Assassinations

Anthony A. Boyles

March 31, 2017

```
library(knitr)
library(stargazer)
```

```
##
## Please cite as:
##   Hlavac, Marek (2015). stargazer: Well-Formatted Regression and Summary Statistics Tables.
##   R package version 5.2. http://CRAN.R-project.org/package=stargazer
```

Introduction

Assassination is a widely-recognized act of political violence. In contrast to other forms of civil violence (in particular, intrastate warfare) assassinations have not, however, attracted as much academic attention. The majority of existing peer-reviewed literature on assassinations has concentrated on a few isolated cases of high-profile victims (Iqbal and Zorn 2006). In recent years, efforts have been made to explore the topic of assassination empirically (see Iqbal and Zorn 2006, 2008, Jones and Olken 2007, 2009, Frey and Torgler 2008, Jordan 2009) but the literature continues to lack the depth and breadth of analysis afforded to civil warfare. This paper seeks to help to fill that gap. In particular, the model presented here attempts to identify dynamic economic and political effects as indicators for the heightened odds of assassination attempts.

Successful assassinations are not an uncommon occurrence. Since World War II, a leader has been killed (on average) by an assassin in two of every three years. While successful assassinations are a tempting subject of inquiry, 75% of known assassination attempts since 1875 worldwide perpetrated against heads-of-state have failed to kill their targets (Jones and Olken 2007). As will be explored later, attempts fail for unpredictable reasons. Successful assassinations should thus be regarded as a random subset of the population of assassination attempts. For this reason, the model presented predicts assassination attempts. In particular, assassination attempts perpetrated against heads-of-state since 1970.

The next section briefly discusses the existing empirical literature on assassination. The following section examines theory and operationalizes variables to predict assassination attempts. Methodology and results are discussed in the following section, and the next section concludes.

Existing Literature on Assassination

Assassination is a unique form of political violence—killing a specific individual for a political motivation. Assassinations are distinct from other murders in noteworthy ways. First, they are carried out for exclusively political (i.e. not personal) reasons. Because of this quality, we observe that assassinations are frequently attacks on heads-of-states and other nationally-recognized persons. It is important to clarify that assassination is not a phenomena restricted to executive power-holders. Dr. Martin Luther King Jr. was not an elected politician at the time of his death, but it would be difficult to not classify his killing as an assassination. Second, assassinations are killings perpetrated against specific individuals. This definition opens the literature to discussions of "targeted killings," such as Israeli counterterrorist operations in the Gaza Strip (Zussman and Zussman, 2006, Jordan 2009), and closes the discussion to accidental deaths of prominent public figures.

For the purposes of this paper, an assassin is any person who commits the decision to kill, though said person may not be the one to physically cause death (i.e. may not pull the trigger, ignite the bomb, etc.). While this

is not strictly common usage of the term, it simplifies the effective discussion of the phenomena considerably. The person to be assassinated is referred to as the target.

The act of assassination itself is difficult and costly to the assassin. The probability of successfully assassinating a target, as well as the probability of escaping the attempt, must figure prominently in calculations of the expected utility of attempting assassinations. Machiavelli contended that no matter how well-protected a leader, an assassin willing to die can find a way to kill a leader (1994). With this stark insight in mind, leaders have large incentives (namely, their lives) to take measures to prevent assassins from achieving their objective (Frey 2007). Such measures can be effective. For instance, wearing a bullet-proof vest will protect a leader from most attacks by firearms (Frey and Torgler 2008). Leaders can ride in bullet-proof transportation, surround themselves with decoys, lookalikes, and security entourages, and avoid public appearances to lower the probability of a successful attack against them. Formal models have suggested that these security measures should be disproportionately favored by non-democratically-elected leaders (Frey 2007). Existing empirical studies suggest such efforts are called for: autocrats are approximately 30% more likely to be targeted in any given year (Jones and Olken 2007).

Prior analyses have revealed some statistically significant assassination and assassination attempt predictors. Increased probability of (successful) assassination may be attributable to a number of factors, but only three have been shown to be statistically significant: Executive Power, Repression, and Executive Selection (and a number of their interactive effects, Zorn and Iqbal 2006). Powerful executives are more likely to exercise governmental power which will offend some portion of the population. Repressive leaders deny their citizens an outlet for dissent, yielding tensions which prompt citizens to consider violent responses. Finally, institutionalized executive selection mechanisms (i.e. those which select a leader through legal channels as opposed to "forceful seizures of power,") (Marshall and Jaggers 2002) can assure a successor to an assassinated leader will be at least as unfavorable to an assassin as the deposed target.

The absence of additional significant variables to explain assassinations is not surprising. Assassination attempts, as previously mentioned, fail in three of every four cases. The success of an assassination is thus an inherently noisy filter on the much larger population of assassination attempts. To illustrate, Adolf Hitler gave his annual Bürgerbräukeller Beer hall speech in 1939. However, poor weather conditions prompted him to give the speech half an hour early, so that he could catch a train out of Munich in lieu of a flight. Because he left early, a timed explosive intended to go off during his speech detonated approximately 13 minutes after his departure, failing to kill him (Hamerow 1999). The failure of this attempt was in no way the assassin's fault, nor Hitler's intentional evasion. This case is not unique.

An assassination attempt may fail for any number of reasons outside of both the assassin's and the target's control. A sniper's bullet may fail to hit its target because of slight, immeasurable wind variations in the distance between the shooter and the target (USMC 1981). A bomb may fail to kill its target, even if said individual is within its range. If we accept that such accidental factors are plausible explanations for failed assassination attempts, it becomes clear that successful assassination is as much a product of chance as it is a product of careful planning by the assassin and insufficient security measures for the target.

Herein lies the problem with analysis of successful assassinations: by looking at successes, the available sample is randomly diminished by a factor of four, thereby yielding less significant results than should be measured. For example, Iqbal and Zorn found that assassinations are not subject to a contagion effect. In other words, an assassination does not spur on other assassinations. Frey and Torgler (2008), however, found that assassination attempts are subject to a contagion effect. Because of a brute difference in their respective available samples, Frey and Torgler's finding should be treated as definitive. Iqbal's and Zorn's is likely a mere type II error, attributable to a prohibitively small data sample.

Other models have suggested several other (statistically significant) factors which predict assassination attempts: regime type, war status, wealth, and population. These factors provide additional background and theory concerning assassination attempts. Regime type ties in closely with the logic of the aforementioned Executive Power and Repression variables, in that democracies are by definition less repressive. War status is significant because a change of executive leadership during a conflict may be recognized by potential assassins as an opportunity to trigger a more substantial political upset than would be seen in peacetime. Wealth is also understandably a valid predictor: poorer citizens have less to lose by committing an attempt, so

countries with larger, poorer populations should experience assassination attempts more frequently. Finally, as population increases, the number of people willing to commit assassinations increases, while the number of leaders to assassinate stagnates at one (Jones and Olken 2007). We are left with a view of assassination attempts as the product of static social conditions, but not dynamic social forces. In other words, annual measures give no information about the present condition of a nation relative to prior times. However, assassinations are not committed without reason. There must be a trigger, some sort of change which drives an assassin to make his/her decision.

If we consider assassination to be an alternative means of civil conflict, it should follow the same conditions as more traditional modes of civil conflict. Findings in the literature on political economy suggest that economic growth is inversely correlated with political stability (Alesina et al. 1992). As economic growth increases, political stability decreases. While the causal linkage between these two variables is not explicit, the correlation is sufficient to prompt further inquiry. If growth suggests instability, can it be used to predict assassination attempts? A similar question stands for institutional changes: Can changes in governance predict assassination attempts?

Measuring Assassination Attempts and their Predictors

The operative unit of analysis for this study is the nation-year. While this pairing has the limitation of being insensitive to political and economic changes which occur within a year's time, it affords sufficient precision to tease out the correlations between political and economic atmosphere and the probability of an assassination attempt. The social frustrations which result in viable assassination attempts tend not to be whimsical, but carefully planned operations driven by more than a few weeks' irritations at unfavorable policy, and thus the year should be an acceptably broad measure to couple with national benchmarks.

By looking at all recorded assassination attempts (as opposed to successful assassinations), a clear picture of significant predictors should emerge. Thus, the dependent variable for this study will be assassination attempts (as aggregated by Jones and Olken 2007). More specifically, it will be a binary nominal variable, attempt, coded 1 if there was an assassination attempt on the head-of-state in a given country-year and coded 0 otherwise. Coding assassination attempts in this way permits the use of binary logistic regression. This is an imperfect measure—it is insensitive to multiple assassination attempts committed in a single country-year). However, a cursory analysis of the available data suggests that multiple assassination attempts in a country-year is an unusual phenomenon.

The model is predicated upon two hypotheses: first, that increasing GDP will prompt a proportional decrease in assassination attempt probability, and second that increasing levels of democracy will decrease the probability of an assassination attempt. In short, both independent variables vary inversely with probability of assassination attempts.

Political Stability

Democratic institutions provide an outlet for frustrations with leadership which in an autocracy may otherwise have no relief mechanism, prompting dissenting citizens to resort to civil violence (Gates et al 2006). Under this theory, the correlation between executive power, repression and assassination has been well-established. However, another consideration in the decision process of would-be assassins may be the trajectory of reform. Even in a strict dictatorship, changes towards democracy may signal to would-be assassins that the legal political apparatus to voice civil frustrations may emerge in time, thereby deterring said citizens from otherwise costly actions. Conversely, violently-inclined individuals in freer societies may be driven to consider assassination attempts if their ruling regime is reducing freedoms. In short, the probability of an assassination attempt may be inversely proportional to changes in regime type.

In order to test this, Polity IV provides a measure of democracy in each country-year. While this has already been identified as a factor in the probability of an assassination (Jones and Olken 2007, Iqbal and Zorn 2006),

changes in scores between years have not. Therefore, instead of measuring blunt regime type, the model includes a variable for regime change, $\Delta POLITY$, measured as: $\Delta POLITY = POLITY_T \check{\ } POLITY_{T-1}$ where T represents the year and $POLITY_T$ is the Polity score of that nation for year T. In order to assure that this measure is unaffected by the absolute Polity scores from which it is derived, Polity scores are controlled (by inclusion in the regression equation).

Economic Volatility

Two prior empirical studies on assassination predictors generate conflicting conclusions about the role of wealth in the probability of assassinations (Iqbal and Zorn 2006) or assassination attempts (Jones and Olken 2007). While this is initially puzzling, there are two major factors at play in the analysis of these results. The first is the aforementioned randomness of assassination success. The second is differing indicators of wealth, which are (respectively) measured as GDP per capita and energy intensity. With attention to this discrepancy, GDP must be controlled in the regression equation.

Perhaps assassination is explicable not only as a brute measure of GDP or other economic indicators, but as change over time. A sudden drop in GDP is sure to generate disenchantment with the ruling regime, as is well documented in democratic politics, given the correlation between economic conditions and election outcomes (Hibbs and Vasilatos 1981). Thus, a variable representing the change in a nation's GDP from the prior year may be a powerful indicator of the danger of assassination to a head-of-state. This model will represent such a variable, coded ΔGDP, as $\Delta GDP = GDPT \check{\ } GDPT - 1$ where T follows the same parameters as described for $\Delta POLITY$.

Hypothetically establishing a correlation between economic effects and assassination attempts does not necessarily imply that the economy affected the probability of the assassination attempt. Theoretically, it is plausible that the assassination attempt should cause some economic disturbance. Because the GDP is measured annually, it would be insensitive to shocks caused by assassination attempts. Fortunately, this concern has been previously addressed. In their primary inquiry, Jones and Olken found that failed assassination attempts (the vast majority of samples in the dataset) have no significant economic effect (2007).

In order to assert significance (given the existing knowledge predicting assassinations and attempts), the other known significant variables (Regime type and the logarithms of Wealth and Population) must be controlled for in the regression. Thus, the complete logistic model takes the form $ln(Pr(A) : Pr(\neg A)) = \beta_0 + \beta_1(\Delta POLITY) + \beta_2(POLITY) + \beta_3(\Delta GDP) + \beta_4(GDP) + \beta_5(ln(POP)) + \epsilon$

Results

The results of the regression are shown in Table 1.

Of initial note, neither of the hypothesized variables ($\Delta POLITY$, ΔGDP) are judged to be significant. The absent significance for the two hypothesized variables indicates that in order to establish the relationships suggested theoretically, more sensitive measures may need to be employed; for instance, using changes in GDP per capita, as opposed to changes in raw GDP.

As a secondary note, the results of this regression throw prior findings about assassinations into question. Using Jones and Olken's own dataset, I was unable to replicate any of their findings save one. The single significant factor, the logarithm of the population size, confirms their assertion that population is correlated, in some fashion, with propensity of a nation to experience an assassination attempt. As a nation's size doubles, the probability of that nation experiencing an assassination attempt in a given year increases by approximately 29%. However, no other variables satisfy significance.

This is not to imply that prior work in the field is incorrect. The differences between the findings may be attributable to methodological differences between the approach applied here, and that of Jones and Olken. For instance, they operationalize wealth as the logarithm of per capita energy expenditure, as opposed to

GDP. Later studies may be able to tease out more precise conclusions based on more precise measures of wealth and inequality—the Gini coefficient, for instance.

As a further note concerning the theoretical basis for later studies, Jones and Olken found that wealth and population are logarithmically correlated to assassination attempts, not linearly. The theoretical explanation suggests that the correlation should be linear: some measurable proportion of the population should be capable of committing an attempt. However it seems that an interpretation like this is far too narrow. This leaves us with the question of what theoretically can support this relationship. Answers for this question may lie outside the realm of empirics, prompting consideration of formal models as the appropriate avenue for subsequent analyses.

Conclusion

This paper examines some of the potential factors motivating commission of assassination attempts. In particular, the model reveals no indication that spontaneous effects in the economy or governance structure are predictive of assassination attempts. In this, we fail to reject the null hypothesis.

This opens the field for continued inquiry into topic, whether or not the assumptions this model is predicated upon are correct. For example, perhaps assassination attempts are not coordinated in response to effects in annual increments: any political actions which might anger a potential assassin may not need to be chronologically so close to the assassination attempt event—in other words, assassins may hold grudges. Only further analysis on the topic will tell.