## The SAS System

| Obs | rent | pop | avginc | pctstu | city | year | lpop | lrent | lavginc | y90 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 197 | 75211 | 11537 | 20.3468 | 1 | 80 | 11.2281 | 5.28320 | 9.3533 | 0 |
| 2 | 342 | 77759 | 19568 | 23.1703 | 1 | 90 | 11.2614 | 5.83481 | 9.8817 | 1 |
| 3 | 323 | 106743 | 19841 | 21.0431 | 2 | 80 | 11.5782 | 5.77765 | 9.8955 | 0 |
| 4 | 496 | 141865 | 31885 | 20.9840 | 2 | 90 | 11.8626 | 6.20658 | 10.3699 | 1 |
| 5 | 216 | 36608 | 11455 | 32.3618 | 3 | 80 | 10.5080 | 5.37528 | 9.3462 | 0 |
| 6 | 351 | 42099 | 21202 | 24.3830 | 3 | 90 | 10.6478 | 5.86079 | 9.9619 | 1 |
| 7 | 267 | 36640 | 14682 | 37.7320 | 4 | 80 | 10.5089 | 5.58725 | 9.5944 | 0 |
| 8 | 588 | 46209 | 29044 | 39.3278 | 4 | 90 | 10.7409 | 6.37673 | 10.2766 | 1 |
| 9 | 475 | 62134 | 31300 | 13.1571 | 5 | 80 | 11.0370 | 6.16331 | 10.3514 | 0 |
| 10 | 925 | 110330 | 56307 | 16.5005 | 5 | 90 | 11.6112 | 6.82979 | 10.9386 | 1 |
| 11 | 276 | 118550 | 16291 | 10.3104 | 6 | 80 | 11.6831 | 5.62040 | 9.6984 | 0 |
| 12 | 630 | 132605 | 35103 | 11.4566 | 6 | 90 | 11.7951 | 6.44572 | 10.4660 | 1 |
| 13 | 302 | 76685 | 16744 | 27.0248 | 7 | 80 | 11.2475 | 5.71043 | 9.7258 | 0 |
| 14 | 521 | 83312 | 29407 | 29.7784 | 7 | 90 | 11.3303 | 6.25575 | 10.2890 | 1 |
| 15 | 257 | 65092 | 15773 | 26.3227 | 8 | 80 | 11.0836 | 5.54908 | 9.6661 | 0 |
| 16 | 422 | 87758 | 26826 | 24.3590 | 8 | 90 | 11.3823 | 6.04501 | 10.1971 | 1 |
| 17 | 253 | 126109 | 11683 | 12.6946 | 9 | 80 | 11.7449 | 5.53339 | 9.3659 | 0 |
| 18 | 568 | 130474 | 25811 | 14.5715 | 9 | 90 | 11.7789 | 6.34212 | 10.1586 | 1 |
| 19 | 242 | 81371 | 12586 | 30.1434 | 10 | 80 | 11.3068 | 5.48894 | 9.4403 | 0 |
| 20 | 383 | 84770 | 21077 | 30.7031 | 10 | 90 | 11.3477 | 5.94803 | 9.9559 | 1 |
| 21 | 228 | 81548 | 11750 | 27.8793 | 11 | 80 | 11.3089 | 5.42935 | 9.3716 | 0 |
| 22 | 444 | 124773 | 23453 | 27.2335 | 11 | 90 | 11.7343 | 6.09582 | 10.0628 | 1 |
| 23 | 187 | 42549 | 10018 | 34.9315 | 12 | 80 | 10.6584 | 5.23111 | 9.2121 | 0 |
| 24 | 347 | 45734 | 14286 | 40.2239 | 12 | 90 | 10.7306 | 5.84932 | 9.5670 | 1 |
| 25 | 243 | 58133 | 14894 | 33.5988 | 13 | 80 | 10.9705 | 5.49306 | 9.6087 | 0 |
| 26 | 422 | 63502 | 22967 | 33.1801 | 13 | 90 | 11.0588 | 6.04501 | 10.0418 | 1 |
| 27 | 336 | 73706 | 21715 | 16.5726 | 14 | 80 | 11.2078 | 5.81711 | 9.9858 | 0 |
| 28 | 636 | 73233 | 22346 | 20.3283 | 14 | 90 | 11.2014 | 6.45520 | 10.0144 | 1 |
| 29 | 210 | 52044 | 10933 | 49.4178 | 15 | 80 | 10.8598 | 5.34711 | 9.2995 | 0 |
| 30 | 403 | 60633 | 18393 | 49.2900 | 15 | 90 | 11.0126 | 5.99894 | 9.8197 | 1 |
| 31 | 195 | 77216 | 13459 | 17.6362 | 16 | 80 | 11.2544 | 5.27300 | 9.5074 | 0 |
| 32 | 325 | 71305 | 19353 | 22.1569 | 16 | 90 | 11.1747 | 5.78383 | 9.8706 | 1 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **33** | 251 | 45775 | 16104 | 44.7078 | 17 | 80 | 10.7315 | 5.52545 | 9.6868 | 0 |
| **34** | 404 | 47198 | 24636 | 45.7964 | 17 | 90 | 10.7621 | 6.00141 | 10.1120 | 1 |
| **35** | 234 | 50508 | 14417 | 36.2299 | 18 | 80 | 10.8299 | 5.45532 | 9.5762 | 0 |
| **36** | 414 | 59738 | 24565 | 39.3518 | 18 | 90 | 10.9977 | 6.02587 | 10.1091 | 1 |
| **37** | 248 | 52738 | 13180 | 36.6112 | 19 | 80 | 10.8731 | 5.51343 | 9.4865 | 0 |
| **38** | 415 | 65608 | 22900 | 34.3068 | 19 | 90 | 11.0915 | 6.02828 | 10.0389 | 1 |
| **39** | 224 | 32644 | 13030 | 28.3452 | 20 | 80 | 10.3934 | 5.41165 | 9.4750 | 0 |
| **40** | 396 | 37712 | 21531 | 32.4114 | 20 | 90 | 10.5377 | 5.98141 | 9.9772 | 1 |
| **41** | 194 | 40450 | 12195 | 21.1397 | 21 | 80 | 10.6078 | 5.26786 | 9.4088 | 0 |
| **42** | 332 | 40641 | 20043 | 17.4356 | 21 | 90 | 10.6125 | 5.80513 | 9.9056 | 1 |
| **43** | 239 | 219419 | 15158 | 11.2716 | 22 | 80 | 12.2987 | 5.47646 | 9.6263 | 0 |
| **44** | 354 | 219531 | 21898 | 13.3617 | 22 | 90 | 12.2992 | 5.86930 | 9.9942 | 1 |
| **45** | 257 | 95322 | 14211 | 24.5515 | 23 | 80 | 11.4650 | 5.54908 | 9.5618 | 0 |
| **46** | 538 | 95802 | 33140 | 25.4316 | 23 | 90 | 11.4700 | 6.28786 | 10.4085 | 1 |
| **47** | 248 | 51392 | 15000 | 62.8289 | 24 | 80 | 10.8472 | 5.51343 | 9.6158 | 0 |
| **48** | 451 | 50677 | 24719 | 63.2318 | 24 | 90 | 10.8332 | 6.11147 | 10.1153 | 1 |
| **49** | 232 | 79722 | 14620 | 21.7506 | 25 | 80 | 11.2863 | 5.44674 | 9.5901 | 0 |
| **50** | 403 | 80277 | 23207 | 22.8596 | 25 | 90 | 11.2932 | 5.99894 | 10.0522 | 1 |
| **51** | 309 | 107966 | 18316 | 32.9993 | 26 | 80 | 11.5896 | 5.73334 | 9.8155 | 0 |
| **52** | 568 | 109592 | 33344 | 32.9166 | 26 | 90 | 11.6045 | 6.34212 | 10.4146 | 1 |
| **53** | 238 | 42566 | 15367 | 20.1358 | 27 | 80 | 10.6588 | 5.47227 | 9.6400 | 0 |
| **54** | 399 | 48812 | 24004 | 24.3567 | 27 | 90 | 10.7957 | 5.98896 | 10.0860 | 1 |
| **55** | 197 | 40829 | 10983 | 18.1048 | 28 | 80 | 10.6171 | 5.28320 | 9.3041 | 0 |
| **56** | 304 | 41882 | 21174 | 20.7798 | 28 | 90 | 10.6426 | 5.71703 | 9.9605 | 1 |
| **57** | 236 | 62061 | 13651 | 35.7745 | 29 | 80 | 11.0359 | 5.46383 | 9.5216 | 0 |
| **58** | 382 | 69101 | 22059 | 32.0777 | 29 | 90 | 11.1433 | 5.94542 | 10.0015 | 1 |
| **59** | 231 | 171932 | 17094 | 14.5366 | 30 | 80 | 12.0549 | 5.44242 | 9.7465 | 0 |
| **60** | 379 | 191972 | 28056 | 15.4273 | 30 | 90 | 12.1651 | 5.93754 | 10.2420 | 1 |
| **61** | 215 | 45086 | 13593 | 12.5205 | 31 | 80 | 10.7163 | 5.37064 | 9.5173 | 0 |
| **62** | 366 | 62126 | 23648 | 14.4899 | 31 | 90 | 11.0369 | 5.90263 | 10.0710 | 1 |
| **63** | 230 | 28732 | 10294 | 49.3283 | 32 | 80 | 10.2658 | 5.43808 | 9.2393 | 0 |
| **64** | 493 | 29541 | 25152 | 55.3840 | 32 | 90 | 10.2935 | 6.20051 | 10.1327 | 1 |
| **65** | 212 | 101727 | 12511 | 14.3394 | 33 | 80 | 11.5300 | 5.35659 | 9.4344 | 0 |
| **66** | 456 | 101082 | 17738 | 17.4462 | 33 | 90 | 11.5237 | 6.12249 | 9.7835 | 1 |
| **67** | 210 | 170105 | 12321 | 12.4270 | 34 | 80 | 12.0442 | 5.34711 | 9.4191 | 0 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 409 | 163860 | 21242 | 14.4654 | 34 | 90 | 12.0068 | 6.01372 | 9.9637 | 1 |
| **69** | 256 | 32421 | 15744 | 44.2244 | 35 | 80 | 10.3866 | 5.54518 | 9.6642 | 0 |
| **70** | 489 | 38719 | 30489 | 39.6679 | 35 | 90 | 10.5641 | 6.19236 | 10.3251 | 1 |
| **71** | 225 | 100831 | 12845 | 14.7405 | 36 | 80 | 11.5212 | 5.41610 | 9.4607 | 0 |
| **72** | 440 | 136611 | 24354 | 13.5319 | 36 | 90 | 11.8249 | 6.08677 | 10.1005 | 1 |
| **73** | 255 | 150255 | 17022 | 10.9800 | 37 | 80 | 11.9201 | 5.54126 | 9.7423 | 0 |
| **74** | 479 | 207951 | 32451 | 14.0120 | 37 | 90 | 12.2451 | 6.17170 | 10.3875 | 1 |
| **75** | 231 | 35740 | 13471 | 29.2753 | 38 | 80 | 10.4840 | 5.44242 | 9.5083 | 0 |
| **76** | 374 | 44972 | 12206 | 27.7284 | 38 | 90 | 10.7138 | 5.92426 | 9.4097 | 1 |
| **77** | 228 | 61383 | 17065 | 13.9029 | 39 | 80 | 11.0249 | 5.42935 | 9.7448 | 0 |
| **78** | 355 | 74111 | 25326 | 16.1083 | 39 | 90 | 11.2133 | 5.87212 | 10.1396 | 1 |
| **79** | 216 | 43765 | 16009 | 18.1858 | 40 | 80 | 10.6866 | 5.37528 | 9.6809 | 0 |
| **80** | 367 | 49425 | 25456 | 21.2322 | 40 | 90 | 10.8082 | 5.90536 | 10.1447 | 1 |
| **81** | 252 | 25728 | 13521 | 53.5953 | 41 | 80 | 10.1553 | 5.52943 | 9.5120 | 0 |
| **82** | 393 | 28176 | 21766 | 51.0860 | 41 | 90 | 10.2462 | 5.97381 | 9.9881 | 1 |
| **83** | 248 | 26164 | 13891 | 38.3351 | 42 | 80 | 10.1721 | 5.51343 | 9.5390 | 0 |
| **84** | 401 | 28835 | 21463 | 43.7350 | 42 | 90 | 10.2693 | 5.99396 | 9.9741 | 1 |
| **85** | 244 | 68020 | 15555 | 24.5354 | 43 | 80 | 11.1276 | 5.49717 | 9.6521 | 0 |
| **86** | 362 | 80071 | 25165 | 22.1691 | 43 | 90 | 11.2907 | 5.89164 | 10.1332 | 1 |
| **87** | 219 | 38268 | 11102 | 47.2928 | 44 | 80 | 10.5524 | 5.38907 | 9.3149 | 0 |
| **88** | 354 | 36676 | 18501 | 40.8223 | 44 | 90 | 10.5099 | 5.86930 | 9.8256 | 1 |
| **89** | 245 | 40960 | 13621 | 39.2383 | 45 | 80 | 10.6204 | 5.50126 | 9.5194 | 0 |
| **90** | 385 | 44757 | 23212 | 35.4626 | 45 | 90 | 10.7090 | 5.95324 | 10.0524 | 1 |
| **91** | 249 | 105624 | 14959 | 18.1578 | 46 | 80 | 11.5676 | 5.51745 | 9.6131 | 0 |
| **92** | 425 | 112669 | 25369 | 19.0292 | 46 | 90 | 11.6322 | 6.05209 | 10.1413 | 1 |
| **93** | 225 | 564871 | 14834 | 10.3562 | 47 | 80 | 13.2444 | 5.41610 | 9.6047 | 0 |
| **94** | 422 | 632910 | 26651 | 11.6995 | 47 | 90 | 13.3581 | 6.04501 | 10.1906 | 1 |
| **95** | 266 | 36130 | 9771 | 67.4177 | 48 | 80 | 10.4949 | 5.58350 | 9.1872 | 0 |
| **96** | 490 | 38923 | 18257 | 71.2098 | 48 | 90 | 10.5693 | 6.19441 | 9.8123 | 1 |
| **97** | 203 | 101208 | 12393 | 17.1192 | 49 | 80 | 11.5249 | 5.31321 | 9.4249 | 0 |
| **98** | 392 | 98052 | 23216 | 17.6559 | 49 | 90 | 11.4933 | 5.97126 | 10.0526 | 1 |
| **99** | 203 | 175030 | 11971 | 13.0275 | 50 | 80 | 12.0727 | 5.31321 | 9.3902 | 0 |
| **100** | 332 | 165121 | 19923 | 13.0837 | 50 | 90 | 12.0144 | 5.80513 | 9.8996 | 1 |
| **101** | 226 | 32845 | 14295 | 19.7747 | 51 | 80 | 10.3996 | 5.42053 | 9.5677 | 0 |
| **102** | 388 | 44922 | 26394 | 18.2450 | 51 | 90 | 10.7127 | 5.96101 | 10.1809 | 1 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 282 | 37272 | 9789 | 60.5146 | 52 | 80 | 10.5260 | 5.64191 | 9.1890 | 0 |
| **104** | 428 | 52456 | 9262 | 59.5013 | 52 | 90 | 10.8677 | 6.05912 | 9.1337 | 1 |
| **105** | 245 | 173979 | 15732 | 13.4482 | 53 | 80 | 12.0667 | 5.50126 | 9.6635 | 0 |
| **106** | 381 | 186206 | 24130 | 15.2100 | 53 | 90 | 12.1346 | 5.94280 | 10.0912 | 1 |
| **107** | 194 | 27149 | 11713 | 28.2036 | 54 | 80 | 10.2091 | 5.26786 | 9.3685 | 0 |
| **108** | 346 | 30872 | 15917 | 32.3594 | 54 | 90 | 10.3376 | 5.84644 | 9.6751 | 1 |
| **109** | 207 | 101261 | 12007 | 12.7226 | 55 | 80 | 11.5255 | 5.33272 | 9.3932 | 0 |
| **110** | 353 | 103590 | 17852 | 15.7428 | 55 | 90 | 11.5482 | 5.86647 | 9.7899 | 1 |
| **111** | 198 | 26844 | 12693 | 29.2915 | 56 | 80 | 10.1978 | 5.28827 | 9.4488 | 0 |
| **112** | 328 | 32762 | 21312 | 28.1790 | 56 | 90 | 10.3970 | 5.79301 | 9.9670 | 1 |
| **113** | 186 | 74108 | 12647 | 36.3335 | 57 | 80 | 11.2133 | 5.22575 | 9.4452 | 0 |
| **114** | 336 | 86835 | 21162 | 35.9717 | 57 | 90 | 11.3718 | 5.81711 | 9.9600 | 1 |
| **115** | 243 | 37312 | 13048 | 23.3142 | 58 | 80 | 10.5271 | 5.49306 | 9.4764 | 0 |
| **116** | 493 | 39127 | 25523 | 25.4862 | 58 | 90 | 10.5746 | 6.20051 | 10.1473 | 1 |
| **117** | 268 | 39916 | 13942 | 22.1966 | 59 | 80 | 10.5945 | 5.59099 | 9.5427 | 0 |
| **118** | 469 | 40341 | 18592 | 23.9384 | 59 | 90 | 10.6051 | 6.15060 | 9.8305 | 1 |
| **119** | 204 | 63684 | 12540 | 9.9413 | 60 | 80 | 11.0617 | 5.31812 | 9.4367 | 0 |
| **120** | 311 | 54844 | 18276 | 12.7872 | 60 | 90 | 10.9122 | 5.73979 | 9.8133 | 1 |
| **121** | 220 | 27605 | 10994 | 42.6300 | 61 | 80 | 10.2258 | 5.39363 | 9.3051 | 0 |
| **122** | 355 | 25879 | 18022 | 45.8673 | 61 | 90 | 10.1612 | 5.87212 | 9.7993 | 1 |
| **123** | 225 | 51509 | 14457 | 18.6569 | 62 | 80 | 10.8495 | 5.41610 | 9.5789 | 0 |
| **124** | 352 | 56856 | 24735 | 18.7139 | 62 | 90 | 10.9483 | 5.86363 | 10.1160 | 1 |
| **125** | 220 | 48347 | 13458 | 18.7209 | 63 | 80 | 10.7862 | 5.39363 | 9.5073 | 0 |
| **126** | 344 | 51003 | 21947 | 19.5302 | 63 | 90 | 10.8396 | 5.84064 | 9.9964 | 1 |
| **127** | 243 | 170616 | 16510 | 21.9645 | 64 | 80 | 12.0472 | 5.49306 | 9.7117 | 0 |
| **128** | 472 | 191262 | 29420 | 23.3193 | 64 | 90 | 12.1614 | 6.15698 | 10.2894 | 1 |

## The SAS System

### The REG Procedure
### Model: MODEL1
### Dependent Variable: lrent

| | |
|---|---|
| Number of Observations Read | 128 |
| Number of Observations Used | 128 |

**Analysis of Variance**

| Source | DF | Sum of Squares | Mean Square | F Value | Pr > F |
|---|---|---|---|---|---|
| Model | 4 | 12.10801 | 3.02700 | 190.92 | <.0001 |
| Error | 123 | 1.95012 | 0.01585 | | |
| Corrected Total | 127 | 14.05813 | | | |

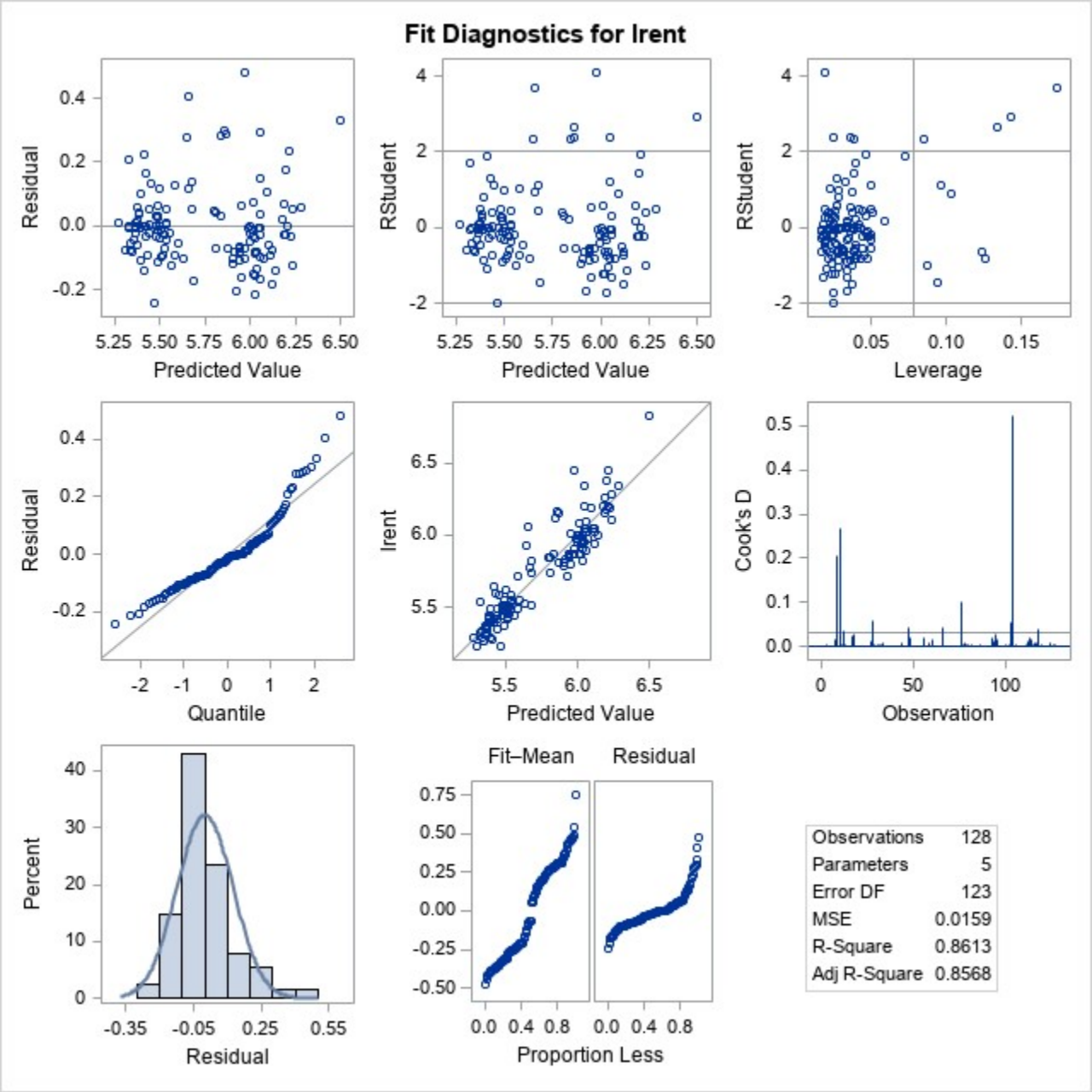
| | | | |
|---|---|---|---|
| Root MSE | 0.12592 | R-Square | 0.8613 |
| Dependent Mean | 5.74620 | Adj R-Sq | 0.8568 |
| Coeff Var | 2.19128 | | |

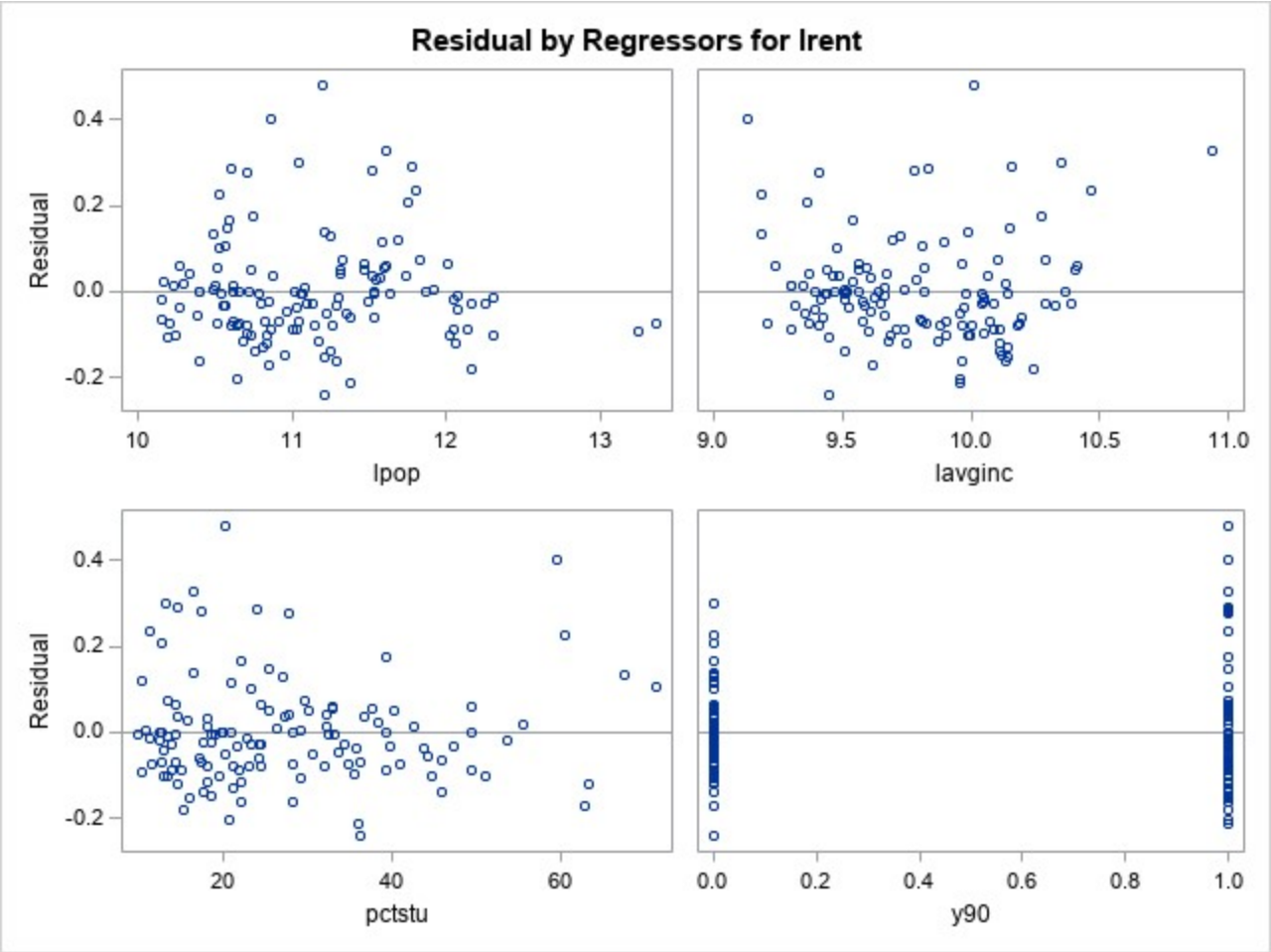
**Parameter Estimates**

| Variable | DF | Parameter Estimate | Standard Error | t Value | Pr > \|t\| |
|---|---|---|---|---|---|
| Intercept | 1 | -0.56881 | 0.53488 | -1.06 | 0.2897 |
| lpop | 1 | 0.04069 | 0.02252 | 1.81 | 0.0732 |
| lavginc | 1 | 0.57145 | 0.05310 | 10.76 | <.0001 |
| pctstu | 1 | 0.00504 | 0.00102 | 4.95 | <.0001 |
| y90 | 1 | 0.26223 | 0.03476 | 7.54 | <.0001 |

## The SAS System

### The REG Procedure
### Model: MODEL1
### Dependent Variable: lrent




Residual by Regressors for lrent
Residual
0.4
0.2
0.0
-0.2
10
11
12
13
lpop
9.0
9.5
10.0
10.5
11.0
lavginc
Residual
0.4
0.2
0.0
-0.2
20
40
60
pctstu
0.0
0.2
0.4
0.6
0.8
1.0
y90

## The SAS System

### The TSCSREG Procedure
### Fixed One-Way Estimates
### Model: FIXED
### Dependent Variable: lrent

| Model Description | |
|---|---|
| Model Statement Label | FIXED |
| Estimation Method | FixOne |
| Number of Cross Sections | 64 |
| Time Series Length | 2 |

| Fit Statistics | | | |
|---|---|---|---|
| SSE | 0.2437 | DFE | 60 |
| MSE | 0.0041 | Root MSE | 0.0637 |
| R-Square | 0.9827 | | |

| F Test for No Fixed Effects | | | |
|---|---|---|---|
| Num DF | Den DF | F Value | Pr > F |
| 63 | 60 | 6.67 | <.0001 |

| Parameter Estimates | | | | | | |
|---|---|---|---|---|---|---|
| Variable | DF | Estimate | Standard Error | t Value | Pr > \|t\| | Label |
| CS1 | 1 | -0.07527 | 0.1022 | -0.74 | 0.4642 | Cross Sectional Effect 1 |
| CS2 | 1 | 0.172118 | 0.0737 | 2.34 | 0.0228 | Cross Sectional Effect 2 |
| CS3 | 1 | -0.05349 | 0.1484 | -0.36 | 0.7198 | Cross Sectional Effect 3 |
| CS4 | 1 | 0.106027 | 0.1505 | 0.70 | 0.4837 | Cross Sectional Effect 4 |
| CS5 | 1 | 0.615692 | 0.1119 | 5.50 | <.0001 | Cross Sectional Effect 5 |
| CS6 | 1 | 0.340854 | 0.0894 | 3.81 | 0.0003 | Cross Sectional Effect 6 |
| CS7 | 1 | 0.150336 | 0.0963 | 1.56 | 0.1236 | Cross Sectional Effect 7 |
| CS8 | 1 | 0.026116 | 0.0991 | 0.26 | 0.7931 | Cross Sectional Effect 8 |
| CS9 | 1 | 0.312279 | 0.0836 | 3.74 | 0.0004 | Cross Sectional Effect 9 |
| CS10 | 1 | -0.04383 | 0.0967 | -0.45 | 0.6519 | Cross Sectional Effect 10 |
| CS11 | 1 | 0.012444 | 0.0839 | 0.15 | 0.8826 | Cross Sectional Effect 11 |
| CS12 | 1 | -0.1609 | 0.1483 | -1.09 | 0.2821 | Cross Sectional Effect 12 |
| CS13 | 1 | -0.04333 | 0.1180 | -0.37 | 0.7148 | Cross Sectional Effect 13 |

| | | | | | | |
|---|---|---|---|---|---|---|
| **CS14** | 1 | 0.423244 | 0.1055 | 4.01 | 0.0002 | Cross Sectional Effect 14 |
| **CS15** | 1 | -0.2302 | 0.1536 | -1.50 | 0.1393 | Cross Sectional Effect 15 |
| **CS16** | 1 | -0.105 | 0.1048 | -1.00 | 0.3203 | Cross Sectional Effect 16 |
| **CS17** | 1 | -0.18546 | 0.1533 | -1.21 | 0.2310 | Cross Sectional Effect 17 |
| **CS18** | 1 | -0.11918 | 0.1300 | -0.92 | 0.3629 | Cross Sectional Effect 18 |
| **CS19** | 1 | -0.04296 | 0.1227 | -0.35 | 0.7276 | Cross Sectional Effect 19 |
| **CS20** | 1 | -0.01171 | 0.1570 | -0.07 | 0.9408 | Cross Sectional Effect 20 |
| **CS21** | 1 | -0.03657 | 0.1503 | -0.24 | 0.8086 | Cross Sectional Effect 21 |
| **CS22** | 1 | 0.008474 | 0.0785 | 0.11 | 0.9144 | Cross Sectional Effect 22 |
| **CS23** | 1 | 0.117913 | 0.0845 | 1.40 | 0.1680 | Cross Sectional Effect 23 |
| **CS24** | 1 | -0.33189 | 0.1956 | -1.70 | 0.0949 | Cross Sectional Effect 24 |
| **CS25** | 1 | 0.016042 | 0.0967 | 0.17 | 0.8688 | Cross Sectional Effect 25 |
| **CS26** | 1 | 0.098291 | 0.0859 | 1.14 | 0.2571 | Cross Sectional Effect 26 |
| **CS27** | 1 | 0.052162 | 0.1376 | 0.38 | 0.7059 | Cross Sectional Effect 27 |
| **CS28** | 1 | -0.06839 | 0.1488 | -0.46 | 0.6474 | Cross Sectional Effect 28 |
| **CS29** | 1 | -0.09941 | 0.1141 | -0.87 | 0.3870 | Cross Sectional Effect 29 |
| **CS30** | 1 | -0.04767 | 0.0711 | -0.67 | 0.5053 | Cross Sectional Effect 30 |
| **CS31** | 1 | 0.066647 | 0.1367 | 0.49 | 0.6276 | Cross Sectional Effect 31 |
| **CS32** | 1 | -0.1093 | 0.1968 | -0.56 | 0.5807 | Cross Sectional Effect 32 |
| **CS33** | 1 | 0.153248 | 0.0924 | 1.66 | 0.1023 | Cross Sectional Effect 33 |
| **CS34** | 1 | 0.059941 | 0.0782 | 0.77 | 0.4462 | Cross Sectional Effect 34 |
| **CS35** | 1 | -0.053 | 0.1656 | -0.32 | 0.7500 | Cross Sectional Effect 35 |
| **CS36** | 1 | 0.121055 | 0.0860 | 1.41 | 0.1642 | Cross Sectional Effect 36 |
| **CS37** | 1 | 0.126769 | 0.0765 | 1.66 | 0.1028 | Cross Sectional Effect 37 |
| **CS38** | 1 | 0.069294 | 0.1489 | 0.47 | 0.6433 | Cross Sectional Effect 38 |
| **CS39** | 1 | 0.000538 | 0.1163 | 0.00 | 0.9963 | Cross Sectional Effect 39 |
| **CS40** | 1 | -0.02661 | 0.1380 | -0.19 | 0.8477 | Cross Sectional Effect 40 |
| **CS41** | 1 | -0.19095 | 0.2016 | -0.95 | 0.3474 | Cross Sectional Effect 41 |
| **CS42** | 1 | -0.06567 | 0.1828 | -0.36 | 0.7207 | Cross Sectional Effect 42 |
| **CS43** | 1 | -0.04045 | 0.1013 | -0.40 | 0.6910 | Cross Sectional Effect 43 |
| **CS44** | 1 | -0.18872 | 0.1660 | -1.14 | 0.2602 | Cross Sectional Effect 44 |
| **CS45** | 1 | -0.09201 | 0.1464 | -0.63 | 0.5321 | Cross Sectional Effect 45 |
| **CS46** | 1 | 0.079794 | 0.0813 | 0.98 | 0.3306 | Cross Sectional Effect 46 |
| **CS47** | 1 | -0.01891 | 0.1266 | -0.15 | 0.8818 | Cross Sectional Effect 47 |
| **CS48** | 1 | -0.19013 | 0.2284 | -0.83 | 0.4085 | Cross Sectional Effect 48 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | 1 | 0.000238 | 0.0890 | 0.00 | 0.9979 | Cross Sectional Effect 49 |
| **CS50** | 1 | -0.04383 | 0.0797 | -0.55 | 0.5843 | Cross Sectional Effect 50 |
| **CS51** | 1 | 0.057437 | 0.1538 | 0.37 | 0.7101 | Cross Sectional Effect 51 |
| **CS52** | 1 | -0.03132 | 0.1978 | -0.16 | 0.8747 | Cross Sectional Effect 52 |
| **CS53** | 1 | 0.028603 | 0.0730 | 0.39 | 0.6967 | Cross Sectional Effect 53 |
| **CS54** | 1 | -0.07278 | 0.1736 | -0.42 | 0.6765 | Cross Sectional Effect 54 |
| **CS55** | 1 | 0.03656 | 0.0951 | 0.38 | 0.7021 | Cross Sectional Effect 55 |
| **CS56** | 1 | -0.13139 | 0.1703 | -0.77 | 0.4433 | Cross Sectional Effect 56 |
| **CS57** | 1 | -0.30394 | 0.1060 | -2.87 | 0.0057 | Cross Sectional Effect 57 |
| **CS58** | 1 | 0.172791 | 0.1505 | 1.15 | 0.2554 | Cross Sectional Effect 58 |
| **CS59** | 1 | 0.247025 | 0.1479 | 1.67 | 0.1001 | Cross Sectional Effect 59 |
| **CS60** | 1 | 0.027415 | 0.1341 | 0.20 | 0.8387 | Cross Sectional Effect 60 |
| **CS61** | 1 | -0.1572 | 0.1897 | -0.83 | 0.4105 | Cross Sectional Effect 61 |
| **CS62** | 1 | -0.00628 | 0.1275 | -0.05 | 0.9609 | Cross Sectional Effect 62 |
| **CS63** | 1 | 0.001899 | 0.1341 | 0.01 | 0.9887 | Cross Sectional Effect 63 |
| **Intercept** | 1 | 1.404329 | 1.2439 | 1.13 | 0.2634 | Intercept |
| **y90** | 1 | 0.385521 | 0.0368 | 10.47 | <.0001 | |
| **lpop** | 1 | 0.072246 | 0.0883 | 0.82 | 0.4167 | |
| **lavginc** | 1 | 0.30996 | 0.0665 | 4.66 | <.0001 | |
| **pctstu** | 1 | 0.011203 | 0.00413 | 2.71 | 0.0087 | |

## The SAS System

### The TSCSREG Procedure
### Fixed Two-Way Estimates
### Model: FIXED
### Dependent Variable: lrent

| Model Description | |
|---|---|
| Model Statement Label | FIXED |
| Estimation Method | FixTwo |
| Number of Cross Sections | 64 |
| Time Series Length | 2 |

| Fit Statistics | | | |
|---|---|---|---|
| SSE | 0.2437 | DFE | 60 |
| MSE | 0.0041 | Root MSE | 0.0637 |
| R-Square | 0.9827 | | |

| F Test for No Fixed Effects | | | |
|---|---|---|---|
| Num DF | Den DF | F Value | Pr > F |
| 64 | 60 | 6.57 | <.0001 |

| Parameter Estimates | | | | | | |
|---|---|---|---|---|---|---|
| Variable | DF | Estimate | Standard Error | t Value | Pr > \|t\| | Label |
| CS1 | 1 | -0.07527 | 0.1022 | -0.74 | 0.4642 | Cross Sectional Effect 1 |
| CS2 | 1 | 0.172118 | 0.0737 | 2.34 | 0.0228 | Cross Sectional Effect 2 |
| CS3 | 1 | -0.05349 | 0.1484 | -0.36 | 0.7198 | Cross Sectional Effect 3 |
| CS4 | 1 | 0.106027 | 0.1505 | 0.70 | 0.4837 | Cross Sectional Effect 4 |
| CS5 | 1 | 0.615692 | 0.1119 | 5.50 | <.0001 | Cross Sectional Effect 5 |
| CS6 | 1 | 0.340854 | 0.0894 | 3.81 | 0.0003 | Cross Sectional Effect 6 |
| CS7 | 1 | 0.150336 | 0.0963 | 1.56 | 0.1236 | Cross Sectional Effect 7 |
| CS8 | 1 | 0.026116 | 0.0991 | 0.26 | 0.7931 | Cross Sectional Effect 8 |
| CS9 | 1 | 0.312279 | 0.0836 | 3.74 | 0.0004 | Cross Sectional Effect 9 |
| CS10 | 1 | -0.04383 | 0.0967 | -0.45 | 0.6519 | Cross Sectional Effect 10 |
| CS11 | 1 | 0.012444 | 0.0839 | 0.15 | 0.8826 | Cross Sectional Effect 11 |
| CS12 | 1 | -0.1609 | 0.1483 | -1.09 | 0.2821 | Cross Sectional Effect 12 |
| CS13 | 1 | -0.04333 | 0.1180 | -0.37 | 0.7148 | Cross Sectional Effect 13 |

| | | | | | | |
|---|---|---|---|---|---|---|
| **CS14** | 1 | 0.423244 | 0.1055 | 4.01 | 0.0002 | Cross Sectional Effect 14 |
| **CS15** | 1 | -0.2302 | 0.1536 | -1.50 | 0.1393 | Cross Sectional Effect 15 |
| **CS16** | 1 | -0.105 | 0.1048 | -1.00 | 0.3203 | Cross Sectional Effect 16 |
| **CS17** | 1 | -0.18546 | 0.1533 | -1.21 | 0.2310 | Cross Sectional Effect 17 |
| **CS18** | 1 | -0.11918 | 0.1300 | -0.92 | 0.3629 | Cross Sectional Effect 18 |
| **CS19** | 1 | -0.04296 | 0.1227 | -0.35 | 0.7276 | Cross Sectional Effect 19 |
| **CS20** | 1 | -0.01171 | 0.1570 | -0.07 | 0.9408 | Cross Sectional Effect 20 |
| **CS21** | 1 | -0.03657 | 0.1503 | -0.24 | 0.8086 | Cross Sectional Effect 21 |
| **CS22** | 1 | 0.008474 | 0.0785 | 0.11 | 0.9144 | Cross Sectional Effect 22 |
| **CS23** | 1 | 0.117913 | 0.0845 | 1.40 | 0.1680 | Cross Sectional Effect 23 |
| **CS24** | 1 | -0.33189 | 0.1956 | -1.70 | 0.0949 | Cross Sectional Effect 24 |
| **CS25** | 1 | 0.016042 | 0.0967 | 0.17 | 0.8688 | Cross Sectional Effect 25 |
| **CS26** | 1 | 0.098291 | 0.0859 | 1.14 | 0.2571 | Cross Sectional Effect 26 |
| **CS27** | 1 | 0.052162 | 0.1376 | 0.38 | 0.7059 | Cross Sectional Effect 27 |
| **CS28** | 1 | -0.06839 | 0.1488 | -0.46 | 0.6474 | Cross Sectional Effect 28 |
| **CS29** | 1 | -0.09941 | 0.1141 | -0.87 | 0.3870 | Cross Sectional Effect 29 |
| **CS30** | 1 | -0.04767 | 0.0711 | -0.67 | 0.5053 | Cross Sectional Effect 30 |
| **CS31** | 1 | 0.066647 | 0.1367 | 0.49 | 0.6276 | Cross Sectional Effect 31 |
| **CS32** | 1 | -0.1093 | 0.1968 | -0.56 | 0.5807 | Cross Sectional Effect 32 |
| **CS33** | 1 | 0.153248 | 0.0924 | 1.66 | 0.1023 | Cross Sectional Effect 33 |
| **CS34** | 1 | 0.059941 | 0.0782 | 0.77 | 0.4462 | Cross Sectional Effect 34 |
| **CS35** | 1 | -0.053 | 0.1656 | -0.32 | 0.7500 | Cross Sectional Effect 35 |
| **CS36** | 1 | 0.121055 | 0.0860 | 1.41 | 0.1642 | Cross Sectional Effect 36 |
| **CS37** | 1 | 0.126769 | 0.0765 | 1.66 | 0.1028 | Cross Sectional Effect 37 |
| **CS38** | 1 | 0.069294 | 0.1489 | 0.47 | 0.6433 | Cross Sectional Effect 38 |
| **CS39** | 1 | 0.000538 | 0.1163 | 0.00 | 0.9963 | Cross Sectional Effect 39 |
| **CS40** | 1 | -0.02661 | 0.1380 | -0.19 | 0.8477 | Cross Sectional Effect 40 |
| **CS41** | 1 | -0.19095 | 0.2016 | -0.95 | 0.3474 | Cross Sectional Effect 41 |
| **CS42** | 1 | -0.06567 | 0.1828 | -0.36 | 0.7207 | Cross Sectional Effect 42 |
| **CS43** | 1 | -0.04045 | 0.1013 | -0.40 | 0.6910 | Cross Sectional Effect 43 |
| **CS44** | 1 | -0.18872 | 0.1660 | -1.14 | 0.2602 | Cross Sectional Effect 44 |
| **CS45** | 1 | -0.09201 | 0.1464 | -0.63 | 0.5321 | Cross Sectional Effect 45 |
| **CS46** | 1 | 0.079794 | 0.0813 | 0.98 | 0.3306 | Cross Sectional Effect 46 |
| **CS47** | 1 | -0.01891 | 0.1266 | -0.15 | 0.8818 | Cross Sectional Effect 47 |
| **CS48** | 1 | -0.19013 | 0.2284 | -0.83 | 0.4085 | Cross Sectional Effect 48 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | 1 | 0.000238 | 0.0890 | 0.00 | 0.9979 | Cross Sectional Effect 49 |
| **CS50** | 1 | -0.04383 | 0.0797 | -0.55 | 0.5843 | Cross Sectional Effect 50 |
| **CS51** | 1 | 0.057437 | 0.1538 | 0.37 | 0.7101 | Cross Sectional Effect 51 |
| **CS52** | 1 | -0.03132 | 0.1978 | -0.16 | 0.8747 | Cross Sectional Effect 52 |
| **CS53** | 1 | 0.028603 | 0.0730 | 0.39 | 0.6967 | Cross Sectional Effect 53 |
| **CS54** | 1 | -0.07278 | 0.1736 | -0.42 | 0.6765 | Cross Sectional Effect 54 |
| **CS55** | 1 | 0.03656 | 0.0951 | 0.38 | 0.7021 | Cross Sectional Effect 55 |
| **CS56** | 1 | -0.13139 | 0.1703 | -0.77 | 0.4433 | Cross Sectional Effect 56 |
| **CS57** | 1 | -0.30394 | 0.1060 | -2.87 | 0.0057 | Cross Sectional Effect 57 |
| **CS58** | 1 | 0.172791 | 0.1505 | 1.15 | 0.2554 | Cross Sectional Effect 58 |
| **CS59** | 1 | 0.247025 | 0.1479 | 1.67 | 0.1001 | Cross Sectional Effect 59 |
| **CS60** | 1 | 0.027415 | 0.1341 | 0.20 | 0.8387 | Cross Sectional Effect 60 |
| **CS61** | 1 | -0.1572 | 0.1897 | -0.83 | 0.4105 | Cross Sectional Effect 61 |
| **CS62** | 1 | -0.00628 | 0.1275 | -0.05 | 0.9609 | Cross Sectional Effect 62 |
| **CS63** | 1 | 0.001899 | 0.1341 | 0.01 | 0.9887 | Cross Sectional Effect 63 |
| **TS1** | 1 | -0.38552 | 0.0368 | -10.47 | <.0001 | Time Series Effect 1 |
| **Intercept** | 1 | 1.78985 | 1.2696 | 1.41 | 0.1638 | Intercept |
| **y90** | 0 | 0 | . | . | . | |
| **lpop** | 1 | 0.072246 | 0.0883 | 0.82 | 0.4167 | |
| **lavginc** | 1 | 0.30996 | 0.0665 | 4.66 | <.0001 | |
| **pctstu** | 1 | 0.011203 | 0.00413 | 2.71 | 0.0087 | |

## The SAS System

### The TSCSREG Procedure
### Fuller and Battese Variance Components (RanOne)
### Model: FIXED
### Dependent Variable: lrent

| Model Description | |
|---|---|
| Model Statement Label | FIXED |
| Estimation Method | RanOne |
| Number of Cross Sections | 64 |
| Time Series Length | 2 |

| Fit Statistics | | | |
|---|---|---|---|
| SSE | 0.5261 | DFE | 123 |
| MSE | 0.0043 | Root MSE | 0.0654 |
| R-Square | 0.9518 | | |

| Variance Component Estimates | |
|---|---|
| Variance Component for Cross Sections | 0.012049 |
| Variance Component for Error | 0.004061 |

| Hausman Test for Random Effects | | |
|---|---|---|
| DF | m Value | Pr > m |
| 4 | 12.73 | 0.0127 |

| Parameter Estimates | | | | | | |
|---|---|---|---|---|---|---|
| Variable | DF | Estimate | Standard Error | t Value | Pr > \|t\| | Label |
| Intercept | 1 | 0.46961 | 0.5675 | 0.83 | 0.4096 | Intercept |
| y90 | 1 | 0.324908 | 0.0286 | 11.36 | <.0001 | |
| lpop | 1 | 0.056668 | 0.0290 | 1.95 | 0.0530 | |
| lavginc | 1 | 0.443703 | 0.0517 | 8.58 | <.0001 | |
| pctstu | 1 | 0.005153 | 0.00132 | 3.92 | 0.0001 | |