Assignment 3

[Saving & Borrowing habits of Australians]

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Introduction

The database contains the indicators about how adults in Australia manage their day to day finances. The records contain financial inclusion for adults around the world including women, poor and rural residents. In 2014 more nuanced data was added. The basic objective of the report is to analyse the saving and borrowing habits of Australians based on the education level.

Methods

The information is taken from The World Bank as part of the Global Financial Inclusion study. The global financial inclusion database measures the financial inclusion for adults as how people save, borrow, make payments and manage risk. The indicators are drawn from the survey data collected by Gallup Inc.

The dataset consists of 6 records which stores the data of 1002 adults. Each adult is assigned a wpid random number and their corresponding weight, age, education level and monthly income are recorded. The variables in the other records consist of indicators to the survey questions such as:

- Whether owns a financial institution accounts or not.
- Transactions done from the accounts or mobile money accounts.
- Use of Saving methods such as banks, informal savings clubs or people outside the family in the past 12 months.
- Sources of borrowing and its purpose in the past 12 months.
- Purpose of Account use such as receiving government transfers, wage payments and agriculture payments.
- How adults come up with money in case of emergency situations.

SAS programming language is used to analyse the dataset.

Results

1) There are total 1002 data observations considered for analysing the relationship between the saving and borrowing habits of Australians based on the education level.

Out of 1002 observations 985 observations are used for the analysis, which determines the monthly income of adults based on the Education level. Remaining 17 observations have missing data which are not taken in to account.

As per the Education level we can categorize the monthly income of adults.

- 51 adults have a primary education level and the average monthly income is $6138.
- 586 adults have secondary education level and the average income is $9165.
- 348 adults have a tertiary or above education level and the average monthly income is $12445, which is highest among the three categories.

Therefore, we can conclude from the above results that higher educated adults tend to have more average monthly income.

From the box plot of Education level vs monthly income, we can see that there are few outliers for primary and secondary education level. This indicates that some adults who have lower education level also have high monthly income.

The ANOVA Procedure

Class Levels

Class Level Information		
Class	**Levels**	**Values**
Education	3	Primary or less Secondary Tertiary or above

Number of Observations

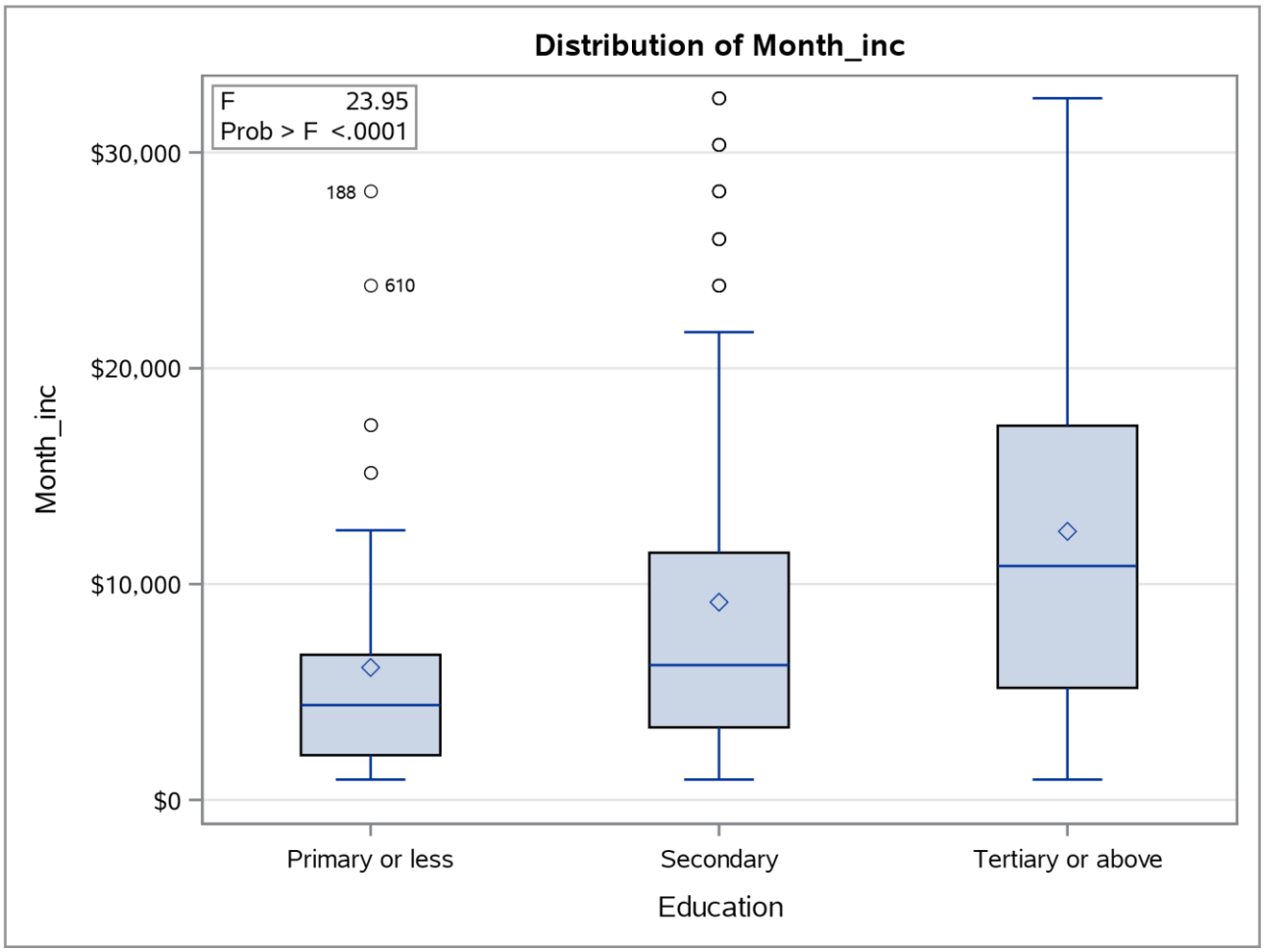
Number of Observations Read	1002
Number of Observations Used	985

Dependent Variable: Month_inc

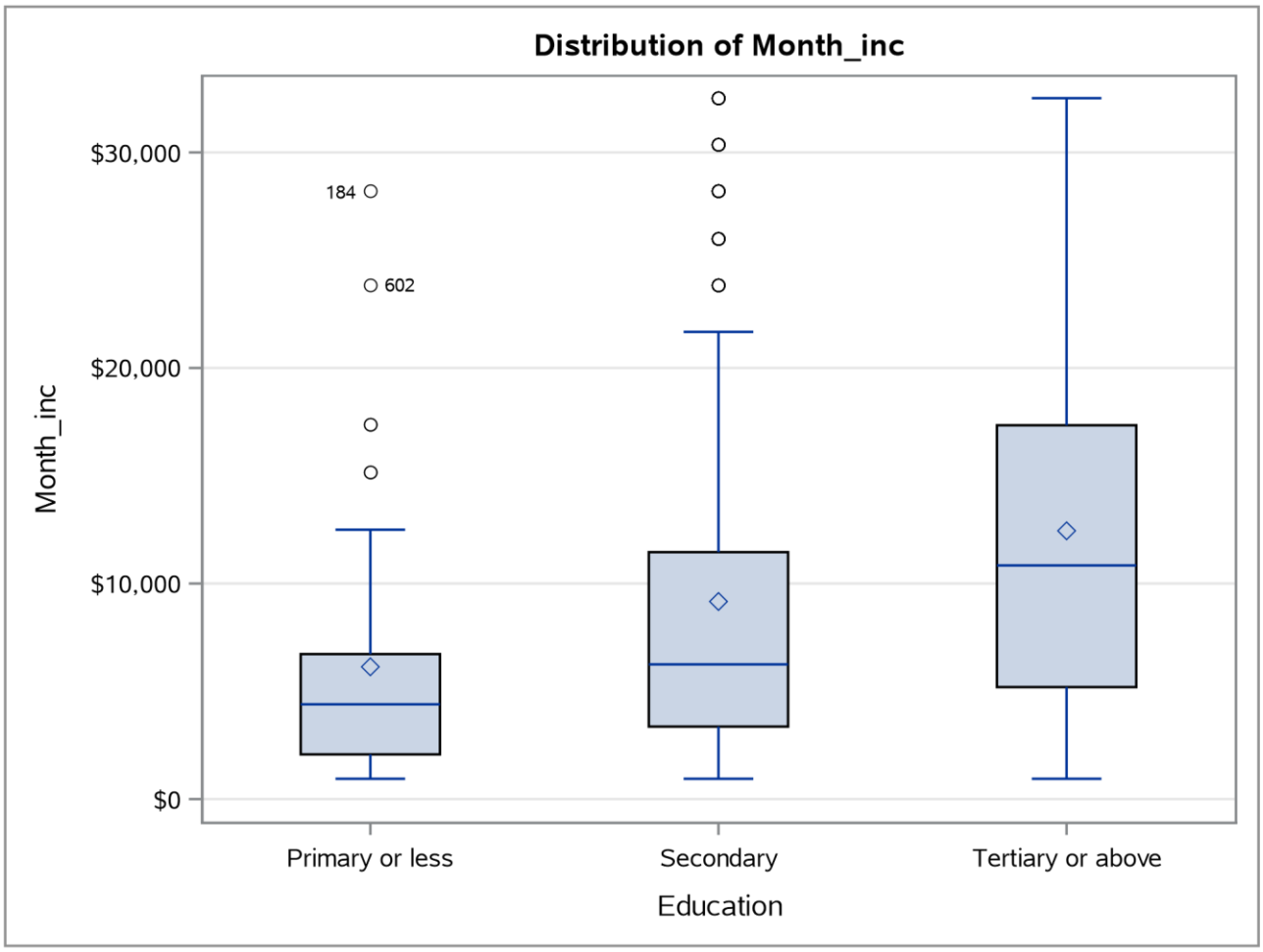
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	3221431512	1610715756	23.95	<.0001
Error	982	66034974151	67245391		
Corrected Total	984	69256405663			

R-Square	Coeff Var	Root MSE	Month_inc Mean
0.046515	80.65363	8200.329	10167.34

Source	DF	Anova SS	Mean Square	F Value	Pr > F
Education	2	3221431512	1610715756	23.95	<.0001



The ANOVA Procedure



Level of Education	N	Month_inc	
		Mean	Std Dev
Primary or less	51	6137.8039	5870.56396
Secondary	586	9165.4915	7954.78174
Tertiary or above	348	12444.8966	8868.85638

2) Element Q22a in the dataset shows if the person has borrowed money in the past 12 months for education or school fees.
Q22b data shows if the person has borrowed money for the Medical purpose.
Q22c shows if the person has borrowed money to start, operate, or grow a business or farm in the past 12 months.

- People who have primary or less education level didn't borrow any money for their Education, School fees or for starting the business.
- Only 2 People with primary education level borrowed money for the medical purpose.
- Number of People with Secondary education level who borrowed money for different purpose are as follows.

- 26 people borrowed money for Education or school fees.
- 39 people borrowed money for Medical purpose.
- And around 11 people borrowed money to start and grow their business.

➢ 13 people having education level up to Tertiary or above have borrowed the money for Education whereas 14 people borrowed money for Medical purpose.

➢ Number of people who have borrowed money to grow a business or farm are more as compared with other 2 reasons.

➢ In total 125 people have borrowed money from different sources for paying education or school fees, medical or starting their own business.

Table of Education by q22a

Education	q22a			
	(dk)	no	yes	Total
Primary or less	0 0.00	51 5.18	0 0.00	51 5.18
Secondary	1 0.10	559 56.75	26 2.64	586 59.49
Tertiary or above	0 0.00	335 34.01	13 1.32	348 35.33
Total	1 0.10	945 95.94	39 3.96	985 100.00

Frequency Missing = 17

Frequency
Percent

Table of Education by q22b

Education	q22b		
	no	yes	Total
Primary or less	49 4.97	2 0.20	51 5.18
Secondary	547 55.53	39 3.96	586 59.49
Tertiary or above	334 33.91	14 1.42	348 35.33
Total	930 94.42	55 5.58	985 100.00

Frequency Missing = 17

Frequency
Percent

	Table of Education by q22c		
	Education	q22c	
		no	yes	Total
Frequency Percent	Primary or less	51 5.18	0 0.00	51 5.18
	Secondary	575 58.38	11 1.12	586 59.49
	Tertiary or above	328 33.30	20 2.03	348 35.33
	Total	954 96.85	31 3.15	985 100.00
	Frequency Missing = 17			

3) Element Q39 in the dataset shows if the people Received government transfers in past 12 months.
66% people with secondary education level have got government assistance for different purposes.
Almost 28% people with Tertiary education level got the government assistance while only 6% people with primary education level got government assistance.

	Table of q39 by Education			
	q39	Education			
		Primary or less	Secondary	Tertiary or above	Total
Frequency Percent	yes	27 6.22	285 65.67	122 28.11	434 100.00
	Total	27 6.22	285 65.67	122 28.11	434 100.00
	Frequency Missing = 568				

4) Element Q17a in the dataset shows if the person has saved money in the past 12 months for farm or business.
   Q17b data shows if the person has saved money for the Old age.
   Q17c shows if the person has saved money for paying education or school fees.

- Approximately 9% of the people with primary, Secondary or Tertiary education level save money for the growth of farm and business.
- 47% of the people with different education levels save money for their old age.
- 21% of the people with different education levels save money for paying education or school fees.

Table of q17a by Education

		Education			
	q17a	**Primary or less**	**Secondary**	**Tertiary or above**	**Total**
Frequency	**(ref)**	0	2	0	2
Percent		0.00	0.20	0.00	0.20
	no	48	537	307	892
		4.87	54.52	31.17	90.56
	yes	3	47	41	91
		0.30	4.77	4.16	9.24
	Total	51	586	348	985
		5.18	59.49	35.33	100.00

Frequency Missing = 17

Table of q17b by Education

		Education			
	q17b	**Primary or less**	**Secondary**	**Tertiary or above**	**Total**
Frequency	**(dk)**	1	3	1	5
Percent		0.10	0.30	0.10	0.51
	(ref)	0	1	0	1
		0.00	0.10	0.00	0.10
	no	29	334	152	515
		2.94	33.91	15.43	52.28
	yes	21	248	195	464
		2.13	25.18	19.80	47.11
	Total	51	586	348	985
		5.18	59.49	35.33	100.00

Frequency Missing = 17

Table of q17c by Education

q17c	Education			
	Primary or less	Secondary	Tertiary or above	Total
(ref)	0	1	0	1
	0.00	0.10	0.00	0.10
no	47	481	247	775
	4.77	48.83	25.08	78.68
yes	4	104	101	209
	0.41	10.56	10.25	21.22
Total	51	586	348	985
	5.18	59.49	35.33	100.00

Frequency
Percent

Frequency Missing = 17

Conclusion

Based on the analysis we can derive the following conclusion.

- Only 3% people with primary education level save money for old age, paying education or school fees and for the growth of farm or business.
- Around 40% people with Secondary education level save money while percentage of people with Tertiary education level is close to 34%.
- Approximately 12% of people borrow money for paying education or school fees, Medical or For the growth of farm & business.
- Around 66% of the people in the secondary education level received government assistance as compared to 28% in the tertiary sector and only 6% in the primary sector.
- It clearly shows there is a difference in the savings and borrowings of Australians in relation to the level of education.
- Average monthly income of people in Australia with Tertiary education level are more as compared to Primary and Secondary education level.

References

The dataset is sourced from www.worldbank.org. More information can be extracted from the link http://microdata.worldbank.org/index.php/catalog/2380/datafile/F1

Appendix

1)
```
data borrowed;
informat wpid_random 10.;
infile "/home/s36772710/sasuser.v94/data/Borrowed.csv" delimiter="," firstobs=2 dsd
missover;
input wpid_random q21a$ q21b$ q21c$ q21d$ q22a$ q22b$ q22c$;
run;

data demographics;
informat
wpid_random 15.
wgt
female
age
educ
Month_inc dollar10.;
infile "/home/s36772710/sasuser.v94/data/Demographics.csv" delimiter="," dsd missover
firstobs=2;
input wpid_random wgt female age educ Month_inc;
format
wpid_random 15.
Month_inc dollar10.;
run;

data Q8;
informat wpid_random 10.;
infile "/home/s36772710/sasuser.v94/data/Q8.csv" delimiter="," firstobs=2 dsd missover;
input wpid_random q8a$ q8b$ q8c$ q8d$ q8e$ q8f$ q8g$ q8h$ q8i$;
run;

data Q17;
informat wpid_random 10.;
infile "/home/s36772710/sasuser.v94/data/Q17.csv" delimiter="," firstobs=2 dsd missover;
input wpid_random q17a$ q17b$ q17c$ q18a$;
run;

libname assign3 "/home/s36772710/sasuser.v94/data";
```

2)
```
proc sql;
create table Edulevel as
select * ,(case
when educ =1 then "Primary or less"
when educ =2 then "Secondary"
when educ =3 then "Tertiary or above"
else " " end) as Education
from work.demographics;
```

```
quit;
```

3)
```
proc anova data=work.Edulevel;
class Education;
model month_inc=Education;
mean Education/alpha=0.02;
run;

proc freq data=work.reasons;
table Education*q22a/nocol norow;
run;

proc freq data=work.reasons;
table Education*q22b/nocol norow;
run;

proc freq data=work.reasons;
table Education*q22c/nocol norow;
run;
```

4)
```
proc sql;
create table Government as
select R1.*,G.q39
from work.reasons R1
left join assign3.government G on R1.wpid_random= G.wpid_random;
quit;

proc freq data=work.government;
table q39* Education/nocol norow;
run;
```

5)
```
proc sql;
create table borrowhabits as
select h.*,t.q22a,t.q22b,t.q22c
from work.habits h inner join
work.borrowed t on  h.wpid_random=t.wpid_random;
quit;

proc freq data=work.borrowhabits;
table q17a* Education/nocol norow;
run;

proc freq data=work.borrowhabits;
table q17b* Education/nocol norow;
run;
proc freq data=work.borrowhabits;
table q17c* Education/nocol norow;
run;
```