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Impact of Aging Population on Social Security and Underlying Trends

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ABSTRACT

For years Social Security has been a major source of income for retired individuals and their families. Social Security was developed as an anti-poverty program that focuses on retired workers, disabled individuals and survivors of workers. Over the years, factors such as improved longevity, education and retirement of baby boomers has resulted in strain on the Social Security reserves. Research suggests the Social Security benefits will soon be reducing due to more beneficiaries within the system. Currently, over 61 million beneficiaries are paid each month. However, with the retirement of the baby boomer population, the Social Security funds will see an increase in payouts and a decrease of income. It is imperative to look at the trends in population versus individuals who would be availing Social Security upon retirement to establish a trend and identify factors that may contribute towards a deficit or surplus in Social Security funds for the coming years. This project examined the trends in Social Security beneficiaries and the aging population, while also looking at trends among the non-resident population in each state. Based on the aforementioned data, we will investigate if change in the population of non-resident workers has an effect on the Social Security funds in a specific region of the country. SAS Enterprise Miner will be used to explore the US Census and Social Security Administration data. The expectation is that the population of non-resident workers will contribute towards increasing Social Security funds and reduce the disparity from the aging population.

INTRODUCTION

Social security program is designed in such a way that each generation of working population pays for the benefits of current retirees. However, the ratio of workers per retiree has fallen over the last couple of decades. Improved longevity, education, the recent recession (2007-2009) and retirement of baby boomers has resulted in strain on the Social Security reserves (Koenig, Gary & Myles, Al, 2013, “Social Security’s Impact on the National Economy.”).

Here we aim to study the changes in social security beneficiaries (retired aged 65 and above) with aging population, while also looking at trends in non-resident population in different states. There are two main components to this project. First is identifying the trend in aging population which will include a time series analysis of population estimates from 2007 to present. The trend in number of beneficiaries aged above 65 or older will be determined throughout the years and the pay out to these in a year according to the Social Security Administration The second is to observe the trend in the population of employed non-US nationals in each state and the change in the available funds through contributions made by these individuals based on the trends in Old Age, Survivors and Disability Insurance (OASDI) contributions. Finally, we will draw inference on results of both components to gain more insight into the Social Security problem.

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METHODOLOGY

TRENDS IN POPULATION

Data for this project was obtained through the Social Security Administration website (https://www.ssa.gov/policy/docs/statcomps/) and the US Census. Data was available for all 50 states and was available in .csv format. The pertinent data was selected and imported into a new excel file and operations were performed to identify trends in the same. Data was selected for three states namely, California, Idaho and Oklahoma. The three states were selected as California is a cosmopolitan state with a high immigrant population, the second, Idaho, is a state which has a lower immigrant population as well as low population density, the third, Oklahoma, was selected as it is the authors home state, respectively.

The aforementioned data is only used for representation of the results of the study, data for all 50 states has not been used as the study focused on regional affects and not a country wide trend. The author understands that a country wide trend will provide a better trend in the data and will do so in future publications as it was beyond the scope of this paper.

DATA EXTRACTION AND PREPARATION

The data for this component was derived from population estimates from the US census data and the Social Security Administration. A dataset from 1970-2017 was planned originally but based on the specific information that we required (population age by state) only the datasets from 2007-2016 could be used. The data from 2007-2016 was in one .csv file while the data from 2007-2016 had to be extracted for each state. We used Base SAS proc HTTP and proc IMPORT to do this. The data from 2007-2016 was also imported using proc IMPORT. The code is provided in Appendix (1).

Figure 1 & 2 shows variable list from the results of a proc CONTENTS on both datasets. Clearly there are discrepancies in the way the data was stored in each of the tables.

Alphabetic List of Variables and Attributes

#	Variable	Type	Len	Format	Informat
18	AGE1417_FEM	Num	8	BEST12.	BEST32.
17	AGE1417_MALE	Num	8	BEST12.	BEST32.
16	AGE1417_TOT	Num	8	BEST12.	BEST32.
30	AGE1544_FEM	Num	8	BEST12.	BEST32.
29	AGE1544_MALE	Num	8	BEST12.	BEST32.
28	AGE1544_TOT	Num	8	BEST12.	BEST32.
24	AGE16PLUS_FEM	Num	8	BEST12.	BEST32.
23	AGE16PLUS_MALE	Num	8	BEST12.	BEST32.
22	AGE16PLUS_TOT	Num	8	BEST12.	BEST32.
21	AGE1824_FEM	Num	8	BEST12.	BEST32.
20	AGE1824_MALE	Num	8	BEST12.	BEST32.
19	AGE1824_TOT	Num	8	BEST12.	BEST32.
27	AGE18PLUS_FEM	Num	8	BEST12.	BEST32.
26	AGE18PLUS_MALE	Num	8	BEST12.	BEST32.
25	AGE18PLUS_TOT	Num	8	BEST12.	BEST32.
33	AGE2544_FEM	Num	8	BEST12.	BEST32.
32	AGE2544_MALE	Num	8	BEST12.	BEST32.
31	AGE2544_TOT	Num	8	BEST12.	BEST32.

Figure 1 Variable list of the dataset with Population Estimates from 2007-16

The CONTENTS Procedure

Alphabetic List of Variables and Attributes

#	Variable	Type	Len	Format	Informat
33	NH_MALE	Num	8	BEST12.	BEST32.
2	STATE	Num	8	BEST12.	BEST32.
4	STNAME	Char	7	$7.	$7.
1	SUMLEV	Num	8	BEST12.	BEST32.
22	TOM_FEMALE	Num	8	BEST12.	BEST32.
21	TOM_MALE	Num	8	BEST12.	BEST32.
10	TOT_FEMALE	Num	8	BEST12.	BEST32.
9	TOT_MALE	Num	8	BEST12.	BEST32.
8	TOT_POP	Num	8	BEST12.	BEST32.
24	WAC_FEMALE	Num	8	BEST12.	BEST32.
23	WAC_MALE	Num	8	BEST12.	BEST32.
12	WA_FEMALE	Num	8	BEST12.	BEST32.
11	WA_MALE	Num	8	BEST12.	BEST32.
6	YEAR	Num	8	BEST12.	BEST32.

Figure 2 Variable list of the dataset with Population Estimates from 2007-16

A series of transformations will be required to get same variables on both the datasets.

RESULTS AND DISCUSSION

Data for the three states from 2007-2016 was used to compare the trends in change in immigrant or non-US, employed population against the trends in the contributions made to the OASDI. Figures 3-5 demonstrate trends in the aforementioned data for the state of California, Figures 6-8 for Idaho and Figures 9-11 for Oklahoma respectively.

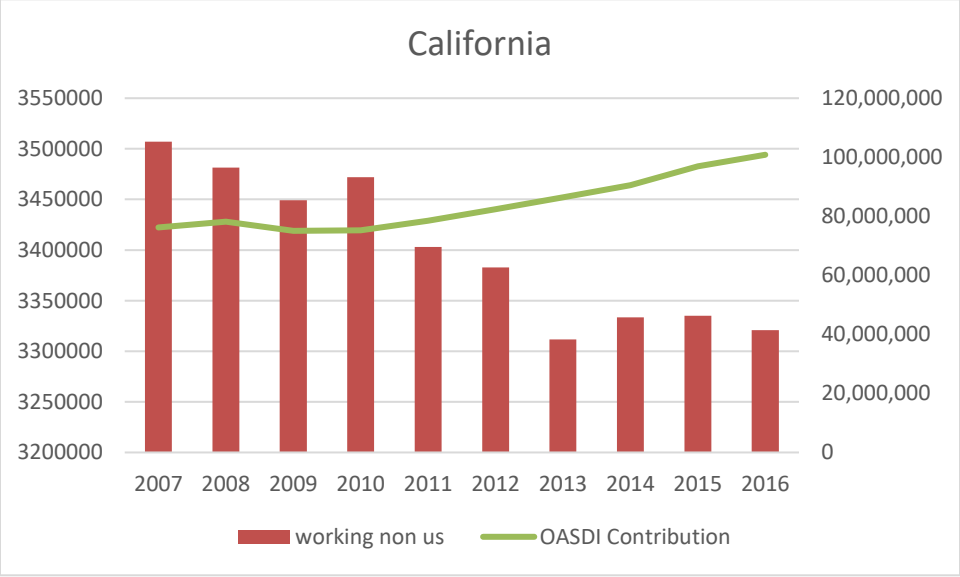

Figure 3 California: Population of Non-US citizens and OASDI contributions (2007-2016)

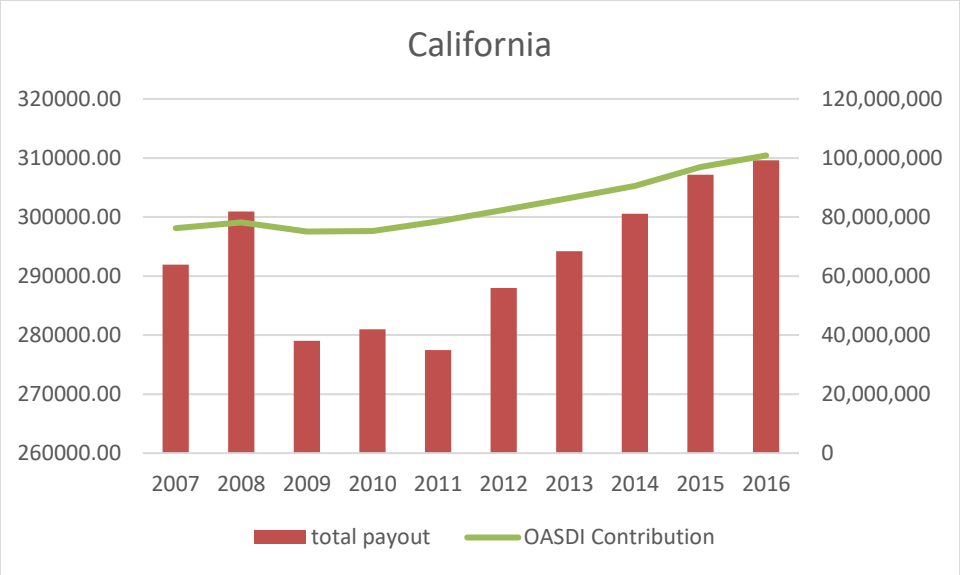

Figure 4 California: Total payment to population aged 65 and above and OASDI contributions (2007-2016)

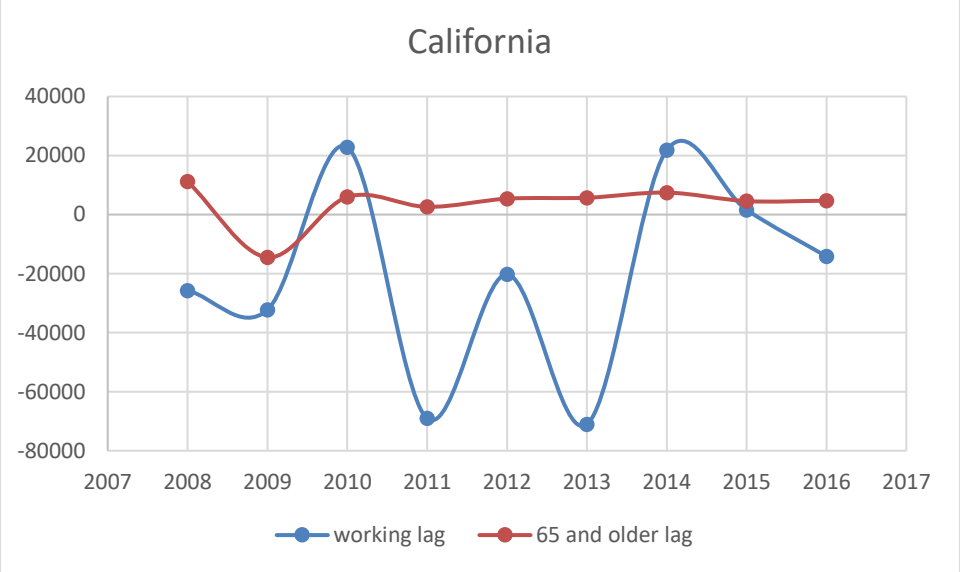

Figure 5 California: Year over year change in population of working Non-US citizens and OASDI contributions (2007-2016)

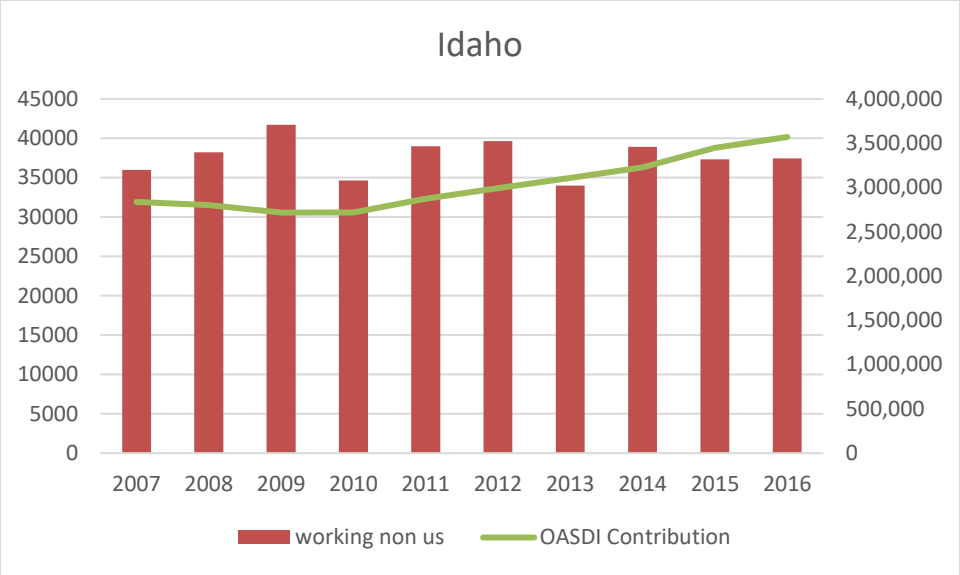

Figure 6 Idaho: Population of Non-US citizens and OASDI contributions (2007-2016)

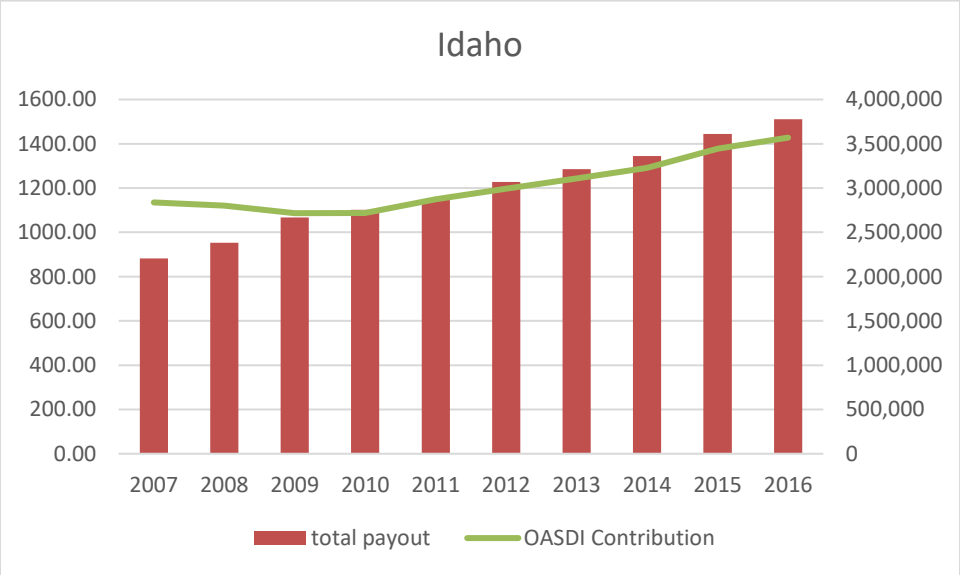

Figure 7 Idaho: Total payment to population aged 65 and above and OASDI contributions (2007-2016)

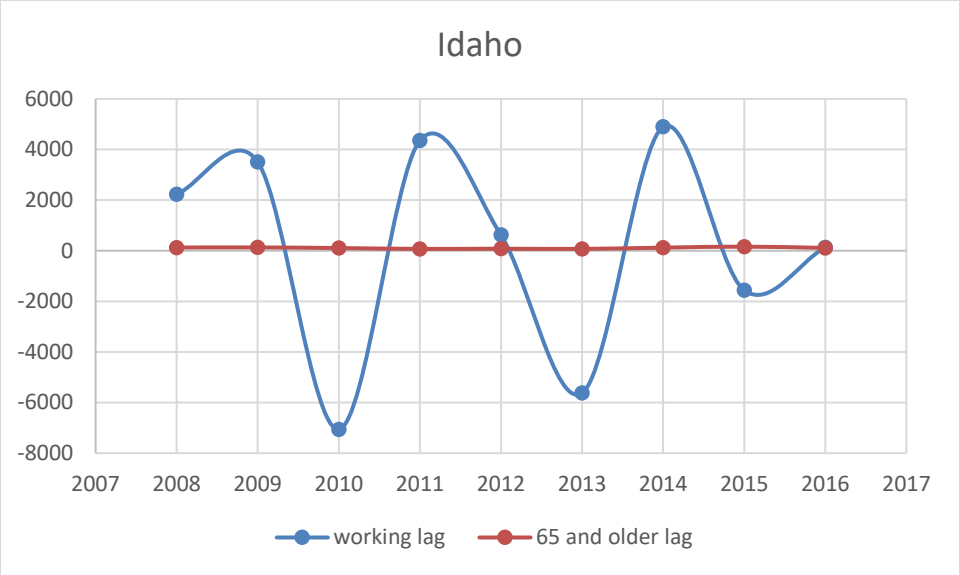

Figure 8 Idaho: Year over year change in population of working Non-US citizens and OASDI contributions (2007-2016)

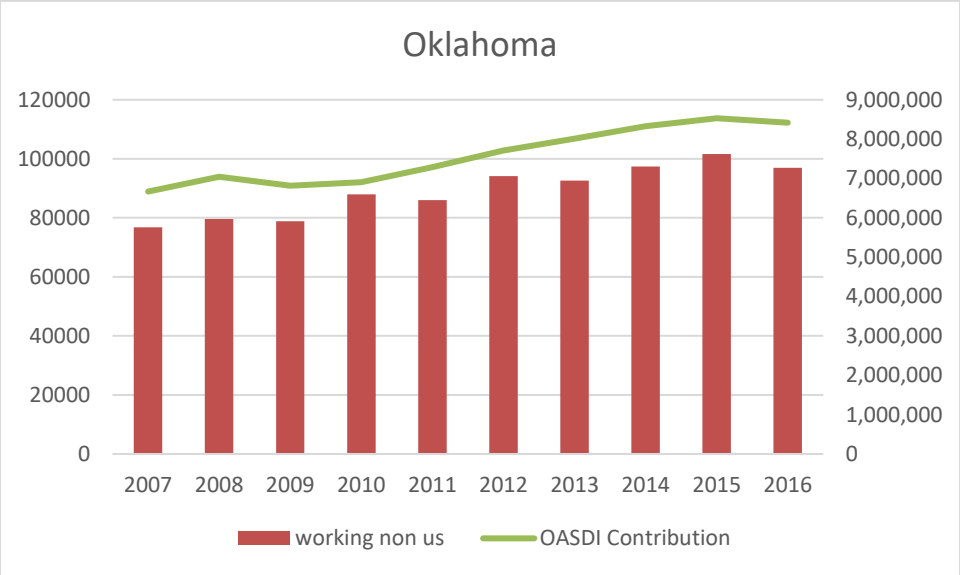

Figure 9 Oklahoma: Population of Non-US citizens and OASDI contributions (2007-2016)

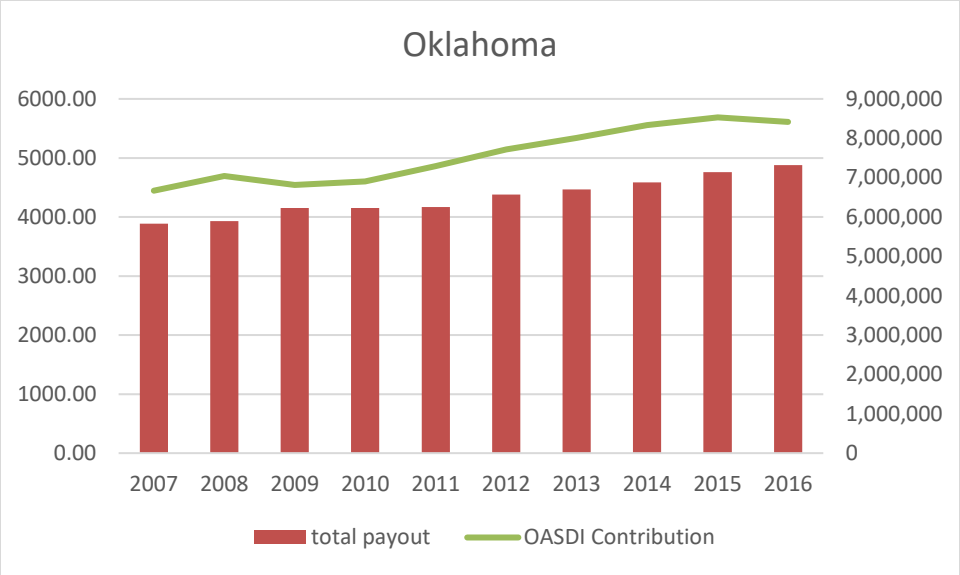

Figure 10 Oklahoma: Total payment to population aged 65 and above and OASDI contributions (2007-2016)

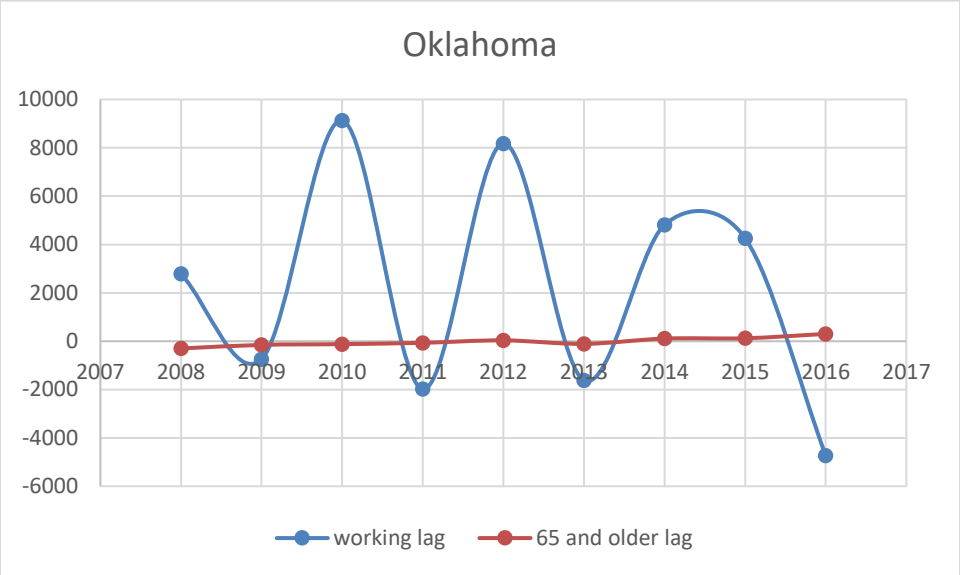

Figure 11 Oklahoma: Year over year change in population of working Non-US citizens and OASDI contributions (2007-2016)

A close examination of this data does not show any clear correlation between immigrant, Non-US workers and social security benefits , however, there seems to be a similar trend between OASDI witholdings and the total payment made out to the aged population in each state. This suggests that a further examination of trends in all states is required for all the states to establish a clear trend in this data.

There also seems to be a closer correlation between employment rate and Payout to aged population, which means the population of aged individuals is increasing and there is a need for more employment to offset this in the future.

CONCLUSION

There was no discernable trend seen between Non-US employee population and payout to retired persons availing Social security benefits, further analysis is required to establish clear trends by using

and correlating data for different states and including additional parameters such as social security benefits availed by the immigrant population.

REFERENCES

Koenig, Gary & Myles, Al, 2013, "Social Security's Impact on the National Economy." Accessed April 6, 2019, https://www.aarp.org/content/dam/aarp/research/public_policy_institute/econ_sec/2013/social-security-impact-national-economy-AARP-ppi-econ-sec.pdf

https://www.ssa.gov/policy/docs/statcomps/

RECOMMENDED READING

- *Base SAS® Procedures Guide*
- *SAS® For Dummies®*

CONTACT INFORMATION

Your comments and questions are valued and encouraged. Contact the author at:

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