

Last revised: November 2006

RATIO ESTIMATOR BIBLIOGRAPHY
1937-Present (92 entries)

1. Watson, D.J. (1937) "The estimation of leaf area in field crops." *Journal of the Agricultural Science*, 27: 474-483.
2. Cochran, W.G. (1940) "The estimation of the yields of cereal experiments by sampling for the ratio of grain to total produce." *Journal of Agricultural Science*, 30: 262-275.
3. Hansen, M.H., Hurwitz, W.N., Gurney, M. (1946) "Problems and methods of the sample survey of business." *Journal of the American Statistical Association*, 41(234): 173-189.
4. Murakami, M. (1950) "Some consideration on the ratio and regression estimates." *Bulletin of Mathematical Statistics*, 4(1-2): 39-42.
5. Koop, J.C. (1951) "A note on the bias of the ratio estimate." *Bulletin of the International Statistical Institute*, 33: 141-146.
6. Hartley, H. O. & Ross, A. (1954) Unbiased ratio estimators. *Nature*, 174:270-271.
7. Raj, D. (1954) "Ratio estimation in sampling with equal and unequal probabilities." *Journal of the Indian Society of Agricultural Statistics*, 6: 127-138.
8. Masuyama, M. (1957) "Ratio estimate in line-grid sampling." *Bulletin of Mathematical Statistics*, 7(1-2):73-76
9. Rao, J.N.K. (1957) "Double ratio estimate in forest surveys." *Journal of the Indian Society of Agricultural Statistics*, 9: 191-204.
10. Robson, D.S. (1957) "Applications of multivariate polykeys to the theory of unbiased ratio-type estimation." *Journal of the American Statistical Association*, 52(280): 511-522.
11. Goodman, L.A. and Hartley, H.O. (1958) "The precision of unbiased ratio-type estimators." *Journal of the American Statistical Association*, 53(282): 491-508.
12. Olkin, I. (1958) "Multivariate ratio estimation for finite populations." *Biometrika*, 45: 154-165.
13. Durbin, J. (1959) "A note on the application of Quenouille's method of bias reduction to the estimation of ratios." *Biometrika*, 46: 477-480.
14. Pascual, J.N. (1961) "Unbiased ratio estimators in stratified sampling." *Journal of the American Statistical Association*, 56(293): 70-87.

15. Robson, D.S., Vithayasai, C. (1961) "Unbiased componentwise ratio estimation" *Journal of the American Statistical Association*, 56(294): 350-358.
16. Kish, L., Namboodiri, N.K., Pillai, R.K. (1962) "The ratio bias in surveys." *Journal of the American Statistical Association*, 57: 863-876.
17. Sukhatme, B.V. (1962) "Some ratio-type estimators in two-phase sampling." *Journal of the American Statistical Association*, 57(299): 628-632.
18. Brewer, K.R.W. (1963) "Ratio estimation and finite populations: some results deducible from the assumption of an underlying stochastic process." *The Australian Journal of Statistics*, 5(3): 93-105.
19. Lauh, E., Williams, W.H. (1963) "Some small sample results for the variance of a ratio." *American Statistical Association: Proceedings of the Social Statistics Section*, 273-283.
20. Murthy, M.N. (1964) "Product method of estimation." *Sankhyā*, 26:69-74.
21. Rao, J.N.K. (1965) "A note on estimation of ratios by Quenouille's method." *Biometrika*, 52: 647-649.
22. Tin, M. (1965) "Comparison of some ratio estimators." *Journal of the American Statistical Association*, 60: 294-307.
23. Bowman, R.W. (1966) "A study of the sampling distributions of several ratio estimators for small sample sizes." Dissertation abstract, University of Missouri, Columbia, 1 page.
24. Rao, J.N.K., Webster, J.T. (1966) "On two methods of bias reduction in the estimation of ratios." *Biometrika*, 53 (3, 4): 571-577.
25. Rao, J.N.K., Beegle, L.D. (1967) "A Monte Carlo study of some ratio estimators." *Sankhyā*, B29: 47-56.
26. Chakrabarty, R.P. and Rao, J.N.K. (1968) "The bias and stability of the jack-knife variance estimator in ratio estimation." *Journal of the American Statistical Association*, 63: 748-749.
27. Rao, J.N.K. (1968) "Some small sample results in ratio and regression estimation." *Journal of the Indian Statistical Association*, 6: 160-168.
28. Rao, J.N.K. (1969) "Ratio and regression estimators." in Johnson, N.L. and Smith, H. Jr. (eds) *New Developments in Survey Sampling*, pp213-234, Wiley, New York.
29. Rao, P.S.R.S. (1969) "Comparison of four ratio-type estimates under a model." *Journal of the American Statistical Association*, 64(326): 574-580.

30. Royall, R.M. (1970) "On finite population sampling theory under certain linear regression models." *Biometrika*, 57(2): 377-387.
31. Ek, A. (1971). "A comparison of some estimators in forest sampling." *Forest Science*, 17:2-13.
32. Foreman, E.K. and Brewer, K.R.W. (1971) "The efficient use of supplementary information in standard sampling procedures." *Journal of the Royal Statistical Society Series A*, 33(3): 391-400.
33. Hutchison, M.C. (1971) "A Monte Carlo comparison of some ratio estimators." *Biometrika*, 58(2): 313-321.
34. Rao, P.S.R.S., Rao, J.N.K. (1971) "Small sample results for ratio estimators." *Biometrika*, 58(3): 625-630.
35. Gupta, P.C. (1972) "On some product type estimators in varying probability." *Australian Journal of Statistics*, 14(2): 123-128.
36. Walton, G.S., Demars, C.J. (1973) "Empirical methods in the evaluation of estimators: a case study based on insect density and survival data." USDA Forest Service Research PE-272, 14 pages.
37. David, I.P. and Sukhatme, B.V. (1974) "On the bias and mean square error of the ratio estimator." *Journal of the American Statistical Association, Theory and Methods Section*, 69(346): 464-466.
38. Jones, H.L. (1974) "Jackknife estimation of functions of stratum means." *Biometrika*, 61(2): 343 -348.
39. Rao, J.N.K., Kuzik, R.A. (1974) "Sampling errors in ratio estimation." *Sankhyā*, Volume 36, Series C, Pt. 1: 43-58.
40. Rao, J.N.K., Ramachandran, V. (1974) "Comparison of the separate and combined ratio estimators." *Sankhyā*, Volume 36, Series C, Pt. 3: 151-156.
41. Royall, R.M., Eberhardt, K.R. (1975) "Variance estimates for the ratio estimator." *Sankhyā*, 37(C,1): 43-52.
42. Rao, J.N.K. (1978) "Sampling designs involving unequal probabilities of selection and robust estimation of a finite population total." In David, H.A. (ed), *Contributions to Survey Sampling and Applied Statistics: Papers in Honor of H.O. Hartley* (pp69-87). New York: Academic Press.

43. Lemeshow, S., Levy, P.S. (1979) "Estimating the variances of ratio estimates in complex sample surveys with two primary sampling units per stratum—a comparison of balanced replication and Jackknife techniques." *Journal of Statistical Computation and Simulation*, 8:191-205.
44. Sahai, A. (1979) "An efficient variant of the product and ratio estimators." *Statistica Neerlandica*, 33:27-35.
45. Srivenkataramana, T., Tracy, D.S. (1979) "On ratio and product methods of estimation in sampling." *Statistica Neerlandica*, 33:37-49.
46. Lemeshow, S., Hosmer, D.W., Hislop, D. (1980) "The effect of non-normality on estimating the variance of the combined ratio estimate in complex surveys." *Communications in Statistics—Simulation and Computation*, B9(4):371-387.
47. Ray, S.K., Sahai, A. (1980) "Efficient families of ratio and product-type estimators." *Biometrika*, 67(1): 211-215.
48. Srivenkataramana, T., (1980) "A dual to ratio estimator in sample surveys" *Biometrika*, 67(1):199-204.
49. Srivenkataramana, T., Tracy, D.S. (1980) "An alternative to ratio method in sample surveys." *Annals of the Institute of Statistical Mathematics*, 32:111-120.
50. Vos, J.W.E. (1980) "Mixing of direct, ratio, and product method estimators." *Statistica Neerlandica*, 34: 209-218.
51. Rao, P.S.R.S. (1981a) "Efficiencies of nine two-phase ratio estimators for the mean." *Journal of the American Statistical Association*, 76(374): 434-442.
52. Rao, P.S.R.S. (1981b) "Estimation of the mean square error of the ratio estimator." In Krewski, D., Platek, R. and Rao, J.N.K., eds. (1981) *Current Topics in Survey Sampling*, Academic Press: 305-315.
53. Royall, R.M., Cumberland, W.G. (1981) "An empirical study of the ratio estimator and estimators of its variance." *Journal of the American Statistical Association*, 76(373): 66-88.
54. Sengupta, S. (1981) "Jack-knifing the ratio and the product estimators in double sampling." *Metrika*, 29:245-256.
55. Srivenkataramana, T., Tracy, D.S. (1981) "Extending product method of estimation to positive correlation case in surveys." *The Australian Journal of Statistics*, 23(1): 95-100.

56. Wu, C.-F. (1982) "Estimation of variance of the ratio estimator." *Biometrika*, 69(1): 183-189.
57. Isaki, C.T. (1983) "Variance estimation using auxiliary information." *Journal of the American Statistical Association*, 78(381):117-123.
58. Rao, J.N.K. (1983) "Ratio estimators." in Kotz, S., Johnson, N.L. (eds) *Encyclopedia of Statistical Sciences Volume 4*, Wiley: 639-646.
59. Wu, C.-F., Deng, L.-Y. (1983) "Estimation of variance of the ratio estimator: an empirical study." In Box, G.E.P, Leonard, T., and Wu, C.-F. (eds) *Scientific Inference, Data Analysis, and Robustness*, Academic Press, New York, p245-277.
60. Gregoire, T. G. (1984). "The jackknife: an introduction with applications in forestry data analysis." *Canadian Journal of Forest Research*, 14: 493-497. (see corrigenda to formula [5]).
61. Rao, J.N.K. (1984) "Ratio estimators." Technical Report Series of the Laboratory for research in Statistics and Probability, No. 29, 16 pages.
62. Bedi, P.K. (1985) "On two-phase multivariate sampling estimator." *Journal of the Indian Society of Agricultural Statistics*, XXXVII(2): 158-162.
63. Bondesson, L. and Holm, S. (1985) "Bootstrap estimation of the mean-square error of the ratio estimate for sampling without replacement." In Lanke, J. & Lindgren, G. (eds.) *Contributions to Probability and Statistics in Honour of Gunnar Blom* (pp85-96). Lund, Sweden.
64. Wu, C.-F. (1985) "Variance estimation for the combined ratio and combined regression estimators." *Journal of the Royal Statistical Association B*, 47(1): 147-154.
65. Kott, P.S. (1986) "When a mean-of-ratios is the best linear unbiased estimator under a model" *The American Statistician*, 40(3): 202-204.
66. Andersson, C., Forsman, G. and Wretman, J. (1987) "Estimating the variance of a complex statistic: a Monte Carlo study of some approximate techniques." *Journal of Official Statistics*, 3(3): 251-265.
67. Robinson, J. (1987) "Conditioning ratio estimates under simple random sampling." *Journal of the American Statistical Association*, 82 (399): 826-831.
68. Valliant, R. (1987) "Conditional properties of some estimators in stratified sampling." *Journal of the American Statistical Association*, 82(398): 509-519.
69. Rao, P.S.R.S. (1988) "Ratio and regression estimators." *Handbook of Statistics*, 6: 449-468.

70. Prasad, B. (1989) "Some improved ratio type estimators of population mean and ratio in finite population sample surveys" *Communications in Statistics – Theory and Methods*, 18(1): 379-392.
71. Chaubey, Y.P., Dwivedi, T.D. and Singh, M. (1990) "On the exact variance of an unbiased product type estimator and its comparison with the sample mean." *Metrika*, 37: 255-262.
72. Deng, L.-Y. and Chhikara, R.S. (1990) "On the ratio and regression estimation in finite population sampling." *The American Statistician*, 44:282-284
73. Kushwaha, K.S. (1990) "An alternative to ratio type estimators in systematic sampling." *Journal of the Indian Statistical Association*, 28:55-67.
74. Valliant, R. (1990) "Comparisons of variance estimators in stratified random and systematic sampling." *Journal of Official Statistics*, 6(2): 115-131.
75. Deville, J.-C. (1993) "Optimum two-stage sample design for ratio estimators: application for quality control – 1990 French census." *Survey Methodology*, 19(2): 173-182.
76. Rao, T.J. (1993) "On certain problems of sampling designs and estimation for multiple characteristics." *Sankhyā*, Special Volume 55, Series B, Pt. 3: 372-384.
77. Sen, A.R. (1993) "Some early developments in ratio estimation." *Biometrical Journal*, 35(1): 3-13.
78. Turner, D.L. (1993) "A bootstrap-like ratio estimator for monitoring visitor usage." *American Statistical Association: 1993 Proceedings of the Section on Statistics and the Environment*, 113-115.
79. Garcia, M.R. and Cebrian, A.A. (1996) "Repeated substitution method: the ratio estimator for the population variance." *Metrika*, 43: 101-105.
80. Kott, P.S., Stukel, D.M. (1997) "Can the jackknife be used with a two-phase sample?" *Survey Methodology*, 23(2): 81-89.
81. Magnussen, S., Boudewyn, P. (1997) "Reconciling multivariate calibrations of volume estimates in two-phase forest inventories." *Forest Science*, 44(2): 266-271.
82. Wright, D., Gfroerer, J., Epstein, J. (1997) "Ratio estimation of hardcore drug use." *Journal of Official Statistics*, 13(4): 401-416.
83. Singh, S., Horn, S. (1998) "An alternative estimator for multi-character surveys." *Metrika*, 48: 99-107.

84. Fuller, W.A. (2002) "Regression estimation for survey samples." *Survey Methodology*, 28(1): 5-23
85. van Hees, W.W.S. (2002) "A comparison of two estimates of standard error for a ratio-of-means estimator for a mapped-plot sample design in Southeast Alaska," Research Note PNW-RN-532, United States Department of Agriculture, Forest Service, nine pages.
86. Hald, A. (2003) "Laplace's sample survey of the population of France and the distribution of the ratio estimator." In Hald, A., *A History of Mathematical Statistics from 1750 to 1930*. Wiley.
87. Singh, H.P. and R. Espejo. (2003) "On linear regression and ratio-product estimation of a finite population mean." *The Statistician*, 52(1): 59-67.
88. Chao, C.-T. and Chiang, T.-C. (2006) "A comparison between ratio estimation and post-stratification." Slides for presentation given at Joint Statistical Meetings, August 16 2006, 29 slides.
Chao, C.-T. and Chiang, T.-C. (August 2006) "A comparison between ratio estimation and post-stratification." Slides for presentation, 19 slides.
89. Chao, C.-T., Chang, K.-C. & Chiang, T.-C. (no date) "Utilization of the auxiliary information in the inference stage of sampling survey; post-stratification or ratio estimation?" Source unknown, 13 pages.
90. Chambers, R.L. and Dorfman, A.H. (no date). "Robust sample survey inference via bootstrapping and bias correction: the case of the ratio estimator." *S³RI Methodology Working Paper M03/13*, Southampton Statistical Sciences Research Institute, University of Southampton, 21 pages.
91. Hamdan, H., Jacks, A. and Szarkam, J., (no date). "Comparing ratio estimators based on systematic sampling." Origin unknown, 23 slides.
92. Miscellaneous Notes (no date)