

**Resurrection, Transmigration,
Reincarnation and the Afterlife**

**The case of the
Zimbabwean Electoral System**

An exposé by @TeamPachedu

19 July 2018

“Those who vote decide nothing. Those who count the vote decide everything.”

Joseph Stalin

Executive Summary

This supplementary report is an extension of the #TeamPachedu Technical Analysis, dated the 16th of July, providing further evidence to support the issues raised in that report. A number of anomalies were explored in the previous technical report as the issue of ghost entries was explored. This study, however, transcends beyond being exploratory and confirmatory, but leans more towards being an expository. Our findings broadly confirm and provide evidence that the 2018 voters' roll, released under the guise of being biometric-based and thus infallible, does in fact contain ghost entries.

In this report, we identify and explore 3 main strategies that have been used to create ghost entries in the voters' roll, and the numbers, albeit being relatively low, are based on what we can confidently prove. However, the actual total is beyond the figures below, which were identified under very strict anomaly detection models.

Strategy 1: *New identities were created from existing/once-existing identities.* The total number of cases where an ID was reassigned to the same name or different names with different dates of birth was **128,096**.

Strategy 2: *The systematic change of ID suffixes.* In Zimbabwe, ID suffixes are issued based on ones' place or origin, or rather, the ancestral district. These suffixed are inherited the father's ID Number. It would be very unusual for a person to have the suffix changed between 2013 and 2018. A total of **30,802** cases were changed in the 2018 voters' roll from the 2013 roll, and within the 2018 voter's roll per se, 2180 more cases with suffixes that share the same ID exist. In virtually all the cases where the suffix was changed, or where there were two IDs with different suffixes, only one has a voting history, and the other is a first occurrence regardless of age.

Strategy 3: *Assignment of a new ID number, in part or in full, to individuals registered in 2013 with the same name, same surname and same date of birth.* Arguments that names and surnames could be identical were factored in during our extraction model parameters. The 10,182 records obtained were those that the extraction models deemed to be statistically impossible. The total of those initially flagged is actually more than **40,000**, but, herein, we present the main anomalies alone.

Based on these methods, we now have a list of names that we are 95% confident that if checked by contesting parties in their respective wards and constituencies, or otherwise, the people with those identities will never be found. Over an above, the full list from each of the above tests shall be shared in the supporting files archive.

“

“You can have data without information, but you cannot have information without data.”

Daniel Keys Moran

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1. Introduction

Team Pachedu was born out of the patriotic concern by experts from various academic and professional backgrounds in response to the emerging concerns regarding the 2018 voters' roll. We are convinced that the voluntary efforts and dedication by the team members have not been in vain. What started off as a time-limited endeavor to casually share notes and findings, has turned into an epic adventure amid the ever-emerging mysteries from the voters' roll. We are proud that the sleepless nights in the cold, the enterprise-level computing resources, along with the sacrifice of our individual jobs and social commitments have all been for a noble cause – to help cleanse our electoral system wrought from the past and help facilitate room for a transparent, free, fair and credible electoral system.

This report is an extension of the Technical Analysis, dated 16th July, providing further evidence to support the issues raised in that report. The technical and methodological details involved are available upon request. Our findings confirm and provide evidence that the 2018 voters' roll released in the guise of being biometric-based and thus infallible in fact contains ghost entries.

2. Background

This report is a collective output from a multi-faceted review of the 2018 voters' roll released to political parties and individuals on the 18th of June 2018. We audited and analysed the selfsame voters' roll from multiple dimensions as reported in our two previous reports. However, questions remain, given the evidence that points to the existence of 'ghost entries' in the voters' roll provided by ZEC. While the main report exposed the principal anomalies, the subsequent technical analysis looked further, exclusively, into the possibilities of ghost entries. Although we are confident that the evidence provided therein, was sufficient from a technical perspective, to some, it seemed not to suffice as proof of a legal or constitutional breach. Thus, the audit of the voters' roll remained a never-ending mystery, until our predictive classification models enabled us to identify the key cases that define what may be the greatest mystery of the Zimbabwean electoral history.

What makes the 2018 voters' roll unique is that it is the first to be built upon biometric identification with the intention that all cases of duplicates could be eliminated entirely. Automated Fingerprint Identification Systems (AFIS), are the most advanced identification technology available. In this regard, the accompanying deduplication process is expected to be flawless, given that biometric features are unique to each and every individual in the world. However, the revelation of duplicates in the voters' roll released to the public, as shown in Section 6 of our Main Report, pointed to serious concerns regarding the precision and/or the quality of workmanship during the deduplication process. Either way, the presence of traces of duplicates defeated the whole purpose of expending tax-payers' money on systems or processes that failed to achieve the intended goals. ZEC has continued to deny the presence of duplicates in the final voters' roll as evidenced by Justice Chigumba's comments on CapiTalk FM and social media comments from various commissioners within ZEC.

Despite the backlash from ZEC, our team did not back down, strengthened by our computing experts, and data scientists, concerned how the iterative models being generated continued to suggest serious anomalies. Part of the rationale behind the sustained suspicion of the intentional manipulation of the voters' roll was adequately justified and empirically validated by our data scientists and statisticians in the Technical Analysis, dated 16th of July. On the other hand, our electoral experts maintained the argument based on their historical experience with the Zimbabwean electoral past. The voters' roll has been shrouded in secrecy for, at least, the past three harmonized elections. In both 2008 and 2013, political parties were blatantly denied timely access to the roll. In cases where the voters' roll was made available by third parties, efforts to thwart the availability of the rolls were made [See Appendix A and B]. The same trend has been observed in 2018 where proclamation of elections and nomination of candidates were done before the voters' roll was made available as constitutionally mandated. While we applaud ZEC for making the voters' roll available earlier than in previous elections, it should be noted that the delays only reinforced mistrust in ZEC among an already skeptical public.

The need to satisfy our own curiosities about the validity of the voters' roll has kept us afoot and awake, round the clock, seeking to quench our enthusiasm through either confirming or disconfirming the explanation of 'ghost entries' in the 2018 voters' roll. Our research has been extensive, in our bid to leave no stone unturned, and the information that we amassed in this regard has been useful in creating better classification models. A case in point, is that of Mr. Whitehead, a computer expert who, in 2006 was deported after revealing evidence of the existence of ghosts in the 2002 election voters' roll (Appendix C). His recollection of his ordeal, a story never told, as well as the status quo, reminiscent of the gloomy past, has provided useful insights in helping us understand the electoral process in Zimbabwe better, and the input provided helped us in refining our supervised learning models. One main finding that has emerged pointed to the systematic manipulation of the voters' roll, not just for the 2002 elections,¹ but for the 2008², 2013³ and 2018⁴ voters' rolls respectively. While our findings cannot identify a specific unit, department, commission or Ministry responsible, they do confirm the deliberate manipulation of the entries in the rolls.

3. Methodology

In light of the need to eliminate subjectivity, the analytical techniques used were based on objective scientific methods⁵. Data extraction and transformation was undertaken using Python scripts, along with SQL commands and Stata commands. The main reason was to make sure that the data extracted was consistent, as well as being a quality control measure. Further, analytical tools used were principally, R v3⁶, Stata MP v15⁷ and IBM SPSS Modeler v18⁸. A significant number of exploratory models

¹ As put forth by Mr. Whitehead

² We verified this using computational techniques, and the results are repeatable.

³ We verified this using computational techniques, and the results are repeatable.

⁴ We verified this using computational techniques, and the results are repeatable.

⁵ These are repeatable, and instructions to redo and get similar results are available.

⁶ Mainly used for modelling and inferential analyses

⁷ This was chosen for analytical processes owing to its multi-processing capabilities, as well as its seamless capability to handle the 17+ million cases we had, its capacity being to 20 billion cases.

⁸ This is one of the intuitive platforms that provides an easier modelling platform, requiring less programming, along with its data mining and text analytics capabilities, which was handy in our case where much of the data that we were analyzing was mere text, names, addresses, et cetera.

were created in the process, and model optimization was done iteratively and cumulatively as new insights emerged from both the exploratory findings as well as secondary data⁹.

With respect to the data, we used the 2018 voters' roll, along with the 2013 voters' roll data¹⁰. The 2008 voters' roll was used for confirming details such as gender, age, historical regions of registration, among others. Consistent reference was also made to the 2013 physical voters' roll as shown in Appendix D, as well as scanned references to some of the findings reported on herein. As executed in the Technical Analysis (16th of July), this further analysis¹¹ was centered on both the internal consistency evaluation as well as the external consistency evaluation of the voters' roll. Several computational techniques were implemented to this effect¹².

4. Findings

This section summarises the key research findings from the follow-up analysis that we did. We first provide the demographic analyses of the voters' rolls used, followed by the key insights from the review.

4.1 Demographic Analysis

To provide a better overview of the distribution of the voters over the current election season vis-à-vis the past 2013 election season, using the ID as the primary key, the Venn diagram in Figure 1 (further down) was generated. A total of 11,558,050 cases were considered from both the 2018 and 2013 voters' rolls. Out of these entries, the total number of entries that were unique to both 2013 and 2018 were 4,890,808¹³ cases (42.32%).

⁹ Secondary data, more often than not, brought light to the systems and practices in place, along with protocols and procedures which helped us refine our models.

¹⁰ The main reason is outlined in the Technical Report of 16 July on page 20

¹¹ After the release of our two reports

¹² Details on the replication can be availed upon request, as well as upon specifying the system that one attempting to replicate is using. Custom commands can be created to this effect.

¹³ Stata Command

The number of cases that were common to the two was 6,667,242 with 3,333,593 cases being from 2013 and 3,333,649 cases being from 2018. The failure of the two numbers to tally was highly suggestive of the presence of one-to-many ID mapping¹⁴, affecting 56 identities, the number of IDs being 26, in contrast to the expected case of 1:1 mapping. A case in point was ID: 07-159132-P07, which in 2013 was assigned to Bvoro Simon of Buhera Central, in 2018, the same ID was assigned to three identities, Bvoro Simon (Epworth) along with two mysterious Nechirongwe Liberty named-individuals, same gender, same DOB, but one from Buhera South and another one from Buhera West¹⁵¹⁶. This section will, however, not attempt to prove anything, but considered the three identities as bona fide entities, at least for this section.

Further analysis showed that 2,540,521 entries were unique to 2013. The other 2,350,287 entries were unique to 2018. In this regard, it can be argued that relative to the entries that were dropped, in 2018, fewer entries were added. The entries dropped from 2013, possibly, comprises largely of deceased voters that were on the 2013 voters' roll¹⁷, which according to the first technical report¹⁸, were estimated to be at least 1,929,289.

The other cases dropped from the 2013 voters' roll that were not in the 2018 voters' roll also included bona fide registrants who had failed to register during the BVR blitz, either due to the lack of time, absence from the country, among other reasons. However, these were approximately 1,540,193 based on the algebraic subtraction of the final number in the voters' roll¹⁹ from the estimations by ZESN²⁰²¹. It should be noted, however that the resultant discrepancy between the estimations by ZESN and

¹⁴ The list of IDs which had one-to-many mappings are shown in Appendix E

¹⁵ ZEC has openly rubbished claims of the existence of duplicates despite the overwhelming evidence

¹⁶ Appendix E

¹⁷ RAU (2014) Numbers out of Tune? An examination of the vote in Harmonised July 2013 Election. Governance Programme, Research and Advocacy Unit. Harare.

¹⁸ Page 10

¹⁹ Of 18 June 2018

²⁰ Pachedu (2018) Ghosts? An Abridged Technical Review of the 2018 Zimbabwe's Harmonised Election Voters' Roll. Pachedu. Harare (pp. 3)

²¹ ZESN (2017) 2018 Population Projections for Zimbabweans Aged 18+, ZESN, Harare

the estimation of ghost voters in the 2013 voters' roll by Pachedu²² is another issue broadly covered in the comprehensive Technical Analysis, where the limitations of the estimations by ZESN are evaluated, along with the limitations of our estimates. The corresponding breakdown is presented in the Venn diagram below. As explained, the 56 entries comprised of two or more people sharing an ID in the 2018 voters' roll (similar to a single ID that used in 2013).

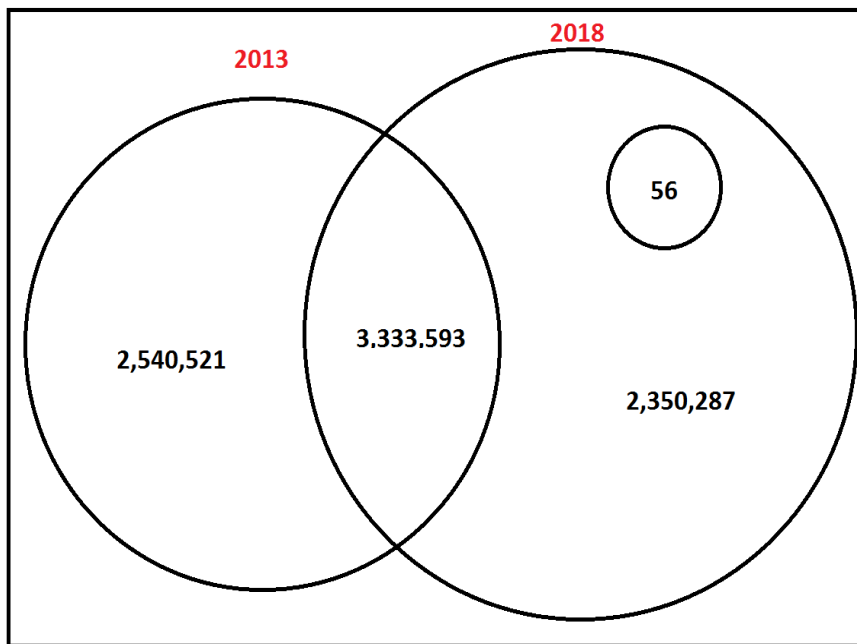


Figure 1: Venn Diagram – Distribution of Registered Voters Between 2013 & 2018

With a view to exploring the demographic distribution of the voters by year of birth, the variable *yearofbirth* was split to isolate the year one was born²³. The corresponding YOB distribution model is presented in Figure 2²⁴. From the distribution, it is clear that there has been a significant removal of older persons²⁵ registered on the 2013 voters' roll who are not on the 2018 voters' roll. However, the bulk of those removed were born between 1965 and 1986. On the contrary, with respect to the number of new voters, the majority of these were born between 1982 and 1999. An almost identical distribution would be expected for the new registrants.

²² Technical Report, pp. 10

²³ . split dateofbirth, parse(/) generate(date)

²⁴ Generated from data obtained by the command: . tabulate date3 vryear

²⁵ Most presumed to be deceased

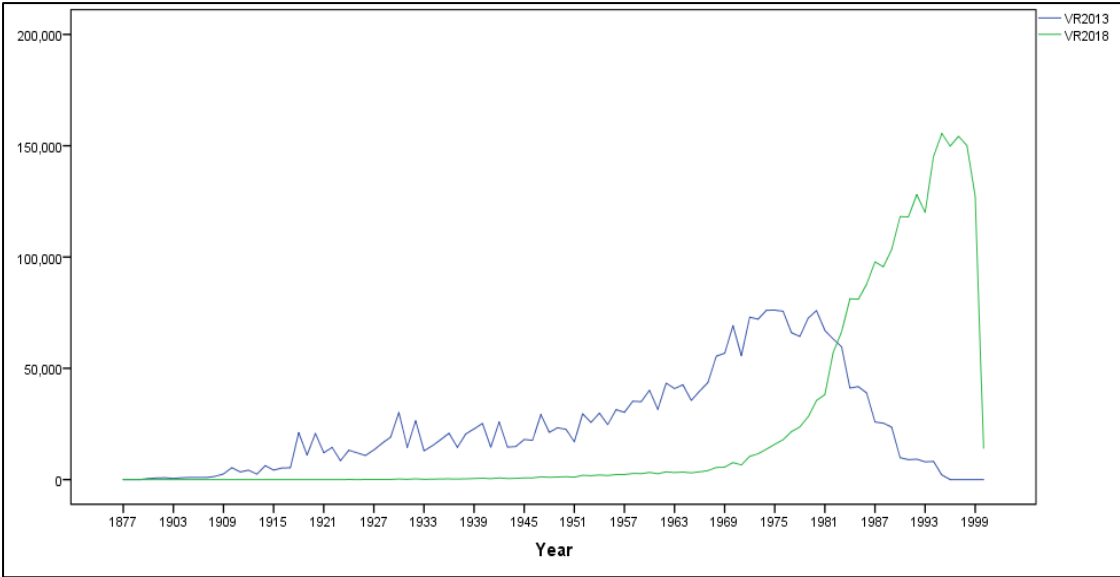


Figure 2: Distribution of New Entries in 2018 and Old Entries From 2013

The corresponding distribution of registrants common to 2013 and 2018 voters' rolls is presented in Figure 3.

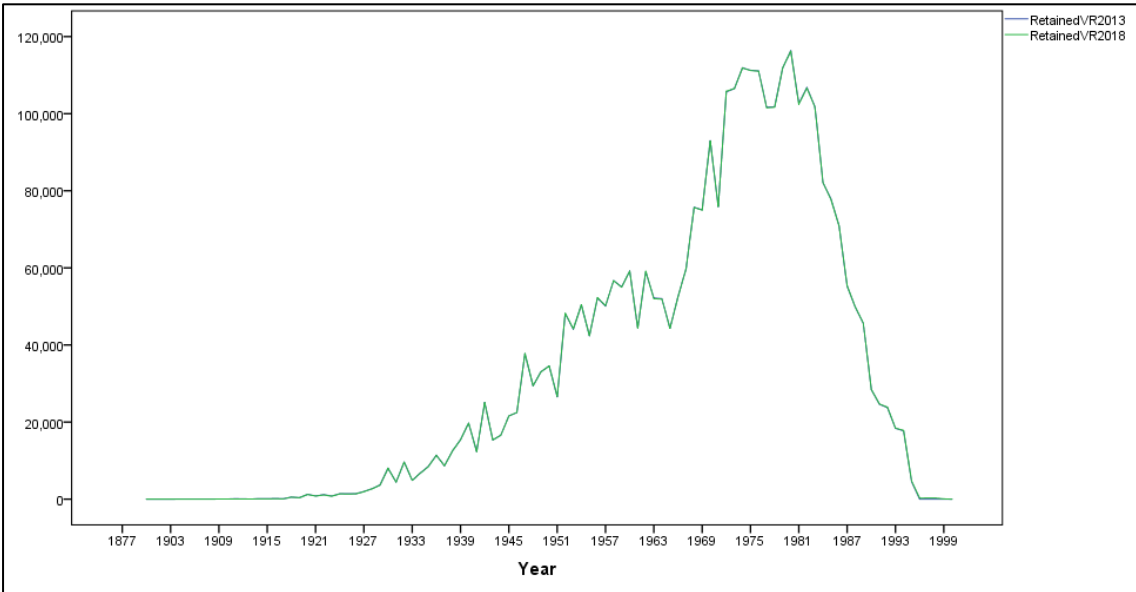


Figure 3: Distribution of Retained Entries between 2018 and 2013 VR²⁶

From the analysis, the distribution was rather negatively skewed, which is expected, owing to the lowering numbers as age increases. However, what should be noted, is the exponential increase from 1965 to 1974 where it reached maxima until 1980, then detrending, again exponentially. While it may be somewhat abstract to formulate

²⁶ The more elaborate distribution functions can be availed

theories, which may be taken to be subjective, what should be noted is the parallelism that is portrayed by the distribution with the 2018 trends thoroughly explained in the Technical Analysis²⁷, and their divergence from the traditional demographic models by ZIMSTAT and UNFPA²⁸.

To be in a position to understand the dynamics in Figures 1 and 2, the superimposed time series model is presented in Figure 4 below.

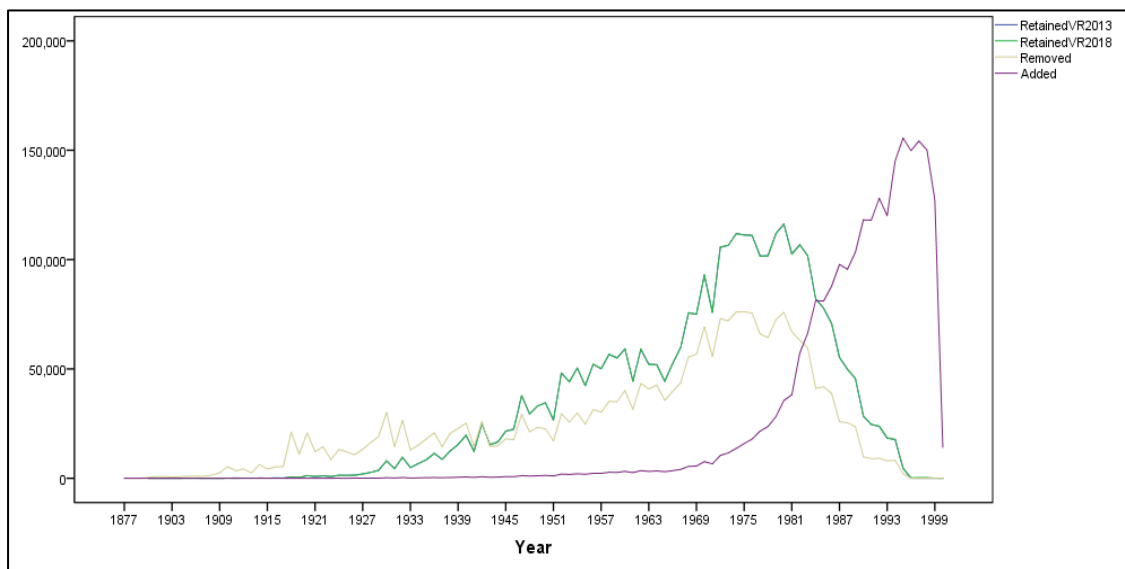


Figure 4: Distribution of Retained Entries, the Removed and the Added²⁹

In a simplified language, the green line shows us the number of people that were in the 2013 voters' roll and retained in the 2018 voters' roll. The purple trend shows the distribution of the people who were added to the 2018 voters' roll, but were not in the 2013 voters' roll, while the orange line shows the distribution of the people that were in the 2013 voters' roll, but not in the 2018 voters roll, either due to death, being bed-ridden, migration to other countries, among other factors. What is very important to note is the synchronous trends between the green and the orange trends, that is, the distribution of the people that were in the 2013 voters' roll, now in the 2018 voters' roll and the distribution of the people once in the 2013 voters' roll, but now not in the 2018 voters' roll.

²⁷ Pages 10-21

²⁸ ZIMSTAT (2015) Population Projections Thematic Report. ZIMSTAT. Harare

²⁹ The detailed comparisons of the distributions can be availed

What was also important to observe was the relative ratio of new voters that had been added on to the 2018 voters' roll against those that already existed on the 2013 voters' roll, added on to the 2018 voters roll³⁰³¹. The relative ratio of voters that were added to those that were retained is shown in Figure 5 below³².

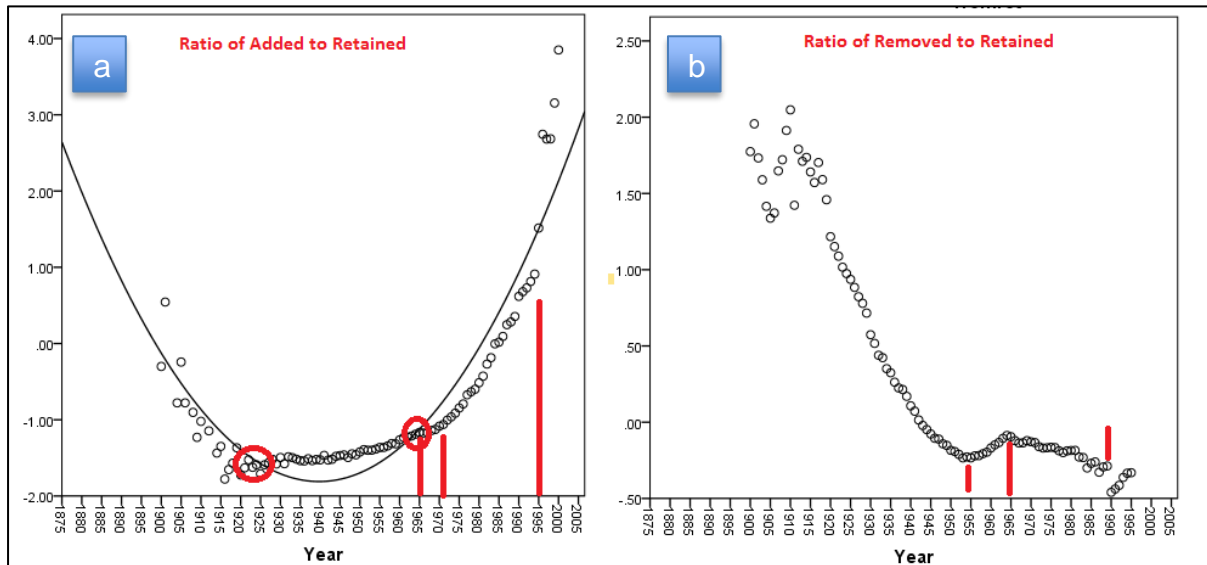


Figure 5: Distribution of the Ratio of Added/Removed to those Retained³³

From the foregoing, what is important to note are the main anomalies, the time series structural breaks³⁴. In the first graph, the 1965 argument posed in the Technical Analysis³⁵ is evident from the above. The same lies with the argument for the 1972 anomaly, again explained of in the Technical Analysis³⁶. However, the 1925 case in the previous figure is highly symbolic³⁷. What is also important to note, is the 1995 structural break, which will be explained later. With respect to the right graph which

³⁰ Curve estimation: $\text{Log}(x) = -0.62 - 0.02x - 0.0006x^2 + 1.03e-005x^3$

³¹ Shown by the green trend

³² The logarithmic function was considered to normalize the high discrepancy in the numbers observed (c.f. Appendix F)

³³ A more technical explanation to the above anomalies is in the full technical report

³⁴ Refer to the abridged technical analysis report from page 10 to page 21

³⁵ Pages 11, 13, 17, 18

³⁶ Pages 17 and 18

³⁷ Given the low population of the aged, the distribution of those added as new entries in the 2018 roll would not be expected to vary away from that breakoff point. More so, the modeled expected distribution was supposed to reach a minima at around 19490 and the ratio was not supposed to deviate much as is evident in the first graph.

shows the distribution of the ratio of those that were removed vis-à-vis those that were retained, there is a clear structural break from a polynomial distribution to a linear distribution from 1965 up to 1990. **These structural breaks, are not natural breaks, but signs of human manipulation**³⁸. These key points shall be revisited.

Looking further into the comparison between the 2013 voters' roll entries and the 2018 entries, we used the ID as the primary key, because it is expected to be unique to only one individual, regardless of the age or generation³⁹. Comparing the same individuals between the 2013 and 2018 voter rolls, we would expect to see identical instances of gender and the same distribution for years of birth.⁴⁰ These are basic facts of algebra and set theory. However, this was not the case. Although not detectable to a person holding the voters' roll in her/his hands, our analysis reveals age anomalies for these voters, whose age seems to have changed between registrations. This phenomenon is illustrated in Figure 6.

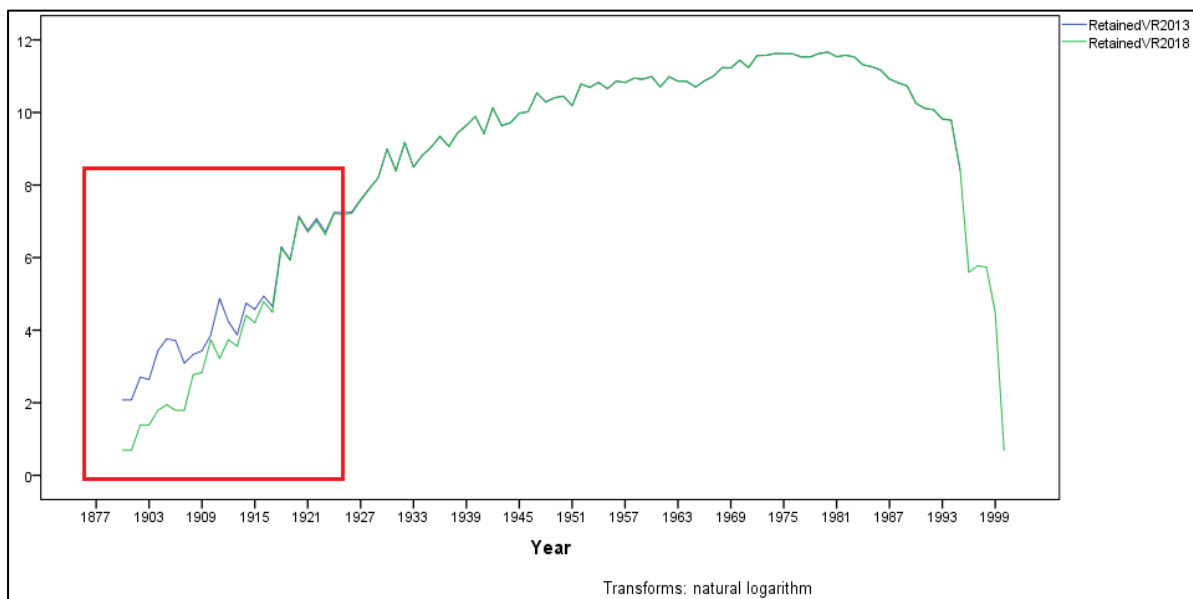


Figure 6: Change of YOB of Voters registered in both the 2013 and 2018 VRs⁴¹

³⁸ The modeled expected distributions can be made available to the academia or anyone if need be

³⁹ Refer to the main report of the 15th of July to get a better understanding of how Zimbabwean IDs work on page 13.

⁴⁰ The gender aspect did not tally, but this could easily be dismissed on the grounds of being as a result of capturing errors and will not be mentioned.

⁴¹ Ln(x) transformation

The above graph shows the logarithmic transformation of the distributions by YOB between the voters in the 2013 voters' roll, who also registered to vote in 2018 and are in the 2018 voters' roll. As explained earlier, the most rudimentary test would be to confirm whether the totals for each YOB category match. This was never the case. The significant deviation⁴² between the two is clearer, among our dearly esteemed grandfathers and grandmothers. Could it be a coincidence? Certainly not. Refer to Figure 5a, which shows the ratio of those newly added entries in the 2018 voters' roll compared to those that were already in the 2013 roll, (now also in the 2018 roll).

These discrepancies are, by no means, coincidental but rather, intentional. What we are looking at in Figure 6 above **is the reassignment of dates of birth for voters that were in the 2013 voters' roll, and are also in the 2018 voters' roll, using the same ID number, but now with a completely new date of birth**⁴³. While the naked eye cannot see the discrepancies after 1925, support vector machine classification extracted all the suspect cases.

For the most part, it was never a question of the change in the date of birth, which we knew could potentially be dismissed on the basis of capturing issues, rather other factors were considered in the classification algorithm, and one such was the normalized ID sequence-age ratio, where for a specific district we were able to predict one's age based on the ID sequence⁴⁴, the other important was age bias, measured as a function of the age gap weighting between pairs of flagged entries⁴⁵ as well as the keyboard numeric key proximity weighting function. The latter was used to eliminate possibilities of typing errors. A case in point, while trying to punch [1] on the numeric keypad, the probability of punching either 0, 2 or 4 is higher than that of punching 3, 5 or 9. Further, the probability of typing 9 in lieu of 1 is very low, much lower than the probability of typing 5⁴⁶.

⁴² Observed with the separation of the blue and green line, clear from 1925 going backwards

⁴³ Wherefrom the title of this report comes from: *Transmigration, Reincarnation and the Afterlife*

⁴⁴ These models varied from district to district, but most importantly, the facilitated the classification of suspect voters' roll entries, which were further confirmed or disconfirmed by other techniques.

⁴⁵ For instance, a grandmother whose ID is reassigned for a daughter

⁴⁶ The actual computation of the weighting functions can be availed if need be

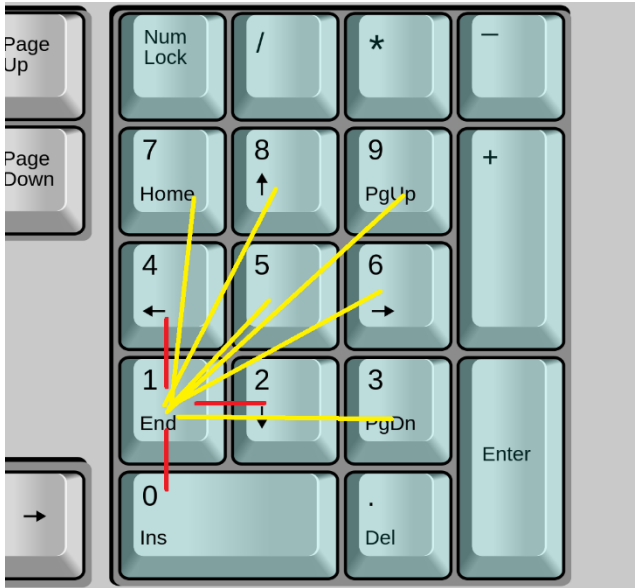


Figure 7: Spatial Illustration of The Concept of Key Proximity Weighting

The third important weighting function used in the extraction models used was the character similarity index, that is, the weighting of the proportion of match between names ({Muchenje; Muchrenje}, {Munda; Muchenje}). The first pair would yield a high index, while the second would get a zero index. Effectively, all entries with high similarity indices were further classified manually to account for the control of false positives, or vice versa. The weights computed were all applied to eliminate cases of data capturing issues from being flagged. Virtually all extracted entries were not because of human error with the only other logical explanation being deliberate manipulation.

4.2 From Abstract Concepts to Concrete Evidence - Exposing the Ghosts

From the foregoing presentation, which we have tried to simplify, while not diluting the basis underlying the development of the outlier classification algorithms, evidence of human manipulation is apparent. Subsequent to the optimization of the extraction models⁴⁷, we are able to seamlessly pinpoint and flag the rogue entries, as well as to deduce the methods used. **One key finding that will be explored in the results below, is a very sophisticated registry and/or electoral system that thrived upon the creation of ghost identities through three main stratagems.**

⁴⁷ Was an iterative effort

4.2.1 Stratagem 1: Age Reassignment, Same ID Retained [128,096 Detected]

The first strategy that we confirm to having been in use, as shown in Figure 6, was a situation whereby **new identities were created from existing/once-existing identities**⁴⁸. A case in point is Ms. Sophia Chidawanyika below born 24/07/1919.

Line	Surname	First Names	S Birth Date	Identity No	V o t i n g	A d d r e s s	Block No		
1	CHENGETI	TAUNEZI	M 17/07/63	71		HAROKO SCHOOL STAFF QTRS BUHERA	100507		
2	CHENINGA	SARAN	F 05/04/71	921	37	VIL NEHONDE CH MAKUMBE BUHERA	100507		
3	CHENGERAI	IRENE	F 24/07/1977	07	93	37	VIL NHACHI HDM MOMBAYARARA CH MAKUMBE BUHERA	100507	
4	CHIBANKO	VILHEI	F 27/07/1977	07	19	27	VIL MANDIVAVARIRA HDM MOMBAYARARA CH MAKUMBE BUHERA	100507	
5	CHIBANDA	MILCAH	F 11/1975	6	498	07	VIL NDENGU HDM MOMBAYARARA CH MAKUMBE BUHERA	100507	
6	CHIDHAKUZA	SILVIA	F 01/07/1975	07	0	80	VILL. MALITERA HDM MOMBAYARARA CH MAKUMBE BUHERA	100507	
7	CHIDHAKUZA	BEAUFY	F 25/07/1975	07	52	28	VIL ROKOZI HDM MOMBAYARARA CH MAKUMBE BUHERA	100507	
8	CHIBUDA	EVERS	F 27/07/1955	07	005	378	18	VIL NDAMANA HDM MOMBAYARARA CH MAKUMBE BUHERA	100507
9	CHIBVARU	FARAI	M 08/11/1985	07	15	31	07	VIL CHAMATAMA HDM MOMBAYARARA CH MAKUMBE BUHERA	100507
10	CHIBVARU	JUSTIN TAGOROVA	M 12/1985	07	0	40	07	VIL CHAMATAMA HDM MOMBAYARARA CH MAKUMBE BUHERA	100507
11	CHIBVARU	OMEN	M 10/07/1982	07	1	55	07	VIL CHAMATAMA HDM MOMBAYARARA CH MAKUMBE BUHERA	100507
12	CHIBVONGDZE	MARUVA	F 29/02/1974	18	181	18	VIL MANDIVAVARIRA HDM MOMBAYARARA CH MAKUMBE BUHERA	100507	
13	CHIDAKWA	ESTHER	F 07/03/1975	07	218	07	VILL. NDWANA HDM MOMBAYARARA CH MAKUMBE BUHERA	100507	
14	CHIDAMANYIKA	SOPHIA	F 24/07/1919	63	461095A	18	VIL MUKOMBE HDM MOMBAYARARA CH MAKUMBE BUHERA	100507	
15	CHIDAMANYIKA	SOPHIA	F 24/07/1919	63	461095A	18	VIL MUKOMBE HDM MOMBAYARARA CH MAKUMBE BUHERA	100507	
16	CHIDAMANYIKA	SOPHIA	F 24/07/1919	63	461095A	18	VIL MUKOMBE HDM MOMBAYARARA CH MAKUMBE BUHERA	100507	
17	CHIDAKWA	JULIET	F 12/1985	07	0	152	07	VIL CHIKWAVA HDM MOMBAYARARA CH MAKUMBE BUHERA	100507
18	CHIDHENEDEVA	MORGEN	M 06/07/1977	07	0	1	07	CHAMATAMA SCHOOL STAFF QTRS BUHERA	100507
19	CHIDHINDI	JANE	F 26/07/1978	07	0	57	07	VIL ROKOZI HDM MOMBAYARARA CH MAKUMBE BUHERA	100507
20	CHIDHINDI	NVEVERO	F 30/08/1983	07	0	10	07	VIL NHACHI HDM MOMBAYARARA CH MAKUMBE BUHERA	100507
21	CHIDHINDI	RUNGENI	F 13/07/1979	07	00	6	07	VILL. MUKOMBE HDM MOMBAYARARA CH MAKUMBE BUHERA	100507
22	CHIDHUZA	CHIEDZA	F 03/07/1979	07	1	73	07	VIL ZVAVARWE HDM MOMBAYARARA CH MAKUMBE BUHERA	100507
23	CHIDHUZA	ERNEST	M 05/07/1978	07	1	79	07	VILL. ZVAVARWE HDM MOMBAYARARA CH MAKUMBE BUHERA	100507
24	CHIDHUZA	PANHIZAI	F 07/01/1964	07	0	08	07	VILL. NEHONDE HDM MOMBAYARARA CH MAKUMBE BUHERA	100507

Figure 8: Extract from a hard copy of the 2013 Voters' Roll – Sophia

The ID was collected from Harare (District Code 63), and the ID sequence-age weights matched ($ID_{seq} = 461095$). However, the same ID (63-461095⁴⁹A18) was picked from the 2018 voters' roll, with the same name, but a different year of birth, but same month, same day, that is 24/07/1999⁵⁰ as shown in Figure 9. Effectively, this is a case of a 99-year-old grandmother transmigrating into a teenager.

Registration Information

Firstname: SOPHIA

Surname: CHIDAWANYIKA

ID Number: 63-461095 -A18

Sex: Female

Date of Birth: 24/07/1999

Address: MUKOMBE VILLAGE

Figure 9: Verification of Sophia's Credentials⁵¹

⁴⁸ Our best guess is either these are identities beknown to whosoever is involved, in what is turning to be a large-scale scam, identities that could have been recycled from one election cycle to another. The worst case would be a possible situation where identities of deceased persons are recycled in the electoral system and used to create new entries.

⁴⁹ ID sequence-age ratio failed. All the people born in the late 90s in Harare, are assigned 9-digit IDs instead of 8-digit IDs.

⁵⁰ Key proximity weighting result was very low, as the error was the 9 instead of 1

⁵¹ The entry is in the final voters' roll released by ZEC, but we used the ZEC website to verify for consistency of results.

The screenshot above was taken directly from ZEC’s BVR Inspection function on their website. Given that the 2013 voters’ roll was created for the 2013 elections, the last date of birth that could have registered was June 15 1995. However, considering the IDs that are in the 2018 voters’ roll, and also in the 2013 voters roll, born after 15 June 1995 (the day the youngest entry in the 2013 voters’ roll was born), a total of 1,130 were extracted. This means all these IDs were using the wrong age. A case in point:

2018 CHIPUTU DESIDERIO M 61-037278-R61 5/17/2000⁵²
Mt Darwin East

In the 2018 voters’ roll, Chiputu is purported to having been born on the 17 May 2000, however, the same ID number is in the 2013 voters’ roll with a different year of birth. Checking against the 2013 roll, the same ID belonged to Mandende, born in 1980.

2013 MANDENDE SHADRECK M 61-037278-R-61 18-Mar-1980
RUSHINGA

In another case, the same ID was used in 2018 and 2013 with two different DOBs.

2018 MJODZI MISHECK M 23-118501-E23 3/20/2000 Gokwe
2013 MJODZI MISHECK M 23-118501-E23 20-Feb-1991 Gokwe

In another case, the ID 83-005063-T83 was used twice. In 2018, it appears to be for a person born in 1996. However, considering the ID sequence, 005063, there is no way someone born in the 90s could have had such a low ID sequence.

2018 CHAPFUWA MARITA F 83-005063-T83 12/26/1996
Zaka Central

2013 CHAPFUWA MARITA F 83-005063-T83 26-Dec-1962
ZAKA NORTH

2008 CHAPFUWA MARITA F 83-005063-T83 21-Dec-1962
ZAKA NORTH

⁵² NB: Unless specified, the date format used is MM/DD/YYYY

In the 2013 voters' roll, the ID was registered to the same name, but with a different year of birth: 1996 in the 2018 voters' roll, and 1962 in the 2013 voters' roll. Comparing with the 2008 voters' roll, the same name appeared under a different DOB, the date being 21, whereas in 1962 it was 26. The distribution of years born in the 2013 voters' roll, where we find the same IDs used in 2018, but with different DOB is shown below.

Table 1: Large Scale DOB Reassignment: Superimposed IDs common in both 2013 & 2018 showing different birth years

Year Born	2013	2018	1932	530	522	1967	2,469	2,488
1900	6	0	1933	254	276	1968	3,224	3,156
1901	8	2	1934	386	378	1969	3,162	3,084
1902	11	0	1935	523	469	1970	3,507	3,407
1903	11	1	1936	589	560	1971	2,768	2,784
1904	28	3	1937	477	505	1972	3,832	4,046
1905	39	3	1938	698	674	1973	3,807	3,782
1906	36	1	1939	798	795	1974	3,711	3,634
1907	19	3	1940	951	946	1975	3,617	3,547
1908	16	4	1941	581	562	1976	3,189	3,144
1909	14	0	1942	1,345	1,311	1977	2,464	2,293
1910	15	9	1943	825	851	1978	2,391	2,301
1911	108	2	1944	810	786	1979	2,485	2,541
1912	27	0	1945	1,099	1,094	1980	2,309	2,188
1913	20	7	1946	1,113	1,167	1981	2,136	1,940
1914	39	6	1947	1,818	1,875	1982	2,565	2,325
1915	35	5	1948	1,490	1,536	1983	2,752	2,657
1916	31	11	1949	1,718	1,678	1984	2,335	2,380
1917	24	9	1950	1,702	1,678	1985	2,509	2,342
1918	43	21	1951	1,412	1,537	1986	2,224	2,221
1919	37	27	1952	2,500	2,626	1987	1,692	1,821
1920	129	86	1953	2,402	2,523	1988	1,708	1,742
1921	83	40	1954	2,668	2,633	1989	1,410	1,472
1922	129	56	1955	2,254	2,333	1990	701	740
1923	124	65	1956	2,812	2,938	1991	577	652
1924	135	99	1957	2,736	2,854	1992	592	700
1925	143	80	1958	3,242	3,212	1993	503	591
1926	118	67	1959	3,121	3,048	1994	463	580
1927	158	105	1960	3,173	3,117	1995	135	359
1928	195	148	1961	2,365	2,314	1996	0	268
1929	205	196	1962	3,200	3,461	1997	0	319
1930	408	366	1963	3,098	2,895	1998	0	311
1931	247	251	1964	2,766	2,650	1999	0	89
			1965	2,361	2,379	2000	0	2
			1966	2,390	2,334	Total	128,085	128,096

Total cases where an ID was reassigned to the same name (or different names), but completely different dates of birth were 128,096. From the Table, first row, 6 IDs detected in 2013 were for people born in 1900, and in 2018, the same IDs existed, but with a different person born on a different date. A case in point were:

2013	MUFUNI	KAVERO	F	14-158553-F14	4/13/1900
	MWENEZI WEST				
2013	GWATIDA	STEPHEN	M	14-120568-S14	4/2/1900
	CHIREDDZI SOU				
2013	NKOMAZANA	LAZARUS	M	79-021734-N79	6/5/1900
	HWANGE EAST				
2013	MATOPE	NYAMANDU	M	71-087224-W71	1/13/1900
	MBIRE				
2013	MUTIZE	MATINETSA	F	49-009120-G49	12/12/1900
	MUDZI WEST				
2013	CHIZEMA	PORUNOBVA	M	29-130821-K83	4/15/1900
	ZAKA NORTH				

These were all confirmed in the 2008 voters' roll, with 2 having slightly changed DOBs:

2008	MUFUNI	KAVERO	F	14-158553-F14;	13-Apr-1900
	MWENEZI WEST				
2008	GWATIDA	STEPHEN	M	14-120568-S14;	02-Apr-1900
	CHIREDDZI SOUTH				
2008	NKOMAZANA	LAZARUS	M	79-021734-N79	01-Jan-1901
	HWANGE EAST				
2008	MATOPE	NYAMANDU	M	71-087224-W71	12-Jan-1900
	MBIRE				
2008	MUTIZE	MATINETSA	F	49-009120-G49	12-Dec-1900
	MUDZI WEST				
2008	CHIZEMA	PORUNOBVA	M	29-130821-K83	15-Apr-1900
	ZAKA NORTH				

What is important to observe is none of the above from 2008 had changed their names. However, despite the confirmation by the 2008 voters' roll of the 2013 records, **all 6 of the oldest people in the previous sample had their ID numbers reused in 2018, with new dates of birth, the oldest being from the group now having been born in 1927.**

It is improbable that these could be typing errors, owing to the magnitude of the change in the dates of birth, and also considering that these entries had been present for at least two electoral cycles without any or significant changes.

2018	MAKIWA	PETROS	M	14-158553 -F14	01-Jun-1983
	Mwenezi West				
2018	GWATIDA	STEPHEN	M	14-120568 -S14	26-Jul-1964
	Chiredzi South				
2018	NKOMAZANA	LAZARAS	M	79-021734-N79	05-Jun-1960
	Hwange West				
2018	NDOPARA	ETINA	F	71-087224 -W71	11-Dec-1981
	Mbire				
2018	MUTIZE	MATINETSA	F	49-009120 -G49	12-Dec-1945
	Mudzi West				
2018	CHIZEMA	PORUNOBVA	M	29-130821 -K83	15-Apr-1927
	Zaka North				

One of the identities had been re-used in 2018 with completely new names, that is from Nyamandu to Etina. We managed to track back the identity of Etina in 2013 and 2008.

2013	NDOPARA	ETINA	F	71-9087224-X71	11/12/1981
	MBIRE				
2008	NDOPARA	ETINA	F	71-9087224-X71	11-Dec-1981
	MBIRE				

In both instances, Etina had been using an odd ID number, a 9-Million-range ID, despite the fact that the district with the highest number of registrations is only in the 3.3-Million range. Thus, for Guruve (District code 71) to be issuing IDs in the range of 9 Million was another anomaly, discussed elsewhere. The above cases are just a

sample⁵³ of the many cases where deliberate alteration of DOBs has been undertaken. The other case, for instance, from Table 1 is a case where we have all the 11 people born in 1902, as registered in 2013 and 2008, re-appearing in 2018 under new, younger identities. The same applies to all the 27 cases born in 1912, which were reassigned new ages in 2018 despite the IDs having been identified with the same DOB in 2008.

2013	CHADERERA	FAINA	F	15-067875-Z45	1/13/1902
	SHAMVA NORTH				
2013	MASUKU	MARGARET	F	08-330434-T41	9/2/1902
	TSHOLOTSHO South				
2013	RAISI FUNGAI		F	70-056385-T71	8/5/1902
	ZVIMBA SOUTH				
2013	CHIKWIRAMAKOMO	JUDITH	F	66-016283-D66	8/16/1902
	MAKONDE				
2013	SHONHIWA	TASHAYA RUZA	M	18-002869-K18	1/1/1902
	CHIKOMBA CENTRAL				
2013	HAKIRENI	SIMUKAI LINOS	M	22-030582-J83	7/8/1902
	MASVINGO NORTH				
2013	SIBANDA	TSHIDINA	M	02-032430-M02	3/20/1902
	BEITBRIDGE W				
2013	CHARASIKA	SARAH	F	48-026911-N49	9/29/1902
	MUDZI WEST				
2013	BERE JEOFREYS	MUCHABAIWA	M	47-051879-W47	4/8/1902
	MUREHWA NORTH				

⁵³ The other cases flagged are in the supporting files archive.

**2013 CHIGARO CATHRINE F 14-052225-G13 2/24/1902
CHIPINGE SOUTH**

**2013 MUKONO TABETHA F 24-028531-S22 4/2/1902
SANYATI**

Some of the identities presented above were compared with entries from the 2018 voters' roll and are shown below.

**2018 CHIKWIRAMAKOMO JUDITH F 66-016283 -D66 16-Aug-1962
Mhangura**

**2018 BERE JEOFREYS M M 47-051879 -W47 01-Jan-1960
Bindura North**

The same technique is observed where we have the same name being reused, with the same ID number, but the age had been adjusted to a younger age. All these efforts are not mere coincidence or an act of data capture error. A date of birth change from **8-Apr-1902** to **01-Jan-1960** is impossible to justify as anything other than purposeful manipulation. These findings confirm the modeled discrepancies in Figure 6. The full list of 128,096 cases detected in 2018 is provided and contains the corresponding 2013 entry for the sake of comparison.

4.2.2 Stratagem 2: ID Suffix Reassignment [30,802 + 2,180 Detected]

The second strategy that was used involved the systematic change of ID suffixes. In Zimbabwe, ID suffixes are issued based on ones' place or origin, or rather, the ancestral district. The suffix is inherited from the ID number of a parent⁵⁴. To this effect, it would be very unusual for a person to have the suffix changed between 2013 and 2018. Comparing 2013 with 2018, a total of 30,802 cases were flagged in the 2018 voters' roll. (Analyzing the 2018 Voters Roll alone shows 2,180 entries with similar ID numbers, where only the

⁵⁴ This is explained in the main report

suffix was changed.) In virtually all the cases where a new ID suffix was created in 2018 (to make up two new ID numbers), one of the IDs had an entry in both 2013 and 2008 voters' rolls. The same issue was brought forward in Case 2 of the Technical Analysis §3.3.2. However, at that point the issue of ghosts had been suspected but not actually confirmed. In some of the instances, not just the suffix had been tampered with, but also, the date of birth was changed. The distribution of the years of birth of the identities with their ID suffixes changed is presented in Table 2. A case in point, all the identities with 1911 as the year of birth had their suffixes changed and mysteriously, their ages changed as well. What is also key to observe is the fact that the largest number of identities which had their suffixes changed were between 1983 and 1989⁵⁵.

Table 2: Large Scale ID Suffix (including DOB) Reassignment

Year	2013	2018
1904	2	0
1905	1	0
1908	2	1
1910	3	0
1911	11	0
1912	1	1
1914	3	3
1915	1	1
1917	1	0
1918	8	5
1919	6	2
1920	19	11
1921	6	6
1922	18	13
1923	9	4
1924	19	15
1925	21	12
1926	16	8
1927	21	20
1928	36	26
1929	30	27
1930	88	90
1931	37	36
1932	105	97
1933	36	35
1934	53	49
1935	71	66
1936	108	104
1937	85	86
1938	128	124

1939	125	123
1940	171	166
1941	115	115
1942	238	238
1943	163	156
1944	174	171
1945	219	230
1946	213	215
1947	404	400
1948	295	306
1949	328	321
1950	386	372
1951	253	268
1952	522	520
1953	472	486
1954	560	561
1955	441	428
1956	560	551
1957	530	545
1958	644	663
1959	548	543
1960	683	667
1961	528	511
1962	649	671
1963	616	596
1964	575	578
1965	460	450
1966	411	434
1967	471	471
1968	604	581
1969	569	565
1970	657	648
1971	474	470

1972	625	646
1973	635	635
1974	695	683
1975	597	590
1976	603	597
1977	569	566
1978	529	527
1979	601	598
1980	706	711
1981	644	639
1982	797	785
1983	847	842
1984	911	918
1985	930	930
1986	1,120	1,120
1987	902	929
1988	882	910
1989	885	904
1990	468	486
1991	446	458
1992	436	435
1993	417	410
1994	452	454
1995	111	131
1996	0	10
1997	0	9
1998	0	7
1999	0	9
2000	0	1
Total	30,811	30,802

⁵⁵ c.f. the structural break in 1990, Figure 5

Below is an example of one of the many cases where the same identity was retained, but with the change in ID suffix⁵⁶.

2008	NCUBE	CATHRINE F	03-003676-P03	04-Sep-1954⁵⁷
2013	NCUBE	CATHRINE F	03-003676-P03	9/4/1954
2018	NCUBE	CATHRINE F	03-003676-P21	9/4/1954

In 2008, and 2013, the ID had a suffix P03, but this suddenly changed to P21 in the 2018 voters' roll. The same applies to the profile of Linga Richard below, which again had the suffix changed mysteriously. (2013 and 2008 rolls used the same suffix, but it was changed in 2018)

2008	NKANTIWENI	LINGA RICHARD M	03-050086-K03	7/2/1945
2013	NKANTIWENI	LINGA RICHARD M	03-050086-K03	7/2/1945
2018	NKANTIWENI	LINGA RICHARD M	03-050086-K26	7/2/1945

In all the above cases and others of a similar nature, the 2018 full ID could not be traced back, and never had a history of voting in either 2013 or 2008. In other cases, the age changed completely, but the name was retained as shown in the case of Mabere below.

2018	MABERE	SAMSON CHRISTOPHER M Gokwe-Gumunyu	08-160111-K26	12/4/1958
2013	MABERE	SAMSON CHRISTOPHER M Gokwe-Gumunyu	08-160111-K77	4/10/1938
2008	MABERE	SAMSON CHRISTOPHER M Gokwe-Gumunyu	08-160111-K77	10-Apr-1938

⁵⁶ NB: The suffixes are significantly different that the argument of typing error can be ruled out

⁵⁷ NB: We used different date formats to retain the integrity of the source records. Unless specified, the date format is MM/DD/YYYY

The ID suffix and DOB for 2008 and 2013 are the same. However, for 2018, there is a whole new identity with a new date of birth, that cannot be traced back to the previous two elections. All these cases were weighted as not being cases of human error, but rather, a deliberate effort to create a new identity⁵⁸. The latter is supported by the following case. To further support the case that the reassignment of IDs is deliberate, we see that within the 2018 voters' roll, 2,180 cases can be identified where we see different names, different DOBs, and IDs with the same prefix, same middle range but different suffixes. What is significant here is that only one of each of the pairs could be traced back to 2013 and 2008. The other profile for each pair emerged from nowhere, despite some of the cases involving aged people, who ordinarily, would have been expected to have a voting record. The possibility of the coincidence of having two IDs identical except for the different suffixes and having these IDs being used for the first time, with that pattern recurring across many other pairs of IDs is next to impossible. Below are some of the cases.

2018	MUGANDE BENSON TEN	79-049678-M06	M	06-Feb-61
	Binga North			
2018	SHOKO ELIZABETH	79-049678-M79	F	01-May-55
	Hwange Central			

Checking against the records, the ID for Elizabeth 79-049678-M79 is not found in either 2013 and 2008. It is unusual for someone born in 1955 not to be on previous voters' rolls. The Benson Mugande profile (above) could, however, be matched against historical records:

2008	MUGANDE BENSON TEN	M	79-049678-M-06;	06-Feb-1961
	BINGA NORTH			
2013	MUGANDE BENSON TEN	M	79-049678-M-06;	06-Feb-1961
	BINGA NORTH			

⁵⁸ All the extracted cases are available in the supporting files.

Another interesting case to observe where we had two IDs with mixed suffixes is that of Msimanga Lucia below.

2018	MSIMANGA LUCIA	79-051721-H06	F	18-May-50
	Binga South			
2018	MSIMANGA LUCIA	79-051721-H79	F	28-May-50
	Binga South			

The key-proximity weighting ruled out possibilities of the two cases above having been created out of human error. This argument is buttressed by the fact that the DOB also was slightly adjusted, though same YOB, and the possibilities for such an occurrence are near impossible. Further to that argument, only one profile had a historical record as shown below:

2013	MSIMANGA LUCIA	F	79-051721-H79	28-May-1950
	BINGA SOUTH			
2008	MSIMANGA LUCIA	F	79-051721-H79	28-May-1950
	BINGA SOUTH			

From the results, the suffix H06 was not found in 2013 or 2008, only the suffix H79. This finding, which was common among 2,180 cases of ID duplicates within the 2018 voters' roll, can only point to one conclusion, that the other profiles for each pair⁵⁹ were man-made, rogue entries, or in other words, "ghost" entries.

4.2.3 Stratagem 3: New ID Assignment [10,182 Detected]

The third strategy used involved the assignment of a complete new ID number in the 2018 voters' roll to an individual registered in 2013 with the same name, same surname and same date of birth. Arguments that names and surnames can be

⁵⁹ Lists in the supporting files

identical were factored in during the analysis, and the **10,182 obtained is just those that the extraction models we used deemed to be statistically impossible**. The total of those initially flagged is actually more than 10,182. This strategy generally involves one taking an ID and assigning it to another individual, or adjusting an already existing ID.

This first example is a common case where the previous ID was in the 9-Million range. Based on the information in our Main Report (Section 8 - Perplexing ID Numbers), it is impossible for that individual to have been issued such an ID in the first place because ID numbers in this range have not yet been issued by any Registrar Office in Zimbabwe. In the case below, the “9” in this ID number does not exist in the 2013 voters roll. To make this new ID on the 2018 Voters roll pass the MOD23 test, the check letter also needed to be recalculated:

2013	CHANGADZO	HAKURIMWI JAMES	M	63-9650032-Y42
	1/27/1947	Glen View South		
2018	CHANGADZO	HAKURIMWI JAMES	M	63-650032-R42
	1/27/1947	Glenview South		

It’s extremely important to note that this is not a data capture error because the check letter has been recalculated so that the ID number passes the MOD23 test. (Data capture error would have meant the check letter was kept and the ID would have failed the MOD23 test). The fact that the check letters were correct based on the MOD23 calculation suggests that these IDs had been issued on the spot. Somehow, the ID was changed. Checking against prior records we find

2008	CHANGADZO	HAKURIMWI JAMES	M	63-9650032-Y42
	27-Jan-1947	GLEN VIEW SOUTH		

The same Changadzo ID in 2013 was also in the 2008 voters’ roll. However, the ID sequence that was changed for Changadzo from 9650032 to 650032 corresponded to Guwu Max, **ID 63-650032-R27**.

2008 GUWU MAX M 63-650032-R-27; 22-Mar-1968
HIGHFIELD EAST

Apparently, Guwu is not in the 2018 voters' roll. The best guess is that Guwu is probably deceased, or for some other reason, was not able to register to vote, and that his ID sequence was used, possibly by virtue of it being untaken, and that no one would notice. **This is not a coincidence; there is a pattern across the extracted entries.** Another case in point is:

2018 CHIJORA MUROMBO M 70-155484-K70 10/15/1961
Makonde
2013 CHIJORA MUROMBO M 70-9155484-C70 10/15/1961
Makonde

The ID sequence was changed between 2013 and 2018; again this is not a typo as an officially correct check letter has been calculated and assigned. However, the new ID sequence for Chijora, from the 2008 voters' roll, belonged previously to Tareurura.

2008 TAREURURA CHRISTOPHER M 70-155484-K-70
20-May-1979 KADOMA CENTRAL

Unfortunately, Tareurura was not in the 2013 voters' roll, and neither was he in the 2018 voters' roll, and the best guess is that he is, probably, deceased. **The fact that these coincidences where we have people being assigned new IDs that were once assigned to other people not in the 2018 voters' roll is a very serious issue, very perplexing, and further inquiry into flagged records is imperative.** An example of an unusual set of cases is presented below.

2013 CHINDEDZAMARIAN F 32-200808-C27 8/2/1980
Kwekwe Central
2018 CHINDEDZAMARIAN F 58-200808-X27 8/2/1980
Kwekwe Central

For the case above, what is very unique is that we have the same person, visiting two different districts to take an ID, and they assign the same ID sequence 200808. As far as we know, Registrar General Offices do not issue the same person, two different ID Numbers, even if an ID is lost, the same number is re-issued on a new ID Document. The fact that the check letters are correct connotes the authenticity of those identification numbers assigned between 2018 and 2013. However, such a coincidence would only be possible, if and only if there was a third person manipulating the IDs and records. This argument is supported by the following cases:

2013	CHISEKERENI	CHIPIKIRWA	F	63-742578-K15	1/15/1967
	Harare East				
2018	CHISEKERENI	CHIPIKIRWA	F	53-742523-K15	1/15/1967
	Chivi South				

The ID sequences can never be that close, if taken from two different districts, and the fact that the check letter is correct in both cases is indicative that these IDs were authentic. The coincidence of the flip between the districts, the constituencies being in proximity to the districts of ID origin again points to the argument that these IDs were generated through back-end manipulation. A similar case appears below:

2013	DARANGWA	CHIEDZA	F	27-227777-J12	4/28/1983
	Shurugwi North				
2018	DARANGWA	CHIEDZA	F	70-227777-P12	4/28/1983
	Chiwundura				
2013	ZEMURA	LANCELOT JUNIOUR	F	47-138638-Z47	
	11/20/1985	CHIPINGE WEST			
2018	ZEMURA	LANCELOT JUNIOUR	M	43-138638-Y47	
	11/20/1985	PELANDABA-MPOPOMA			

All the above cases have one thing in common. A new identity is created from an old identity, by adjusting prefixes, and in the last case, adjusting the gender. The full list of similar cases where IDs are created after taking into account the error weighting

functions in our extraction models is more than 50,000. By eliminating cases which can be considered genuine human error, we have been able to substantiate that the fingerprints of human manipulation are all over the 2018 voters' roll.

5. Conclusion

While every effort was made to be as strict as possible in our modelling techniques to eliminate possibilities of human error and systematic errors we are convinced that traces of tampering are present. The techniques that we used are repeatable and based on contemporary data mining and data analytics techniques. The point to take note of is that our guiding principle that numbers do not lie. To this effect, from each of the three strategies, we have compiled a list of what our computational prediction models inform us with 95% confidence that the individuals flagged do not exist. We encourage anyone who is willing to conduct physical checks on our lists to contact us.

APPENDIX A: 2008 Voters' Roll Leak

18.7.2012
9:05

2008 voters roll online

An electronic version of the 2008 voters roll has been leaked to *The Zimbabwean* by an authoritative **click here: 2008 voter roll** The ID numbers have been obscured to prevent identity fraud. There are approximately 5,6million names on the list, arranged alphabetically by surname according to constituency.



Registrar General Tobaiwa Mudede has consistently refused to allow people their right to have access to the voters roll. In all democratic countries the voters roll is a fully accessible public document. This is necessary so that voters can check whether their names appear and that their details are correct. Under normal circumstances, political parties use the list for campaign purposes and to analyse their performance after elections.

Analysts suspect that this is because the roll has been tampered with over the years in order to facilitate election rigging. Previous leaked copies of the document have revealed numerous phantom voters, thousands of people deceased or over 100 years old, and many addresses that, upon further investigation, prove to be empty plots of land. It is suspected that many of the addresses are fictitious, with most phantoms being in the rural areas and high-density suburbs. Analysis of the list shows that there are no duplicated national ID numbers.

Source: The Zimbabwean;

URL: <http://www.thezimbabwean.co/2012/07/2008-voters-roll-online/>

APPENDIX B: Cautionary Statement Regarding Access to the 2013 Voters' Roll

**WARNING ON ILLEGAL
VOTERS ROLL ON
WEBSITES**

The Registrar General of Voters wishes to inform the public that some individuals and organisations have created their own version of the national voters roll and posted it on the website www.myzimvote.com.

The website does not originate from the Department of the Registrar General of Voters in Zimbabwe. We are warning and advising citizens of Zimbabwe wherever they are, not to accept and access this website. The information contained in this website about voters is incorrect, defiled and distorted.

Investigations are underway.



T.T. Mudede

REGISTRAR GENERAL OF VOTERS

HERALD 4/7/2013

FC 2470737-D8/19028

Source: The Herald, 7 April 2013 (Archives)

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August 3 - 9 2006

NATIONAL REPORT

The Financial Gazette

MDC's Whitehead deported

The computer expert once prepared a dossier on ghost voters and poll irregularities

Kumbirai Matunda
Senior Reporter

IMMIGRATION authorities have deported Movement for Democratic Change (MDC) election expert Topper Whitehead in what critics say could be a well-calculated crackdown on opposition figures.

A computer expert who has previously prepared a dossier on alleged ghost voters and other electoral irregularities, Whitehead had his travel documents confiscated before being deported from the country last month on the orders of Kembo Mohadi, the Home Affairs Minister.

Whitehead was one of the experts in the main opposition party's legal team that mounted a court challenge against President Robert Mugabe's disputed 2002 presidential election victory.



Kembo Mohadi

In an order recommending Whitehead's deportation seen by The Financial Gazette this week, Mohadi said the human rights activist was declared a persona non-grata because he was an undesirable inhabitant or visitor.

"It is not in the public interest for me to disclose the reasons why I deemed Whitehead to be an undesirable inhabitant or visitor to Zimbabwe," Mohadi said in response to a challenge by Whitehead.

Eliaso Mugwadi, the chief immigration officer, confirmed the confiscation of Whitehead's travel documents saying he had surrendered his passport voluntarily to the Registrar General (RG)'s offices.

He had taken South African citizenship and as we speak he is in South Africa," claimed Mugwadi.

Documents seen by this reporter however show that Whitehead renounced his South African citizenship in the 80's after he was appointed managing director of the district of Mhangura Copper Mines.

His problems started last year when he attempted to apply for a new passport to replace an old one that was nearly full although it was expiring in August 2008. On June 9, he was summoned to the RG's office for interrogation in the presence of an immigration official and a CID agent.

"Undeclared categorically that he is not a Zimbabwean," said sources.

From Topaiwa Mudege's office Whitehead was handed over to immigration officials who escorted him to their headquarters at Lingwenda House where he was ordered to advise the authorities of his movements in the country.

Upon trying to obtain an exit visa from the immigration offices to visit South Africa to get a travel document, Whitehead was deported through the Beitbridge border post on June 13.

Whitehead has had brushes with the authorities since being roped into MDC leader Morgan Tsvangirai's legal team.

Last year, police raided his home at night and confiscated materials that could have provided evidence showing how the presidential election was allegedly rigged.

He is not the first to be shown the exits on flimsy grounds. In May 2003, the government deported veteran journalist Andrew Meldrum under unclear circumstances. Meldrum had worked in Zimbabwe for 23 years as a correspondent for the Guardian and the Observer.

President Mugabe's ruling ZANU PF party also passed a controversial law earlier this year allowing the government to bar travel by people deemed to be working against national interests. Since then the government has been criticised for the passport officials to detain opposition officials and legislators, have seized leaders and government critics.

Critics say the legislation is part of a drive to push opponents out of the

APPENDIX D: Scanned copy of the 2013 Voters' Roll

Line	Surname	First Names	SB	th	Date	Age	Sex	Mar	DL	BA	AD	RES	Block No
1	SIBANDA	MILDRED	F	25/	7/1	52	F	M	196	D	8AD7	TOWN	030102
2	SIBANDA	MONICAH	F	09/	11	52	F	M	196	D	8AD7	IP BEITBRIDGE	030102
3	SIBANDA	MOSES	M	24/1	15	52	M	M	196	D	8AD7	IP BEITBRIDGE	030102
4	SIBANDA	MUSAMENKOSI A	F	14/04	19	02	F	M	1732	K	BADZIP	BEITBRIDGE	030102
5	SIBANDA	NOGATE	F	20/04	19	02	F	M	1137	K	BADZIP	BEITBRIDGE	030102
6	SIBANDA	NOMALUQU KHUMBULU	F	19/10/	19	02	F	M	1843	D	1BA7	IP BEITBRIDGE	030102
7	SIBANDA	NYAOTSANI	F	06/08/1	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
8	SIBANDA	NYAABADZO	F	10/06/1	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
9	SIBANDA	PETROS	M	02/09	11	51	M	M	193	D	1BA7	IP BEITBRIDGE	030102
10	SIBANDA	PHEPHILE	F	29/07	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
11	SIBANDA	PHINIAS	F	15/04	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
12	SIBANDA	POLITE	F	04/1	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
13	SIBANDA	PRECIOUS	F	15/1	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
14	SIBANDA	PRECIOUS	F	15/1	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
15	SIBANDA	PRINCE	M	15/1	11	51	M	M	193	D	1BA7	IP BEITBRIDGE	030102
16	SIBANDA	PRISCAR	F	15/1	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
17	SIBANDA	PROGRESS	F	15/1	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
18	SIBANDA	RABELANI	F	15/1	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
19	SIBANDA	RACHEL	F	15/1	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
20	SIBANDA	REASON	F	15/1	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
21	SIBANDA	REVOLUTION	F	15/1	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
22	SIBANDA	SAMUEL	M	15/1	11	51	M	M	193	D	1BA7	IP BEITBRIDGE	030102
23	SIBANDA	SARAH	F	08/11	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
24	SIBANDA	SEHLE	F	08/11	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
25	SIBANDA	SELUSIME	F	24/07	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
26	SIBANDA	SHEPHERD	M	25/12	11	51	M	M	193	D	1BA7	IP BEITBRIDGE	030102
27	SIBANDA	SIBONGILE	F	20/05	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
28	SIBANDA	SIKHULULWE	F	03/11	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
29	SIBANDA	SIKHOMBUZO	F	02/0	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
30	SIBANDA	SILETHINE	F	15/1	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
31	SIBANDA	SINDISO	F	14/1	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
32	SIBANDA	SINDISO	F	14/1	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
33	SIBANDA	SINKIKIME	F	30/1	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
34	SIBANDA	SIPHOD	F	3/1	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
35	SIBANDA	SITHENI	F	3/1	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
36	SIBANDA	SITHOKOZILE	F	75	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
37	SIBANDA	SITHOKOZILE	F	75	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
38	SIBANDA	SIMELINKOSI	F	972	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
39	SIBANDA	SMART	F	925	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
40	SIBANDA	STANFORD	F	977	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
41	SIBANDA	STANLEY	F	784	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
42	SIBANDA	SUMMERVIEW	F	784	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
43	SIBANDA	TENDAI	F	11	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
44	SIBANDA	TENDAI	F	11	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
45	SIBANDA	THAPFEL	F	112	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
46	SIBANDA	THOKOZANI	F	10/08	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
47	SIBANDA	THOKOZANI	F	27/09	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
48	SIBANDA	THOKOZANI	F	27/09	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
49	SIBANDA	THOKOZANI	F	27/09	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
50	SIBANDA	THOKOZANI	F	27/09	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
51	SIBANDA	THOKOZANI	F	27/09	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
52	SIBANDA	THOKOZANI	F	27/09	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
53	SIBANDA	THOKOZANI	F	27/09	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
54	SIBANDA	THOKOZANI	F	27/09	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102
55	SIBANDA	THOKOZANI	F	27/09	11	51	F	M	193	D	1BA7	IP BEITBRIDGE	030102

Source: Archives

APPENDIX E: One-To-Many Mapping of IDs – FROM 2013 to 2018

06-006804-J06	29-065926-X29
14-076639-T83	45-040858-D68
03-088045-V03	63-862893-M47
86-039477-V86	26-109410-S26
38-098889-K70	63-876566-Z63
27-089367-N27	07-159132-P07
29-052027-P27	06-020392-D06
14-059498-M07	79-096072-Q79
23-078835-P23	71-047381-N71
63-1037420-N27	71-041970-G71
08-365745-A53	59-080130-G50
04-081860-D04	70-194182-Y70
48-105516-D48	07-159132-P07

Example

2013: BVOROSIMON BUHERA CENTRAL	M	10/07/1986	07-159132-P07
2018 BVOROSIMON EPWORTH	M	10/07/1986	07-159132-P07
2018 NECHIRONGWE LIBERTY BUHERA SOUTH	M	10/04/1986	07-159132-P07
2018 NECHIRONGWE LIBERTY BUHERA WEST	M	10/04/1986	07-159132-P07

APPENDIX F: Distribution of Voters between 2013 and 2018 by YOB

Year	Removed	Added	Unique Total	Retained VR2013	Retained VR2018	Retained Total
1877	0	1	1			
1884	0	1	1			
1899	0	1	1			
1900	476	1	477	8	2	10
1901	724	7	731	8	2	10
1902	810	0	810	15	4	19
1903	544	0	544	14	4	18
1904	807	1	808	31	6	37
1905	936	4	940	43	7	50
1906	966	1	967	41	6	47
1907	978	0	978	22	6	28
1908	1,474	2	1,476	28	16	44
1909	2,538	1	2,539	31	17	48
1910	5,364	4	5,368	48	42	90
1911	3,465	0	3,465	131	25	156
1912	4,252	3	4,255	69	42	111
1913	2,467	0	2,467	48	35	83
1914	6,273	3	6,276	115	82	197
1915	4,246	3	4,249	97	67	164
1916	5,222	2	5,224	140	120	260
1917	5,294	2	5,296	105	90	195
1918	21,106	14	21,120	542	520	1,062
1919	11,015	16	11,031	383	373	756
1920	20,757	23	20,780	1,260	1,217	2,477
1921	12,123	19	12,142	855	812	1,667
1922	14,460	33	14,493	1,179	1,106	2,285
1923	8,481	18	8,499	817	758	1,575
1924	13,205	35	13,240	1,400	1,364	2,764
1925	12,032	26	12,058	1,393	1,330	2,723
1926	10,830	35	10,865	1,415	1,364	2,779
1927	13,320	53	13,373	2,001	1,948	3,949
1928	16,368	81	16,449	2,720	2,673	5,393
1929	19,031	96	19,127	3,663	3,654	7,317
1930	30,151	256	30,407	8,048	8,006	16,054
1931	14,482	117	14,599	4,410	4,414	8,824
1932	26,430	315	26,745	9,621	9,613	19,234
1933	12,927	156	13,083	4,881	4,903	9,784
1934	15,192	206	15,398	6,773	6,765	13,538
1935	17,941	246	18,187	8,505	8,451	16,956
1936	20,845	327	21,172	11,399	11,370	22,769

Year	Removed	Added	Unique Total	Retained VR2013	Retained VR2018	Retained Total
1937	14,497	267	14,764	8,648	8,676	17,324
1938	20,499	364	20,863	12,524	12,500	25,024
1939	22,802	464	23,266	15,434	15,431	30,865
1940	25,240	588	25,828	19,722	19,718	39,440
1941	14,580	420	15,000	12,344	12,325	24,669
1942	25,925	741	26,666	25,081	25,047	50,128
1943	14,610	467	15,077	15,354	15,380	30,734
1944	14,849	551	15,400	16,605	16,581	33,186
1945	18,069	734	18,803	21,596	21,591	43,187
1946	17,636	779	18,415	22,467	22,521	44,988
1947	29,255	1,208	30,463	37,736	37,795	75,531
1948	21,219	1,052	22,271	29,388	29,434	58,822
1949	23,312	1,147	24,459	33,093	33,053	66,146
1950	22,604	1,308	23,912	34,558	34,534	69,092
1951	17,029	1,083	18,112	26,544	26,669	53,213
1952	29,585	1,920	31,505	48,096	48,222	96,318
1953	25,682	1,761	27,443	44,050	44,171	88,221
1954	29,868	2,075	31,943	50,428	50,393	100,821
1955	24,717	1,835	26,552	42,354	42,433	84,787
1956	31,405	2,267	33,672	52,155	52,282	104,437
1957	30,237	2,277	32,514	50,077	50,196	100,273
1958	35,241	2,765	38,006	56,701	56,671	113,372
1959	35,000	2,658	37,658	55,058	54,985	110,043
1960	40,120	3,226	43,346	59,214	59,160	118,374
1961	31,551	2,594	34,145	44,450	44,399	88,849
1962	43,343	3,497	46,840	58,901	59,162	118,063
1963	40,912	3,183	44,095	52,196	51,993	104,189
1964	42,595	3,360	45,955	52,025	51,911	103,936
1965	35,597	3,023	38,620	44,317	44,335	88,652
1966	39,766	3,518	43,284	52,496	52,440	104,936
1967	43,620	4,055	47,675	59,738	59,759	119,497
1968	55,466	5,475	60,941	75,716	75,649	151,365
1969	56,758	5,600	62,358	75,050	74,973	150,023
1970	69,181	7,660	76,841	92,993	92,893	185,886
1971	55,716	6,581	62,297	75,894	75,912	151,806
1972	72,978	10,478	83,456	105,637	105,855	211,492
1973	72,086	11,618	83,704	106,538	106,514	213,052
1974	76,079	13,660	89,739	111,915	111,838	223,753
1975	76,159	15,877	92,036	111,263	111,193	222,456
1976	75,617	17,919	93,536	111,093	111,051	222,144
1977	66,008	21,552	87,560	101,709	101,539	203,248

Year	Removed	Added	Unique Total	Retained VR2013	Retained VR2018	Retained Total
1978	64,311	23,668	87,979	101,787	101,697	203,484
1979	72,561	28,209	100,770	111,876	111,934	223,810
1980	75,911	35,590	111,501	116,338	116,217	232,555
1981	67,002	38,219	105,221	102,631	102,435	205,066
1982	63,145	57,212	120,357	106,856	106,616	213,472
1983	59,688	66,363	126,051	101,816	101,721	203,537
1984	41,120	81,239	122,359	82,081	82,127	164,208
1985	41,797	81,054	122,851	77,822	77,655	155,477
1986	38,898	87,819	126,717	70,876	70,875	141,751
1987	25,936	97,792	123,728	55,221	55,352	110,573
1988	25,382	95,574	120,956	49,863	49,899	99,762
1989	23,541	103,429	126,970	45,628	45,690	91,318
1990	9,846	118,143	127,989	28,397	28,438	56,835
1991	8,985	118,068	127,053	24,616	24,691	49,307
1992	9,158	128,048	137,206	23,754	23,864	47,618
1993	7,977	120,071	128,048	18,359	18,447	36,806
1994	8,205	145,063	153,268	17,727	17,844	35,571
1995	2,113	155,522	157,635	4,528	4,756	9,284
1996	0	149,815	149,815	0	270	270
1997	0	154,205	154,205	0	321	321
1998	0	150,129	150,129	0	311	311
1999	0	127,168	127,168	0	89	89
2000	0	14,171	14,171	0	2	2