ANALYSIS OF DATA

JAMES V GEORGE SH COLLEGE THEVARA

Types of Data

Cross Sectional Data
Time Series Data
Panel Data

Types of Data

- Nominal
- Ordinal
- Interval
- Ratio

Female () Male () 2. Gender. 3. Please write your age. 4. Please tick the highest level of education completed. () School () Diploma () Graduate () Post-graduate () Professional 5. Please select your current occupation. () House-wife () Student () Self-Employed Government Employee () Private Sector () Unemployed 6. Please enter the total average amount you spend per week for the purchase retail items Rs. 7 Please indicate your perception or liking of mall from where you purchase. (1-5)

vears

1- Very Bad, 2- Bad 3 Neutral 4-Good 5 – Very Good

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11		1		1	3	10000	500						
12		2		2	2	15000	700						
13		2		4	4	25000	400						
14		1		3	2	50000	800						
15		1		1	4	65000	800						
16		2		2	2	15000	1000						
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Analysis

- Nominal Frequency
- Ordinal Frequency
- Interval Mean
- Ratio Mean

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Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	32	61.5	61.5	61.5
	Female	20	38.5	38.5	100.0
	Total	52	100.0	100.0	

			Edu		
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	School	10	19.2	19.2	19.2
	Diploma	15	28.8	28.8	48.1
	Degree	13	25.0	25.0	73.1
	PG	14	26.9	26.9	100.0
	Total	52	100.0	100.0	

Statistics

<u>Liking of mall</u>					
Ν	Valid	52			
	Missing	0			
Mean		2.38			
Std. D	eviation	1.051			

Statistics

Amou	nt	
Ν	Valid	52
	Missing	0
Mean		1123.08
Std. D	eviation	905.455

Two Variables

- Nominal Frequency Category
- Ordinal Frequency Category
- Interval Mean Metric
- Ratio Mean Metric

Two Variables

Cat – Cat – Chi-Square
 Cat – Metric – Anova
 Metric – Metric - Correlation

Chi-Square

- Chi-Square can be used for three purposes namely
- 1. As a test of independence
- > 2. To test the Homogeneity
- 3. To test the goodness of fit
- cross tab is used to test whether there is a significant association between two variables.
- The two variables must be of type category.
- The total number of observation used in this test must be large i.e., n>=30.
- It is frequency based test
- Null hypothesis: H0- There is no significant association between the two variables.

TTT Crosstabs		×
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			Total Saving					
		Up to 5000	5001-10000	10001- 15000	15001- 20000	20001 and above	Total	
Total Incom	upto 20000	67	42	13	2	0	124	
е	20001- 30000	89	80	42	6	2	219	
	30001- 40000	25	32	26	15	5	103	
	40001- 50000	8	21	10	11	4	54	
	50001 and above	7	9	19	7	10	52	
1	Total	196	184	110	41	21	552	

Chi-Square Tests						
	Value	df	Sig. (2-sided)			
Pearson Chi- Square	1.287E2ª	16	.000			
Likelihood Ratio	120.928	16	.000			
Linear-by-Linear Association	100.919	1	.000			
N of Valid Cases	552					

The calculated value is 1.287 E2 which means 128.7 and it significant at this level of significance 0.000 at degrees of freedom 16. In SPSS, if the significant value is less than 0.05 then reject null hypothesis and accept alternate hypothesis. Hence there is significant association between total income and total saving.

Calculated value (128.7) is greater than table value (26. 296 at degrees of freedom 16 in the 0.000 level of significance in the chi-square table.

DF	0.995	0.975	0.20	0.10	0.05	0.025	0.02	0.01	0.005	0.002	0.001
1	0.0000393	0.000982	1.642	2.706	3.841	5.024	5.412	6.635	7.879	9.550	10.828
2	0.0100	0.0506	3.219	4.605	5.991	7.378	7.824	9.210	10.597	12.429	13.816
3	0.0717	0.216	4.642	6.251	7.815	9.348	9.837	11.345	12.838	14.796	16.266
4	0.207	0.484	5.989	7.779	9.488	11.143	11.668	13.277	14.860	16.924	18.467
5	0.412	0.831	7.289	9.236	11.070	12.833	13.388	15.086	16.750	18.907	20.515
6	0.676	1.237	8.558	10.645	12.592	14.449	15.033	16.812	18.548	20.791	22.458
7	0.989	1.690	9.803	12.017	14.067	16.013	16.622	18.475	20.278	22.601	24.322
8	1.344	2.180	11.030	13.362	15.507	17.535	18.168	20.090	21.955	24.352	26.124
9	1.735	2.700	12.242	14.684	16.919	19.023	19.679	21.666	23.589	26.056	27.877
10	2.156	3.247	13.442	15.987	18.307	20.483	21.161	23.209	25.188	27.722	29.588
11	2.603	3.816	14.631	17.275	19.675	21.920	22.618	24.725	26.757	29.354	31.264
12	3.074	4.404	15.812	18.549	21.026	23.337	24.054	26.217	28.300	30.957	32.909
13	3.565	5.009	16.985	19.812	22.362	24.736	25.472	27.688	29.819	32.535	34.528
14	4.075	5.629	18.151	21.064	23.685	26.119	26.873	29.141	31.319	34.091	36.123
15	4.601	6.262	19.311	22.307	24.996	27.488	28.259	30.578	32 <mark>.801</mark>	35 . 628	37.697
16	5.142	6.908	20.465	23.542	26.296	28.845	29.633	32.000	34.267	37.146	39.252
17	5.697	7.564	21.615	24.769	27.587	30.191	30.995	33.409	35.718	38.648	40.790
18	6.265	8.231	22.760	25.989	28.869	31.526	32.346	34.805	37.156	40.136	42.312
19	6.844	8.907	23.900	27.204	30.144	32.852	33.687	36.191	38.582	41.610	43.820
20	7.434	9.591	25.038	28.412	31.410	34.170	35.020	37.566	39.997	43.072	45.315
21	8.034	10.283	26.171	29.615	32.671	35.479	36.343	38.932	41.401	44.522	46.797
22	8.643	10.982	27.301	30.813	33.924	36.781	37.659	40.289	42.796	45.962	48.268

Compare Means

- One sample t-test
- Independent sample t-test
- Paired t-test
- One way Anova

ONE SAMPLE T TEST PURPOSE:

The One-Sample T Test compares the mean score of a sample to a known value Usually, the known value is a population mean. ASSUMPTION:

- The variable must be metric.
- •The variable is normally distributed.

HYPOTHESES:

Null hypothesis H0: There is no significant difference between the sample mean and the population mean.

The test variable is Average monthly minutes and test value is 200.

	<u>T</u> est Variable(s):	Ontione
 Serial number [sno] sex [gender] Average monthly bill [bill] Pct used for business [Years using our service Household income (199 Propensity to leave [sco 	Avg monthly minutes [mi	
OK Paste	Test <u>V</u> alue: 200 Reset Cancel Heli	

One-Sample Statistics

	Ν	Mean	Std.	Std. Error
			Deviation	Mean
Avg monthly minutes	250	162.185	46.5706	2.94538

	Test Value = 200							
				95		%		
				Mean	Confi	dence		
			Sig. (2-	Differe	Interva	l of the		
	Т	Df	tailed)	nce	Diffe	rence		
Avg monthly	-			_	_	-		
minutes	12.83	249	.000	37.814	43.61	32.01		
	9			38	54	33		

INDEPENDENT SAMPLE T- TEST PURPOSE:

The Independent Samples T Test compares the mean scores of two groups on a given variable.

HYPOTHESES:

Null hypothesis H0: The means of the two groups are not significantly different. Alternate hypothesis H1: The means of the two groups are significantly different. ASSUMPTIONS:

1. Independent sample t-test assumes that the dependent variable is normally distributed.

Independent-Samples T Test	23
 Serial number [sno] Average monthly bill [bill] Pct used for business [Years using our service Household income (199 Propensity to leave [sco 	<u>T</u> est Variable(s):
•	<u>G</u> rouping Variable: gender(1 2) Define Groups
OK <u>P</u> aste	Reset Cancel Help

Group Statistics										
	Sex	N	Mean	Std. Deviation	Std. Error Mean					
Avg monthly minutes	Female	139	1.6077E2	51.83109	4.39626					
	Male	111	1.6396E2	39.15930	3.71684					

	Independent Samples Test									
		Leve Equalit	ne's Te y of Va	st for riances	t-test for Equality of Means					
		F	Sig.	Т	df	Sig. (2-tailed)	Mean Difference			
Avg monthly	Equal variances assumed	7.022	.009	536	248	.592	-3.18239			
minutes	Equal variances not assumed			553	247.285	.581	-3.18239			

ONE WAY-ANOVA PURPOSE:

One way ANOVA is used to compare the means of more than two groups **ASUMPTION:**

- •The variables must be normally distributed
- •Samples are independent.
- •Variances of populations are equal.
- •The sample is a simple random sample (SRS). HYPOTHESIS:

Null hypothesis H0- There is no significant difference between the variables. Alternate hypothesis H1-There is significant difference between the variables.

One-Way ANOVA	— X —
	Dependent List: Contrasts ✓ Total monthly saving [tot Post Hoc Options
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Total monthly say	ving				
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.624E9	4	9.059E8	34.849	.000
Within Groups	1.422E10	547	2.600E7		
Total	1.784E10	551			
	Tota	al month	ly saving		844 (GAR) (GAR)
Duncan					
Total Income	N	1	Subset for 2	$\frac{\text{alpha} = 0}{3}$	0.05 4
upto 20000	124	5310.48	3		
20001-30000	219		7064.87		
30001-40000	103			1.00E4	1
40001-50000	54			1.12E4	4
50001 and above	52				1.35E4
Means for groups	s in homog	eneous su	ibsets are di	splayed.	

GLM

- Factorial Anova
- ► ANCOVA
- MANOVA

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	Name	Type	Width	Decim	Age [reage]
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3	reage	Numeric	8	0	
4	reinc	Numeric	8	0	
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🕞 📕 🕰		🏊 📭 📴 🚧	× 🖬 📩	田 40	Dependent Variable: Model
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3	reage	Numeric	8	0	Total Income [reinc]
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Tests of Between-Subjects Effects

Dependent Variable:Total monthly saving

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1.349E10ª	53	2.546E8	10.715	.000
Intercept	1.254E10	1	1.254E10	527.754	.000
reage	6.230E7	2	3.115E7	1.311	.270
reinc	6.603E8	4	1.651E8	6.949	.000
designat	2.390E8	4	5.974E7	2.515	.040
reage * reinc	6.707E8	8	8.384E7	3.529	.000
reage * designat	3.909E8	7	5.585E7	2.351	.022
reinc * designat	1.422E9	16	8.889E7	3.742	.000
reage * reinc * designat	1.749E9	12	1.457E8	6.134	.000
Error	2.820E10	1187	2.376E7		
Total	1.307E11	1241			
Corrected Total	4.169E10	1240			

a. R Squared = .324 (Adjusted R Squared = .293)

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4	reinc	Numeric	8	0	Random Factor(s):	
5	totalin	Numeric	8	0		
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Dependent Variable:Total monthly saving

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	7.502E9 ^a	14	5.359E8	19.217	.000
Intercept	1.676E9	1	1.676E9	60.086	.000
totalin	4.596E9	1	4.596E9	164.802	.000
reage	3.604E7	2	1.802E7	.646	.524
designat	6.081E7	4	1.520E7	.545	.703
reage * designat	8.530E8	7	1.219E8	4.370	.000
Error	3.419E10	1226	2.789E7		
Total	1.307E11	1241			
Corrected Total	4.169E10	1240			

a. R Squared = .180 (Adjusted R Squared = .171)



		Dependent Variables:	Model
🔗 Age category [agecat]		🔗 Price satisfaction [pri 📤	
Shopping frequency [re	•	🔗 Variety satisfaction [🔤	Contrasts
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Correlation

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Bivariate Correlations				×
		Variables:		Options
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	Correlations		
		Z Score	H Score
Z Score	Pearson Correlation	1	.811**
	Sig. (2-tailed)		.000
	Ν	124	124
H Score	Pearson Correlation	.811**	1
	Sig. (2-tailed)	.000	
	Ν	124	124
**. Correlatior tailed).	n is significant at the	0.01 level ((2-

credit card report.sav [DataSet1] - SPSS Data Editor

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2	familysize	Numeric	8	0	famil			j 🕺	family income [familyinc		
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9						P	earson 🗌 Kenda	all's tau-b 🗌 Spea	arman		
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13				'	noofcr card	redit S	family size	family incom	ne		
14	no of credit ca	ards Pea	rson Correla	ation		1	.866''	.50	06		
15		Sig.	(2-tailed)				.005	.20	0 Cancel H	felp	
16	fa un ile a ima	N		4:		8	8		8		
47	Tamily size	Pea	rson Correia 72-tailed)	tion		.866	1	.29	33		
		N	(z-talleu)			.005 Q	0	.48	0		
	family income	e Pea	rson Correla	ation		.506	.293		1		
		Sig.	(2-tailed)			.200	.481				
		N				8	8		8		
	**. Correla	tion is signi	ficant at the	0.01 level	(2-taile	ed).					

REGRESSION PURPOSE:

EY = Na+bEX

EXY = aEX + bEX2

The general purpose of regressions is to learn more about the relationship between one independent and one dependent variable. **ASSUMPTION:**

•The variables must be linear.

•The variables must be normally distributed.

Total income [totalin]	Dependent: Total monthly saving [totsav] Block 1 of 1 Previous Independent(s): Total income [totalin] Total income [totalin]	Statistics Plo <u>t</u> s S <u>a</u> ve Options
OK	Method: Enter]

		Co	efficients ^a			
		Unstandardized Coefficients		Standardize d Coefficients		
Model		В	Std. Error	Beta	t	Sig.
1	(Constant)	3281.033	527.447		6.221	.000
	Total income	.161	.016	.404	10.351	.000
a. Depende	ent Variable: T	otal monthly	y saving			

The common regression equation is y=a + bx The effect of Total income on total monthly saving is given by the regression equation, total monthly saving =3281.03 + (0.161) Total income. Y is the total monthly saving and A is a constant value. X Total income B is the coefficient for the variable x. 'a' is constant value which is the contribution made by all other factors for determining the propensity to leave.

🔛 Linear Regression





		Coefficier	nts ^a			
		Unstandardized Coefficients		Standardiz ed Coefficien ts		
Mod	el	В	Std. Error	Beta	t	Sig.
1	(Constant)	9912.561	6296.821		1.574	.176
	GDP in Billions	11.616	1.727	.832	6.726	.001
	Savings in % of GDP	-387.496	86.602	235	-4.474	.007
	Inflation (GDP Deflator)	-112.438	197.335	041	570	.593
	Real Interest Rate %	-239.964	204.224	072	-1.175	.293
	GDP per Capita	11.810	.902	.482	13.092	.000
	Money Supply (% of GDP)	-82.850	62.963	081	-1.316	.245
a. De	pendent Variable: GOLD	PRICE				

Model	Summary
-------	---------

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.404ª	.163	.162	5210.879

a. Predictors: (Constant), Total income

	ANOVAb									
Model		Sum of Squares	df	Mean Square	F	Sig.				
	Regression	2.909E9	1	2.909E9	107.138	.000 ^a				
1	Residual	1.493E10	550	2.715E7						
	Total	1.784E10	551							

a. Predictors: (Constant), Total income

b. Dependent Variable: Total monthly saving

GOLD.sa	w [DataSet1] - SPS	SS Data Editor			Inear Regression		
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3	GDP S	Numeric	8	2	GDP per Capita (US\$) [Independent(s):	Options	-
4	GDP_I	Numeric	8	2	Money Supply (% of GD		-
5	RIR	Numeric	8	2		ev 💌	_
6	GDP_C	Numeric	8	2			
7	money_sup	Numeric	8	2	Method: Forward		
8					Selection Variable:		
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	Coefficients ^a										
	Model	Unstan Coeff	dardized icients	Standardize d Coefficients	t	Sig.					
		B Std. Error		Beta							
1	(Constant)	-3085.766	1379.533		-2.237	.049					
I	GDP in Billions	13.380	1.253	.959	10.679	.000					
	(Constant)	-4981.309	673.247		-7.399	.000					
2	GDP in Billions	7.713	1.029	.553	7.498	.000					
L	GDP per Capita (US\$)	11.787	1.806	.481	6.526	.000					
	(Constant)	1651.450	987.004		1.673	.133					
	GDP in Billions	9.926	.518	.711	19.165	.000					
3	GDP per Capita (US\$)	11.024	.727	.450	15.155	.000					
	Savings in % of GDP	-284.874	40.798	173	-6.983	.000					
a. Depend	lent Variable: GOLD F	PRICE									

Model Summary										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate						
1	.959 ^a	.919	.911	2016.86123						
2	.993 ^b	.986	.983	887.96471						
3	.999 ^c	.998	.997	353.59630						

a. Predictors: (Constant), GDP in Billions

- b. Predictors: (Constant), GDP in Billions, GDP per Capita (US\$)
- c. Predictors: (Constant), GDP in Billions, GDP per Capita (US\$), Savings in % of GDP

Loaistic Rearession

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🖻 📙 🚊	📴 🕈 🏞	} ₩ ?	M	Categorical	
	Name	Туре		Age in years [age]	í
1	age	Numeric	4	Veers with current empl	1
2	ed	Numeric	4	Vears at current addres	J
3	employ	Numeric	4	Household income in tho Covariates:	
4	address	Numeric	4	A Debt to income ratio (×1	
5	income	Numeric	8	Credit card debt in thou ed(Cat) ed(Cat)	
6	debtinc	Numeric	8	Previously defaulted [de] Address	
7	creddebt	Numeric	8	Predicted default, model	
8	othdebt	Numeric	8	Predicted default, model	
9	default	Numeric	4	Predicted default, model	
10	preddef1	Numeric	1		
11	preddef2	Numeric	1	Logistic Regression: Define Categorical Variables	
12	preddef3	Numeric	1	<u>Covariates:</u> Categorical Covariates:	
13				Household income in tho ed(Indicator)	
14			l	Vears at current addres	
15				Credit card debt in thou	
16				Pebt to income ratio (x1	
17				Years with current empl	
18				Other debt in thousands	
19				Change Contrast	
20				Contrast: Indicator 💌 Change	
21				Reference Category: Last O First	
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23				Continue Cancel Help	
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25					

Variables in the Equation										
B S.E. Wald df Sig. Exp(E										
	age	.035	.018	4.074	1	.044	1.036			
	ed			2.662	4	.616				
	ed(1)	876	1.294	.459	1	.498	.416			
	ed(2)	569	1.294	.193	1	.660	.566			
	ed(3)	524	1.304	.161	1	.688	.592			
	ed(4)	961	1.334	.519	1	.471	.382			
Step 1 ^a	employ	261	.033	60.888	1	.000	.771			
	address	105	.023	20.539	1	.000	.900			
	income	008	.008	1.010	1	.315	.992			
	debtinc	.071	.031	5.340	1	.021	1.073			
	creddebt	.625	.113	30.635	1	.000	1.868			
	othdebt	.053	.078	.456	1	.499	1.054			
	Constant	714	1.463	.238	1	.625	.490			

a. Variable(s) entered on step 1: age, ed, employ, address, income, debtinc, creddebt, othdebt.

$$\ln\!\left(\frac{\hat{p}}{1-\hat{p}}\right) = B_0 + B_1 X$$

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square		
1	549.564 ^a	.305	.447		

a. Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	9.187	8	.327

Discriminant Analysis

Structure Matrix									
	Fund	ction							
	1	2							
SOCIAL	765*	.266							
CONSERVATIVE	.468*	259							
OUTDOOR	.323	.937*							

Eigenvalues											
Functio n	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation							
1	1.081ª	77.1	77.1	.721							
2	.321ª	22.9	100.0	.493							

a. First 2 canonical discriminant functions were used in the analysis.



JOB

N	\odel!	Chi- squa Value	re e	Df	Nc d Ch Sq	orme ni- uare	me P- V are		GFI	AGF		FI	RMESA
Study model		111.3	80	51	2.1	8	0.	00	0.93	0.90	0	.90	0.068
Recommend					Below		>	0.05	> .9	> .9	>	.9	< .08
e	d value		Da		3					•	•		
	Pain		Pa Ca nt	oeffic	ie	t- value	•	p-vc	live	nt	ICO		
	CON	NPRA 0.16 NPER -0.09 PER 0.66			0.99		Greater than 0.01 Greater than 0.01		NO NO				
	CON												
	PRAPEI			5.38	Less than 0.01		than	YES					



FORMAT OF A PROJECT REPORT

Acknowledgement Abstract Contents List of tables List of figures Abbreviations

Chapter-1(INTRODUCTION)

1.1 Introduction to the project
1.2 Company
1.3 Product
1.4 Need for the study
1.5 Objectives
1.6 Scope of the Study
1.7 Significance of the Study
1.8 Limitation

Chapter-2 (REVIEW OF LITERATURE)

2.1 Introduction-operational definition2.2 Review relating concepts2.3 Review relating to variables

Chapter-3 (RESEARCH METHODOLOGY)

3.1 Research Design 3.2 Nature and sources of data 3.3 Questionnaire design and development 3.4 Pilot study 3.5 Reliability and validity of the questionnaire 3.6 Sample design Sample unit Sample frame Sample size Sampling technique 3.7 Period of the study 3.8 Tools, techniques and formula used 3.9 Software packages used

Chapter-4 (DATA ANALYSIS AND INTERPRETATION)

4.1 Profile of the respondents4.2 Concept or variable wise analysis

Chapter-5 (SUMMARY OF FINDINGS, RECOMMENDATIONS, SCOPE FOR FURTHER STUDIES, IMPLICATION OF THE STUDY AND CONCLUSION)

General findings and Specific findings Recommendations Educational and societal implications Directions for future research Conclusion

Bibliography (Follow either APA or Harvard Style)

Books Published articles Secondary sources Working papers Reports **Appendix / Annexure** Questionnaire Sample frame Big Table