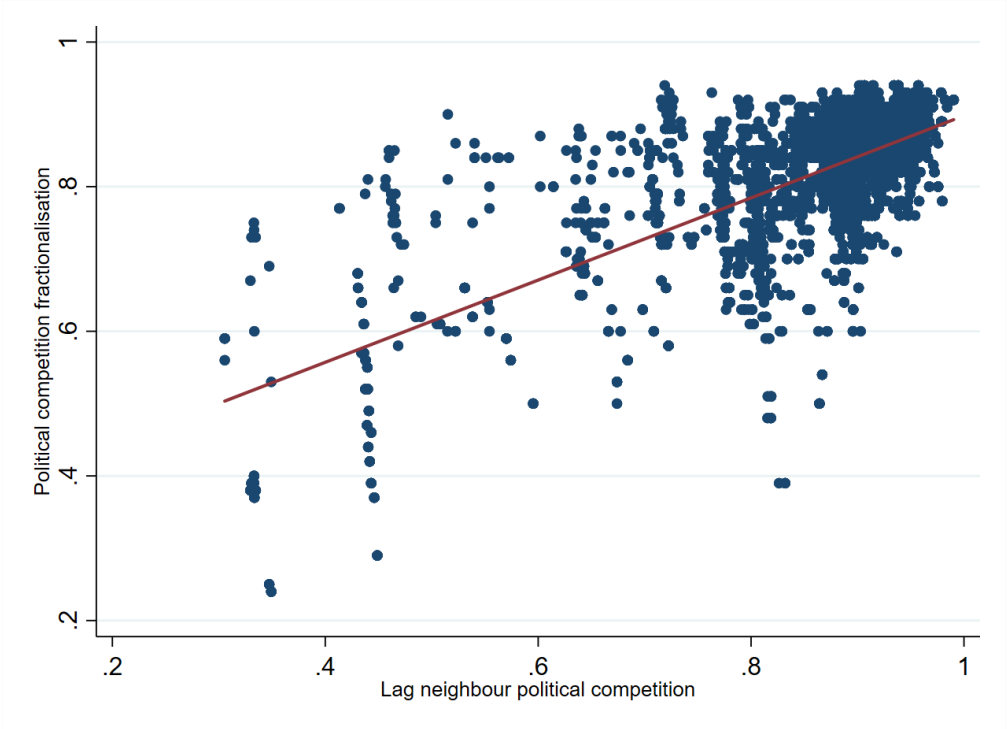
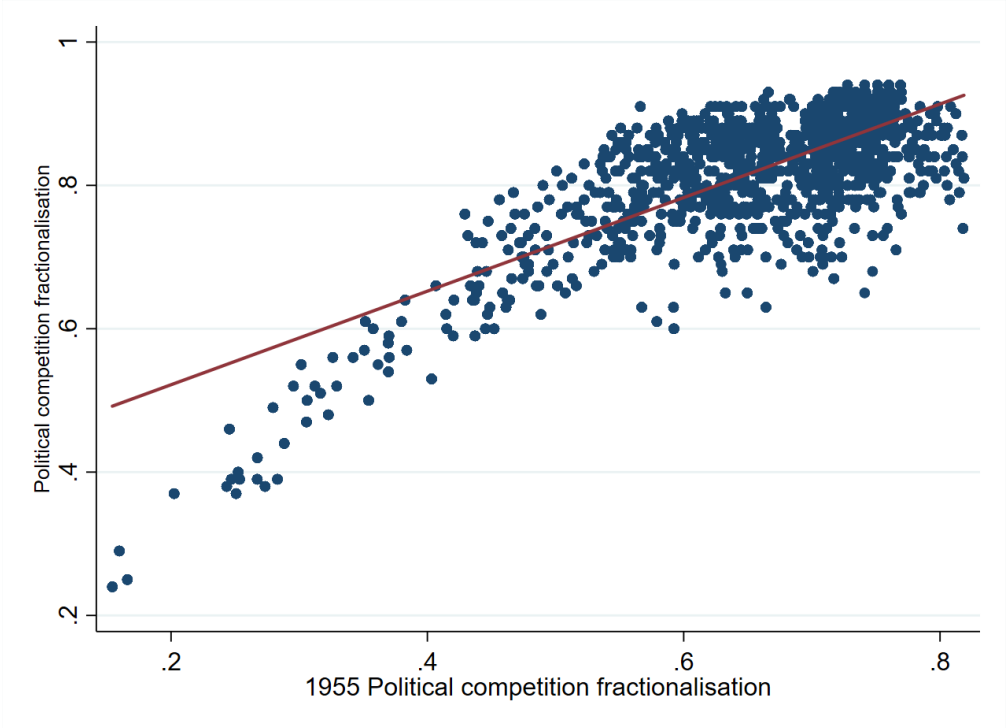


Figure 6: Political Competition vs Historical Competition



Appendix A Online Appendix

Figure A1: Trend of Log RGDP per Capita by Islands from 2000-2013

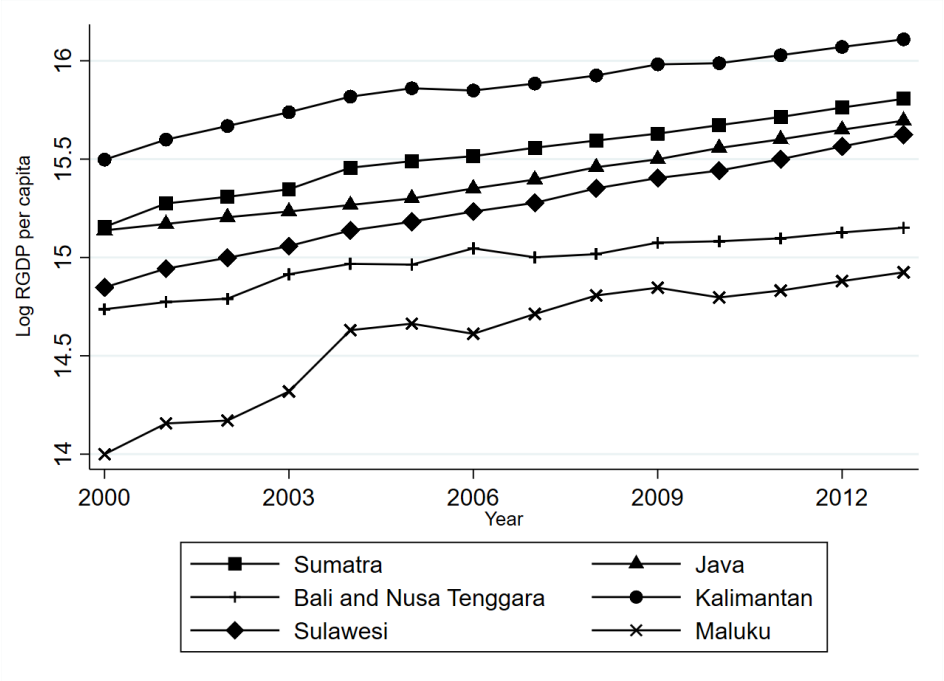


Figure A2: Average Log RGDP per Capita by Districts from 2000-2013

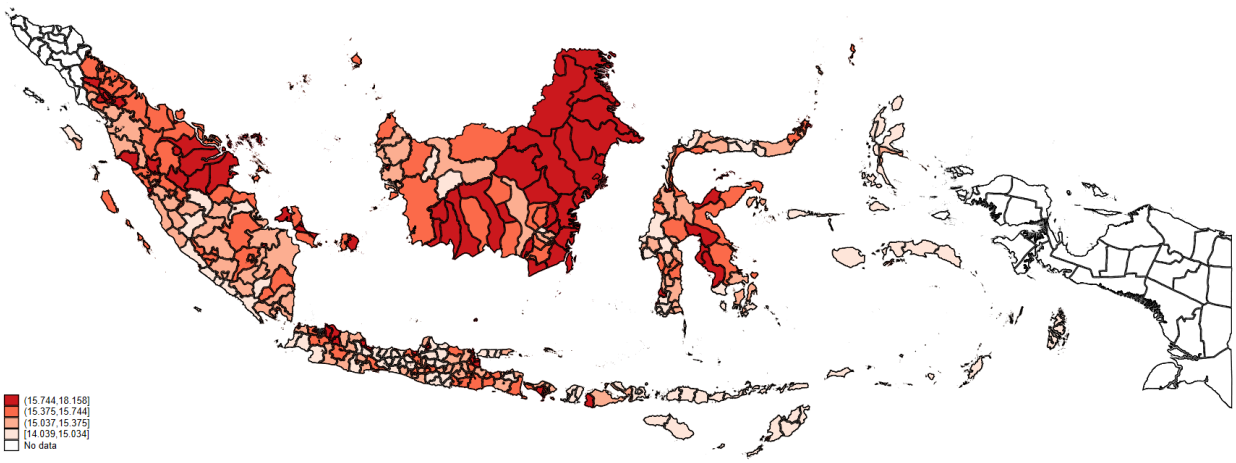


Figure A3: Trend of Log RGDP per Capita Growth by Islands from 2000-2013

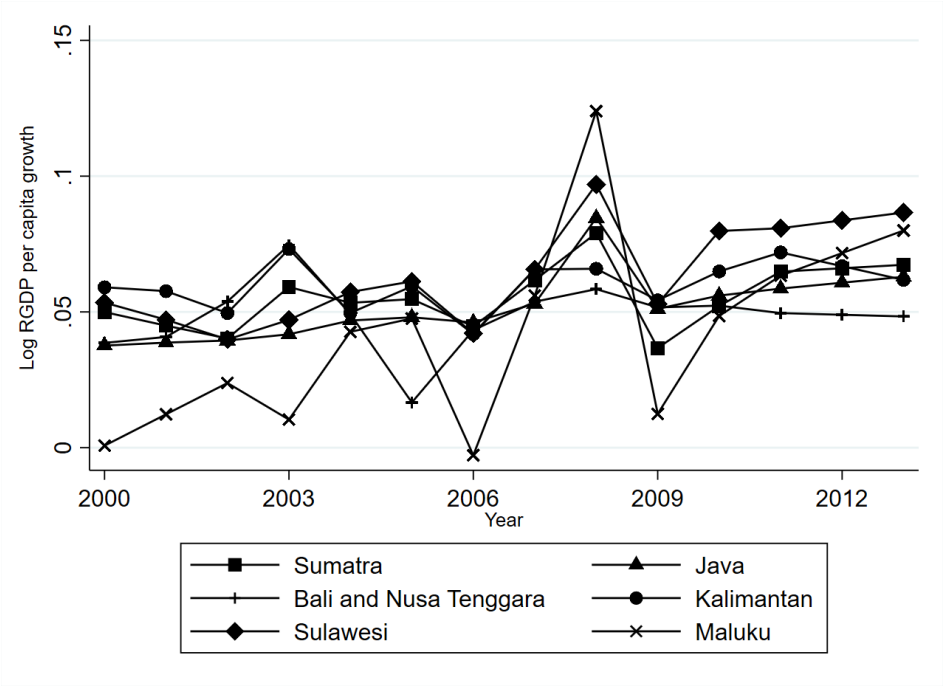


Figure A4: Average Log RGDP per Capita Growth by Districts from 2000-2013

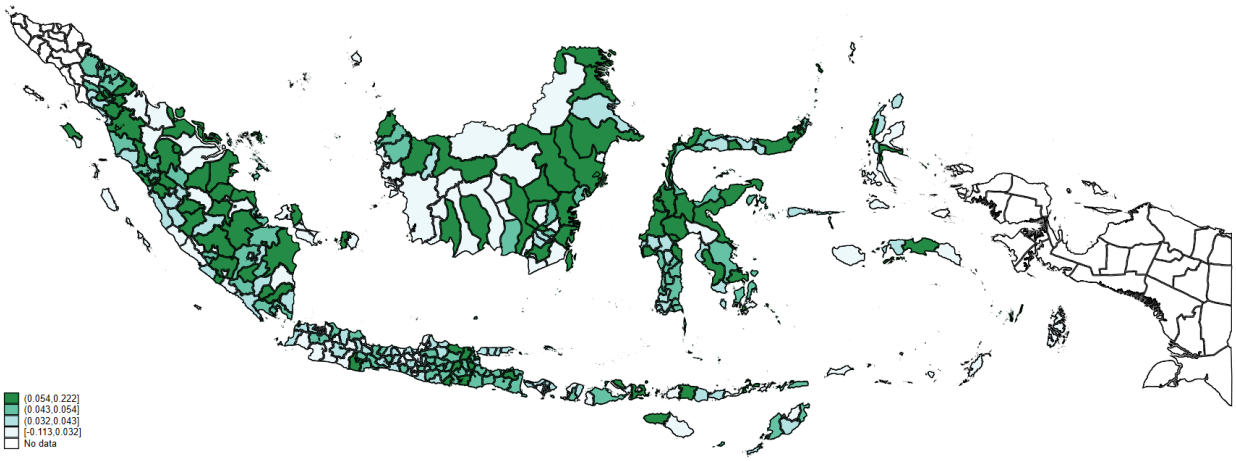


Table A1: District Proliferation, Political Competition and Outomes: 2SLS Estimation

	(1) Log RGDP pc	(2) Log RGDP pc Growth	(3) Log Own Source Revenue pc	(4) Log Total Expenditure pc	(5) Log Total Inf. Expenditure pc	(6) Log Total Educ. Expenditure pc	(7) Log Total Health. Expenditure pc
Political competition	0.21*	0.083**	-0.90***	1.38	4.06**	0.30	0.73
	(0.12)	(0.038)	(0.30)	(0.87)	(1.70)	(0.72)	(1.10)
N	4922	4922	4679	4631	4626	4626	4626
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Island × Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Splitting dummy x time trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
First stage							
F	85.65	85.65	81.35	84.87	84.87	84.87	84.87
Hansen's *J* Statistic (*p*-value)	0.8269	0.6829	0.1639	0.1221	0.7936	0.1512	0.1044

* Notes: Robust standard errors in parentheses and clustered at the district level. See Notes of Table 3 and Table 7 for additional information. Splitting dummy will be equal 1 after district splits and 0 if otherwise. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A2: Excluding Java, Political Competition and Outomes: 2SLS Estimation

	(1) Log RGDP pc	(2) Log RGDP pc Growth	(3) Log Own Source Revenue pc	(4) Log Total Expenditure pc	(5) Log Total Inf. Expenditure pc	(6) Log Total Educ. Expenditure pc	(7) Log Total Health. Expenditure pc
Political competition	0.32**	0.11**	-0.73**	1.55	4.89**	0.61	0.88
	(0.14)	(0.047)	(0.36)	(0.99)	(1.90)	(0.79)	(1.28)
N	3494	3494	3278	3203	3198	3198	3198
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Island × Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Splitting dummy x time trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
First stage							
F	86.03	86.03	83.09	84.64	84.64	84.64	84.64
Hansen's *J* Statistic (*p*-value)	0.5069	0.8213	0.1523	0.2825	0.8253	0.3387	0.1339

* Notes: Robust standard errors in parentheses and clustered at the district level. See Notes of Table 3 and Table 7 for additional information. Splitting dummy will be equal 1 after district splits and 0 if otherwise. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A3: Further Results: Adding Lagged Dependent Variables

	(1) Log RGDP pc	(2) Log RGDP pc Growth	(3) Log Own Source Revenue pc	(4) Log Total Expenditure pc	(5) Log Total Inf. Expenditure pc	(6) Log Total Educ. Expenditure pc	(7) Log Total Health. Expenditure pc	(8) Log RGDP pc	(9) Log RGDP pc Growth	(10) Log Own Source Revenue pc	(11) Log Total Expenditure pc	(12) Log Total Inf. Expenditure pc	(13) Log Total Educ. Expenditure pc	(14) Log Total Health. Expenditure pc
Political competition	0.092***	0.040**	-0.23**	0.27	0.72*	0.28	0.30	0.19***	0.096**	-0.47**	1.01**	2.54***	0.29	0.55
	(0.035)	(0.018)	(0.12)	(0.23)	(0.42)	(0.22)	(0.24)	(0.071)	(0.041)	(0.24)	(0.51)	(0.93)	(0.49)	(0.63)
Lagged log RGDP pc.	0.40***							0.42***						
	(0.046)							(0.045)						
Lagged log RGDP pc. growth		-0.14***							-0.14***					
		(0.044)							(0.044)					
Lagged log own source revenue pc.			0.26***							0.25***				
			(0.023)							(0.023)				
Lagged log total expenditure pc.				0.43***							0.43***			
				(0.053)							(0.054)			
Lagged log total infrastructure exp. pc.					0.44***							0.44***		
					(0.051)							(0.051)		
Lagged log total education exp. pc.						0.34***							0.34***	
						(0.048)							(0.048)	
Lagged log total health exp. pc.							0.43***							0.43***
							(0.049)							(0.049)
N	5018	5018	4501	4632	4627	4627	4627	4922	4922	4417	4631	4626	4626	4626
R^2	0.873	0.058	0.818	0.323	0.270	0.176	0.271							
Estimation Method	OLS	OLS	OLS	OLS	OLS	OLS	OLS	2SLS	2SLS	2SLS	2SLS	2SLS	2SLS	2SLS
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province level controls	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
F								103.88	103.60	98.96	104.19	103.44	104.43	103.23
Hansen's J Statistic (p-value)								0.7594	0.5492	0.2195	0.0923	0.4295	0.2136	0.1928

* Notes: Robust standard errors in parentheses and clustered at the district level. See Notes of Table 3 and Table 7 for additional information.* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A4: Further Results: Adding Lagged Political Competition

	(1) Log RGDP pc	(2) Log RGDP pc Growth	(3) Log Own Source Revenue pc	(4) Log Total Expenditure pc	(5) Log Total Inf. Expenditure pc	(6) Log Total Educ. Expenditure pc	(7) Log Total Health. Expenditure pc
Panel A	OLS Estimation Results						
Lagged political competition	0.14***	0.034**	-0.42***	0.44	1.35*	0.35	0.55
	(0.053)	(0.014)	(0.14)	(0.37)	(0.73)	(0.32)	(0.36)
N	5018	5018	4770	4640	4635	4635	4635
R^2	0.815	0.038	0.783	0.132	0.068	0.060	0.088
Panel B	2SLS Estimation Results						
Lagged political competition	0.15	0.069**	-0.88***	0.92	3.15**	0.13	0.40
	(0.094)	(0.029)	(0.24)	(0.68)	(1.33)	(0.58)	(0.85)
N	4922	4922	4679	4631	4626	4626	4626
F	127.04	127.04	113.07	128.26	128.24	128.24	128.24
Hansen's J Statistic (p-value)	0.4568	0.9690	0.6463	0.0396	0.2796	0.1098	0.0658
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes

* Notes: Robust standard errors in parentheses and clustered at the district level. See Notes of Table 3 and Table 7 for additional information. Province level controls are included only in Panel B.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A5: Old vs New Districts

	(1) Log RGDP pc	(2) Log RGDP pc Growth	(3) Log Own Source Revenue pc	(4) Log Total Expenditure pc	(5) Log Total Inf. Expenditure pc	(6) Log Total Educ. Expenditure pc	(7) Log Total Health. Expenditure pc
Panel A	Sample: Old Districts						
Political competition	0.15	0.097**	-0.92***	1.01	3.46**	0.25	0.17
	(0.12)	(0.039)	(0.29)	(0.74)	(1.66)	(0.68)	(0.86)
N	4103	4103	3963	3921	3921	3921	3921
F	114.00	114.00	109.12	115.31	115.31	115.31	115.31
Hansen's *J* Statistic (*p*-value)	0.9318	0.7758	0.2883	0.3195	0.7672	0.3390	0.3106
Panel B	Sample: Newly Established Districts						
Political competition	1.83**	-0.062	-1.48	11.7	26.1	1.54	17.1
	(0.85)	(0.18)	(4.51)	(14.5)	(17.8)	(8.06)	(21.9)
N	819	819	716	710	705	705	705
F	8.27	8.27	4.81	7.05	7.05	7.05	7.05
Hansen's *J* Statistic (*p*-value)	0.8679	0.7157	0.0344	0.1249	0.2298	0.0705	0.1221
Estimation method	2SLS	2SLS	2SLS	2SLS	2SLS	2SLS	2SLS
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes

* Notes: Robust standard errors in parentheses and clustered at the district level. See Notes of Table 7 for additional information. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A6: Alternative Dependent Variable: Non Agricultural RGDP over total RGDP

	(1)	(2)	(3)	(4)
Political competition	0.063***	0.061***	0.12***	0.11***
	(0.017)	(0.018)	(0.037)	(0.040)
N	4992	4992	4501	4501
R^2	0.357	0.358		
Estimation Method	OLS	OLS	2SLS	2SLS
District FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Island $\times$ Year FE	No	Yes	No	Yes
Controls	Yes	Yes	Yes	Yes
Province level controls	No	Yes	No	Yes
F			103.79	83.81
Hansen's J Statistic (p-value)			0.0208	0.0181

* Notes: Robust standard errors in parentheses and clustered at the district level. The dependent variable in this estimation is the share of non agriculture RGDP over total RGDP. See Notes of Table 3 and Table 7 for additional information. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A7: Robustness Check: Political Covariates

	(1) Log RGDP pc	(2) Log RGDP pc Growth	(3) Log Own Source Revenue pc	(4) Log Total Expenditure pc	(5) Log Total Inf. Expenditure pc	(6) Log Total Educ. Expenditure pc	(7) Log Total Health. Expenditure pc
Panel A	OLS Estimation Results						
Political competition	0.17***	0.028*	-0.79***	0.63	2.10**	0.44	0.84*
	(0.057)	(0.017)	(0.15)	(0.43)	(0.89)	(0.37)	(0.43)
N	5442	5442	5033	5026	5020	5020	5020
R^2	0.835	0.039	0.830	0.108	0.063	0.056	0.080
Panel B	2SLS Estimation Results						
Political competition	0.38***	0.12**	-1.21***	1.53	5.06**	0.45	0.83
	(0.14)	(0.047)	(0.37)	(1.05)	(2.04)	(0.86)	(1.36)
N	4922	4922	4679	4631	4626	4626	4626
F	66.69	66.69	63.93	66.01	66.01	66.01	66.01
Hansen's J Statistic (p-value)	0.7908	0.6027	0.4288	0.0596	0.6186	0.0948	0.0906
N	5031	5031	4779	4649	4644	4644	4644
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Island × Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Political controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes

* Notes: Robust standard errors in parentheses and clustered at the district level. Political covariates: dummy for district election, dummy for secular parties majority at the parliament. Moreover, I also add 4 dummy variables for close elections following the arbitrary thresholds as suggested by Arulampalam et al. (2009): *Vote margin 1* if the difference between the first and second party is < 1%, *Vote margin 2* if < 2%, *Vote margin 5* < 5% and *Vote margin 10* if < 10%. See Notes of Table 3 and Table 7 for additional information. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A8: Robustness Check: Using Vote Margin

	(1) Log RGDP pc	(2) Log RGDP pc Growth	(3) Log Own Source Revenue pc	(4) Log Total Expenditure pc	(5) Log Total Inf. Expenditure pc	(6) Log Total Educ. Expenditure pc	(7) Log Total Health. Expenditure pc
Panel A	OLS Estimation Results						
Vote margin	-0.083**	-0.023**	0.33***	-0.30	-0.81*	-0.18	-0.43*
	(0.033)	(0.0091)	(0.089)	(0.23)	(0.46)	(0.20)	(0.25)
N	5442	5442	5033	5026	5020	5020	5020
R^2	0.834	0.038	0.829	0.105	0.055	0.054	0.076
Panel B	2SLS Estimation Results						
Vote margin	-0.20***	-0.062**	0.59***	-0.88	-2.74**	-0.27	-0.58
	(0.073)	(0.025)	(0.20)	(0.55)	(1.07)	(0.45)	(0.72)
N	4922	4922	4679	4631	4626	4626	4626
F	123.03	123.03	119.38	125.30	125.30	125.30	125.30
Hansen's J Statistic (p-value)	0.8807	0.5513	0.3059	0.0821	0.7280	0.1158	0.0778
N	5031	5031	4779	4649	4644	4644	4644
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Island × Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes

* Notes: Robust standard errors in parentheses and clustered at the district level. Vote margin is the margin between the winning party with the second wining party in the district elections. See Notes of Table 3 and Table 7 for additional information. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A9: Robustness Check: Using Effective Number of Parties

	(1) Log RGDP pc	(2) Log RGDP pc Growth	(3) Log Own Source Revenue pc	(4) Log Total Expenditure pc	(5) Log Total Inf. Expenditure pc	(6) Log Total Educ. Expenditure pc	(7) Log Total Health. Expenditure pc
Panel A	OLS Estimation Results						
Effective number of parties	0.0026	0.00098	-0.011*	0.0014	0.038	0.0099	0.029**
	(0.0024)	(0.00068)	(0.0060)	(0.012)	(0.025)	(0.010)	(0.014)
N	5442	5442	5033	5026	5020	5020	5020
R^2	0.834	0.038	0.828	0.104	0.053	0.054	0.076
Panel B	2SLS Estimation Results						
Effective number of parties	0.023**	0.0063**	-0.057**	0.13*	0.32**	0.051	0.096
	(0.0093)	(0.0030)	(0.026)	(0.068)	(0.13)	(0.051)	(0.084)
N	4922	4922	4679	4631	4626	4626	4626
F	19.26	19.27	19.05	19.93	19.93	19.93	19.93
Hansen's J Statistic (p-value)	0.3017	0.1066	0.0133	0.5121	0.3401	0.3097	0.3089
N	5031	5031	4779	4649	4644	4644	4644
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Island × Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes

* Notes: Robust standard errors in parentheses and clustered at the district level. Effective number of parties following the method proposed by Laakso and Taagepera (1979) which is equal to $\frac{1}{\sum Vote\,Share^2}$. See Notes of Table 3 and Table 7 for additional information. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$