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OBSERVE THE METHODS AND MEASURES USED IN TWO LEVEL AND TWO OCCASIONS SEQUENTIAL SAMPLING

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Abstract:

Using two occasions of successive sampling, an effective estimation approach has been established in this study to estimate the current population mean. The current population means is estimated using a method based on exponential regression, and an ideal replacement approach is recommended. The proposed estimator's superiority to sample mean estimators and natural sequential sampling estimators is demonstrated empirically. Findings have been interpreted, and appropriate suggestions have been given.

Keywords: sampling, two-occasion, successivesampling

1. Introduction:

A one-time survey conducted on a single occasion does not provide information about the nature or pattern of change of the characteristic over different occasions, the precise estimates of the characteristic over all occasions, or on the most recent occasion, when the characteristic under study of a finite population changes over time. Instead, it only provides information about the characteristic of the surveyed population for the given occasion. In order to get around this problem, sampling is done repeatedly in order to produce accurate estimates of population parameters at various times.The theory of sequential sampling appears to have been introduced by Jessen (1942), who was a pioneer in utilizing all of the data gathered from earlier studies to improve current estimations. Pattersons (1950), Rao and Graham (1964), Gupta (1979), and Das (1982), among others, have added to this idea. Sen (1971) used data on two auxiliary variables that were easily accessible on a previous occasion to create estimators of the population mean on the occasion in question. Sen expanded his study for a number of auxiliary variables in 1972 and 1973.

In two occasions successive sampling, Singh et al. (1991) and Singh and Singh (2001) employed the supplementary information on present occasion to estimate the current population mean. The theory for h-occasion successive sampling was expanded by Singh (2003).In many circumstances, information on an auxiliary variable may be easily accessible on both the first and second occasions. For instance, in a transportation survey, the tonnage (or seat capacity) of each vehicle or ship is known. Additional instances may be given where the information on auxiliary variables is accessible on both occasions of two-occasion successive sampling. A variety of estimators of the population mean on current (second) occasions in two occasion successive sampling have been proposed by Feng (1997), Birader (2001), Singh (2005), Singh (2006), Singh (2008, 2010), Singh (2009), Singh (2009), Singh (2010), Singh (2011), and Singh (2013), among others, using the auxiliary information on both occasions.

The goal of the current work is to suggest a more accurate estimator of the current population mean in two-occasion sequential sampling using data on two stable auxiliary variables that are easily accessible on both occasions, as a follow-up to the aforementioned justifications. An exponential regression type estimator of the current population mean in two-occasion successive sampling has been presented using the data on the two auxiliary variables. When there is no matching from the prior instance, the proposed estimator's properties are investigated, and relative efficiency comparisons are done with the sample mean estimator and the natural sequential sampling estimator when no auxiliary information is employed.Empirical research has been done, and the results demonstrate the proposed estimator's performance has improved significantly. The results have been expertly interpreted, and pertinent suggestions have been given.

PropertiesoftheWished-forEstimator

PartialityandUnkindSquareError

Meanwhile the estimator's T_u and $T_m$remain exponential besides exponential deteriorationkind estimators, they remain biasedestimators of the populacemean $\bar{Y}$. Then, the resulting estimator T is too a biased estimator of $\bar{Y}$. The prejudice$B(.)$ and mean right-angled error $M(.)$ of the estimator T is resulting up to the principal order of guesses underlarge sample supposition and exposed in the next theorems:

Theorem 1.*Partiality of the estimator T to the principal order of calculations is obtained as*

$(T) = \varphi(T_u) + (1 - \varphi)B(T_m)$

Where

$$B(T_u) = \left(\frac{1}{u} - \frac{1}{N}\right)\left\{\alpha_{0100} - \frac{1}{2}\bar{Y}\left(\frac{\alpha_{0010}}{Z_1} + \frac{\alpha_{0001}}{Z_2}\right) - \frac{1}{2}\frac{\alpha_{0010}}{Z_1} - \frac{1}{2}\frac{\alpha_{0110}}{Z_1 Z_2} + \frac{3}{8}\left(\frac{\alpha_{0020}}{Z_1^2} + \frac{\alpha_{0002}}{Z_2^2}\right)\right\}$$

Where

$\alpha pqrs = E[(x_i - \bar{X})p(y_i - \bar{Y})^q(z_{1i} - \bar{Z}_1)r(z_{2i} - \bar{Z}_2)^s]$; $((p, q, r, s) \geq 0$ are integers).

Theorem 2. *Mean square fault of the estimator T to the leading degree of guesses is found as*

$(T)=\varphi^2(T_u)+(1-\varphi)^2M(T_m)+2\varphi(1-\varphi)C(T_u,T_m)$

Lowest mean square blunders of the estimator T

Subsequently the nasty square blunder of the estimator T in calculation is the meaning of the indefinite constant (scalar)φ, so, it is minimized by respect to φ and then the optimum value of φ is found as

$$\varphi_{opt} = \frac{M(T_m) - c(T_u, T_m)}{M(T_u) + M(T_m) - 2c(T_u, T_m)}$$

From overheadequation, replacing the value of φopt in calculation we grow the optimum mean four-sided error of the estimator T as

$$M\varphi_{opt} = \frac{M(T_u)+M(T_m)-\{c\{T_u,T_m\}\}^2}{M(T_u)+M(T^*{}_m)-\{2c\{T_u,T_m\}\}^*}$$

thebasicvaluesof$\varphi_{opt}$and$M(T)_{opt.}$aregotas

$$\varphi_{opt} = \frac{\mu(A_{12} + \mu A_{11})}{A_1 - \mu A_{14} + \mu^2 A_{15}}$$

$$M\varphi_{opt} = \frac{(A_{22} - \mu A_{23} + \mu^2 A_{21})}{(A_1 - \mu A_{14} + \mu^2 A_{15})} \frac{S_y^2}{n}$$

OptimumReplacementstrategyoftheestimatorT

The finest mean square error $(T)_{pt}$. inreckoning is a meaningμ (fraction of sample to be drawn anew on the next occasion). It is an imperative factor in dropping the rate of the examination, therefore, to fix the optimum cost of μ so that $\bar{Y}$can be estimated thru maximum meticulousness and tiniest cost, we abate $(T)_{pt}$. withreverence to μ which consequences in a quadratic equation in μ, which is made known as

$$\mu^2 D_1 + 2\mu D_2 + D_3 = 0$$

Table1: Optimalstandardsof$\mu_0$andPRE'sof$T$withveneration to $\bar{y}_n$ and $\bar{y}$on behalf of f= 0.1 then$P_{z_1z_2} = 0.3$

$\rho 0$	$\rho 1$	ρyx	0.6	0.7	0.8	0.9
0.4	0.4	$\mu 0$	0.3663	0.4658	0.5425	0.6326
		$E1$	132.78	139.32	149.92	168.88
		$E2$	118.03	117.19	116.61	115.957
	0.5	$\mu 0$	0.3881	0.4843	0.5535	0.6404
		$E1$	144.61	152.08	164.33	186.81
		$E2$	128.54	127.93	127.81	128.26
	0.6	$\mu 0$	0.2343	0.4617	0.5395	0.6258
		$E1$	160.87	168.63	182.22	207.56
		$E2$	142.99	141.85	141.73	142.51
	0.8	$\mu 0$	0.6109	0.7156	*	0.4037
		$E1$	209.73	217.57		268.87
		$E2$	186.43	183.02		184.61
0.5	0.4	$\mu 0$	0.3881	0.4843	0.5535	0.6404
		$E1$	144.61	152.08	164.33	186.81
		$E2$	128.54	127.93	127.81	128.26
	0.5	$\mu 0$	0.5134	0.5382	0.5782	0.6512
		$E1$	158.43	167.02	181.04	207.33
		$E2$	140.83	140.49	140.81	142.35
	0.6	$\mu 0$	*	0.6170	0.5921	0.6440
		$E1$		187.14	202.46	231.69
		$E2$		157.42	157.46	159.08
	0.8	$\mu 0$	0.4351	0.4520	0.4815	0.5350
		$E1$	243.59	253.93	272.12	305.72
		$E2$	216.53	213.60	211.65	209.91
0.6	0.4	$\mu 0$	0.2343	0.4617	0.5395	0.6258
		$E1$	160.87	168.63	182.22	207.56
		$E2$	142.99	141.85	141.73	142.51
	0.5	$\mu 0$	*	0.6170	0.5921	0.6440
		$E1$		187.14	202.46	231.69
		$E2$		157.42	157.46	159.08
	0.6	$\mu 0$	0.2284	*	0.6820	0.6528
		$E1$	199.23		230.76	262.27
		$E2$	177.09		179.48	180.08
	0.8	$\mu 0$	0.3284	0.3282	0.3084	*
		$E1$	293.80	304.99	324.79	
		$E2$	261.16	256.56	252.61	
0.7	0.4	$\mu 0$	0.7220	0.0152	0.4638	0.5773
		$E1$	180.09	193.05	205.64	232.83
		$E2$	160.08	162.39	159.94	159.86
	0.5	$\mu 0$	0.3863	0.1655	0.6163	0.6176
		$E1$	203.59	212.35	231.19	262.44
		$E2$	180.97	178.63	179.82	180.19
	0.6	$\mu 0$	0.3008	0.2300	*	0.6855
		$E1$	234.84	244.03		305.28
		$E2$	208.75	205.28		209.60
	0.8	$\mu 0$	0.2521	0.2527	0.2479	0.1987
		$E1$	389.79	402.30	425.68	465.21
		$E2$	346.48	338.41	331.08	319.41
0.8	0.4	$\mu 0$	0.6109	0.7156	*	0.4037
		$E1$	209.73	217.57		268.87
		$E2$	186.43	183.02		184.61
	0.5	$\mu 0$	0.4351	0.4520	0.4815	0.5350
		$E1$	243.59	253.93	272.12	305.72
		$E2$	216.53	213.60	211.65	209.91
	0.6	$\mu 0$	0.3284	0.3282	0.3084	*
		$E1$	293.80	304.99	324.79	
		$E2$	261.16	256.56	252.61	
	0.8	$\mu 0$	0.1530	0.1543	0.1559	0.1541
		$E1$	695.75	712.60	747.82	811.09
		$E2$	618.44	599.43	581.63	556.90

Table2: Idealvalues of$\mu_0$in additionPRE'sof$T$thrurespect to $\bar{y}_n$ and $\bar{y}$on behalf of f= 0.1 also$P_{z_1z_2} = 0.5$

$\rho 0$	$\rho 1$	ρyx	0.6	0.7	0.8	0.9
0.4	0.4	$\mu 0$	0.3663	0.4658	0.5425	0.6326
		$E1$	132.78	139.32	149.92	168.88
		$E2$	118.03	117.19	116.61	115.957
	0.5	$\mu 0$	0.3881	0.4843	0.5535	0.6404
		$E1$	144.61	152.08	164.33	186.81
		$E2$	128.54	127.93	127.81	128.26
	0.6	$\mu 0$	0.2343	0.4617	0.5395	0.6258
		$E1$	160.87	168.63	182.22	207.56
		$E2$	142.99	141.85	141.73	142.51
	0.8	$\mu 0$	0.6109	0.7156	*	0.4037
		$E1$	209.73	217.57		268.87
		$E2$	186.43	183.02		184.61
0.5	0.4	$\mu 0$	0.3881	0.4843	0.5535	0.6404
		$E1$	144.61	152.08	164.33	186.81
		$E2$	128.54	127.93	127.81	128.26
	0.5	$\mu 0$	0.5134	0.5382	0.5782	0.6512
		$E1$	158.43	167.02	181.04	207.33
		$E2$	140.83	140.49	140.81	142.35
	0.6	$\mu 0$	*	0.6170	0.5921	0.6440
		$E1$		187.14	202.46	231.69
		$E2$		157.42	157.46	159.08
	0.8	$\mu 0$	0.4351	0.4520	0.4815	0.5350
		$E1$	243.59	253.93	272.12	305.72
		$E2$	216.53	213.60	211.65	209.91
0.6	0.4	$\mu 0$	0.2343	0.4617	0.5395	0.6258
		$E1$	160.87	168.63	182.22	207.56
		$E2$	142.99	141.85	141.73	142.51
	0.5	$\mu 0$	*	0.6170	0.5921	0.6440
		$E1$		187.14	202.46	231.69
		$E2$		157.42	157.46	159.08
	0.6	$\mu 0$	0.2284	*	0.6820	0.6528
		$E1$	199.23		230.76	262.27
		$E2$	177.09		179.48	180.08
	0.8	$\mu 0$	0.3284	0.3282	0.3084	*
		$E1$	293.80	304.99	324.79	
		$E2$	261.16	256.56	252.61	
0.7	0.4	$\mu 0$	0.7220	0.0152	0.4638	0.5773
		$E1$	180.09	193.05	205.64	232.83
		$E2$	160.08	162.39	159.94	159.86
	0.5	$\mu 0$	0.3863	0.1655	0.6163	0.6176
		$E1$	203.59	212.35	231.19	262.44
		$E2$	180.97	178.63	179.82	180.19
	0.6	$\mu 0$	0.3008	0.2300	*	0.6855
		$E1$	234.84	244.03		305.28
		$E2$	208.75	205.28		209.60
	0.8	$\mu 0$	0.2521	0.2527	0.2479	0.1987
		$E1$	389.79	402.30	425.68	465.21
		$E2$	346.48	338.41	331.08	319.41
0.8	0.4	$\mu 0$	0.6109	0.7156	*	0.4037
		$E1$	209.73	217.57		268.87
		$E2$	186.43	183.02		184.61
	0.5	$\mu 0$	0.4351	0.4520	0.4815	0.5350
		$E1$	243.59	253.93	272.12	305.72
		$E2$	216.53	213.60	211.65	209.91
	0.6	$\mu 0$	0.3284	0.3282	0.3084	*
		$E1$	293.80	304.99	324.79	
		$E2$	261.16	256.56	252.61	
	0.8	$\mu 0$	0.1530	0.1543	0.1559	0.1541
		$E1$	695.75	712.60	747.82	811.09
		$E2$	618.44	599.43	581.63	556.90

Table3: Optimumstandardsof$\mu_0$besidesPRE'sofTbyrespect to $\bar{y}_n$ and $\bar{y}$on behalf of f= 0.1 besides$P_{z_1z_2} = 0.7$

$\rho 0$	$\rho 1$	ρyx	0.6	0.7	0.8	0.9
0.4	0.4	$\mu 0$	0.3733	0.4623	0.5416	0.6350
		$E1$	115.46	121.05	129.85	145.10
		$E2$	102.63	101.83	100.99	100.63
	0.5	$\mu 0$	0.4348	0.5036	0.5701	0.6580
		$E1$	121.73	128.20	138.33	156.35
		$E2$	108.20	107.84	107.59	107.35
	0.6	$\mu 0$	0.4754	0.5277	0.5826	0.6630
		$E1$	130.21	137.28	148.40	168.45
		$E2$	115.74	115.48	115.42	115.65
	0.8	$\mu 0$	0.4697	0.5214	0.5597	0.6211
		$E1$	155.73	163.24	175.28	196.54
		$E2$	138.42	137.32	136.33	134.94
0.5	0.4	$\mu 0$	0.4348	0.5036	0.5701	0.6580
		$E1$	121.73	128.20	138.33	156.35
		$E2$	108.20	107.84	107.59	107.35
	0.5	$\mu 0$	0.5402	0.5668	0.6078	0.6798
		$E1$	128.24	135.37	146.51	166.62
		$E2$	113.99	113.87	113.95	114.40
	0.6	$\mu 0$	0.6662	0.6300	0.6383	0.6886
		$E1$	138.03	145.17	156.74	177.80
		$E2$	122.70	122.11	121.90	122.08
	0.8	$\mu 0$	*	*	0.7570	0.7018
		$E1$			187.91	206.83
		$E2$			146.15	142.01
0.6	0.4	$\mu 0$	0.4754	0.5277	0.5826	0.6630
		$E1$	130.21	137.28	148.40	168.45
		$E2$	115.74	115.48	115.42	115.65
	0.5	$\mu 0$	0.6662	0.6300	0.6383	0.6886
		$E1$	138.03	145.17	156.74	177.80
		$E2$	122.70	122.11	121.90	122.08
	0.6	$\mu 0$	0.9917	0.7648	0.7001	0.7089
		$E1$	153.84	158.00	168.61	189.21
		$E2$	136.75	132.91	131.14	129.91
	0.8	$\mu 0$	*	*	*	0.8236
		$E1$				229.67
		$E2$				157.69
0.7	0.4	$\mu 0$	0.4995	0.5369	0.5808	0.6512
		$E1$	141.27	148.70	160.46	181.56
		$E2$	125.57	125.08	124.80	124.66
	0.5	$\mu 0$	0.9592	0.7287	0.6748	0.6915
		$E1$	153.88	158.77	169.82	190.63
		$E2$	136.79	133.55	132.08	130.89
	0.6	$\mu 0$	*	*	0.8054	0.7403
		$E1$			186.82	204.73
		$E2$			145.30	140.56
	0.8	$\mu 0$	*	*	*	*
		$E1$				
		$E2$				
0.8	0.4	$\mu 0$	0.4697	0.5214	0.5597	0.6211
		$E1$	155.73	163.24	175.28	196.54
		$E2$	138.42	137.32	136.33	134.94
	0.5	$\mu 0$	*	*	0.7570	0.7018
		$E1$			187.91	206.83
		$E2$			146.15	142.01
	0.6	$\mu 0$	*	*	*	0.8236
		$E1$				229.67
		$E2$				157.69

Table4: Optimalvalues of$\mu_0$besidesPRE'sof$T$withesteem to $\bar{y}_n$ and $\bar{y}$ for f= 0.1 too$P_{z_1z_2} = 0$

$\rho0$	$\rho1$	ρyx	0.6	0.7	0.8	0.9
0.4	0.4	$\mu0$ $E1$ $E2$	0.4149 150.37 133.66	0.5004 158.10 132.99	0.5588 170.68 132.75	0.6367 193.61 132.93
	0.5	$\mu0$ $E1$ $E2$	0.1001 169.52 150.68	0.4902 177.91 149.66	0.5507 192.59 149.79	0.6293 220.15 151.16
	0.6	$\mu0$ $E1$ $E2$	0.5926 194.39 172.79	*	0.4787 221.85 172.55	0.5868 253.68 174.18
	0.8	$\mu0$ $E1$ $E2$	0.5683 288.88 256.78	0.6080 299.01 251.52	0.7026 316.56 246.21	*
0.5	0.4	$\mu0$ $E1$ $E2$	0.1001 169.52 150.68	0.4902 177.91 149.66	0.5507 192.59 149.79	0.6293 220.15 151.16
	0.5	$\mu0$ $E1$ $E2$	0.4858 193.72 172.20	0.5091 204.03 171.63	0.5481 221.59 172.34	0.6218 255.63 175.51
	0.6	$\mu0$ $E1$ $E2$	0.4920 229.55 204.05	0.5481 241.27 202.95	0.4277 262.56 204.21	0.5721 303.30 208.25
	0.8	$\mu0$ $E1$ $E2$	0.4960 388.39 345.24	0.5237 402.84 338.87	0.5850 430.69 334.98	0.7486 478.98 328.87
0.6	0.4	$\mu0$ $E1$ $E2$	0.5926 194.39 172.79	*	0.4787 221.85 172.55	0.5868 253.68 174.18
	0.5	$\mu0$ $E1$ $E2$	0.4920 229.55 204.05	0.5481 241.27 202.95	0.4277 262.56 204.21	0.5721 303.30 208.25
	0.6	$\mu0$ $E1$ $E2$	0.4692 284.25 252.67	0.5041 298.27 250.90	0.6236 323.29 251.45	0.4493 378.53 259.90
	0.8	$\mu0$ $E1$ $E2$	0.4217 635.42 564.82	0.4414 658.45 553.88	0.4855 707.62 550.37	0.5829 803.82 551.91
0.7	0.4	$\mu0$ $E1$ $E2$	0.5753 231.24 205.55	0.6569 241.03 202.75	**	0.4144 302.56 207.74
	0.5	$\mu0$ $E1$ $E2$	0.5012 285.88 254.11	0.5419 298.94 251.47	0.6656 321.74 250.24	0.1449 385.86 264.93
	0.6	$\mu0$ $E1$ $E2$	0.4555 383.81 341.17	0.4837 400.85 337.19	0.5477 433.31 337.01	0.7857 491.18 337.24
	0.8	$\mu0$ $E1$ $E2$	*	*	*	*
0.8	0.4	$\mu0$ $E1$ $E2$	0.5683 288.88 256.78	0.6080 299.01 251.52	0.7026 316.56 246.21	*
	0.5	$\mu0$ $E1$ $E2$	0.4960 388.39 345.24	0.5237 402.84 338.87	0.5850 430.69 334.98	0.7486 478.98 328.87
	0.6	$\mu0$ $E1$ $E2$	0.4217 635.42 564.82	0.4414 658.45 553.88	0.4855 707.62 550.37	0.5829 803.82 551.91

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Fordiverseselectionsofconnectionsρ_{yx},ρ_0,ρ_1,$\rho_{z_1z_2}$and$f$,Tables1-4contemporarythefinestvaluesof$\mu$and the % qualifiedcompetences E_1 and E_2 with deference to $\bar{y}_n$ *and* $\bar{y}$individually, where $E_1 = \frac{v(\bar{y}_n)}{M(T)*_{opt}} \times 100$then $E_2 = \frac{M(y)_{opt}}{M(T)*_{opt}} \times 100$

2. Results

Table 1

- For fixed tenets of $\rho_0$and ρ_1, the principles of $\mu_0$andE_1stand increasing whereas the values of E_2do notappearance any confident pattern per the aggregate values of ρ_{yx}.This conduct is in arrangementbyconsequences which elucidate that additional the value of ρ_{yx}, extra the segment of freshmodelrequired onthecurrentoccasion.
- Aimed atimmovable values of ρ_1 and ρ_y, the standards of$E_1$and E_2remain increasing though no certain patterns remainseenin thestandards of$\mu_0$bytheaggregatevaluesofρ_0.
- For immovablemorals of $\rho_0$and ρ_{yx}morals of E_1besides$E_2$are amassed while no fixed patterns stayseenin the ethics of$\mu_0$thru the growingvalues ofρ_1.
- Smallest valueof$\mu_0$isexperimentalas0.0142,whichspecifiesthatthe part ofsampletobetraded on theexistingcase is as little as about 1% of the entiretaster size, which leads tohugelessening inrate ofthe examination, whichis adecidedlydesirable spectacle.

Table 2

- For fixed ideals of $\rho_0$and ρ_1, the ideals of $\mu_0$and$E_1$are swelling while the ideals of E_2do notVDU any final pattern per the proliferation in theprinciples of ρ_{yx}.This behavior is in settlementthroughtheordinarymarksincontinualsamplingwhichenlightenthatthefurtherfractionofdifferentsamplecontinuouslythe present-dayevent isrequiredper the intensificationintheidealsρ_{yx}.
- For stationarytenets of ρ_1 and ρ_{yx}, the tenets of$E_1$and E_2stay increasing while no convinced patterns stayvisible intheprinciplesof$\mu_0$perthe collectivevaluesofρ_0.
- Aimed at fixed standards of ρ_0 and ρ_{yx} the standards of E_1 and E_2 are snowballing while no sure trends are understoodin the standards of$\mu_0$ifwe proliferationthe morals ofρ_1.
- Minimum worthof $\mu_0$is create as 0.0292, which specifies that the segment of taster to be swappedon theexistingcase is as low as around 2 percent of the whole sample size, which hints in lesseningof surveyrate, such behavior is constantly desired inexaminationsampler.

Table 3

- For motionlesschoosing of $\rho_0$plusρ_1, principles of $\mu_0$besidesE_1expression the collective pattern whereas the valuesof E_2do not survey any development when we escalation the tenets ofρ_{yx}.These behavior'sbacking theregularscheme of successive test group that new the value ofρ_{yx},new the fraction of differentmockupisrequired onthe contemporaryinstance.
- On behalf ofstationaryranges of $\rho_1$and ρ,tenets of$E_1$and $E_2$are collective while no fashions are appreciated intheprinciples of$\mu_0$by way ofthecollectivevalues ofρ_0.
- Slightest value of $\mu_0$is perceived as0.3833, which point to that the division to be switched on thepresent-dayincident is as low asapproximately 35ofthe 24% total mockupsize,which pointers in fall ofthe assessmentcost.
- This discovery generates inquisitiveness to inspect the behavior of the planned estimator when the supplementary variables remain independent. Aimed at such state of affairs results remain given in Table 4.

Table 4

- When ancillary variables be present uncorrelated, it drinks been perceived that for fixed ranges of $\rho 0$ and $\rho 1$ the tenets of $\mu 0$ and $E1$ intensification with the intensification in the values of ρyx, despite the point that no definite arrangements are perceived in the values of $E2$.

3. Conclusions

From the above interpretations and discussions it has been observed that the use of information on two auxiliary variables on estimation stage is highly rewarding in terms of precision of the proposed estimator. The most important point, we have noticed in the present work is the percent relative efficiencies of the proposed estimator are decreasing with the increase in the values of correlation coefficient between auxiliary variables $z1$ and $z2$. This phenomenon suggests that if information on more number of mutually least correlated auxiliary variables is used at the estimation stage, more reliable estimates of population parameters may be generated. Looking on the nice behavior of the proposed estimator the survey statisticians may be recommended for its practical applications in their real life problems.

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