Chapter - 5

Discussion

Table 1: Descriptive distribution of the variables with reference to respondent's profile

Variables		Range		Mean	S.D.	C.V.(%)
		Minimum	Maximum			
Age	X1	25	64	38.747	10.379	26.788
Education	X2	0	6	2.453	1.308	53.312
Family size	X3	4	12	6.360	2.135	33.568
Comm. index	X4	3	8.5	5.251	1.355	25.808
Dist. matrix	X5	1	13	2.160	0.638	29.517
Doctors visited	X6	2	6	3.920	0.897	22.879
House type	X7	2	4	3.267	0.475	14.528
Sanitation	X8	7	10	9.080	0.882	9.710
Drinking water	X9	6	10	9.120	1.013	11.106
Drudgery	X10	2	9	2.813	0.730	25.932
Home innovation	X11	8	26	14.667	4.777	32.571
Land holding	X12	1	2	1.413	0.496	35.076
yield	X13	1	14	2.800	1.708	61.017

Adoption level	X14	1	3	1.667	0.827	49.647
Annual income	X15	1	15	2.067	1.464	70.853
Expenditure	X16	1	5	3.253	0.946	29.070
Change in wage	Y1	2	3	2.453	0.501	20.428
Change in Man days	Y2	0	15	1.093	0.373	34.200
Change dynamics of						
	Y=Y1+Y2	2	10	6.453	1.579	24.473
livelihood						

Table- 1 represents, the descriptive distribution of casual and consequent variables considered for the present study.

The **Table-1** revealed that "**Age**" distributed with the mean 38.747 and S.D. of 10.379 The coefficient of variation was 26.788% within the range of 25-64 It is to infer that the distribution of Age is medium consistent in nature.

The table also revealed that the variable "**Education**" distributed with a mean value 2.453 and S.D. of 1.308. The coefficient of variation was 53.31% within the range of 0-6. Education is medium consistent in nature.

The table revealed that "**Family size**" distributed with the mean 6.36 and S.D. of 2.13. The coefficient of variation was 33.57% within the range of 4-12. It is to infer that the distribution of Family type is medium consistent in nature.

The table also revealed that the variable "**Communication index**" distributed with a mean value 5.25 and S.D. of 1.35. The coefficient of

variation was 25.80% within the range of 3-8.5. Family Type is medium consistent in nature.

The table interpreted that that the variable "**House Type**" distributed with a mean value of 3.26 and S.D. of 0.47. The coefficient of variation in this study was 14.52% within the range of 2-4. It is highly consistent in nature.

The table also revealed that the variable "**Sanitation**" distributed with a mean value 9.08 and S.D. of 0.882. The coefficient of variation was 9.71% within the range of 7-10. It is highly consistent in nature.

The table interpreted that that the variable "**Distance matrix**" distributed with a mean value of 2.16 and S.D. of 0.63. The coefficient of variation in this study was 29.51% within the range of 1-13. It is inconsistent in nature.

The table interpreted that that the variable "**Doctors visited**" distributed with a mean value of 3.92 and S.D. of 0.89. The coefficient of variation in this study was 22.87% within the range of 2-6. It is very consistent in nature, which ranked.

The table also revealed that the variable "**Drinking water**" distributed with a mean value 9.12 and S.D. of 1.01. The coefficient of variation was 11.12% within the range of 6-10. It is highly consistent in nature.

The table also revealed that the variable "**Drudgery**" distributed with a mean value 2.81 and S.D. of 0.73. The coefficient of variation was 25.93% within the range of 2-9. It is highly consistent in nature.

The table also revealed that the variable "**Home innovation**" distributed with a mean value 14.66 and S.D. of 4.77. The coefficient of variation was 35.57% within the range of 8-26. It is highly consistent in nature.

The table also revealed that the variable "**Land holding**" distributed with a mean value1.41 and S.D. of 0.49. The coefficient of variation was 35.07% within the range of 1-2. It is highly consistent in nature.

The table also revealed that the variable "**yield**" distributed with a mean value 2.80 and S.D. of 1.70. The coefficient of variation was 61.01% within the range of 1-14. It is highly consistent in nature.

The table also revealed that the variable "**Adoption level**" distributed with a mean value 1.66 and S.D. of 0.82. The coefficient of variation was 49.64% within the range of 1-3. It is highly consistent in nature.

The table also revealed that the variable "**Annual income**" distributed with a mean value 2.06 and S.D. of 1.46. The coefficient of variation was 70.85% within the range of 1-15. It is highly consistent in nature.

The table also revealed that the variable "**Expenditure** " distributed with a mean value 3.25 and S.D. of 0.94. The coefficient of variation was 29.07% within the range of 1-5. It is highly consistent in nature.

The table also revealed that the variable "**Change in wage**" distributed with a mean value 2.45 and S.D. of 0.50. The coefficient of variation was 20.42% within the range of 2-3. It is highly consistent in nature.

The table also revealed that the variable "**Change in Man days**" distributed with a mean value 1.09 and S.D. of 0.37. The coefficient of variation was 34.20% within the range of 0-15. It is highly consistent in nature.

The table also revealed that the variable "**Change dynamics of livelihood**" distributed with a mean value 6.45 and S.D. of 1.57. The coefficient of

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variation was 24.47% within the range of 2-10. It is highly consistent in nature.

Table 2: Coefficient of correlation between change in wage (y1) and 16 independent variables.

	Variables	r value
X1	Age	0.048
X2	Education	0.095
X3	Family size	0.060
X4	Comm. index	-0.116
X5	Dist. matrix	-0.019
X6	Doctors visited	0.052
X7	House type	0.053
X8	Sanitation	-0.083
X9	Drinking water	-0.055
X10	Drudgery	0.087
X11	Home innovation	-0.077
X12	Land holding	-0.003
X13	yield	0.076
X14	Adoption level	0.109
X15	Annual income	0.087
X16	Expenditure	0.011

*Significant at 0.05 level ** Significant at 0.01 level
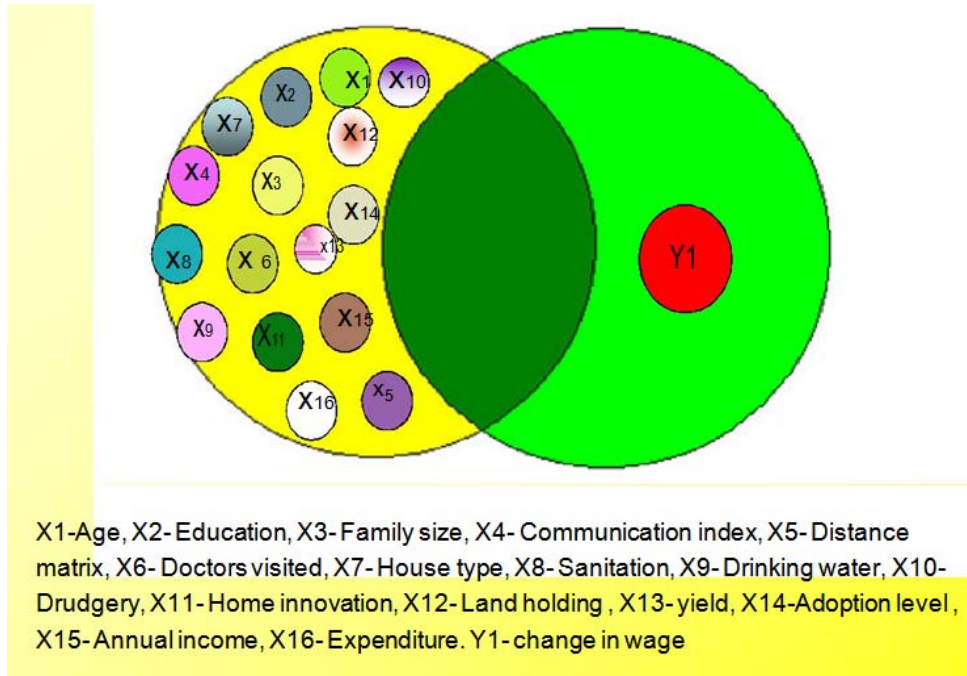
X1-Age, X2- Education, X3- Family size, X4- Communication index, X5- Distance matrix, X6- Doctors visited, X7- House type, X8- Sanitation, X9- Drinking water, X10- Drudgery, X11- Home innovation, X12- Land holding, X13- yield, X14- Adoption level, X15- Annual income, X16- Expenditure. Y1- change in wage

Fig. 1: Coefficient of correlation between Change in wage (y_1) and 16 Independent variables.

Revelation:

Table 2 reveals that none of the variables of the respondents have been found significant and there is neither positive correlation nor negative correlation with the variable change in wage (Y_1) of the respondents have been found in the study.

Implication:

None of the independent variables has recorded a significant correlation with the dependent variable change in wage(Y_1), however the variable Adoption level (X_{14}) has gone closer to significant relationship to depict the propensity that respondents having higher adoption level have perceived that more change in wages in providing rural livelihood opportunity. wage has been a main source of income and support for the marginal farmers, contributing the highest number of respondents. In a typical rainfed agro-ecosystem, Characteristically complex, diverse and risk prone, the change in wage has naturally been predicted by the level of income.

None of the variables in this table has recorded a significant relationship to a "Statutory level" 1% or 5%". But in social sciences it is better to go up to 10 or even 20% level of significance. Rather it is more risky to draw an inference at a 1% level of significance stating that the relationship already analysed have an applicability or truthfulness for the 95% or 99% of respondents. In the social sciences society has become the laboratory to the social scientists which itself is a very complex, less predictable and the variables are behaving in compliance with the heteofile inter action not under stipulation of physical laboratories where in certain amount of inputs are experimented to generate certain amount of reciprocal output. In an experimental set up that is governed by institution framework and social norm evolved over a protractile period, it is ready and difficult task to steer and organized the relation study. Besides the value of co-efficient of correlation may be significant or less significant is retaining a huge

implicate implication that needs to be disposed off through the decomposition of co-efficient of correlation to extract the direct indirect & spurious effect. Sometimes it may happened that apparently "insignificant correlation" are retaining significant direct effect but has been negated by the summated indirect effect. The situation by default shall lead us to have an interactive analytical framework by resorting to path analysis, depicting the direct indirect and residual effect.

Table 3: Coefficient of correlation between change in man days (y2) and 16 Independent variables.

	Variables		N=75
	Variables		**r value**
X1	Age		0.072
X2	Education		-0.060
X3	Family size		0.093
X4	Comm. index		0.009
X5	Dist. matrix		0.390[**]
X_6	Doctors visited		-0.098
X_7	House type		0.086
X_8	Sanitation		0.018
X_9	Drinking water		0.077
X10	Drudgery		0.065
X11	Home innovation		0.025
X12	Land holding		0.226
X13	yield		0.347[**]
X14	Adoption level		0.364[**]
X15	Annual income		0.383[**]
X16	Expenditure		0.391[**]

*Significant at 0.05 level ** Significant at 0.01 level
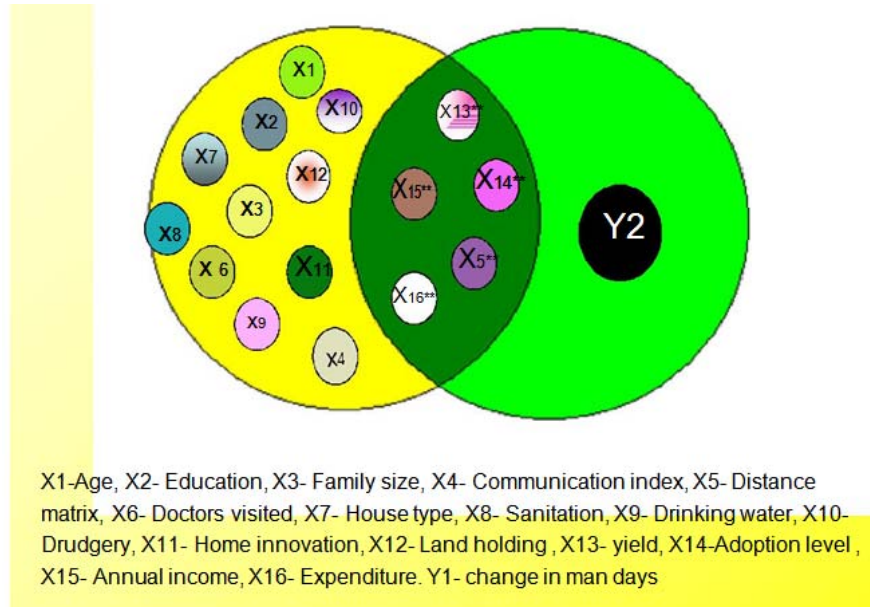
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X1-Age, X2- Education, X3- Family size, X4- Communication index, X5-
Distance matrix, X6- Doctors visited, X7- House type, X8- Sanitation, X9-
Drinking water, X10- Drudgery, X11- Home innovation, X12- Land holding,
X13- yield, X14-Adoption level, X15- Annual income, X16- Expenditure. Y1-
change in man days

**Fig. 2: Coefficient of correlation between Change in
man days (y$_2$) and 16 Independent variables.**

Table-3 Presents the Coefficient of correlation between **change in man
days (y$_2$)** and 16 independent variables.

Revelation:
Table 2 reveals that Dist. matrix (X5), yield (X13),Adoption level (X14),
Annual income(X$_{15}$), Expenditure (X$_{16}$) of the respondents have been

found significant and positively correlated with the variable change in man days (Y2) of the respondent.

Implication:

Distance matrix(x_5) imbibes and invites spatial movement and geographical distance and install with strategic point of change in man days. For higher distance matrix from the respondent has gone attributive to higher change in man days. The respondents mainly comprising of small and marginal land category have recorded a bearing on man days fixation. Those having a bit higher yield level can also enjoy the ability to get with the more no. of man days in a month. Respondents having a poor or impoverished resource endowment are comparatively feeble in deciding on the wages render accessible to him.

The Adoption level recorded a significant and positive correlation which implies that for more adoption level of inputs (fertilizer, pesticides, etc) than the recommended dose getting more man days in a month. For any hazardous agricultural operation like application of fungicide etc. man days has been negotiable and it has primarily been revealed by this co-relation.

Better Annual income performances create a steady demand for agricultural labour market goes to higher man days in a month.

Higher pattern of expenditure directly associated with higher man days in a month.

Since co-efficient of correlation depict only an associational relation among and between the predictor and predicted variable it won't be judicious to

control anything beyond a mere prediction unless & until the efficacy of the relation has been supported by the path analysis by isolating the direct effect of an exogenous variable from the indirect & spurious (residual) effect.

Table 4: Coefficient of correlation between change dynamics of rural livelihood (y)=y_1+y_2 and 16 independent variables.

N=75

	Variables	r value
X1	Age	-0.157
X2	Education	-0.009
X3	Family size	0.095
X4	Comm. index	0.194
X5	Dist. matrix	0.330**
X6	Doctors visited	-0.098
X7	House type	0.053
X8	Sanitation	0.148
X9	Drinking water	0.042
X10	Drudgery	0.074
X11	Home innovation	0.053
X12	Land holding	0.258*
X13	yield	0.264*
X14	Adoption level	0.272*
X15	Annual income	0.232*
X16	Expenditure	0.302**
*Significant at 0.05 level ** Significant at 0.01 level		
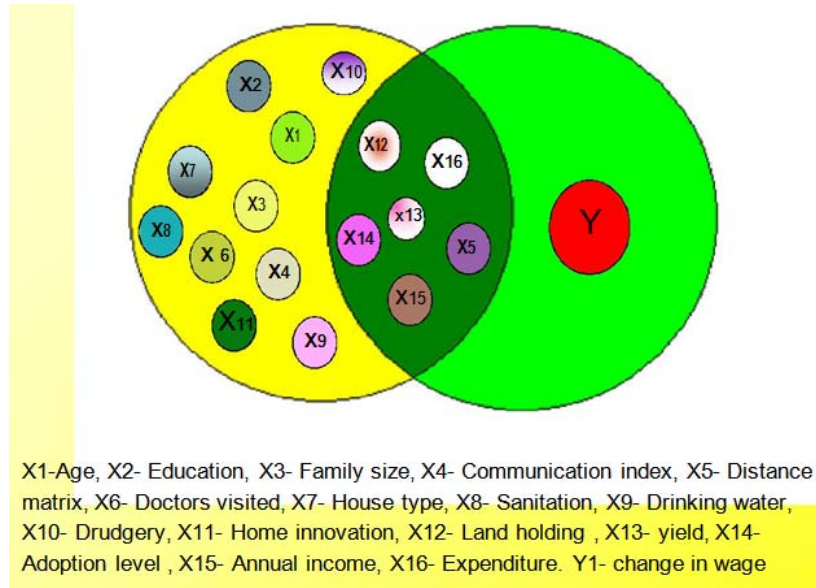
X1-Age, X2- Education, X3- Family size, X4- Communication index,
X5- Distance matrix, X6- Doctors visited, X7- House type, X8-
Sanitation, X9- Drinking water, X10- Drudgery, X11- Home
innovation, X12- Land holding, X13- yield, X14-Adoption level, X15-
Annual income, X16- Expenditure. Y1- change in wage

Fig. 3: Coefficient of correlation between change dynamics of rural livelihood (y) and 16 Independent variables.

Table-4 Presents the Coefficient of correlation between **change dynamics of rural livelihood (y)** and 16 independent variables.

Revelation:

Table-4 reveals that Dist. matrix (X_5), land holding(x_{12}), yield (X_{13}),Adoption level (X_{14}), Annual income(X_{15}), Expenditure (X_{16}) of the respondents have been found significant and positively correlated with the change dynamics of rural livelihood (Y) of the respondent.

Implication:

Distance matrix(x_5) has highly positive significance with change dynamics of rural livelihood(y) which imbibes and invites spatial movement and geographical distance and install with strategic point of income generation.

That is how it has got significantly correlated with change dynamics of rural livelihood(y). For higher distance matrix from the respondent has gone attributive to higher change dynamics of livelihood.

For higher holding size from the respondent has gone attributive to higher level of change dynamics of livelihood. Those having a higher land holding involved in other non-farm activities. Respondents having a rich or better resource endowment are comparatively feeble in deciding on the change dynamics of livelihood.

The Adoption level recorded a significant and positive correlation which implies that for more adoption level of inputs (fertilizer, pesticides, etc) getting higher dynamics of livelihood.

The driving force for any livelihood generation and its change dynamics are being qualitatively characterized with income parameter and income distribution.

So, annual income has been conceived both as direction and declinational for rural livelihood change.

Expenditure is the resource disposal proficiency on supporting livelihood both at individual and community level. Change dynamics of rural livelihood and pattern of expenditure do form a dyad, one for ionic exchange and other for income exchange.

Since co-efficient of correlation depict only an associational relation among and between the predictor and predicted variable it won't be judicious to control anything beyond a mere prediction unless & until the efficacy of the relation has been supported by the path analysis by isolating the direct effect of an exogenous variable from the indirect & spurious (residual) effect.

Table 5: Path analysis for deriving direct, indirect and residual effect of exogenous variable on consequent variables change in wages (y_1) vs 16 antecedent variables.

Variables		Total effect (r)	Direct effect (d)	Indirect effect (r-d)	Substantial indirect effect (i)	(ii)	(iii)
X1	Age	-0.157	-0.234	0.077	0.120(x14)	-0.037(x6)	0.032(x16)
X2	Education	-0.009	-0.110	0.101	-0.053(x4)	-0.031(x5)	0.023(x16)
X3	Family size	0.095		-0.025	0.297(x14)	-	-0.072(x12)
			0.120			0.147(x15)	
X4	Comm. index	0.194		0.080	0.419(x14)	-	0.132(x16)
			0.115			0.229(x15)	
X5	Dist. matrix	0.330	0.291	0.039	0.637(x14)	0.375(x16)	-0.342(x15)
X6	Doctors	-0.098		-0.049	-0.145(x14)	0.130(x6)	0.06(x15)
	visited		-0.049				

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X7	House type	0.053		0.122	0.194((x14)	-	0.071(x16)
			-0.069			0.092(x15)	
X8	Sanitation	0.148		0.109	0.240(x14)	-	-.101(x5)
			0.040			0.112(x15)	
X9	Drinking water	0.042		0.153	0.128(x14)	-0.082(x9)	-0.077(x5)
			-0.112				
X10	Drudgery	0.074		-0.087	.112(x10)	-	0.022(x3)
			0.161			0.027(x16)	
X11	Home innovation	0.053	-0.365	0.417	0.519(x14)	-	-0.176(x11)
						0.263(x15)	
X12	Land holding	0.258		0.118	0.765(x14)	-	0.254(x16)
			0.139			0.386(x15)	
X13	yield	0.264	0.099	0.166	0.951(x14)	-	0.286(x16)
						0.531(x15)	
X14	Adoption level	0.272	0.628	-0.356	-0.528 (x15)	0.264(x16)	-0.224(x5)
X15	Annual income	0.232	0.659	0.891	0.962(x14)	0.267(X16)	-0.218(x5)
X16	Expenditure	0.302	0.062	0.240	0.659(x14)	0.366(x15)	-0.328(x5)

Residual effect- 0.9233
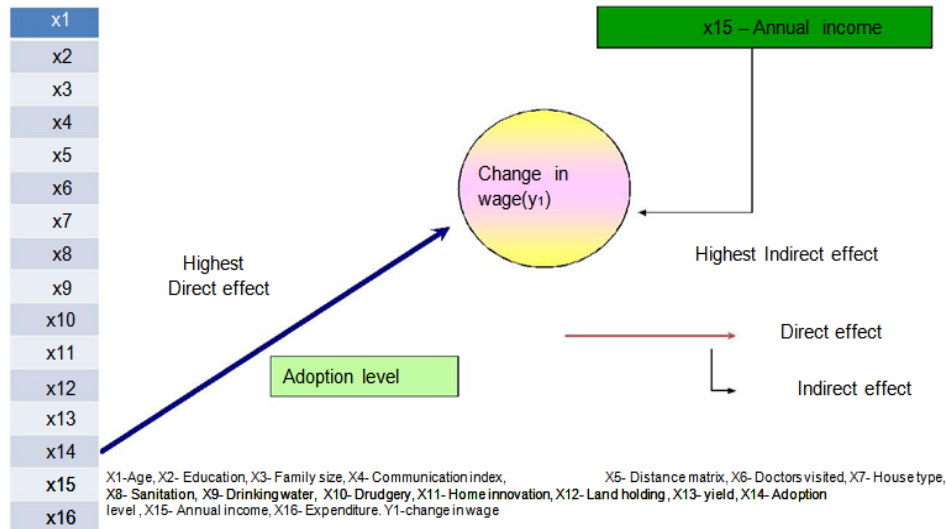
Fig. 4: Path analysis for deriving direct, indirect and residual effect of exogenous variable on consequent variables change in wages (y1) vs 16 antecedent variables.

Table 5: Presents the Path analysis for deriving direct, indirect and residual effect of exogenous variables on consequent variables change in Wage (y_1) on 16 antecedent variables.

It has been depicted that the variable Adoption level(X_{14}) has exerted the highest direct effect on the consequent variable, change in wage (Y_1), to imply the dominating impact of adoption level in negotiating the change in wage level by any farmer, marginal and impoverished by economic incapability.

The highest indirect effect has been routed by variable Annual income (X_{15}). In any transforming agriculture, especially at the initial stage, the

role of agri-chemical application can impact on wage level. However, this variable has exerted here only some associational impact the characterizing the consequent variable wage.

It has also been interesting to note that the highest indirect effects of as many as 13 variables have been routed though the variable Age(x_1), Family size(x_3), Comm.

Index(x_4) Dist. Matrix(x_5), Doctors visited (x_6), House type (x_7), Sanitation (x_8), drinking water(x_9),holding size (X_{12}), yield(x_{13}), Annual income(x_{15}),expenditure(x_{16}) to ultimate characteristics behavior of the consequent variable change in wage.

The residual effect being 0.9233 per cent, it is to conclude that 92% of the variability embedded with the consequent variable change in wage would not be explained the combination of 16 variables in this investigation in the form of antecedent variables had been able to explain 8% of the variation in the consequent variables i.e change in wage(y1).

The higher volume of residual effect implies that some of the variables are having lower level of relevance and consistency both. The other reason might be the distribution due to unique social system, have recorded an erratic pattern in spatial distribution. This kind of "defiant behaviour" has been reflected in the extremely high C.V. values of the variables. However the other set of analysis have compensated in such a way as to reach a logical conclusion for the entire study.

Table 6: Path analysis for deriving direct, indirect and residual effect of exogenous variable on consequent variables, change in man days (y_2) vs 16 antecedent variables.

	Variables	Total effect (r)	Direct effect (d)	Indirect effect (r-d)	Substantial indirect effect (i)	(ii)	(iii)
X1	Age	-0.157	-0.234	0.077	-0.203(x13)	0.164(x15)	0.043(x3)
X2	Education	-0.009	-0.110	0.101	-0.044(x13)	-0.039(x4)	0.031(x5)
X3	Family size	0.095	0.120	-0.025	-0.394(x13)	0.331(x15)	-0.121(x11)
X4	Comm.index	0.194	0.115	0.080	-0.565(x13)	0.515(x15)	0.114(x5)
X5	Dist. matrix	0.330	0.291	0.039	-0.877(x13)	0.770(x15)	0.213(x16)
X6	Doctors visited	-0.098	-0.049	-0.049	0.204(x13)	-0.134(x15)	-0.028(x11)
X7	House type	0.053	-0.069	0.122	-0.297(x13)	0.207(x15)	0.053(x10)
X8	Sanitation	0.148	0.040	0.109	-0.334(x13)	0.252(x15)	0.100(x5)
X9	Drinking water	0.042	-0.112	0.153	-0.177(x13)	0.116(x15)	0.076(x5)
X10	Drudgery	0.074	0.161	-0.087	-0.071(x13)	0.037(x3)	0.030(x15)
X11	Home innovation	0.053	-0.365	0.417	-0.642(x13)	0.594(x15)	0.101(x14)
X12	Land holding	0.258	0.139	0.118	-0.940(x13)	0.870(x15)	-0.223(x11)

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X13	Yield	0.264	0.099	0.166	1.198(x15)	0.237(x5)	0.185(x14)
X14	Adoption level	0.272	0.628	-0.356	-1.219(X13)	1.191(x15)	0.221(x5)
X15	Annual income	0.232	-0.659	0.891	-1.240(x13)	0.216(x5)	0.152(x16)
X16	Expenditure	0.302	0.062	0.240	-0.915(x13)	0.826(x15)	0.325(x5)

Residual effect- 0.8087

Fig. 5: Path analysis for deriving direct, indirect and residual effect of exogenous variable on consequent variables change in man days (y2) vs 16 antecedent variables.

X1 -Age, X2- Education, X3- Family size, X4- Communication index, X5- Distance matrix, X6- Doctors visited, X7- House type, X8 - Sanitation, X9- Drinking water, X10- Drudgery, X11- Home innovation, X12- Land holding, X13- yield, X14- Adoption level, X15- Annual income, X16- Expenditure. Y2-change in man days
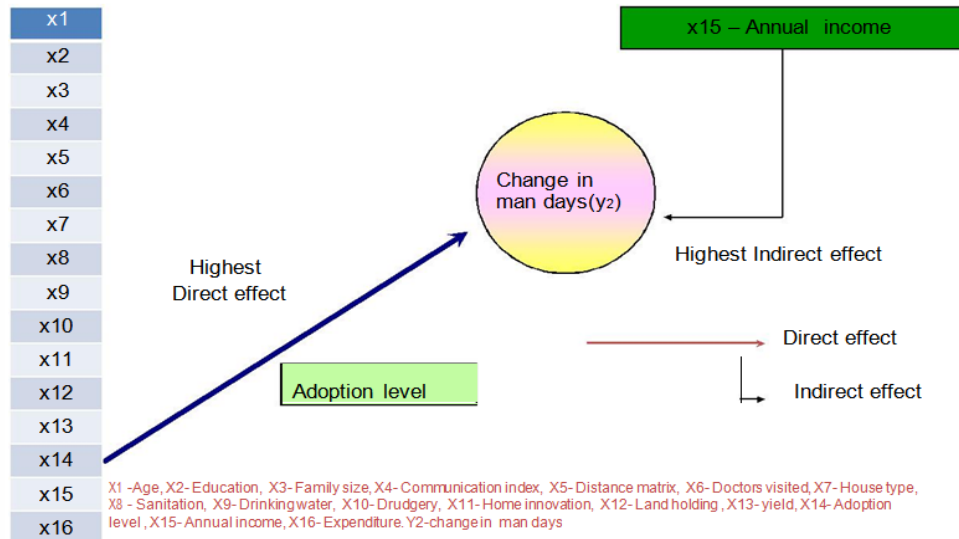
Table 6 Presents the Path analysis for deriving direct, indirect and residual effect of exogenous variables on consequent variables change in man days (y$_2$) on 16 antecedent variables

It has been depicted that the variable Adoption level(X_{14}) has exerted the highest direct effect on the consequent variable, change in man days (Y_2), to imply the dominating impact of adoption level in negotiating the change in man days by any farmer, marginal and impoverished by economic incapability.

The highest indirect effect has been routed by variable Annual income (X_{15}). In any transforming agriculture, especially at the initial stage, the role of agri-chemical application can impact on wage level. However, this variable has exerted here only some associational impact the characterizing the consequent variable wage.

It has also been interesting to note that the highest indirect effects of as many as 13 variables have been routed though the variable Age(x_1), education(x_2), Family size(x_3), Comm. Index(x_4), Dist. Matrix(x_5), Doctors visited (x_6), House type (x_7), Sanitation (x_8), drinking water(x_9), drudgery(x_{10}), home innovation(x_{11}),landholding(x_{12}), adoption level(x_{14}), Annual income(x_{15}), expenditure(x_{16}) to ultimate characteristics behavior of the consequent variable change in wage.

The residual effect being 0.8087 per cent, it is to conclude that 80% of the variability embedded with the consequent variable change in man days would not be explained the combination of 16 variables in this investigation in the form of antecedent variables had been able to explain 20% of the variation in the consequent variables i.e change in man days($y1$).

Discussion

The higher volume of residual effect implies that some of the variables are having lower level of relevance and consistency both. The other reason might be the distribution due to unique social system, have recorded an erratic pattern in spatial distribution. This kind of "defiant behaviour" has been reflected in the extremely high C.V. values of the variables. However the other set of analysis have compensated in such a way as to reach a logical conclusion for the entire study.

Table 7: Path analysis for deriving direct, indirect and residual effect of exogenous variable on consequent variables change dynamics of rural livelihood (y) vs 16 antecedent variables).

Variables	Total (r)	Direct effect(d)	Indirect effect(r-d)	Substantial effect					
				I		II		III	
Age(x1)	-0.157	-0.234	0.077	-0.088 (x15)		0.076 (x14)		0.024(x3)	
Educ(x2)	-0.009	-0.110	0.101	0.027(x4)		0.026(x5)		0.018(x14)	
Fam.sz(x3)	0.095	0.120	-0.025	0.187(x14)		-0.177	(x15)	-0.146 (x11)	
Comm.index(x4)	0.194	0.115	0.080	-0.276 (x15)		0.265 (x14)		-0.126 (x11)	
Dist.matrix(x5)	0.330	0.291	0.039	-0.412 (x15)		0.402 (x14)		-0.159 (x11)	
Doctors visited (x6)	-0.098	-0.049	-0.049	-0.091	(x14)	0.072	(x15)	0.067(x1)	

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House type (x7)	0.053	-0.069	0.122	0.062(x5)	0.055	(x10)	-0.051 (x14)
Sanitation (x8)	0.148	0.040	0.109	0.151(x14)	-0.135	(x15)	-0.092 (x11)
Drinking water (x9)	0.042	-0.112	0.153	0.081(x14)	0.064(x5)		-0.062(x15)
Drudgery (x10)	0.074	0.161	-0.087	-0.030	(x10)	-0.024(x1)	-0.024(x7)
Home innovation (x11)	0.053	-0.365	0.417	0.328(x14)	-0.318	(x15)	0.126(x5)
Land holding (x12)	0.258	0.139	0.118	0.483(x14)	-0.465	(x15)	-0.269 (x11)
yield (x13)	0.264	0.099	0.166	-0.641	(x15)	0.600	(x14) 0.200(x5)
Adoption level (x14)	0.272	0.628	-0.356	-0.637	(x15)	-0.190	(x11) 0.186(x5)
Annual income (x15)	0.232	-0.659	0.891	0.607(x14)	0.182(x5)		-0.176(x11)
Expenditure (x16)	0.302	0.062	0.240	-0.442(x15)	0.416	(x14)	0.273(x5)

Residual effect- 0.859
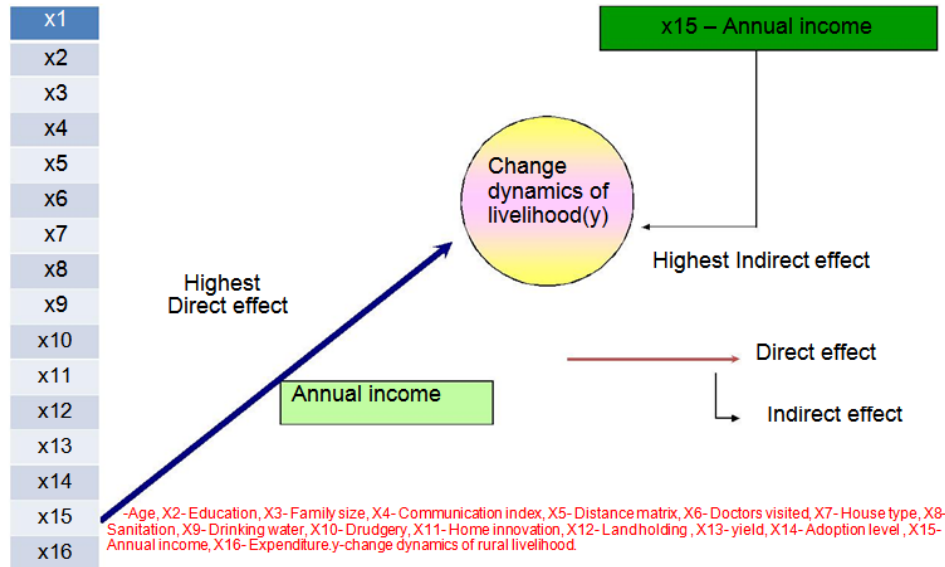
Fig. 6: Path analysis for deriving direct, variable on consequent variables change antecedent variables. indirect and residual effect of exogenous dynamics of rural livelihood (y) vs 16

Table-7 Presents the Path analysis for deriving direct, indirect and residual effect of exogenous variables on consequent variables **change dynamics of rural livelihood (y)** on 16 antecedent variables

The table presents the path analysis by decomposing the total effect or r-value into direct, indirect and residual effect. It has been found that the variable annual income(x15) has exerted both the highest direct and indirect effect as two characteristics the behavior of consequent of the change dynamics of rural livelihood(y).so, after the livelihood change dynamics the prime mover has been the annual income, retaining both direct effect as well as companionship effect.

The variable adoption level(x14) has routed the highest indirect effect as many as 7 variables Family size(x3), Doctors visited (x6), Sanitation (x8),drinking water(x9), home innovation(x11),holding size (X_{12}), Annual income(x15) to ultimate characteristics the behavior of the consequent variable. i.e the change dynamics of rural livelihood(y)

The residual effect being 0.859 per cent, it is to conclude that 85% of the variability embedded with the consequent variable change dynamics of rural livelihood would not be explained the combination of 16 variables in this investigation in the form of antecedent variables had been able to explain 15% of the variation in the consequent variables i.e change dynamics of livelihood(y) and this should suggest that:

1. The relevancy level of independent variable should have been increased.
2. The c.v.% can go high by living behind a fair amount of inconsistency to invite sizeable error to enter the digital interaction.
3. The no. of variable should have increased.

The higher volume of residual effect implies that some of the variables are having lower level of relevance and consistency both. The other reason might be the distribution due to unique social system, have recorded an erratic pattern in spatial distribution. This kind of "defiant behaviour" has been reflected in the extremely high C.V. values of the variables. However the other set of analysis have compensated in such a way as to reach a logical conclusion for the entire study.

Discussion

Table 8: Factor analysis for conglomeration of variables into factor based on factor loading.

FACTOR	VARIABLES		Factor loading	Eigen value	% of variance	Cumulative %	Factor rename
F1	x12	Land holding	0.597	5.674	35.461	35.461	Resource
	X13	yield	0.891				
	X14	Adoption level	0.918				
	X15	Annual income	0.939				
F2	X7	House type	0.750	1.112	6.949	42.410	Infrastructure
	X9	Drinking water	0.307				
	X10	Drudgery	0.507				
F3	X3	Family size	0.449	1.083	6.768	49.178	Innovation
	X11	Home innovation	0.854				
F4	X4	Communication index	0.715	0.797	4.983	54.161	
F5	X6	Doctors visited	0.545	0.750	4.698	58.850	Health status
	X8	Sanitation	-0.580				
F6	X5	Distance matrix	-0.818	0.537	3.354	62.204	Entrepreneurship
	x16	Expenditure	-0.861				
F7	x1	Age	0.633	0.386	2.411	64.615	Age

F8	X2	Education	0.573	0.292	1.824	66.439	Education

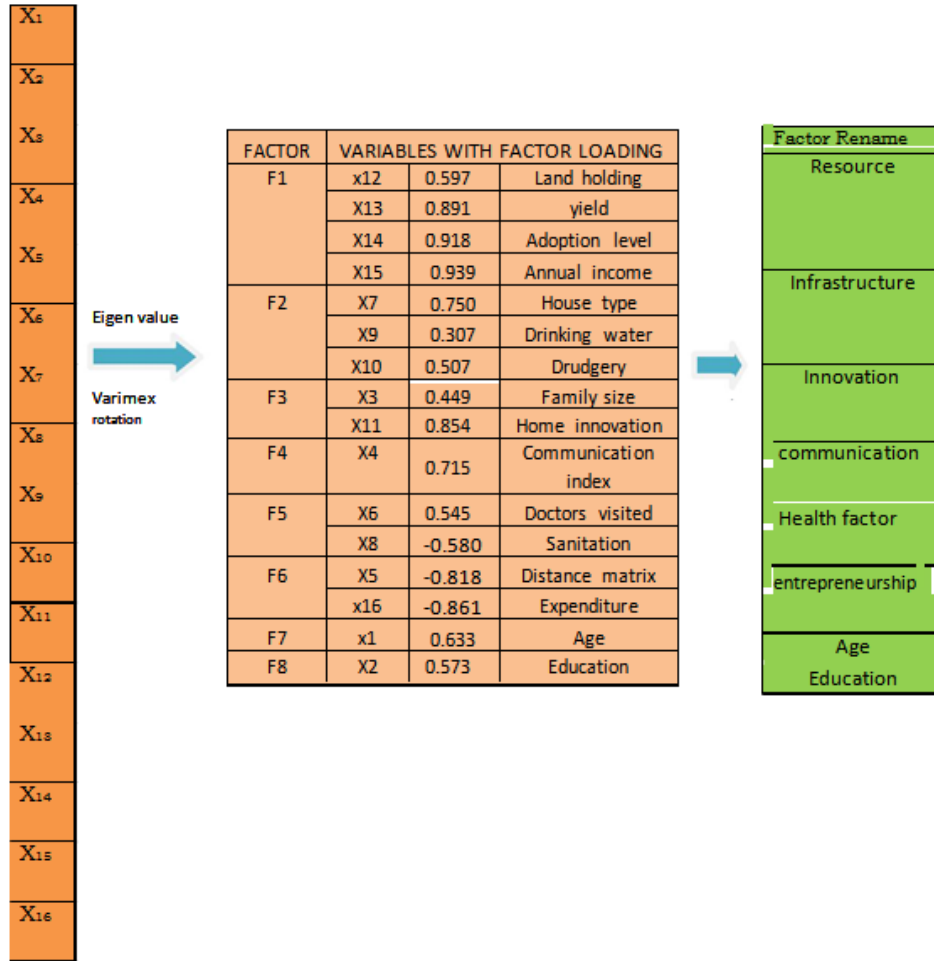**Fig. 7: Factor analysis – Eigen value, Factor and Factor Renaming.**

Table 8: Factor analysis for clubbing of variables into factor based on fact loading.

Discussion

The Factor-1 has accommodated the following variables X_{12}(Land holding), (Yield) X_{13}, (Adoption level) X_{14}, (Annual income) X_{13} has been renamed as **Resource factor**. The factor has contributed 35.461 percent of variance.

The Factor-2 has accommodated the following variables X_7 (House type), X_9 (Drinking water), X_{10}(Drudgery) has been renamed as **Infrastructure** contributing variance percentage was 6.949.

The Factor-3 has accommodated the following variables X_3 (Family size), X_{11} (Home innovation) and has been renamed as **Innovation**.. The factor has contributed 6.768 percent of variance of the predictable character.

It has found that factor-4 accumulated X_4(Communication index) and with 4.983 percent Cumulative Variance and has been renamed as **communication**..

Factor-5 has accommodated the following variables X_6(Doctor visited), X_8(Sanitation), and has been renamed as **health factor** contributing variance was 4.698 percent.

It has found that factor-6 accumulated X_5(Distance matrix), X_{16}(Expenditure), and with 62.204 percent Cumulative Variance and has been renamed as **Entrepreneurship.**

The Factor-7 has accommodated the following variables X_1 (Age), and has been renamed as **age**. The factor has contributed 2.411 percent of variance.

The Factor-8 has accommodated the following variables X_2 (Education), and has been renamed as **Education** contributing variance was 1.824 percent.