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Online supplement:

Data collection and measuring competition

For the 2005-2014 subnational government head elections, we gathered data from provincial, district and municipal election commissions as well as national and local newspapers. From 2015 onward, the national election commission (KPU) created a web dashboard of all subnational elections and made this publicly available. Based on these sources, we recorded the names of candidates and votes they had won for every subnational government head election since 2005. We excluded the Jakarta Special Region from our dataset for two reasons: One, the gubernatorial candidate in Jakarta has to win 50% + 1 vote in order to get elected. Two, the governor appoints all mayors in Jakarta. Since elections in Jakarta do not follow the rules of other subnational government head elections in Indonesia, different dynamics may be at play in the Jakarta Special Region.

In total there were 1629 subnational elections between 2005 and 2019. We managed to collect data for a total of 1324 subnational government head elections, including 81 gubernatorial elections, 988 district head elections, and 255 mayoral elections.

How to measure "competition" in subnational government head elections is less straightforward than it seems. A small number of races held since 2005 was uncontested as only one pair of candidates participated in the elections (Lay et al., 2017). However, one cannot simply assume that all other elections in which at least two pairs of candidates sought the support of voters were competitive. Many candidates competing in these races have no realistic chance of winning. Some candidates participate in these elections because they overestimate their

popularity with voters. Others participate because “professional campaigners” who simply want to gain access to a candidate’s money convince them that they stand a chance at winning.

Finally, some candidates set up additional candidates as a shill to draw away votes that might otherwise have gone to a strong opponent (Buehler and Tan, 2007: 55 Footnote 74). In this context, any measurement of “competition” therefore needs to be able to identify the number of candidates with an actual chance of winning these elections.

The overwhelming majority of studies on subnational government head elections in Indonesia are of qualitative nature, as mentioned in the main article. They therefore do not provide any measurement of “competition.” To the best of our knowledge, Fossati is one of the few scholars who has tried to measure the competitiveness of subnational government head elections. However, he does so for the elections in 2015 only. In addition to its limited scope, his study simply calculates the average number of candidates in any given race to determine whether or not a race was competitive (Fossati 2016, 6). If more than one candidates ran, Fossati considers an election to have been “competitive.” This is an imprecise measure at best, a faulty measure at worst. One could think of a situation where three candidates were running in an election for governor, winning 89.9%, 10% and 0.1% of the votes each. Looking at the absolute number of candidates only would suggest that this race was competitive, while in reality only one candidate had an actual chance of winning.¹

To gain a sense of the *degree* of competitiveness, Fossati then tried to measure the candidate’s electoral weight by calculating the average vote shares of winning candidates. He concludes that since the average vote share of winning candidates was 51.5% in the 2015, these subnational government head elections “were not highly competitive” as there was usually a dominant candidate in each race (Fossati 2016, 6). Again, this is imprecise. If there were only

two candidates in a race and one candidate won 51.5% of the votes while the other candidate won 48.5%, the race would in fact have been highly competitive as both candidates had an almost equal chance of winning the elections. In light of these shortcomings in existing studies, a more valid and reliable measure was therefore needed to determine whether or not subnational government head elections in Indonesia are competitive.

In order to measure the level of competition in subnational government head elections, we recast Laakso and Taagepera's "effective number of parties" (Laakso and Taagepera 1979, 3–27) as the "effective number of candidates." This means that we calculated the effective number of candidates based on vote numbers for each pair of candidate for all subnational government head elections since 2005. The effective number of candidates measures the relative strength of candidates based on the number of votes they obtained in the following way:

$$\text{Effective number of candidates}_{it} = \left(\frac{1}{\sum (s_i)^2} \right) \times 100\%$$

In other words, it provides an account of the fragmentation of the local political system. If the effective number of candidates is smaller than 2, the election is not competitive since most votes concentrated around just one candidate.

Laakso and Taagepera's measurement has come under attack since it does not account for the possibility that more than one candidate can be elected in certain races. For example, in legislative elections based on multi-member electoral districts, more than one candidate can be elected per electoral district. Laakso and Taagepera's effective number of candidates is therefore not a useful measure for such situations. Rather, a measure for the "viability" of multiple candidates needs to be applied in such situations (Niemi and Hsieh 2002, 78). However, since we

look at *executive* elections that are essentially single-member district elections, we consider Laakso and Taagepera's measure appropriate.²

We also examined the relationship between the size of the bureaucracy and the competitiveness of elections in a jurisdiction. For the size of bureaucracy, we used a World Bank dataset on the number of local bureaucrats in provinces, districts, and municipalities.³ We then divided these numbers by the total size of the population in a jurisdiction to establish the ratio of local bureaucrats to the overall population. We used population data from 2013 as this is the most recent data available from the Indonesia Database for Policy and Economic Research (INDO-DAPOER) dataset. For the political competition variable, we calculated the average effective number of candidates of all elections held within a jurisdiction in 2005-2018. Our correlation coefficient shows that there is a statistically significant correlation of 0.12 ($p < 0.01$) between the size of the bureaucracy and the competitiveness of elections in a jurisdiction.

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¹ Of course, this hypothetical race could still be competitive in the sense that the two candidates who accumulated only minuscule vote shares have the capacity, for whatever reason, to extort concession from the winning candidate before or after the election. The winner would not be all that "dominant" a candidate, in other words. See Sartori 1976 for an analysis of how minority parties often blackmail majority parties.

² There are other studies that have used this approach. For example, Konitzer calculated the effective number of candidates to examine the level of competition in Russian gubernatorial elections (2005: 168).

³ We thank Jan Pierskalla for sharing this dataset with us.