

The Papal Conclave: How do Cardinals Divine the Will of God?

J.T. Toman¹

Version: January 5, 2004

In modern times, the College of Cardinals have been locked in the Sistine Chapel with the purported aim to divine the Will of God in the election of the Pope. Between 20 and 60 percent of cardinals vote for the same candidate throughout the conclave, depending on the length of the conclave. For those cardinals that change their voting behavior, they are influenced by both the vote counts and the nightly conversations. However, in unifying the cardinals to one winner the dominant force is the observed vote counts.

1. INTRODUCTION

The election of the Bishop of Rome (the Pope) has caused interest for centuries. In modern times, to elect the Pope the College of Cardinals has been locked in conclave in the Sistine Chapel with the purported aim to divine the Will of God.² The success or failure of the electoral procedure is indicated to the world through the *sfumata*, or the smoke signal. Black smoke from the chimney on the roof of the Sistine Chapel indicates that the College of Cardinals did not decide on the new Pontiff. White smoke indicates to those in St Peter's Square that a new Pontiff has been chosen. Excepting the election of Julius the Terrible (Julius II: 1503), who openly bribed the cardinals, the Will of God has never emerged in one round. What transpires is a complex electoral process with information flowing from both the round-by-round vote tallies and the private conversations between cardinals. Eventually, however, the cardinals have always converged on a single choice. This process has taken as little as one day (Pius XII: 1939; John Paul I: 1978) and as long as 31 months (Gregory X: 1271). The election process has even resulted in the death of some cardinals and their conclavists.³

¹Econometrics and Business Statistics, University of Sydney: j.toman@econ.usyd.edu.au. The author would like to thank the staff of Burns Library at Boston College, Kerrie Legge, Stephanie Stammel and the ILL staff at the University of Sydney Library for their research assistance. Additionally, the author would like to acknowledge R.T. Bear, Richard Holden, Murray Smith, Frank Young, and the Economic Seminar Group at the University of New South Wales. The work was partly funded by University of Sydney SEPS Reseach Grant. All mistakes are entirely those of the author.

²The word "conclave" comes from the Latin *con* (with) and *clavis* (key).

³Nicholas IV (1288). The conclave after Honorius lasted almost 11 months, due to division among the cardinals. During the summer heat, an outbreak of malaria caused the death of six cardinals and many of their assistants. (Kelly,

Of fundamental interest is how the cardinals determine who should lead the Catholic church. From the Apostolic Constitution of Pope Paul VI (1975), Chapter 2 (42)

"Conclave" means the carefully determined place, a kind of sacred retreat, where, after asking the Holy Spirit to enlighten them, the cardinal electors choose the Supreme Pontiff, and where the cardinals and other officials and staff, together with the conclavists, if there be any, remain day and night until the election is complete, and do not communicate with persons and things outside, in accordance with the following modalities and norms.

With a multi-round election such as the conclave, the votes received by a cardinal in a given round can be explained by those that survive from the previous round, those that are born in the that round, and cardinal-specific characteristics. Votes survive from round to round as some voters continue to vote for the same candidate regardless of their probability of success. That is, there are sincere voters in the set of voters. However, this does not account for unobservable heterogeneity in received votes, or the birth in votes received by certain candidates. First, for the entire election, the majority of cardinals receive few or no votes, while a small subset are the focus of the electoral activity. This unobservable heterogeneity of the cardinals indicates some prior knowledge or belief on behalf of the voting cardinals which, given the Apostolic Constitution above, is best interpreted as the enlightenment of the Holy Spirit. It is evident from the data the cardinals have divined the Will of God differently as no election is resolved unanimously on the first round (again, excluding Julius II as an anomaly due to corruption). However, God's Will has narrowed the list of contenders down to a subset of five or fewer leading contenders in each election.

To reach a consensus, the cardinals must communicate with each other (given they have already heard the Word of God). This results in the birth of votes for some cardinals at the expense of others. There are two possible sources of information in the conclave. During the voting, the cardinals cannot talk to each other and only observe the aggregate vote tallies received by each candidate. However, at meal breaks, and particularly in the evenings, the cardinals have an opportunity to talk and negotiate. Both are a potential source of information and the question remains which is more influential in choosing the Pope? In an attempt to learn more about the conclave voting procedure

1986). Girolamo Masci stayed in Rome throughout and was elected as the compromise candidate (initially refusing the papacy on 15th February 1288) on the 22nd February 1288. More recently, the night before Pius X (1903) was elected many cardinals were taken ill in a rumored poisoning attempt, though none died. (Falconi, 1967 p13 referring to a note in Cardinal Svampa's diary)

this paper uses the linear feedback count panel data model of Blundell, Griffith and Windmeijer (2002), estimated using the quasi-differencing procedure of Chamberlain (1993). With the next papal election expected soon, it is of current interest to see if the past electoral data can provide evidence as to what proportion of the cardinals are voting strategically and what is the key source of information flow in the conclave.

2. CONCLAVE ELECTORAL PROCEDURE

The Pope has not always been elected by the cardinals in conclave as we know it today. Indeed, the first Pope, St Peter, was appointed by Jesus. After St Peter, the electors were the people of Rome. Their election methods were not always so formal. In 236 Fabian, a farmer, stopped to watch the people in Rome elect a new Pope and was acclaimed the Pope himself when a dove landed on his head. From the ninth century, the clergy in Rome became the electors as the system of using all the people of Rome became unworkable.⁴ Since 1179, at the decree of Alexander II, the Pope has been elected by the College of Cardinals alone. Moreover the pope was elected by a majority of two-thirds and no cardinal could vote for himself. The “locking up” aspect of the conclave was put into place by Pope Gregory X in 1271, in order to speed up the election process, after his election took 2 years, 9 months and 2 days.⁵ The procedure then remained unchanged until 1945 when Pope Pius XII modified the rules slightly so that the Pope was elected on a majority of two thirds plus one, but there was no check made to see that the cardinals did not vote for themselves. Pope Paul VI changed the rules again so that not all cardinals could vote in the conclave, but only those under eighty years of age. Otherwise, the election process has remained relatively unchanged until 1996 when by *Universi Dominici Gregis* Pope John Paul II changed the election procedure significantly for the first time in over 800 years.⁶

The papacy is divided up into five time periods: the early papacy (Peter (year of appointment unknown-64) through to Pelagius II (579-590)); the medieval papacy (Gregory I (590-604)- Boniface VIII (1294-1303)); the Renaissance and Reformation papacy (Benedict XI (1303-1304) - Pius IV

⁴This unworkability included the murder of several hundred supporters of rival candidates in the election of 366 after the death of Pope Liberius, only to have both a pope and an anti-pope installed. The candidates were Ursinus (the former deacon of Liberius) and Damascus (also a former deacon of Liberius who had switched allegiance to the antipope Felix II). Damascus was installed as pope and reigned from 366 - 384. Ursinus was installed as anti-pope from 366-367.

⁵Gregory X also instigated food rationing (after 3 days - only 1 meal; after another 5 days - only bread, wine and water). This is not practiced in the modern conclave.

⁶In 1996 John Paul II release his Apostolic Constitution *Universi Dominici Gregis* which changed the rules of the conclaves to come. It does not affect the elections being discussed here. The potential impact of *Universi Dominici Gregis* is briefly discussed in Appendix Two.

(1559-1565)); the early modern papacy (Pius V(1566-1572)-Pius IX (1846-1878)) and the modern papacy (Leo XIII (1878-1903) - John Paul II (1978-present)). Since the decree of Alexander II (1179), there have been three possible methods of election. The first is by “Acclamation”. This is where the cardinals unanimously accept the new candidate for pope. This is very rare. It has not occurred during the modern papacy, with the most recent occurrences being the elections of Clement X (1670) and Innocent XI (1676). The second is by “Compromise”. This is where the Cardinals choose only a few of the Cardinals (restricted to an odd number of nine or less) to elect the Pope. Again, this was rare, and last occurred in with the election of John XXII (1316). The third, and most common method, is by “Scrutiny”. This refers to the election method where each cardinal votes, and writes down his vote in secret so no-one knows who he voted for. Scrutiny is the only method of election that has occurred in the modern papacy.

There are always nine days of mourning for the dead pope (*Novemdiales*) and traditionally the conclave had to start on the 10th day. Pope Paul VI changed this to 15-20 days after the death of the pope, recognizing it was hard for cardinals from distant countries to arrive in time for the conclave. In conclaves in the modern period, cardinals travelling from the United States, Canada and Australia have missed the conclave as not enough time has been allowed for their travel.⁷ One notable cardinal was Cardinal O’Connell of Baltimore. During his Cardinalate, he had the opportunity of attending three conclaves, Benedict XV, Pius XI and Pius XII. At the first, he was still on the boat travelling, at the second, he arrived in Rome to hear the crowds cheering the new Pope. He did not miss the third and was by that stage a powerful kingmaker to be reckoned with.

Before the conclave, the cardinals used the *Novemdiales* for both formal and informal communication on their views on the choice of the new Pontiff. The General Congregations are the daily meetings of the cardinals after the death of the pope, and before the start of the conclave. Naming candidates occurs during the lobbying done at the same time. However, it is important to remember that not all cardinals are present at these meetings. Moreover, there is nothing to bind any cardinal to keep a promise made before the conclave as his vote is secret. The last act before the cardinals are locked up in conclave is the delivery of *Del eligendo pontifice* by the *Carmelengo*.⁸ This speech is supposed to

⁷For example, Cardinal McCloskey (USA) missed the election of Leo XIII, Cardinal Moran (Australia) missed the election of Pius X, and Cardinals Gibbons (USA), O’Connell (USA) and Begin (Canada) missed the election of Benedict XV because they were still travelling from their native countries.

⁸The *Carmelengo* is the cardinal in charge of the administration of the Holy See during a *sede vacante* (the period after the death of the pope, before the election of the new one).

provide the job description of the pope required, with the aim of unifying the electors. Additionally, before conclave, cardinals meet for the *Mass de Spiritu Sancto*. This mass asks for divine aid for the conclave.

At the opening evening of the conclave there is no voting. Instead, cardinals are instructed on the rules of the conclave pertaining to voting and secrecy. Cardinals take the solemn oath of secrecy.

Above all, we promise and swear to observe with the greatest fidelity and with all persons, including the conclavists, the secret concerning what takes place in the conclave or place of election, directly or indirectly, concerning the scrutines; not to break this secret in any way, either during the conclave or after the election of the new pontiff, unless we are given explicit authorization from the same pontiff. (no 49)

This is sworn on the Gospels with each cardinal adding: ‘So help me God and these Holy Gospels that I touch with my hand.’ As is seen by the election data obtained, this oath of secrecy has not been held to by all cardinals.

Voting begins the following day. Since the collapse of the papal states in 1870, the conclave has been held in the Sistine chapel. Before then, it was held in various locations. The Quirinal Palace was popular until it was taken over by King Emmanuel II. Elections have been held in the Lateran Basilica and Palace, and outside Rome in Pisa and Perugia amongst other places. The last election not in Rome was in Venice in 1800 (Pius VII).

For the elections of Leo XIII and Pius X, there were only two rounds of voting a day, one morning and afternoon. However, since Benedict XV the practice has been for four rounds of voting a day, two morning and two afternoon. When the *sfumata* is produced at the end of a morning, it is burning the votes for both morning rounds of votes, and similarly for the afternoon. Cardinals may not talk during the voting procedure, but they may talk during meals and during the evening. Traditionally, cardinals cannot talk to each other between the consecutive morning rounds, and the consecutive afternoon rounds. However this protocol was breached in the election of John Paul II, as the *Camerlengo* introduced a 30 minute break between rounds three and four, and a 15 minute break between rounds five and six. This was considered to work to the advantage of Cardinal Wojtyła (John Paul II) and against Cardinal Benelli.

The actual voting procedure is very simple. It is a multi-round election, where every round each

elector (cardinal) casts one, non-transferable vote. Technically, any male catholic can be elected pope. However, the last pope elected that was not one of the cardinals was Urban VI in 1378. A non-cardinal received votes in the election of John XXIII (Bishop Montini) in 1958. He was a cardinal in the next conclave and become Pope Paul VI (in 1963). Therefore, he can be considered exceptional in many regards. It is almost certain that the Pope will be elected from among the College of Cardinals under 80 years of age. The current College is approximately 130 cardinals in size, given the recent appointments made by John Paul II at the end of September 2003. Each cardinal has a voting slip like the one seen in Figure 1. They write the name of one person on the ballot paper, fold the paper in half, and in order of seniority place their votes. The Cardinal advances towards alter, kneels in silent prayer and speaks the oath 'I call as my witness Christ the Lord, who will be my judge that my vote is given to the one whom before God I consider should be elected'. To guard against cheating, the Cardinal places the ballot paper on a paten and tips it into the chalice on the alter of the Sistine Chapel. This shows the room that only one vote has been entered. The votes are shaken, and then counted. If the number agrees with the number of cardinals, the chalice is brought to the table, and the ballots are passed from hand to hand of each of 3 *scrutatores* (picked by lot) and read out loud by the last. There are three *revisors* (picked by lot) to control the count of the *scrutatores*. Additionally, should there be any sick cardinals resting in their cells, three *infirmarii* (picked by lot) collect votes from the sick cardinals.

[Insert Figure 1 here]

At the end of each round, the votes are tallied and if one person receives more than two-thirds (plus one) of the votes then he is declared the winner (and therefore the Pope, provided he accepts). Up to and including the election of Pius XII, the rule for election was a candidate must receive two thirds of the vote and not vote for himself. Therefore, each cardinal had to sign the back of their voting slips to prove they had not voted for themselves. In his election, Pius XII received exactly two-thirds in the second round. The votes were checked to see if Cardinal Pacelli (Pius XII) had voted for himself. Partway through the check, Cardinal Pacelli requested a further round to establish his validity. Upon checking his second round vote (after he had requested the further round of voting), it was established he did not vote for himself but for Cardinal Tedschini. However, once Pope, he changed the rule, so that the majority rule was two-thirds plus one, and the Cardinals did not check

to see if the Cardinals had voted for themselves. This increased the secrecy of the ballots in later years and also avoided the embarrassment that Pius XII endured. No candidate is excluded from any round, based on the number of votes received in the previous round. This differs from the predominate characteristic of multi-round elections, where only a predetermined number of candidates (chosen by rank or percentage) are allowed to proceed to the next round. ⁹

3. DATA

The data set is round-by-round voting tallies received by each cardinal for the papal elections for the nine modern conclaves. Currently, the data set for Pius XII is provides detail only for the winner, Cardinal Pacelli, and for a limited number of cardinals in the first round. Also, round 5 for Pius X was recorded incorrectly by secondary sources and the original source is being traced to obtain this data. For some elections, it is know that cardinals received votes without knowing their names. For example, in the first round of the election of John Paul I it is known that 15 cardinals received 1 vote each, but the identity of the cardinals is unknown. See Appendix One for the data example of Pius XI

The modern conclaves cover the period since the collapse of the Papal States in 1870 and the Pope became a purely spiritual leader instead of a leader of church and state. The transition between the early modern and the modern papacy is not agreed upon by all scholars. Some would start the modern papacy as far back as Pius VI (1775). However, all the elections in the data set here are unified by the fact the Catholic Church had lost the Papal states and so they were electing a leader purely of the church.

To obtain the election data, every effort has been made to use sources that were present at the conclave, the cardinals or their conclavists. The primary sources for the election data for the conclaves are the diaries and other records kept by cardinals and other conclavists. Until the rule of Pius XII, it was legitimate for those attending the conclave to make notes during the election, and remove their notes with them. This meant that the conclaves of Leo XIII, Pius X, Benedict XV and Pius XI are much richer in information than that of the latter popes of John XXIII, Paul VI and the John

⁹Typically, we think of the run-off elections between the top two candidates. The Latin American presidential elections currently use such a system as did many of the 19th century U.S. presidential primaries (Wright and Riker (1989), Bullock and Johnson (1992)). Norway, between 1905 and 1919 allowed any candidate to continue into the next round, (though the winner was elected with a basic majority, instead of the stricter two-thirds plus one required in the conclave).

Pauls (the election of Pius XII has proved scarce on election information despite not having the note removal embargo). For these elections, it has been possible to obtain both historical evidence on the motivation of the voting behavior of the cardinals and the round-by-round voting data. If primary data sources were not possible, hearsay sources were used where the confidant was known to hold the trust of those present in the conclave. While such sources are not considered as reliable as sources present in the conclave, they are still considered a good source of conclave data. Moreover, every attempt is made to get the secondary source corroborated to endorse its validity. The key details about these elections are summarized in Table 1 below.

[Insert Table 1 here]

4. COUNT DATA MODELS FOR DYNAMIC ELECTION ACTIVITY

In situations such as the conclave, where only the aggregate vote count is observed for each candidate, relatively indirect methods must be used to determine the voting intentions of the electors. Using close, consecutive elections to proxy round-by-round votes, authors studying the British electoral system have attempted to measure the strategic voting through patterns of inter-election vote shifts in different constituencies.¹⁰ The advantage of the conclave data set is that it is a richer panel data set. There are certainly many methods of approaching the problem of extracting the signal from such data. One avenue is to undertake a dynamic programming approach and estimate a policy function for the cardinals. The problem with this methodology is that the curse of dimensionality is very real given that it is a multi-agent game, and so the dynamic program must be optimized for the Nash Equilibrium of all player combinations.¹¹ Recognizing that the votes are a form of count data, a count data panel model is chosen instead as the model for the conclave.

To model count data the linear exponential family of models, including the Poisson and Negative Binomial models, is a popular alternative. For extensive discussion of these models see Gourieroux, Monfort and Trognon (1984) and Hausman, Hall and Griliches (1984). In the Poisson model the conditional probability density for Cardinal i in year t is given by

¹⁰See Spafford (1972); Galbraith and Rae (1989); Johnston and Pattie (1991).

¹¹The dynamic program approach is considered suitable in theory as it will allow the trade off between trying to put in place longer term strategies to get a candidate elected through vote signalling, and the desire to get a result immediately, as conclaves cause a cost to the church.

$$\Pr(Y_{it} = y_{it} | X_{it}) = \frac{e^{-\lambda_{it}} \lambda_{it}^{y_{it}}}{y_{it}!}$$

with $\lambda_{it} = E(Y_{it})$. The mean of Y_{it} is equal to its variance i.e.

$$E(Y_{it}) = V(Y_{it}) = e^{X'_{it}\beta}$$

The exponential form is attractive as it ensures the non-negativity characteristic of the count. However the variance restriction is unlikely to hold. Hausman, Hall and Griliches (1984) developed a conditional maximum likelihood estimator for the Poisson model for count data panels. This utilized the property that the Poisson was a member of the exponential family of distributions and the conditional distribution was also Poisson distributed. The specification did, however, require the crucial assumption of strict exogeneity of the explanatory variables.

Recently, work has developed estimation methods for count data panel models that allow for weakly exogenous or predetermined variables, notably Chamberlain (1993) and Wooldridge (1997). These methods use a quasi-differencing method to eliminate the unobserved heterogeneity and then generalized method of moments to obtain the estimator. Blundell, Griffith and Van Reenen (1995) have also developed a method using pre-sample information, but as that level of information is not available in the data set, it is not considered.

4.1. Model Set-up

The Germans are on his side as will be the Spanish tomorrow because Franchi has now sided with Pecci; Howard, who up to now has voted for Simeoni, will vote for Pecci tomorrow; as I'm sure Your Eminency is aware, Bilio declared to Barolini that if he were to be elected he would not accept, for he considers it a heavy burden; Monaco and Randi will continue to vote for Martinelli; Franzelin likes Monaco, but he is wasting his time: Your Eminency, you must accept the truth, God has chosen Pecci.¹²

Let n be the number of cardinals in the conclave. Each cardinal $i = 1, \dots, m$ receives an integer number of votes in each round $V_{it} \in [0, n - 1]$ as a cardinal cannot vote for himself and $m \leq n$ as

¹²Comments of conclavist to Cardinal Ferrieri in conclave of Leo XIII, recorded in De Cesare (1887, p293). Translation by R. Buttini.

cardinals receiving zero votes throughout the entire election are excluded from the model. There are discrete rounds to the election, t , where t potentially ranges from $t \in [1, \infty)$, and the election stops when one candidate reaches the required $\frac{2}{3}(+1)$ majority.¹³

V_{it} is a function of the number of sincere voters, the behavior of the strategic voters, and the unobserved heterogeneity of the cardinals. All these elements are indicated in the description of the election of Leo XIII above. Cardinals Monaco, Randi, and Franzelin are voting sincerely throughout the election. Cardinal Howard is switching his vote as an individual. We do not know if it is because he has observed Pecci's vote count in round two or if he has talked to someone in the conclave that evening. The German cardinals and the Spanish cardinals have acted as country-based factions, which presumably required some discussion to coordinate. Finally, the conclavist concludes that the voting activity centers on Cardinal Pecci because he is God's choice.

The survival of a candidate i 's votes from round $(t-1)$ to round t depends on how many candidates consistently vote for him. A sincere vote is one where the cardinals are only guided by the utility provided by the candidates, and not by the expected success of victory. If there are sincere voters amongst the cardinals, they will continue to vote for their candidate regardless of his probability of success. This is likely to have some explanatory power in the conclave as at least some cardinals confess in their diaries to sincere voting strategies. From the diary of Cardinal Svampa, present in the election of Pius X, the entry 'I have the consolation of being able to say that at the first ballot and in all the others I gave my vote to Cardinal Sarto'.¹⁴ From the diary of Cardinal Piffi (election of Pius XI) is his note that he was 'faithful to La Fontaine to the end'.¹⁵ Therefore, the impact of the sincere voter is modeled through the lagged dependent variable V_{it-1} .

To gain a round-by-round point estimate of the proportion of sincere and strategic votes we can assume all first round votes are sincere votes. It is true that information is exchanged in the formal and informal discussion of the *Novemdiales*. However, not all cardinals are present for these, and none of these commitments are binding. Cardinals may make misleading statements to form allies that are useful at latter stages of the conclave or their career. Therefore we are left to assume the only communication the cardinals has as he makes his first round vote is with God. It is certainly

¹³For elections after Pius XII the stopping rule is $\frac{2}{3} + 1$. Before, it is $\frac{2}{3}$.

¹⁴Cardinal Svampa's Diary, Falconi (1967), p12

¹⁵Piffi (1963), p1060.

an imperfect assumption as revealed by the notes of Cardinal Piffi. His faction of Austrian Cardinals met before the start of the conclave of Benedict XV and ‘decided to vote for Della Chiesa at the first ballot’.¹⁶ However, it is not as heroic an assumption as it may first appear. Diary evidence from the conclaves indicates that the cardinals are encouraged by each other to vote their true preferences on the first round, knowing the election will not resolve on the first vote. For example, again from the diary of Cardinal Piffi, this time for the conclave of Pius XI, we see Cardinal Belmonte would give nothing away and believed the first and second rounds were where the cardinals showed who God wished to be Pope.¹⁷ To measure the proportion of strategic votes, the following assumptions are made. All vote changes are considered strategic and all stable vote positions are considered sincere. Such strong assumptions are required given the limited information. It essentially implies that any straightforward vote choices (where the strategic and sincere vote choices were to coincide) are classified as sincere. Moreover, this disregards the possibility of an adaptive utility function.¹⁸ Therefore, the vote counts should be interpreted with a degree of tolerance. The sincere and strategic vote counts are given in Table 2 below.

[Insert Table 2 here]

It would be tempting to characterize the cardinals as behaving differently in the conclaves, as in some only 20-30 percent vote sincerely to the end and in others approximately 60 percent vote sincerely. However, excepting the quick transition in the election of John Paul I, the change in strategic behavior appears to be a function of the length of the conclave. In the beginning rounds, a large proportion of cardinals remain sincere voters in all the conclaves. The difference is that the conclave is resolved quickly for some elections and not for others. Therefore, to bring about a result and avoid the costs (monetary, religious and social) of a protracted conclave, the cardinals must change their own behavior or rely on their fellow cardinals to change theirs.

The second explainer of V_{it} is the activities of the strategic voters. New votes received by cardinal i at time t are produced as a result of strategic voters shifting their votes from a different cardinal to cardinal i . Information about the increase in expected utility of cardinal i as the future Pope is

¹⁶Piffi (1963) p1006

¹⁷Piffi (1963) p1060

¹⁸The scenario disregarded is that the cardinals change the ordering of their preferences, that is their utility function, round-by-round, based on new information (the vote counts) and vote sincerely using the new utility function. It is unclear that this should be classified differently from a strategic vote which also uses the probabilities to reweight the utilities, but labels this expected utility. The functions used may be different, but the information used in each case is the same.

communicated to the voters through two channels. First, the observed vote counts which is a summary of the opinion of the electors, and a measure of the likelihood cardinal i will win the election. Second, through the conversations held outside the election room between the cardinals.

There are two elements of information contained in the observed vote count. The first is the actual number of votes received by the cardinal in the previous round, indicating his likelihood of victory at that point of time. Unfortunately, $V_{i,t-1}$ is also the variable that indicates the survival effect of the sincere voter. There is no way of separating these effects, and so the model will measure their cumulative impact. That is, for every one vote increase for cardinal i at time $(t-1)$, cardinal i expects on average $\hat{\gamma}$ votes in round t , where $\hat{\gamma} = \hat{\gamma}_1 + \hat{\gamma}_2$, and $\hat{\gamma}_1$ is the number of sincere voters and $\hat{\gamma}_2$ is the number of strategic voters switching to i because of the absolute vote count V_{it-1} .

The second is the change in votes between successive rounds which captures the important “momentum” quality required to win a conclave. A cardinal needs more than a high number of votes to receive new votes from his fellow cardinals. He also needs an increasing number of votes which indicates he will continue on the path to success. This was shown by the fortunes of Cardinal Gasparri in the election of Pius XI. Cardinal Gasparri rose from 8 votes in round 1 to 24 votes in round 6, but stalled on 24 votes for the next two rounds. While at 24 votes he had the leading vote tally, but he was not gaining momentum, a crucial point. He failed to gain any more votes, his supporters changed to Cardinal Ratti, and eventually Cardinal Gasparri lost all votes by round 14. In contrast, during the election of John Paul 1, Cardinal Luciani maintained his momentum and won in four rounds with vote counts of 23, 53, 92 and 102. The momentum, or growth, variable is measured in absolute terms as $(V_{it-1} - V_{it-2})$.

The second form of information flow is through the discussions held outside the voting process, in the lunchtime and nightly conversations. The diaries of the cardinals present in the conclaves indicate such information updating about the quality of the candidates, and their likelihood of winning. For example, from the conclave of Benedict XV (Piffle, 1963; p1029)

Yesterday evening we had another talk, in the course of which Cardinal Hartmann (inspired by Bisleti) gave the opinion that we shall not be able to get Della Chiesa elected, given that: 1. his election would be interpreted as an affront to Pius X; Della Chiesa had in fact been under-secretary to Rampolla (Secretary of State 1887-1903) and later continued

to act in his spirit, which was the reason he was sent to Bologna; 2. he is a hot-headed character; 3. he is not representative. We decided to vote for Della Chiesa again at the first ballot today, and to come to an arrangement among ourselves if the respective placings of the candidates should be modified.

Therefore, by inserting time dummy variables for the leading cardinals at the first voting session after a night break we can ascertain whether the conclave conversations caused statistically significant shifts in the vote counts for the cardinals.¹⁹ It is of interest to know if the plans of the cardinals were effectively implemented, as given the anonymity of the voting procedure these were effectively non-credible commitments. We expect the negotiations to cause births in votes of some cardinals at the expense of others. Therefore, the cardinal specific time dummy is required. To allow a strong signal to emerge for this variable, dummies are used only for the leading candidates.

Finally, as is seen by the uneven voting activity among the cardinals, there is unobservable heterogeneity among the cardinals that is constant across time. Only a select subset are considered serious contenders for the position of the Papacy. One interpretation is that this is the Word of God. The voters do not perceive the cardinals as equal candidates. More cynically, one might argue that the differences observed are the result of the pre-conclave maneuverings. However, why would the effects of these be constant over time? We could expect these effect to die off after the observations of the first vote count. However, as God is omnipresent and all-knowing, having His effect to be constant over time is less of a surprise. Either way, this unobservable heterogeneity is accounted for in the estimation process through the inclusion of fixed effects parameters.

Therefore, the number of votes received by each cardinal in each round of the conclave is modelled as a count data panel model. The functional form chosen for the model is consistent with Blundell et al (2002). The lagged dependent variable enters as a linear term, not in the exponential, to avoid an explosive series. However, the momentum explanatory variable enters in the exponent to ensure the positive expected value of the expected vote count. As is traditional for the non-linear style panel models, the fixed effects are entered multiplicatively. Clearly, the traditional panel data assumption of strict exogeneity of the regressors is violated. The most that can be said for the explanators in

¹⁹Initially dummy variables were also inserted after the lunch breaks but this caused very flat likelihoods, and consequently results sensitive to starting values and that took a long time to converge. As the evening break was a longer time for communication, the dinner only results (which were stable) were taken as a signal of the effect of communication amongst the cardinals.

this model set up is that they are pre-determined. Chamberlain (1993) developed a consistent quasi-differencing GMM method that did not require the strict exogeneity assumption, but rather only required weak exogenous or pre-determined regressors. The model can be summarized as

$$V_{it} = \gamma V_{it-1} + \exp((V_{it-1} - V_{it-2})' \beta + d_{it} \delta) \exp(\alpha_i) + u_{it} \quad (1)$$

where $d_{it} = 1$ if i has a vote tally placing him as a significant contender, and t is a voting round following a communication opportunity at dinner. The cardinals included in the dummy variable modelling for each conclave are given in Table 3 below:

[Insert Table 3 here.]

4.2. Estimation Method²⁰

It is clear by examination of equation (1) that the strict exogeneity assumption of the Hausman Hall and Griliches (1984) conditional Poisson estimation method is not satisfied for this specification. Therefore, the Chamberlain (1993) quasi-differencing method is adopted as it requires the weaker condition of pre-determined explanators. Writing the model as

$$V_{it} = \gamma V_{it-1} + \exp(\mathbf{x}'_{it} \boldsymbol{\beta}) \exp(\alpha_i) + u_{it} \quad (2)$$

Since

$$V_{it+1} = \gamma V_{it} + \exp(\mathbf{x}'_{it+1} \boldsymbol{\beta}) \exp(\alpha_i) + u_{it+1}$$

The fixed effect can be expressed as:

$$\exp(\alpha_i) = \frac{V_{it+1} - \gamma V_{it} - u_{it+1}}{\exp(\mathbf{x}'_{it+1} \boldsymbol{\beta})}$$

Substituting back we get:

²⁰This section draws heavily on Windmeijer (2002).

$$\begin{aligned}
V_{it} &= \gamma V_{it-1} + \exp(x'_{it}\beta) \frac{V_{it+1} - \gamma V_{it} - u_{it+1}}{\exp(\mathbf{x}'_{it+1}\beta)} + u_{it} \\
&= \gamma V_{it-1} + (V_{it+1} - \gamma V_{it}) \frac{\exp(\mathbf{x}'_{it}\beta)}{\exp(\mathbf{x}'_{it+1}\beta)} - \frac{\exp(\mathbf{x}'_{it}\beta)}{\exp(\mathbf{x}'_{it+1}\beta)} u_{it+1} + u_{it} \\
\implies s_{it} &= (V_{it} - \gamma V_{it-1}) \frac{\exp(\mathbf{x}'_{it-1}\beta)}{\exp(\mathbf{x}'_{it}\beta)} - (V_{it-1} - \gamma V_{it-2}) = \frac{\exp(\mathbf{x}'_{it-1}\beta)}{\exp(\mathbf{x}'_{it}\beta)} u_{it} + u_{it-1} \quad (3)
\end{aligned}$$

For predetermined x_{it} the following moment conditions hold:

$$\begin{aligned}
&E(s_{it}|V_{i1}, \dots, V_{it-2}, x_{i1}, \dots, x_{it-1}) \\
&= E_{t-1} \left[\frac{\exp(\mathbf{x}'_{it-1}\beta)}{\exp(\mathbf{x}'_{it}\beta)} u_{it} | V_{i1}, \dots, V_{it-2}, x_{i1}, \dots, x_{it-1} \right] \\
&\quad + E_{t-1} [u_{it-1} | V_{i1}, \dots, V_{it-2}, x_{i1}, \dots, x_{it-1}] \\
&= E_{t-1} \left[E_t \left[\frac{\exp(\mathbf{x}'_{it-1}\beta)}{\exp(\mathbf{x}'_{it}\beta)} u_{it} | V_{i1}, \dots, V_{it-1}, x_{i1}, \dots, x_t \right] | V_{i1}, \dots, V_{it-2}, x_{i1}, \dots, x_{it-1} \right] \\
&\quad + 0 \\
&= E_{t-1} \left[\left[E_t(u_{it} | V_{i1}, \dots, V_{it-1}, x_{i1}, \dots, x_t) \left[\frac{\exp(\mathbf{x}'_{it-1}\beta)}{\exp(\mathbf{x}'_{it}\beta)} \right] \right] | V_{i1}, \dots, V_{it-2}, x_{i1}, \dots, x_{it-1} \right] + 0 \\
&= 0
\end{aligned}$$

Obtaining an generalized method of moments estimator:

The GMM estimator minimizes

$$\left(\frac{1}{N} \sum_{i=1}^N s'_i Z_i \right) W_n \left(\frac{1}{N} \sum_{i=1}^N Z'_i s_i \right) \quad (4)$$

where s_i is the $(T-2)$ vector $[s_{it}]$, Z_i is a matrix of instruments and W_n is the weight matrix.

Assuming the full set of sequential instruments is used, and x_{it} is predetermined, the instrument matrix for the model specified above is given by:

$$\begin{bmatrix} V_{i1} & x_{i1} & x_{i2} & & & & \\ & & & \ddots & & & \\ & & & & & & \\ & & & & V_{iT-2} & & \\ & & & & & x_{i1} & \cdots & x_{iT-1} \end{bmatrix} \quad (5)$$

Let $\theta = [\gamma, \beta]$. The efficient weight matrix for the GMM estimator is

$$W_n(\hat{\theta}) = \left(\frac{1}{N} \sum_{i=1}^N Z_i' s_i(\hat{\theta}) s_i(\hat{\theta})' Z_i \right)^{-1} \quad (6)$$

where $s_i(\hat{\theta})$ is based on an initial consistent estimate of $\hat{\theta}$. The GAUSS program used to estimate this is based on Windmeijer (2002).

As is noted in Blundell et al (2002) this estimator is consistent, but has a problem of weak instrument bias when the series is highly persistent. This, and small sample problems, beset the estimation. As weak instrument estimation problems were encountered in the estimation of some conclave equations, the identity matrix was used as the weight matrix instead of the efficient weight matrix given above. The estimation procedure is still consistent, but not efficient. Recognizing the limitations of the data set does not prevent us from exploring the electoral process. However, the results are best interpreted as a description rather than an accurate estimation.

4.3. Results

The estimated results for Equation 1 are given in the Table 4 below (standard errors in brackets). The estimation procedure used is GMM with an identity weight matrix and the Chamberlain quasi-differencing method, described above. It was not possible to estimate the panel data model for the conclaves of Leo XII or Pius XII as they were elected in only three rounds. The construction of the growth explanatory variable causes the loss of two rounds of data. Therefore these conclaves are reduced to a single period of data. Similarly, estimation is not possible for John Paul I who was elected in four rounds. The concern is of course that valuable information is lost by omitting these three elections. It is possible that the short elections will behave differently to the longer ones studied. Indeed, it is expected the input of negotiations to be less due to the lack of opportunity in the shorter elections. Further work using non-panel data methods would be useful to address these concerns. The results for Pius X are being withheld currently while the round 5 election data is being ascertained

directly from the diary of Cardinal Svampa. Election data currently reported in secondary sources for that round has proved inaccurate. The signs of the coefficients are generally as we expect. The results for John Paul II proved difficult to converge, suggesting that the likelihood function is quite flat. Therefore they should be interpreted with some caution.

[Insert Table 4 here]

The impact of the lagged dependent variable has a positive effect on the current vote count and is significant in all conclaves. As discussed, this captures the aggregate effect of the sincere voter and the impact of the absolute vote count on strategic voters. That is, for every one vote increase for cardinal i at time $(t - 1)$, cardinal i expects on average $\hat{\gamma}$ votes in round t , where $\hat{\gamma} = \hat{\gamma}_1 + \hat{\gamma}_2$, and $\hat{\gamma}_1$ is the number of sincere voters and $\hat{\gamma}_2$ is the number of strategic voters switching to i because of the absolute vote count V_{it-1} . The estimate for $\hat{\gamma}$ is lowest for the conclave of John XIII. As there was little movement in the votes for the first two days of the conclave (see Table 2) it would be reasonable to attribute the majority of this to sincere voting. That is, in the conclave of John XXIII, for every additional vote cardinal i received in round $(t - 1)$, cardinal i would expect approximately 0.25 of that vote to survive to the next round because of the core of sincere voters. Another way of interpreting that is that averaging over the conclave and cardinals, approximately 25 percent of votes are sincere and 75 percent are strategic. This is lower than indicated by Table 2, but still conceivable as an estimate.

The conclaves of Benedict XV, Pius XI and Paul VI estimated $\hat{\gamma}$ in the range of approximately 50-60 percent. There is nothing in the model to indicate the decomposition of this into sincere and strategic effects. However, we know based on Table 2 that the conclave of John XXIII had a high level of sincere voting relative to the others. Therefore, we can take the estimated 25 percent from that conclave as a generous estimate of the level of sincere voting in the remaining conclaves. For every additional vote cardinal i received in round $(t - 1)$, cardinal i would expect approximately 0.25 of that vote to survive to the next round because of the core of sincere voters, and approximately 0.25 of that vote to survive to the next round as strategic voters are attracted by the high vote count. For the conclave of John Paul II, the role of the strategic voter was even more significant as, using the same rational, 0.75 of the vote survived to the next round because of the strategic voters. This is consistent with the findings of Table 2 which indicates the conclave of John Paul II reached the

lowest level of sincere voting, and was only 8 rounds long.

The marginal effect of the variables contained in the exponent term is not equivalent to the coefficient due to the non-linearity of the model. For Model (2), the marginal effect of the j^{th} element of the vector \mathbf{x}_{it} is measured as

$$\frac{\partial V_{it}}{\partial x_{it,j}} = \beta_j \cdot \exp(\mathbf{x}'_{it}\boldsymbol{\beta}) \exp(\alpha_i)$$

As α_i is unobservable, this marginal effect cannot be measured. However, the β measures the appropriate sign, and the ratio of the the β' s measures the strength of the various effects.

The impact of the growth variable is statistically significant but not of the sign expected, and has a relatively small effect compared to the negotiated effects, indicated by the dummy variables. The evidence points to the conclusion that the growth of votes was not a significant explanator in the votes received by cardinals in the conclave, contrary to *a priori* expectations.

The impact of the nightly conversations provides an interesting dimension to the conclave. The estimated coefficients are significant and the coefficients are relatively large compared to the growth coefficient. This evidence indicates that the perceived credible commitment problems were overcome by the cardinals, perhaps by the institution of the Church or the all-knowing presence of God. Of interest are the signs of the vote shifts induced by the negotiations. While we see Cardinal Wojtyla gained votes in the negotiations of the first evening to become Pope John Paul II, the negotiations have generally worked against candidates that became the Pope. In the conclave of Benedict XV (Della Chiesa) negotiations favoured Cardinal Serafina as the cardinals considered what other alternatives were available to them. Indeed, out of the five Popes of the modern Papacy studied here, John Paul II is the only one to have benefited from the nightly discussions. Therefore, while the cardinals transfer information in their conversations, one wonders how useful it is. If it does not assist the cardinals in reaching a conclusion, but rather slows down the conclave by adding extra noise into the decision making process, it is considered of limited usefulness.

5. CONCLUSIONS

Analysis of the election data indicates that over the life of the conclave the percentage of sincere voters drops to between 20 and 60 percent, depending on the duration of the conclave. The longer

the conclave persists, the lower the percentage of sincere voters as cardinals are forced to change their votes to ensure an outcome.

Modelling the election procedure using the linear feedback count panel data model of Blundell, Griffith and Windmeijer (2002), the evidence indicates that the strategic voters of the conclave are influenced by both the round-by-round vote tallies and the nightly discussions. However, given that the conversations have a tendency to work against the eventual winner, it is the observed vote count that appears dominant in converging the cardinals to selecting one candidate, the Will of God, in the conclave.

6. APPENDIX ONE: DATA EXAMPLE:PIUS XI (1922-1939)

The source for the election of Pius XI is the notes made by Cardinal La Fontaine during the conclave. The diary of Cardinal Piffi is consistent with this data, and there is no inconsistency between the tallies and the expected cumulative tallies (53 for each round). As the source was a cardinal present in the conclave, it is the best information we can hope to obtain and the data is considered reliable until evidence to the contrary is provided.

Rounds	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Merry del Val	12	11	14	17	13	7	1	0	0	0	0	0	0	0
Maffi	10	10	10	9	1	0	0	0	0	0	0	0	0	0
Gasparri	8	10	11	13	21	24	24	24	29	16	2	1	0	0
La Fontaine	4	9	2	1	7	13	22	21	18	8	23	22	18	9
Ratti	5	5	6	5	5	4	4	5	11	14	24	27	30	42
Van Rossum	4	0	0	0	0	0	0	0	0	0	0	0	0	0
Bisleti	3	1	4	4	2	2	1	1	0	0	0	0	0	0
De Lai	2	2	1	0	1	1	0	0	0	0	0	0	1	0
Pompili	2	1	1	1	1	0	0	1	1	0	0	0	0	0
Mercier	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Laurenti	2	4	3	2	2	2	1	1	3	5	4	3	4	2
Lega	0	0	1	1	0	0	0	0	0	0	0	0	0	0
Giorgi	0	0	0	0	0	0	0	0	1	1	0	0	0	0
Belmonte	0	0	0	0	0	0	0	0	0	8	0	0	0	0
Sbarretti	0	0	0	0	0	0	0	0	0	1	0	0	0	0
TOTAL	53	53	53	53	53	53	53	53	53	53	53	53	53	53

Source: La Fontaine (1963)

7. APPENDIX TWO: *UNIVERSI DOMINICI GREGIS*

In 1996, Pope John Paul II published his Apostolic Constitution *Universi Dominici Gregis*. This proposed changes to the conclave procedure which are detailed below.

1. The Pope can only be elected by Scrutiny.
2. The majority vote required by the College of cardinals is $2/3$ if evenly divisible, $2/3 + 1$ if not.
3. If, after three days, the conclave has not reached a resolution, the cardinals are to rest from voting for prayer and discussion, then have another 7 ballots, then another day for prayer and discussion (if still unresolved), another 7 ballots, another day, another 7 ballots. At this stage, cardinals can either vote for all candidates using an absolute majority ($50\% + 1$) to decide the winner, or the two leading candidates again using an absolute majority to decide the winner.

What are the implications of this? It will affect the conclaves where the cardinals are divided between two candidates. A divided conclave, such as Pius XI, chooses a compromise candidate because it was an infinite game. This means there was no end in sight to the stalemate between the two camps. But under the new rules, it is a finite horizon game, if there are 100 cardinals, and Cardinal Joe has 55 votes and Cardinal Jim has 45 votes, Cardinal Joe and his supporters doesn't want to compromise. They want to hold on until the conclave switches from needing $2/3$ majority to needing absolute majority - because then Cardinal Joe becomes pope.

Given this, we expect to see fewer moderate compromise popes in the future, and more extreme position popes. We would expect to see sincere voting patterns last for a longer time frame. It will be interesting to see what actually happens.

8. REFERENCES

Data Sources

REFERENCES

- [1] Baudrillart, Alfred (Cardinal) (1996) *Les Carnets du Cardinal Baudrillart (20 novembre 1935-11avril 1939)* Editions du Cerf, Paris
- [2] Bedeschi, V.L. (1963), “Il Conclave del 1903 nel diario segreto del cardinal Svampa”, *L’Avvenire d’Italia*, 16 June 1963
- [3] Burkle-Young, Francis A. (1999) *Passing the Keys*, Madison Books, Lanham
- [4] Chadwick, Owen (1984), “Letter to Petter Hebblethwaite, 19/12/1984” in *Peter Hebblethwaite Collection*, John J. Burns Library, Boston College, MS 96-08, Box 0127 (1)
- [5] De Cesare, R (1887) *Il Conclave Di Leone XIII*, Citta Di Castello
- [6] Falconi, Carlo (1967) *The Popes of the Twentieth Century*, Weidenfield and Nicolson, Liverpool, London and Prescott [Translated from Italian by Muriel Grindrod]
- [7] La Fontaine, Cardinal (1963) “Cose Vaticane: L’odierno Concistoro e gli ultimi Conclavi”, *La Revue Nouvelle*, 38, 46-52
- [8] Piffi (Cardinal) (1963), “The Conclaves of Benedict XV and Pius XI”, *The Tablet*, 217, 1004-6,1028-29,1059-1061
- [9] Soderini, E.(1933) , *Il Pontificato di Leone XIII* , Milan, Mondadori, 3 volumes.
- [10] Zizola, Giancarlo (1977) *Quale Papa? Analisi delle Strutture Elecorali e Governative del Papato*, Romano, Roma: Borla

General

REFERENCES

- [1] Blundell, Richard., Rachel Griffith and John Van Reenen (1995), “Dynamic Count Data models of Technological Innovation”, *The Economic Journal*, 105, 333-344

- [2] Blundell, Richard., Rachel Griffith and Frank Windmeijer (2002), "Individual Effects and Dynamics in Count Data Models", *Journal of Econometrics*, 108, 113-131
- [3] Bullock, Charles S III and Loch K Johnson (1992) *Runoff elections in the United States*, University of North Carolina Press, Chapel Hill
- [4] Chamberlain, Gary (1993) "Feedback in Panel Data Models", Mimeo, Econometric Society Summer Meeting, Boston, June.
- [5] Galbraith, John W. and Nicol C. Rae (1989) "A Test of the Importance of Tactical Voting: Great Britain, 1987", *British Journal of Political Science*, 19, 126-127
- [6] Gourieroux, C., A. Monfort and A. Trognon (1984) "Pseudo Maximum Likelihood Methods: Applications to Poisson Models", *Econometrica*, 52, 701-720
- [7] Hausman, J., B. Hall, and Z. Griliches (1984) "Econometric Models for Count Data and an Application to the Patents-R&D Relationship", *Econometrica*, 52, 909-938
- [8] Johnston, R J and C.J. Pattie (1991) "Evaluating the Use of Entropy-Maximising Procedures in the Study of Voting Patterns: 1. Sampling and Measurement Error in the Flow-of-the-Vote Matrix and the Robustness of Estimates", *Environment and Planning A*, 23 (3), 411-20
- [9] Kelly, J.N.D. (1986) *The Oxford Dictionary of Popes*, Oxford University Press, Oxford
- [10] Picketty, Thomas (2000) "Voting as Communicating", *Review of Economic Studies*, 67, 169-191
- [11] Paul VI, (1975) *Romano Pontifici Eligendo*, The Vatican, Rome. Available online 30/12/03, http://www.vatican.va/holy_father/paul_vi/apost_constitutions/documents/hf_p-vi_apc_19751001_romano-pontifici-eligendo_lt.html
- [12] John Paul II, (1996) *Universi Dominici Gregis*, The Vatican, Rome, Available online 30/12/03, http://www.vatican.va/holy_father/john_paul_ii/apost_constitutions/documents/hf_jp-ii_apc_22021996_universi-dominici-gregis_en.html
- [13] Riker, William H. and Peter C. Ordeshook (1968) "A Theory of the Calculus of Voting", *American Political Science Review*, 62 (1), 25-42.

- [14] Spafford, Duff (1972) "Electoral Systems and Voting Behavior", *Comparative Politics*, October, 129-134
- [15] Windmeijer, Frank (2002) "ExpEnd, A GAUSS PRogramme for Non-Linear GMM Estimation of EXPonential Models with ENDogenous Regressors for Corss Section and Panel Data", *CEMMAP Working Paper CWP 14/02*
- [16] Wooldridge, Jeffrey M. (1997) "Multiplicative Panel Data Models without the Struct Exogeneity Assumption", *Econometric Theory*, 13, 667-678
- [17] Wright, Stephen G and William H Riker (1989) "Plurality and Runoff Systems and Numbers of Candidates", *Public Choice*, 60 (2), 155-75

9. TABLES

Table 1: Key Features of the Modern Papal Election Data

Pope	Year	Number	Number	Source of Data
	Elected	of Rounds	of Electors	
Leo XIII (Pecci)	1878	3	61	De Cesare (1887) (Cardinal Pietro and conclavists)
Pius X (Sarto)	1903	7	62	Falconi (1967) (Cardinal Svampa)
Benedict XV (Della Chiesa)	1914	10	57	Cardinal Piffi (1963)
Pius XI (Ratti)	1922	14	53	Cardinal La Fontaine (1963)
Pius XII (Pacelli)	1939	3	63	Burkle-Young (1999) (Cardinal Gerlier) Cardinal Baudrillart (1996) Chadwick (1984)
John XXIII (Roncalli)	1958	11	61	Burkle-Young (1999) and Zizola (1977)
Paul VI (Montini)	1963	6	80	Burkle-Young (1999) and Zizola (1977)
John Paul I (Luciani)	1978	4	111	Burkle-Young (1999) (2 anonymous sources: 1 conclavist; 1 unspecified)
John Paul II (Wojtyla)	1978	8	111	Burkle-Young (1999) (2 anonymous sources: 1 conclavist; 1 unspecified) (Cardinal Casariego)

Table 2: Sincere and Strategic Voting: Percentage Round by Round (Sincere (%)/Strategic (%))

Conclave	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Leo XIII	100	75	58	-	-	-	-	-	-	-	-	-	-	-
	0	25	42	-	-	-	-	-	-	-	-	-	-	-
Pius X	100	92	65	58	missing	52	29	-	-	-	-	-	-	-
	0	08	35	42	missing	48	71	-	-	-	-	-	-	-
Benedict XV	100	82	79	79	68	47	33	28	28	28	-	-	-	-
	0	18	21	21	32	53	67	72	72	72	-	-	-	-
Pius XI	100	83	83	77	68	53	36	38	38	36	21	21	23	21
	0	17	17	23	32	47	64	62	62	64	79	79	77	79
Pius XII	100	48 (min)	48 (min)	-	-	-	-	-	-	-	-	-	-	-
(using Chadwick)	0	52 (max)	52 (max)	-	-	-	-	-	-	-	-	-	-	-
John XXIII	100	100	100	100	82	82	82	82	80	75	65	-	-	-
	0	0	0	0	18	18	18	18	20	25	35	-	-	-
Paul VI	100	100	76	69	61	59	-	-	-	-	-	-	-	-
	0	0	24	31	39	41	-	-	-	-	-	-	-	-
John Paul I	100	63	38	22	-	-	-	-	-	-	-	-	-	-
	0	37	62	78	-	-	-	-	-	-	-	-	-	-
John Paul II	100	68	60	28	24	24	24	17	-	-	-	-	-	-
	0	32	40	72	76	76	76	83	-	-	-	-	-	-

Table Four: Cardinals included in the Cardinal-Time Dummy Variable, by Conclave

Conclave		Cardinals	
Benedict XV	Della Chiesa	Serafini	
PiusXI	Gasparri	La Fontaine	Ratti
John XXIII	Agagianian	Roncalli	-
PaulVI	Antoniutti	Montini	-
John Paul II	Benelli	Wojtyla	-

Table 5: Estimated Panel Model (Equation 5) by Conclave, standard errors in brackets.

Conclave	γ	β	Cardinal	Dinner1	Dinner2	Dinner3
Benedict XV	0.5236	-0.0025	Della Chiesa	-0.2525	-0.0280	-
	(0.0044)	(0.0002)		(0.0043)	(0.0012)	-
			Serafina	0.2346	-0.0588	-
				(0.0226)	(0.0056)	-
PiusXI	0.5853	-0.0159	Gasparri	0.1892	0.7852	0.4506
	(0.0012)	(0.0001)		(0.0039)	(0.0022)	(0.0492)
			La Fontaine	0.0560	-1.0344	-0.6777
			(0.0093)	(0.0036)	(0.0041)	
		Ratti	-2.2292	-0.8876	-0.1676	
			(0.0100)	(0.0057)	(0.0013)	
John XXIII	0.2750	0.0051	Agagianian	0.1811	0.3836	-
	(0.0032)	(0.0001)		(0.0063)	(0.0543)	-
		Roncalli	-0.2094	-0.6529	-	
			(0.0057)	(0.0245)	-	
Paul VI	0.6304	-0.0024	Antoniutti	-0.3451	-	-
	(0.0207)	(0.0004)		(0.0697)	-	-
		Montini	-0.0906	-	-	
			(0.0032)	-	-	
John Paul II	1.0900	-0.0074	Benelli	-1.1841	-	-
	(0.0002)	(0.000)		(0.0168)	-	-
		Wojtyła	0.1617	-	-	
			(0.0092)	-	-	

10. FIGURES

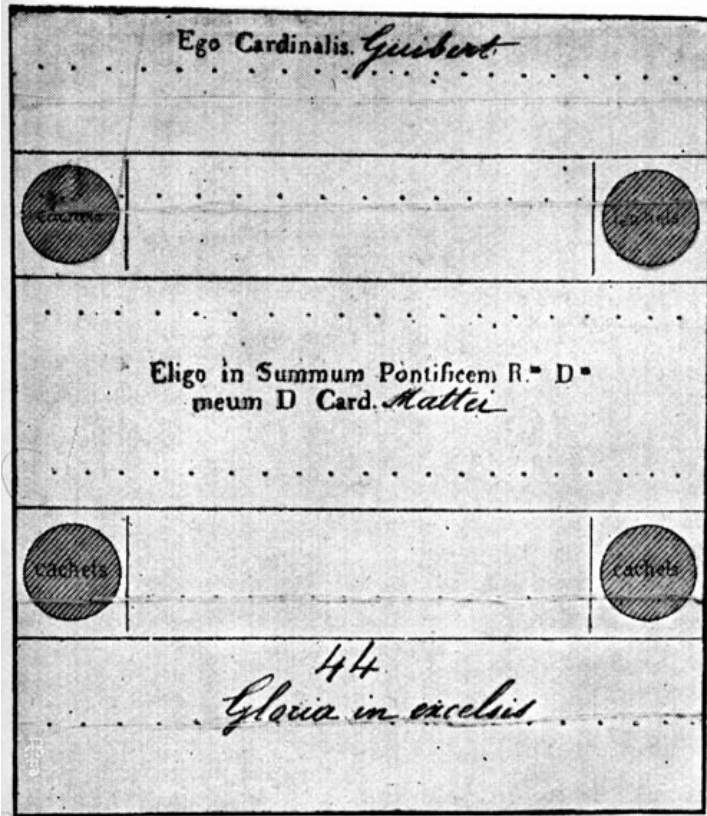


Figure 1: Ballot Paper