Group Fixed Effects

June 26, 2022

1 Group Fixed Effects

Suppose that you want to include fixed effects for:

- Each author in a study of article (or patent) citations
- Each board member in a study of performance of firms
- Each team member in a measure of performance of a team

To fix ideas consider a simple dataset of publications and respective citations:

```
[1]: clear all
     use citations_raw, clear
```

```
[2]: %browse
```

```
         +-------------------------------------------+
     1.  | art_id | journa~d | citati~s |          x |
         |      1 |        4 |       38 |  -1.096598 |
         |-------------------------------------------|
         |                              authors      |
         |          AutB;AutC;AutD;AutE;AutF         |
         +-------------------------------------------+


         +-------------------------------------------+
     2.  | art_id | journa~d | citati~s |          x |
         |      2 |       12 |       34 |   3.182043 |
         |-------------------------------------------|
         |                              authors      |
         |            AutA;AutB;AutC;AutD            |
         +-------------------------------------------+


         +-------------------------------------------+
     3.  | art_id | journa~d | citati~s |          x |
         |      3 |        4 |       22 |   2.319085 |
         |-------------------------------------------|
         |                              authors      |
         |                  AutA; AutD               |
         +-------------------------------------------+
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     +------------------------------------+
4. | art_id | journa~d | citati~s |        x |
   |      4 |        4 |       37 | .5314979 |
   |------------------------------------|
   |                           authors    |
   |                           AutA;AutB  |
     +------------------------------------+


     +------------------------------------+
5. | art_id | journa~d | citati~s |        x |
   |      5 |        3 |       29 | -.1263452 |
   |------------------------------------|
   |                           authors    |
   |                           AutA;AutB  |
     +------------------------------------+


     +------------------------------------+
6. | art_id | journa~d | citati~s |        x |
   |      6 |        3 |       25 | -1.066023 |
   |------------------------------------|
   |                           authors    |
   |                           AutA;AutB  |
     +------------------------------------+


     +------------------------------------+
7. | art_id | journa~d | citati~s |        x |
   |      7 |        4 |       34 | 2.314123 |
   |------------------------------------|
   |                           authors    |
   |                              AutB    |
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     +------------------------------------+
8. | art_id | journa~d | citati~s |        x |
   |      8 |        6 |       35 | .7701448 |
   |------------------------------------|
   |                           authors    |
   |                           AutA;AutB  |
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     +------------------------------------+
9. | art_id | journa~d | citati~s |        x |
   |      9 |        4 |       32 | .0731317 |
   |------------------------------------|
   |                           authors    |
   |                           AutA;AutB  |
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```

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10. | art_id | journa~d | citati~s |        x |
    |     10 |       10 |       31 | .7151871 |
    |----------------------------------------|
    |                          authors       |
    |                       AutA;AutB        |
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11. | art_id | journa~d | citati~s |        x |
    |     11 |        8 |       39 | .6309603 |
    |----------------------------------------|
    |                          authors       |
    |                    AutA;AutB;AutD       |
    +----------------------------------------+


      +----------------------------------------+
12. | art_id | journa~d | citati~s |        x |
    |     12 |        3 |       27 | .0993462 |
    |----------------------------------------|
    |                          authors       |
    |                       AutA;AutB        |
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13. | art_id | journa~d | citati~s |        x |
    |     13 |        2 |       25 | -2.583632 |
    |----------------------------------------|
    |                          authors       |
    |                       AutA;AutB        |
    +----------------------------------------+


      +----------------------------------------+
14. | art_id | journa~d | citati~s |        x |
    |     14 |        7 |       29 | .6905127 |
    |----------------------------------------|
    |                          authors       |
    |                       AutA;AutB        |
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      +----------------------------------------+
15. | art_id | journa~d | citati~s |        x |
    |     15 |        8 |       25 | -2.063772 |
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    |                          authors       |
    |                       AutA;AutB        |
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16.  | art_id | journa~d | citati~s |        x |
     |     16 |        8 |       32 | -1.246508 |
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     |                          authors       |
     |                   AutA;AutB;AutE       |
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17.  | art_id | journa~d | citati~s |        x |
     |     17 |        3 |       19 | -.6599711 |
     |----------------------------------------|
     |                          authors       |
     |                        AutA;AutB       |
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18.  | art_id | journa~d | citati~s |        x |
     |     18 |        6 |       32 | -1.478867 |
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     |                          authors       |
     |                        AutA;AutB       |
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     +----------------------------------------+
19.  | art_id | journa~d | citati~s |        x |
     |     19 |        7 |       32 |  .3071749 |
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     |                          authors       |
     |                        AutB;AutF       |
     +----------------------------------------+


     +----------------------------------------+
20.  | art_id | journa~d | citati~s |        x |
     |     20 |        5 |       31 | -.4103581 |
     |----------------------------------------|
     |                          authors       |
     |                 AutB;AutC;AutD;AutE     |
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21.  | art_id | journa~d | citati~s |        x |
     |     21 |        6 |       32 | -1.235868 |
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     |                          authors       |
     |                        AutA;AutB       |
     +----------------------------------------+
```

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 22. | art_id | journa~d | citati~s |        x |
     |     22 |        5 |       34 | -.4452573 |
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     |                             authors    |
     |                                AutA    |
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 23. | art_id | journa~d | citati~s |        x |
     |     23 |        8 |       27 |  .8285742 |
     |----------------------------------------|
     |                             authors    |
     |                           AutA;AutC    |
     +----------------------------------------+


     +----------------------------------------+
 24. | art_id | journa~d | citati~s |        x |
     |     24 |        8 |       42 |  .8201761 |
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     |                             authors    |
     |                                AutA    |
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 25. | art_id | journa~d | citati~s |        x |
     |     25 |        6 |       37 | -.3326353 |
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     |                             authors    |
     |                                AutA    |
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 26. | art_id | journa~d | citati~s |        x |
     |     26 |        6 |       30 | -.5047406 |
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     |                             authors    |
     |                         AutA;AutB;AutC    |
     +----------------------------------------+


     +----------------------------------------+
 27. | art_id | journa~d | citati~s |        x |
     |     27 |        4 |       23 |  .5701295 |
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     |                             authors    |
     |                           AutA;AutB    |
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```

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 28.  | art_id | journa~d | citati~s |        x |
      |     28 |        6 |       26 | .5886264 |
      |----------------------------------------|
      |                             authors    |
      |                                AutA    |
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      +----------------------------------------+
 29.  | art_id | journa~d | citati~s |         x |
      |     29 |        6 |       30 | -1.290243 |
      |----------------------------------------|
      |                             authors    |
      |                                AutA    |
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      +----------------------------------------+
 30.  | art_id | journa~d | citati~s |         x |
      |     30 |       10 |       33 | -.8219085 |
      |----------------------------------------|
      |                             authors    |
      |                            AutA;AutB    |
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      +----------------------------------------+
 31.  | art_id | journa~d | citati~s |        x |
      |     31 |        7 |       32 | 1.148723 |
      |----------------------------------------|
      |                             authors    |
      |                            AutA;AutB    |
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      +----------------------------------------+
 32.  | art_id | journa~d | citati~s |        x |
      |     32 |        6 |       25 | .9319192 |
      |----------------------------------------|
      |                             authors    |
      |                         AutA;AutB;AutC    |
      +----------------------------------------+


      +----------------------------------------+
 33.  | art_id | journa~d | citati~s |        x |
      |     33 |        5 |       36 | .4637992 |
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      |                             authors    |
      |                                AutA    |
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 34. | art_id | journa~d | citati~s |         x |
     |      34 |        3 |       35 | -.4446257 |
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     |                            authors       |
     |                            AutA          |
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 35. | art_id | journa~d | citati~s |         x |
     |      35 |        9 |       27 |  1.454637 |
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     |                            authors       |
     |                            AutA          |
     +----------------------------------------+


       +----------------------------------------+
 36. | art_id | journa~d | citati~s |         x |
     |      36 |        5 |       37 |  .1202357 |
     |----------------------------------------|
     |                            authors       |
     |                       AutA;AutB;AutC      |
     +----------------------------------------+


       +----------------------------------------+
 37. | art_id | journa~d | citati~s |         x |
     |      37 |        5 |       45 |  .6168431 |
     |----------------------------------------|
     |                            authors       |
     |                            AutA          |
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       +----------------------------------------+
 38. | art_id | journa~d | citati~s |         x |
     |      38 |        7 |       28 | -1.154497 |
     |----------------------------------------|
     |                            authors       |
     |                         AutA;AutB         |
     +----------------------------------------+


       +----------------------------------------+
 39. | art_id | journa~d | citati~s |         x |
     |      39 |        4 |       39 | -.0999358 |
     |----------------------------------------|
     |                            authors       |
     |                            AutA          |
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40. | art_id | journa~d | citati~s |         x |
    |     40 |        9 |       28 |  1.416823 |
    |-----------------------------------------|
    |                            authors      |
    |                               AutA      |
    +-----------------------------------------+


      +-----------------------------------------+
41. | art_id | journa~d | citati~s |         x |
    |     41 |        4 |       24 |  1.066625 |
    |-----------------------------------------|
    |                            authors      |
    |          AutA;AutB;AutC;AutD;AutE        |
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      +-----------------------------------------+
42. | art_id | journa~d | citati~s |         x |
    |     42 |        7 |       27 | -.9381732 |
    |-----------------------------------------|
    |                            authors      |
    |              AutA;AutB;AutC             |
    +-----------------------------------------+


      +-----------------------------------------+
43. | art_id | journa~d | citati~s |         x |
    |     43 |        6 |       16 | -1.436606 |
    |-----------------------------------------|
    |                            authors      |
    |                               AutA      |
    +-----------------------------------------+


      +-----------------------------------------+
44. | art_id | journa~d | citati~s |         x |
    |     44 |        4 |       25 |  .8336254 |
    |-----------------------------------------|
    |                            authors      |
    |                               AutA      |
    +-----------------------------------------+


      +-----------------------------------------+
45. | art_id | journa~d | citati~s |         x |
    |     45 |        4 |       34 |  .9235147 |
    |-----------------------------------------|
    |                            authors      |
    |                            AutA;AutB    |
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 46. | art_id | journa~d | citati~s |      x  |
     |     46 |        4 |       25 | .2232714 |
     |---------------------------------------|
     |                            authors    |
     |                 AutB;AutC;AutD        |
     +---------------------------------------+


     +---------------------------------------+
 47. | art_id | journa~d | citati~s |      x  |
     |     47 |       13 |       33 |  .442765 |
     |---------------------------------------|
     |                            authors    |
     |            AutA;AutB;AutC;AutD        |
     +---------------------------------------+


     +---------------------------------------+
 48. | art_id | journa~d | citati~s |      x  |
     |     48 |        9 |       21 | .1972646 |
     |---------------------------------------|
     |                            authors    |
     |                      AutA              |
     +---------------------------------------+


     +---------------------------------------+
 49. | art_id | journa~d | citati~s |      x  |
     |     49 |        7 |       22 | 1.828233 |
     |---------------------------------------|
     |                            authors    |
     |                      AutA              |
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 50. | art_id | journa~d | citati~s |      x  |
     |     50 |        4 |       33 | .3725476 |
     |---------------------------------------|
     |                            authors    |
     |            AutA;AutB;AutC;AutD        |
     +---------------------------------------+


     +---------------------------------------+
 51. | art_id | journa~d | citati~s |      x  |
     |     51 |        4 |       33 | -.8173643 |
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     |                            authors    |
     |            AutA;AutB;AutC;AutD        |
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 52.  | art_id | journa~d | citati~s |        x |
      |     52 |        5 |       20 | 1.574457 |
      |----------------------------------------|
      |                              authors   |
      |                    AutA;AutB;AutC       |
      +----------------------------------------+


      +----------------------------------------+
 53.  | art_id | journa~d | citati~s |        x |
      |     53 |        5 |       39 | 1.716935 |
      |----------------------------------------|
      |                              authors   |
      |                    AutA;AutB            |
      +----------------------------------------+


      +----------------------------------------+
 54.  | art_id | journa~d | citati~s |        x |
      |     54 |        6 |       34 |  .338451 |
      |----------------------------------------|
      |                              authors   |
      |              AutA;AutB;AutC;AutD        |
      +----------------------------------------+


      +----------------------------------------+
 55.  | art_id | journa~d | citati~s |        x |
      |     55 |        4 |       37 | .0942601 |
      |----------------------------------------|
      |                              authors   |
      |                    AutA;AutB;AutC       |
      +----------------------------------------+


      +----------------------------------------+
 56.  | art_id | journa~d | citati~s |        x |
      |     56 |        5 |       26 | -.914588 |
      |----------------------------------------|
      |                              authors   |
      |                    AutA;AutB            |
      +----------------------------------------+


      +----------------------------------------+
 57.  | art_id | journa~d | citati~s |        x |
      |     57 |       11 |       23 | 1.259047 |
      |----------------------------------------|
      |                              authors   |
      |                         AutA            |
      +----------------------------------------+
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      +----------------------------------------+
  58. | art_id | journa~d | citati~s |        x |
      |     58 |        6 |       36 | -1.000023 |
      |----------------------------------------|
      |                            authors     |
      |                               AutA     |
      +----------------------------------------+


      +----------------------------------------+
  59. | art_id | journa~d | citati~s |        x |
      |     59 |        2 |       31 | -.1631394 |
      |----------------------------------------|
      |                            authors     |
      |                          AutA;AutB     |
      +----------------------------------------+


      +----------------------------------------+
  60. | art_id | journa~d | citati~s |        x |
      |     60 |        4 |       32 | .5729514 |
      |----------------------------------------|
      |                            authors     |
      |                     AutA;AutB;AutC     |
      +----------------------------------------+


      +----------------------------------------+
  61. | art_id | journa~d | citati~s |        x |
      |     61 |        5 |       32 | .5039716 |
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      |                            authors     |
      |                               AutA     |
      +----------------------------------------+


      +----------------------------------------+
  62. | art_id | journa~d | citati~s |        x |
      |     62 |        4 |       33 | -.3318768 |
      |----------------------------------------|
      |                            authors     |
      |                AutA;AutB;AutC;AutD     |
      +----------------------------------------+


      +----------------------------------------+
  63. | art_id | journa~d | citati~s |        x |
      |     63 |        5 |       42 | -1.345239 |
      |----------------------------------------|
      |                            authors     |
      |                AutA;AutB;AutC;AutD     |
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 64. | art_id | journa~d | citati~s |        x |
     |     64 |        9 |       37 | -.5360869 |
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     |                             authors     |
     |                          AutA;AutB      |
     +----------------------------------------+


      +----------------------------------------+
 65. | art_id | journa~d | citati~s |        x |
     |     65 |        9 |       25 |  .4335161 |
     |----------------------------------------|
     |                             authors     |
     |          AutB;AutC;AutD;AutE;AutF        |
     +----------------------------------------+


      +----------------------------------------+
 66. | art_id | journa~d | citati~s |        x |
     |     66 |        3 |       34 | -.5601428 |
     |----------------------------------------|
     |                             authors     |
     |                             AutA        |
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      +----------------------------------------+
 67. | art_id | journa~d | citati~s |        x |
     |     67 |        3 |       26 | -.7533434 |
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     |                             authors     |
     |      AutA;AutB;AutC;AutD;AutE;AutF       |
     +----------------------------------------+


      +----------------------------------------+
 68. | art_id | journa~d | citati~s |        x |
     |     68 |        7 |       28 | -.8127742 |
     |----------------------------------------|
     |                             authors     |
     |                             AutA        |
     +----------------------------------------+


      +----------------------------------------+
 69. | art_id | journa~d | citati~s |        x |
     |     69 |        5 |       39 | -.3579273 |
     |----------------------------------------|
     |                             authors     |
     |                             AutA        |
     +----------------------------------------+
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  70.  | art_id | journa~d | citati~s |        x |
       |     70 |        7 |       27 | -.8320007 |
       |-----------------------------------------|
       |                           authors       |
       |                         AutA;AutB       |
       +-----------------------------------------+


       +-----------------------------------------+
  71.  | art_id | journa~d | citati~s |        x |
       |     71 |        5 |       29 | -.7093763 |
       |-----------------------------------------|
       |                           authors       |
       |      AutA;AutB;AutC;AutD;AutE;AutF       |
       +-----------------------------------------+


       +-----------------------------------------+
  72.  | art_id | journa~d | citati~s |        x |
       |     72 |        3 |       36 | -.9649825 |
       |-----------------------------------------|
       |                           authors       |
       |                             AutA        |
       +-----------------------------------------+


       +-----------------------------------------+
  73.  | art_id | journa~d | citati~s |        x |
       |     73 |        9 |       26 |  .1883628 |
       |-----------------------------------------|
       |                           authors       |
       |                    AutA;AutB;AutC        |
       +-----------------------------------------+


       +-----------------------------------------+
  74.  | art_id | journa~d | citati~s |        x |
       |     74 |        7 |       31 |  .7626509 |
       |-----------------------------------------|
       |                           authors       |
       |                    AutA;AutB;AutC        |
       +-----------------------------------------+


       +-----------------------------------------+
  75.  | art_id | journa~d | citati~s |        x |
       |     75 |        7 |       36 | -1.345739 |
       |-----------------------------------------|
       |                           authors       |
       |                    AutA;AutB;AutC        |
       +-----------------------------------------+
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 76. | art_id | journa~d | citati~s |         x |
     |     76 |        2 |       33 | -1.415193 |
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     |                              authors     |
     |                              AutA        |
     +-----------------------------------------+


     +-----------------------------------------+
 77. | art_id | journa~d | citati~s |         x |
     |     77 |        5 |       22 | -.5878691 |
     |-----------------------------------------|
     |                              authors     |
     |                              AutA        |
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     +-----------------------------------------+
 78. | art_id | journa~d | citati~s |         x |
     |     78 |        2 |       26 | -1.290222 |
     |-----------------------------------------|
     |                              authors     |
     |                         AutA;AutB;AutC   |
     +-----------------------------------------+


     +-----------------------------------------+
 79. | art_id | journa~d | citati~s |         x |
     |     79 |        6 |       29 | -.3055488 |
     |-----------------------------------------|
     |                              authors     |
     |                         AutA;AutB;AutC   |
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     +-----------------------------------------+
 80. | art_id | journa~d | citati~s |         x |
     |     80 |        4 |       37 |  .2425353 |
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     |                              authors     |
     |                           AutA;AutB      |
     +-----------------------------------------+


     +-----------------------------------------+
 81. | art_id | journa~d | citati~s |         x |
     |     81 |        3 |       35 | -1.138787 |
     |-----------------------------------------|
     |                              authors     |
     |                              AutA        |
     +-----------------------------------------+
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14

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     +-----------------------------------------+
82.  | art_id | journa~d | citati~s |        x |
     |     82 |       10 |       24 | 1.237919 |
     |-----------------------------------------|
     |                            authors      |
     |              AutA;AutB;AutC;AutD         |
     +-----------------------------------------+


     +-----------------------------------------+
83.  | art_id | journa~d | citati~s |        x |
     |     83 |        6 |       30 | 1.462004 |
     |-----------------------------------------|
     |                            authors      |
     |                    AutA;AutB             |
     +-----------------------------------------+


     +-----------------------------------------+
84.  | art_id | journa~d | citati~s |        x |
     |     84 |        7 |       20 | 2.348689 |
     |-----------------------------------------|
     |                            authors      |
     |                         AutA             |
     +-----------------------------------------+


     +-----------------------------------------+
85.  | art_id | journa~d | citati~s |        x |
     |     85 |        4 |       31 | .7492698 |
     |-----------------------------------------|
     |                            authors      |
     |                         AutA             |
     +-----------------------------------------+


     +-----------------------------------------+
86.  | art_id | journa~d | citati~s |        x |
     |     86 |        5 |       30 | .9811502 |
     |-----------------------------------------|
     |                            authors      |
     |              AutA;AutB;AutC;AutD         |
     +-----------------------------------------+


     +-----------------------------------------+
87.  | art_id | journa~d | citati~s |        x |
     |     87 |        4 |       39 |  .226038 |
     |-----------------------------------------|
     |                            authors      |
     |              AutA;AutB;AutC;AutD         |
     +-----------------------------------------+
```

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88. | art_id | journa~d | citati~s |          x |
    |     88 |        7 |       24 |   1.006857 |
    |----------------------------------------|
    |                            authors      |
    |                          AutA;AutB      |
      +----------------------------------------+


      +----------------------------------------+
89. | art_id | journa~d | citati~s |          x |
    |     89 |        5 |       24 | -.2218018 |
    |----------------------------------------|
    |                            authors      |
    |                          AutA;AutB      |
      +----------------------------------------+


      +----------------------------------------+
90. | art_id | journa~d | citati~s |          x |
    |     90 |        6 |       31 |  .7223159 |
    |----------------------------------------|
    |                            authors      |
    |                              AutA       |
      +----------------------------------------+


      +----------------------------------------+
91. | art_id | journa~d | citati~s |          x |
    |     91 |        6 |       30 |  .2530005 |
    |----------------------------------------|
    |                            authors      |
    |                              AutA       |
      +----------------------------------------+


      +----------------------------------------+
92. | art_id | journa~d | citati~s |          x |
    |     92 |        7 |       37 | -1.443321 |
    |----------------------------------------|
    |                            authors      |
    |                     AutA;AutB;AutC      |
      +----------------------------------------+


      +----------------------------------------+
93. | art_id | journa~d | citati~s |          x |
    |     93 |        4 |       37 | -.9973699 |
    |----------------------------------------|
    |                            authors      |
    |                          AutA;AutB      |
      +----------------------------------------+
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94.  | art_id | journa~d | citati~s |        x |
     |     94 |        2 |       30 | 1.033468 |
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     |                              authors    |
     |                         AutA;AutB;AutC  |
     +----------------------------------------+


     +----------------------------------------+
95.  | art_id | journa~d | citati~s |         x |
     |     95 |        3 |       37 | -1.053058 |
     |----------------------------------------|
     |                              authors    |
     |                              AutA       |
     +----------------------------------------+


     +----------------------------------------+
96.  | art_id | journa~d | citati~s |        x |
     |     96 |        2 |       23 | .3320688 |
     |----------------------------------------|
     |                              authors    |
     |                         AutA;AutB;AutC  |
     +----------------------------------------+


     +----------------------------------------+
97.  | art_id | journa~d | citati~s |        x |
     |     97 |        9 |       32 | -.476414 |
     |----------------------------------------|
     |                              authors    |
     |                           AutA;AutB     |
     +----------------------------------------+


     +----------------------------------------+
98.  | art_id | journa~d | citati~s |        x |
     |     98 |        8 |       26 | 1.598897 |
     |----------------------------------------|
     |                              authors    |
     |                              AutA       |
     +----------------------------------------+


     +----------------------------------------+
99.  | art_id | journa~d | citati~s |        x |
     |     99 |        5 |       25 | .8515619 |
     |----------------------------------------|
     |                              authors    |
     |                         AutA;AutB;AutC  |
     +----------------------------------------+
```

```
         +-------------------------------------------+
100.     | art_id  | journa~d | citati~s |         x |
         |    100  |       10 |       28 | -.5463751 |
         |-------------------------------------------|
         |                            authors        |
         |                           AutA;AutB       |
         +-------------------------------------------+
```

We can easily run a regression of citation on our explanatory variable x :

```
[3]:  reghdfe citations x
      estimates store reg_wide_yx
```

```
(MWFE estimator converged in 1 iterations)

HDFE Linear regression                      Number of obs   =        100
Absorbing 1 HDFE group                      F(  1,     98) =       1.82
                                            Prob > F        =     0.1805
                                            R-squared       =     0.0182
                                            Adj R-squared   =     0.0082
                                            Within R-sq.    =     0.0182
                                            Root MSE        =     5.7103


------------------------------------------------------------------------------
   citations |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
           x |  -.7321277   .5428297    -1.35   0.181    -1.809356    .3451002
       _cons |   30.50843   .5721567    53.32   0.000       29.373    31.64386
------------------------------------------------------------------------------
```

```
[4]:  reghdfe citations x, a(journal)
      estimates store reg_wide_yxj
```

```
(dropped 3 singleton observations)
(MWFE estimator converged in 1 iterations)

HDFE Linear regression                      Number of obs   =         97
Absorbing 1 HDFE group                      F(  1,     87) =       3.76
                                            Prob > F        =     0.0556
                                            R-squared       =     0.1136
                                            Adj R-squared   =     0.0219
                                            Within R-sq.    =     0.0415
                                            Root MSE        =     5.6921
```

```
----------------------------------------------------------------------
  citations |      Coef.   Std. Err.       t    P>|t|     [95% Conf. Interval]
------------+---------------------------------------------------------------
          x |  -1.184256    .6104138    -1.94   0.056     -2.39752    .0290073
      _cons |   30.49536    .5780516    52.76   0.000     29.34642     31.6443
----------------------------------------------------------------------
```

```
Absorbed degrees of freedom:
-------------------------------------------------------+
 Absorbed FE | Categories  - Redundant  = Num. Coefs |
-------------+-----------------------------------------|
  journal_id |         9           0          9       |
-------------------------------------------------------+
```

But what if want to add a fixed effect for author? Solution: create a dummy per author. With 6 authors this is easy to do.

```
[5]:  local i=1
      foreach au in AutA AutB AutC AutD AutE AutF {
      gen aut`i'=regexm(authors,"`au'")
      local ++i
      }
      save citations_wide, replace
```

```
(note: file citations_wide.dta not found)
file citations_wide.dta saved
```

```
[6]:  %browse
```

```
      +--------------------------------------------------------------+
  1. |     art_id    |    journa~d    |    citati~s    |           x |
     |          1    |          4     |         38     |    -1.096598 |
     |--------------------------------+------------------------------|
     |                        authors |  _est_r~x | _est_r~j | aut1 | aut2 |
     |        AutB;AutC;AutD;AutE;AutF |         1 |        1 |    0 |    1 |
     |--------------------------------------------------------------|
     |      aut3     |      aut4      |      aut5     |      aut6     |
     |         1     |         1      |         1     |         1     |
     +--------------------------------------------------------------+


      +--------------------------------------------------------------+
  2. |     art_id    |    journa~d    |    citati~s    |           x |
     |          2    |         12     |         34     |     3.182043 |
```

```
|------------------------------------+----------------------------------|
|                            authors | _est_r~x | _est_r~j | aut1 | aut2 |
|                  AutA;AutB;AutC;AutD |        1 |        0 |    1 |    1 |
|------------------------------------+----------------------------------|
|    aut3        |       aut4        |       aut5       |       aut6      |
|      1         |        1          |        0         |        0        |
+-------------------------------------------------------------------------+


+-------------------------------------------------------------------------+
3. |      art_id    |      journa~d     |      citati~s    |        x        |
   |        3       |        4          |        22        |     2.319085    |
   |------------------------------------+----------------------------------|
   |                            authors | _est_r~x | _est_r~j | aut1 | aut2 |
   |                          AutA; AutD |        1 |        1 |    1 |    0 |
   |------------------------------------+----------------------------------|
   |    aut3        |      aut4         |      aut5        |      aut6       |
   |      0         |       1           |       0          |       0         |
   +----------------------------------------------------------------------+


+-------------------------------------------------------------------------+
4. |      art_id    |      journa~d     |      citati~s    |        x        |
   |        4       |        4          |        37        |     .5314979    |
   |------------------------------------+----------------------------------|
   |                            authors | _est_r~x | _est_r~j | aut1 | aut2 |
   |                          AutA;AutB  |        1 |        1 |    1 |    1 |
   |------------------------------------+----------------------------------|
   |    aut3        |      aut4         |      aut5        |      aut6       |
   |      0         |       0           |       0          |       0         |
   +----------------------------------------------------------------------+


+-------------------------------------------------------------------------+
5. |      art_id    |      journa~d     |      citati~s    |        x        |
   |        5       |        3          |        29        |    -.1263452    |
   |------------------------------------+----------------------------------|
   |                            authors | _est_r~x | _est_r~j | aut1 | aut2 |
   |                          AutA;AutB  |        1 |        1 |    1 |    1 |
   |------------------------------------+----------------------------------|
   |    aut3        |      aut4         |      aut5        |      aut6       |
   |      0         |       0           |       0          |       0         |
   +----------------------------------------------------------------------+


+-------------------------------------------------------------------------+
6. |      art_id    |      journa~d     |      citati~s    |        x        |
   |        6       |        3          |        25        |    -1.066023    |
   |------------------------------------+----------------------------------|
   |                            authors | _est_r~x | _est_r~j | aut1 | aut2 |
   |                          AutA;AutB  |        1 |        1 |    1 |    1 |
   |------------------------------------+----------------------------------|
```

```
          |        aut3      |        aut4      |        aut5      |        aut6      |
          |           0      |           0      |           0      |           0      |
          +----------------------------------------------------------------------+


          +----------------------------------------------------------------------+
  7. |      art_id    |     journa~d    |     citati~s    |                x    |
          |           7    |           4    |          34    |        2.314123    |
          |--------------------------------+-------------------------------------|
          |                        authors | _est_r~x | _est_r~j | aut1 | aut2 |
          |                           AutB |        1 |        1 |    0 |    1 |
          |--------------------------------------------------------------------|
          |        aut3      |        aut4      |        aut5      |        aut6      |
          |           0      |           0      |           0      |           0      |
          +----------------------------------------------------------------------+


          +----------------------------------------------------------------------+
  8. |      art_id    |     journa~d    |     citati~s    |                x    |
          |           8    |           6    |          35    |         .7701448   |
          |--------------------------------+-------------------------------------|
          |                        authors | _est_r~x | _est_r~j | aut1 | aut2 |
          |                      AutA;AutB |        1 |        1 |    1 |    1 |
          |--------------------------------------------------------------------|
          |        aut3      |        aut4      |        aut5      |        aut6      |
          |           0      |           0      |           0      |           0      |
          +----------------------------------------------------------------------+


          +----------------------------------------------------------------------+
  9. |      art_id    |     journa~d    |     citati~s    |                x    |
          |           9    |           4    |          32    |         .0731317   |
          |--------------------------------+-------------------------------------|
          |                        authors | _est_r~x | _est_r~j | aut1 | aut2 |
          |                      AutA;AutB |        1 |        1 |    1 |    1 |
          |--------------------------------------------------------------------|
          |        aut3      |        aut4      |        aut5      |        aut6      |
          |           0      |           0      |           0      |           0      |
          +----------------------------------------------------------------------+


          +----------------------------------------------------------------------+
 10. |      art_id    |     journa~d    |     citati~s    |                x    |
          |          10    |          10    |          31    |         .7151871   |
          |--------------------------------+-------------------------------------|
          |                        authors | _est_r~x | _est_r~j | aut1 | aut2 |
          |                      AutA;AutB |        1 |        1 |    1 |    1 |
          |--------------------------------------------------------------------|
          |        aut3      |        aut4      |        aut5      |        aut6      |
          |           0      |           0      |           0      |           0      |
          +----------------------------------------------------------------------+
```

```
     +-------------------------------------------------------------+
11.  |    art_id     |    journa~d    |    citati~s    |        x        |
     |      11       |       8        |       39       |     .6309603    |
     |-----------------------------------+-------------------------------|
     |                        authors | _est_r~x | _est_r~j | aut1 | aut2 |
     |                   AutA;AutB;AutD |        1 |        1 |    1 |    1 |
     |-----------------------------------+-------------------------------|
     |    aut3       |    aut4        |    aut5        |     aut6        |
     |      0        |      1         |      0         |       0        |
     +-------------------------------------------------------------+


     +-------------------------------------------------------------+
12.  |    art_id     |    journa~d    |    citati~s    |        x        |
     |      12       |       3        |       27       |     .0993462    |
     |-----------------------------------+-------------------------------|
     |                        authors | _est_r~x | _est_r~j | aut1 | aut2 |
     |                       AutA;AutB |        1 |        1 |    1 |    1 |
     |-----------------------------------+-------------------------------|
     |    aut3       |    aut4        |    aut5        |     aut6        |
     |      0        |      0         |      0         |       0        |
     +-------------------------------------------------------------+


     +-------------------------------------------------------------+
13.  |    art_id     |    journa~d    |    citati~s    |        x        |
     |      13       |       2        |       25       |    -2.583632    |
     |-----------------------------------+-------------------------------|
     |                        authors | _est_r~x | _est_r~j | aut1 | aut2 |
     |                       AutA;AutB |        1 |        1 |    1 |    1 |
     |-----------------------------------+-------------------------------|
     |    aut3       |    aut4        |    aut5        |     aut6        |
     |      0        |      0         |      0         |       0        |
     +-------------------------------------------------------------+


     +-------------------------------------------------------------+
14.  |    art_id     |    journa~d    |    citati~s    |        x        |
     |      14       |       7        |       29       |     .6905127    |
     |-----------------------------------+-------------------------------|
     |                        authors | _est_r~x | _est_r~j | aut1 | aut2 |
     |                       AutA;AutB |        1 |        1 |    1 |    1 |
     |-----------------------------------+-------------------------------|
     |    aut3       |    aut4        |    aut5        |     aut6        |
     |      0        |      0         |      0         |       0        |
     +-------------------------------------------------------------+


     +-------------------------------------------------------------+
15.  |    art_id     |    journa~d    |    citati~s    |        x        |
     |      15       |       8        |       25       |    -2.063772    |
     |-----------------------------------+-------------------------------|
```

	authors	_est_r~x	_est_r~j	aut1	aut2
	AutA;AutB	1	1	1	1

aut3	aut4	aut5	aut6
0	0	0	0

16.

art_id	journa~d	citati~s	x
16	8	32	-1.246508

	authors	_est_r~x	_est_r~j	aut1	aut2
	AutA;AutB;AutE	1	1	1	1

aut3	aut4	aut5	aut6
0	0	1	0

17.

art_id	journa~d	citati~s	x
17	3	19	-.6599711

	authors	_est_r~x	_est_r~j	aut1	aut2
	AutA;AutB	1	1	1	1

aut3	aut4	aut5	aut6
0	0	0	0

18.

art_id	journa~d	citati~s	x
18	6	32	-1.478867

	authors	_est_r~x	_est_r~j	aut1	aut2
	AutA;AutB	1	1	1	1

aut3	aut4	aut5	aut6
0	0	0	0

19.

art_id	journa~d	citati~s	x
19	7	32	.3071749

	authors	_est_r~x	_est_r~j	aut1	aut2
	AutB;AutF	1	1	0	1

aut3	aut4	aut5	aut6

| | 0 | | 0 | | 0 | | 1 | |
+---+

+---+
20. | art_id | journa~d | citati~s | x |
| 20 | 5 | 31 | -.4103581 |
|-----------------------------+-------------------------------------|
| authors | _est_r~x | _est_r~j | aut1 | aut2 |
AutB;AutC;AutD;AutE	1	1	0	1
aut3	aut4	aut5	aut6
1	1	1	0
+---+

+---+
21. | art_id | journa~d | citati~s | x |
| 21 | 6 | 32 | -1.235868 |
|-----------------------------+-------------------------------------|
| authors | _est_r~x | _est_r~j | aut1 | aut2 |
AutA;AutB	1	1	1	1
aut3	aut4	aut5	aut6
0	0	0	0
+---+

+---+
22. | art_id | journa~d | citati~s | x |
| 22 | 5 | 34 | -.4452573 |
|-----------------------------+-------------------------------------|
| authors | _est_r~x | _est_r~j | aut1 | aut2 |
AutA	1	1	1	0
aut3	aut4	aut5	aut6
0	0	0	0
+---+

+---+
23. | art_id | journa~d | citati~s | x |
| 23 | 8 | 27 | .8285742 |
|-----------------------------+-------------------------------------|
| authors | _est_r~x | _est_r~j | aut1 | aut2 |
AutA;AutC	1	1	1	0
aut3	aut4	aut5	aut6
1	0	0	0
+---+

+---+

```
24. |     art_id     |    journa~d    |    citati~s    |              x     |
    |        24      |          8     |         42     |      .8201761      |
    |----------------------------------+------------------------------------|
    |                        authors | _est_r~x | _est_r~j | aut1 | aut2 |
    |                           AutA |        1 |        1 |    1 |    0 |
    |----------------------------------------------------------------------|
    |     aut3       |     aut4       |     aut5       |      aut6      |
    |        0       |        0       |        0       |        0      |
    +----------------------------------------------------------------------+


    +----------------------------------------------------------------------+
25. |     art_id     |    journa~d    |    citati~s    |              x     |
    |        25      |          6     |         37     |     -.3326353      |
    |----------------------------------+------------------------------------|
    |                        authors | _est_r~x | _est_r~j | aut1 | aut2 |
    |                           AutA |        1 |        1 |    1 |    0 |
    |----------------------------------------------------------------------|
    |     aut3       |     aut4       |     aut5       |      aut6      |
    |        0       |        0       |        0       |        0      |
    +----------------------------------------------------------------------+


    +----------------------------------------------------------------------+
26. |     art_id     |    journa~d    |    citati~s    |              x     |
    |        26      |          6     |         30     |     -.5047406      |
    |----------------------------------+------------------------------------|
    |                        authors | _est_r~x | _est_r~j | aut1 | aut2 |
    |                  AutA;AutB;AutC |        1 |        1 |    1 |    1 |
    |----------------------------------------------------------------------|
    |     aut3       |     aut4       |     aut5       |      aut6      |
    |        1       |        0       |        0       |        0      |
    +----------------------------------------------------------------------+


    +----------------------------------------------------------------------+
27. |     art_id     |    journa~d    |    citati~s    |              x     |
    |        27      |          4     |         23     |      .5701295      |
    |----------------------------------+------------------------------------|
    |                        authors | _est_r~x | _est_r~j | aut1 | aut2 |
    |                       AutA;AutB |        1 |        1 |    1 |    1 |
    |----------------------------------------------------------------------|
    |     aut3       |     aut4       |     aut5       |      aut6      |
    |        0       |        0       |        0       |        0      |
    +----------------------------------------------------------------------+


    +----------------------------------------------------------------------+
28. |     art_id     |    journa~d    |    citati~s    |              x     |
    |        28      |          6     |         26     |      .5886264      |
    |----------------------------------+------------------------------------|
    |                        authors | _est_r~x | _est_r~j | aut1 | aut2 |
```

```
     |                                   AutA |       1 |         1 |   1 |     0 |
     |-----------------------------------------------------------------------|
     |   aut3      |     aut4      |     aut5       |      aut6           |
     |     0       |      0        |      0         |       0            |
     +-----------------------------------------------------------------------+


     +-----------------------------------------------------------------------+
 29. |   art_id    |   journa~d    |   citati~s     |            x       |
     |     29      |      6        |      30        |    -1.290243      |
     |-----------------------------------------------------------------------|
     |                   authors | _est_r~x | _est_r~j | aut1 | aut2 |
     |                      AutA |       1 |         1 |   1 |     0 |
     |-----------------------------------------------------------------------|
     |   aut3      |     aut4      |     aut5       |      aut6           |
     |     0       |      0        |      0         |       0            |
     +-----------------------------------------------------------------------+


     +-----------------------------------------------------------------------+
 30. |   art_id    |   journa~d    |   citati~s     |            x       |
     |     30      |      10       |      33        |    -.8219085      |
     |-----------------------------------------------------------------------|
     |                   authors | _est_r~x | _est_r~j | aut1 | aut2 |
     |                 AutA;AutB |       1 |         1 |   1 |     1 |
     |-----------------------------------------------------------------------|
     |   aut3      |     aut4      |     aut5       |      aut6           |
     |     0       |      0        |      0         |       0            |
     +-----------------------------------------------------------------------+


     +-----------------------------------------------------------------------+
 31. |   art_id    |   journa~d    |   citati~s     |            x       |
     |     31      |      7        |      32        |    1.148723       |
     |-----------------------------------------------------------------------|
     |                   authors | _est_r~x | _est_r~j | aut1 | aut2 |
     |                 AutA;AutB |       1 |         1 |   1 |     1 |
     |-----------------------------------------------------------------------|
     |   aut3      |     aut4      |     aut5       |      aut6           |
     |     0       |      0        |      0         |       0            |
     +-----------------------------------------------------------------------+


     +-----------------------------------------------------------------------+
 32. |   art_id    |   journa~d    |   citati~s     |            x       |
     |     32      |      6        |      25        |    .9319192       |
     |-----------------------------------------------------------------------|
     |                   authors | _est_r~x | _est_r~j | aut1 | aut2 |
     |            AutA;AutB;AutC |       1 |         1 |   1 |     1 |
     |-----------------------------------------------------------------------|
     |   aut3      |     aut4      |     aut5       |      aut6           |
     |     1       |      0        |      0         |       0            |
```

```
       +----------------------------------------------------------------+

       +----------------------------------------------------------------+
  33.  |     art_id     |     journa~d     |     citati~s     |          x          |
       |        33      |          5       |          36      |       .4637992      |
       |-----------------------------+----------------------------------|
       |                     authors | _est_r~x | _est_r~j | aut1 | aut2 |
       |                        AutA |        1 |        1 |    1 |    0 |
       |-----------------------------------------------------------------|
       |     aut3       |     aut4       |     aut5       |     aut6       |
       |        0       |        0       |        0       |        0       |
       +----------------------------------------------------------------+


       +----------------------------------------------------------------+
  34.  |     art_id     |     journa~d     |     citati~s     |          x          |
       |        34      |          3       |          35      |      -.4446257      |
       |-----------------------------+----------------------------------|
       |                     authors | _est_r~x | _est_r~j | aut1 | aut2 |
       |                        AutA |        1 |        1 |    1 |    0 |
       |-----------------------------------------------------------------|
       |     aut3       |     aut4       |     aut5       |     aut6       |
       |        0       |        0       |        0       |        0       |
       +----------------------------------------------------------------+


       +----------------------------------------------------------------+
  35.  |     art_id     |     journa~d     |     citati~s     |          x          |
       |        35      |          9       |          27      |       1.454637      |
       |-----------------------------+----------------------------------|
       |                     authors | _est_r~x | _est_r~j | aut1 | aut2 |
       |                        AutA |        1 |        1 |    1 |    0 |
       |-----------------------------------------------------------------|
       |     aut3       |     aut4       |     aut5       |     aut6       |
       |        0       |        0       |        0       |        0       |
       +----------------------------------------------------------------+


       +----------------------------------------------------------------+
  36.  |     art_id     |     journa~d     |     citati~s     |          x          |
       |        36      |          5       |          37      |       .1202357      |
       |-----------------------------+----------------------------------|
       |                     authors | _est_r~x | _est_r~j | aut1 | aut2 |
       |                 AutA;AutB;AutC |      1 |        1 |    1 |    1 |
       |-----------------------------------------------------------------|
       |     aut3       |     aut4       |     aut5       |     aut6       |
       |        1       |        0       |        0       |        0       |
       +----------------------------------------------------------------+


       +----------------------------------------------------------------+
  37.  |     art_id     |     journa~d     |     citati~s     |          x          |
```

	37		5		45		.6168431	

				authors	_est_r~x	_est_r~j	aut1	aut2
				AutA	1	1	1	0

aut3		aut4		aut5		aut6	
0		0		0		0	

38.	art_id		journa~d		citati~s		x	
	38		7		28		-1.154497	

				authors	_est_r~x	_est_r~j	aut1	aut2
				AutA;AutB	1	1	1	1

aut3		aut4		aut5		aut6	
0		0		0		0	

39.	art_id		journa~d		citati~s		x	
	39		4		39		-.0999358	

				authors	_est_r~x	_est_r~j	aut1	aut2
				AutA	1	1	1	0

aut3		aut4		aut5		aut6	
0		0		0		0	

40.	art_id		journa~d		citati~s		x	
	40		9		28		1.416823	

				authors	_est_r~x	_est_r~j	aut1	aut2
				AutA	1	1	1	0

aut3		aut4		aut5		aut6	
0		0		0		0	

41.	art_id		journa~d		citati~s		x	
	41		4		24		1.066625	

				authors	_est_r~x	_est_r~j	aut1	aut2
	AutA;AutB;AutC;AutD;AutE				1	1	1	1

```
+---------------------------------------------------------------+
|     aut3      |     aut4      |     aut5      |     aut6       |
|       1       |       1       |       1       |       0       |
+---------------------------------------------------------------+


     +---------------------------------------------------------------+
42.  |    art_id     |    journa~d    |    citati~s     |        x       |
     |      42       |       7        |      27         |   -.9381732    |
     |----------------------------+----------------------------------|
     |                   authors | _est_r~x | _est_r~j | aut1 | aut2 |
     |            AutA;AutB;AutC  |       1  |        1 |   1  |    1 |
     |---------------------------------------------------------------|
     |     aut3      |     aut4      |     aut5      |     aut6       |
     |       1       |       0       |       0       |       0       |
     +---------------------------------------------------------------+


     +---------------------------------------------------------------+
43.  |    art_id     |    journa~d    |    citati~s     |        x       |
     |      43       |       6        |      16         |   -1.436606    |
     |----------------------------+----------------------------------|
     |                   authors | _est_r~x | _est_r~j | aut1 | aut2 |
     |                     AutA  |       1  |        1 |   1  |    0 |
     |---------------------------------------------------------------|
     |     aut3      |     aut4      |     aut5      |     aut6       |
     |       0       |       0       |       0       |       0       |
     +---------------------------------------------------------------+


     +---------------------------------------------------------------+
44.  |    art_id     |    journa~d    |    citati~s     |        x       |
     |      44       |       4        |      25         |    .8336254    |
     |----------------------------+----------------------------------|
     |                   authors | _est_r~x | _est_r~j | aut1 | aut2 |
     |                     AutA  |       1  |        1 |   1  |    0 |
     |---------------------------------------------------------------|
     |     aut3      |     aut4      |     aut5      |     aut6       |
     |       0       |       0       |       0       |       0       |
     +---------------------------------------------------------------+


     +---------------------------------------------------------------+
45.  |    art_id     |    journa~d    |    citati~s     |        x       |
     |      45       |       4        |      34         |    .9235147    |
     |----------------------------+----------------------------------|
     |                   authors | _est_r~x | _est_r~j | aut1 | aut2 |
     |                 AutA;AutB  |       1  |        1 |   1  |    1 |
     |---------------------------------------------------------------|
     |     aut3      |     aut4      |     aut5      |     aut6       |
     |       0       |       0       |       0       |       0       |
     +---------------------------------------------------------------+
```

```
     +----------------------------------------------------------------+
46.  |    art_id     |    journa~d    |    citati~s    |          x    |
     |       46      |        4       |       25       |    .2232714   |
     |---------------------------------+------------------------------|
     |                        authors | _est_r~x | _est_r~j | aut1 | aut2 |
     |                  AutB;AutC;AutD |        1 |        1 |    0 |    1 |
     |---------------------------------+------------------------------|
     |     aut3      |    aut4        |     aut5       |     aut6      |
     |       1       |      1         |      0         |      0       |
     +----------------------------------------------------------------+


     +----------------------------------------------------------------+
47.  |    art_id     |    journa~d    |    citati~s    |          x    |
     |       47      |       13       |       33       |    .442765    |
     |---------------------------------+------------------------------|
     |                        authors | _est_r~x | _est_r~j | aut1 | aut2 |
     |            AutA;AutB;AutC;AutD |        1 |        0 |    1 |    1 |
     |---------------------------------+------------------------------|
     |     aut3      |    aut4        |     aut5       |     aut6      |
     |       1       |      1         |      0         |      0       |
     +----------------------------------------------------------------+


     +----------------------------------------------------------------+
48.  |    art_id     |    journa~d    |    citati~s    |          x    |
     |       48      |        9       |       21       |    .1972646   |
     |---------------------------------+------------------------------|
     |                        authors | _est_r~x | _est_r~j | aut1 | aut2 |
     |                           AutA |        1 |        1 |    1 |    0 |
     |---------------------------------+------------------------------|
     |     aut3      |    aut4        |     aut5       |     aut6      |
     |       0       |      0         |      0         |      0       |
     +----------------------------------------------------------------+


     +----------------------------------------------------------------+
49.  |    art_id     |    journa~d    |    citati~s    |          x    |
     |       49      |        7       |       22       |   1.828233    |
     |---------------------------------+------------------------------|
     |                        authors | _est_r~x | _est_r~j | aut1 | aut2 |
     |                           AutA |        1 |        1 |    1 |    0 |
     |---------------------------------+------------------------------|
     |     aut3      |    aut4        |     aut5       |     aut6      |
     |       0       |      0         |      0         |      0       |
     +----------------------------------------------------------------+


     +----------------------------------------------------------------+
50.  |    art_id     |    journa~d    |    citati~s    |          x    |
     |       50      |        4       |       33       |    .3725476   |
```

```
|-------------------------------+-------------------------------|
|                       authors | _est_r~x | _est_r~j | aut1 | aut2 |
|           AutA;AutB;AutC;AutD  |        1 |        1 |    1 |    1 |
|-------------------------------+-------------------------------|
|       aut3     |      aut4     |      aut5     |      aut6     |
|          1     |         1     |         0     |         0     |
+-------------------------------------------------------------+
```

```
      +-------------------------------------------------------------+
51. | |    art_id     |   journa~d    |   citati~s    |          x    |
    | |       51      |        4      |       33      |     -.8173643 |
    | |-------------------------------+-------------------------------|
    | |                       authors | _est_r~x | _est_r~j | aut1 | aut2 |
    | |           AutA;AutB;AutC;AutD  |        1 |        1 |    1 |    1 |
    | |-------------------------------+-------------------------------|
    | |       aut3     |      aut4     |      aut5     |      aut6     |
    | |          1     |         1     |         0     |         0     |
      +-------------------------------------------------------------+
```

```
      +-------------------------------------------------------------+
52. | |    art_id     |   journa~d    |   citati~s    |          x    |
    | |       52      |        5      |       20      |      1.574457 |
    | |-------------------------------+-------------------------------|
    | |                       authors | _est_r~x | _est_r~j | aut1 | aut2 |
    | |               AutA;AutB;AutC   |        1 |        1 |    1 |    1 |
    | |-------------------------------+-------------------------------|
    | |       aut3     |      aut4     |      aut5     |      aut6     |
    | |          1     |         0     |         0     |         0     |
      +-------------------------------------------------------------+
```

```
      +-------------------------------------------------------------+
53. | |    art_id     |   journa~d    |   citati~s    |          x    |
    | |       53      |        5      |       39      |      1.716935 |
    | |-------------------------------+-------------------------------|
    | |                       authors | _est_r~x | _est_r~j | aut1 | aut2 |
    | |                   AutA;AutB    |        1 |        1 |    1 |    1 |
    | |-------------------------------+-------------------------------|
    | |       aut3     |      aut4     |      aut5     |      aut6     |
    | |          0     |         0     |         0     |         0     |
      +-------------------------------------------------------------+
```

```
      +-------------------------------------------------------------+
54. | |    art_id     |   journa~d    |   citati~s    |          x    |
    | |       54      |        6      |       34      |       .338451 |
    | |-------------------------------+-------------------------------|
    | |                       authors | _est_r~x | _est_r~j | aut1 | aut2 |
    | |           AutA;AutB;AutC;AutD  |        1 |        1 |    1 |    1 |
    | |-------------------------------+-------------------------------|
```

```
     |      aut3       |       aut4      |      aut5       |       aut6      |
     |         1       |         1       |        0       |         0       |
     +-------------------------------------------------------------------------+


     +-------------------------------------------------------------------------+
 55. |      art_id     |     journa~d    |     citati~s    |            x     |
     |        55       |         4       |       37       |     .0942601    |
     |-----------------------------------+-------------------------------------|
     |                        authors | _est_r~x | _est_r~j | aut1 | aut2 |
     |                  AutA;AutB;AutC |        1 |        1 |    1 |    1 |
     |-----------------------------------------------------------------------|
     |      aut3       |       aut4      |      aut5       |       aut6      |
     |         1       |         0       |        0       |         0       |
     +-------------------------------------------------------------------------+


     +-------------------------------------------------------------------------+
 56. |      art_id     |     journa~d    |     citati~s    |            x     |
     |        56       |         5       |       26       |     -.914588    |
     |-----------------------------------+-------------------------------------|
     |                        authors | _est_r~x | _est_r~j | aut1 | aut2 |
     |                      AutA;AutB |        1 |        1 |    1 |    1 |
     |-----------------------------------------------------------------------|
     |      aut3       |       aut4      |      aut5       |       aut6      |
     |         0       |         0       |        0       |         0       |
     +-------------------------------------------------------------------------+


     +-------------------------------------------------------------------------+
 57. |      art_id     |     journa~d    |     citati~s    |            x     |
     |        57       |        11       |       23       |     1.259047    |
     |-----------------------------------+-------------------------------------|
     |                        authors | _est_r~x | _est_r~j | aut1 | aut2 |
     |                           AutA |        1 |        0 |    1 |    0 |
     |-----------------------------------------------------------------------|
     |      aut3       |       aut4      |      aut5       |       aut6      |
     |         0       |         0       |        0       |         0       |
     +-------------------------------------------------------------------------+


     +-------------------------------------------------------------------------+
 58. |      art_id     |     journa~d    |     citati~s    |            x     |
     |        58       |         6       |       36       |    -1.000023    |
     |-----------------------------------+-------------------------------------|
     |                        authors | _est_r~x | _est_r~j | aut1 | aut2 |
     |                           AutA |        1 |        1 |    1 |    0 |
     |-----------------------------------------------------------------------|
     |      aut3       |       aut4      |      aut5       |       aut6      |
     |         0       |         0       |        0       |         0       |
     +-------------------------------------------------------------------------+
```

```
     +-------------------------------------------------------------------+
 59. |     art_id     |     journa~d     |     citati~s     |         x       |
     |        59      |          2       |         31       |    -.1631394    |
     |------------------------------------------+------------------------------|
     |                          authors | _est_r~x | _est_r~j | aut1 | aut2 |
     |                       AutA;AutB |        1 |        1 |    1 |    1 |
     |------------------------------------------------------------------|
     |     aut3       |     aut4       |     aut5       |     aut6       |
     |        0       |        0       |        0       |        0       |
     +-------------------------------------------------------------------+


     +-------------------------------------------------------------------+
 60. |     art_id     |     journa~d     |     citati~s     |         x       |
     |        60      |          4       |         32       |    .5729514     |
     |------------------------------------------+------------------------------|
     |                          authors | _est_r~x | _est_r~j | aut1 | aut2 |
     |                   AutA;AutB;AutC |        1 |        1 |    1 |    1 |
     |------------------------------------------------------------------|
     |     aut3       |     aut4       |     aut5       |     aut6       |
     |        1       |        0       |        0       |        0       |
     +-------------------------------------------------------------------+


     +-------------------------------------------------------------------+
 61. |     art_id     |     journa~d     |     citati~s     |         x       |
     |        61      |          5       |         32       |    .5039716     |
     |------------------------------------------+------------------------------|
     |                          authors | _est_r~x | _est_r~j | aut1 | aut2 |
     |                             AutA |        1 |        1 |    1 |    0 |
     |------------------------------------------------------------------|
     |     aut3       |     aut4       |     aut5       |     aut6       |
     |        0       |        0       |        0       |        0       |
     +-------------------------------------------------------------------+


     +-------------------------------------------------------------------+
 62. |     art_id     |     journa~d     |     citati~s     |         x       |
     |        62      |          4       |         33       |    -.3318768    |
     |------------------------------------------+------------------------------|
     |                          authors | _est_r~x | _est_r~j | aut1 | aut2 |
     |               AutA;AutB;AutC;AutD |        1 |        1 |    1 |    1 |
     |------------------------------------------------------------------|
     |     aut3       |     aut4       |     aut5       |     aut6       |
     |        1       |        1       |        0       |        0       |
     +-------------------------------------------------------------------+


     +-------------------------------------------------------------------+
 63. |     art_id     |     journa~d     |     citati~s     |         x       |
     |        63      |          5       |         42       |    -1.345239    |
     |------------------------------------------+------------------------------|
```

```
|                       authors | _est_r~x | _est_r~j | aut1 | aut2 |
|           AutA;AutB;AutC;AutD |        1 |        1 |    1 |    1 |
|-------------------------------------------------------------------|
|    aut3     |     aut4       |      aut5       |       aut6        |
|      1      |      1         |       0        |        0          |
+-------------------------------------------------------------------+


      +-------------------------------------------------------------+
64. | |   art_id    |   journa~d   |   citati~s   |          x       |
    | |     64      |      9       |     37       |    -.5360869     |
    | |------------------------------+------------------------------|
    | |                       authors | _est_r~x | _est_r~j | aut1 | aut2 |
    | |                  AutA;AutB |        1 |        1 |    1 |    1 |
    | |-------------------------------------------------------------------|
    | |    aut3     |     aut4       |      aut5       |       aut6        |
    | |      0      |      0         |       0        |        0          |
    | +-------------------------------------------------------------------+


      +-------------------------------------------------------------+
65. | |   art_id    |   journa~d   |   citati~s   |          x       |
    | |     65      |      9       |     25       |    .4335161      |
    | |------------------------------+------------------------------|
    | |                       authors | _est_r~x | _est_r~j | aut1 | aut2 |
    | |      AutB;AutC;AutD;AutE;AutF |        1 |        1 |    0 |    1 |
    | |-------------------------------------------------------------------|
    | |    aut3     |     aut4       |      aut5       |       aut6        |
    | |      1      |      1         |       1        |        1          |
    | +-------------------------------------------------------------------+


      +-------------------------------------------------------------+
66. | |   art_id    |   journa~d   |   citati~s   |          x       |
    | |     66      |      3       |     34       |    -.5601428     |
    | |------------------------------+------------------------------|
    | |                       authors | _est_r~x | _est_r~j | aut1 | aut2 |
    | |                         AutA |        1 |        1 |    1 |    0 |
    | |-------------------------------------------------------------------|
    | |    aut3     |     aut4       |      aut5       |       aut6        |
    | |      0      |      0         |       0        |        0          |
    | +-------------------------------------------------------------------+


      +-------------------------------------------------------------+
67. | |   art_id    |   journa~d   |   citati~s   |          x       |
    | |     67      |      3       |     26       |    -.7533434     |
    | |------------------------------+------------------------------|
    | |                       authors | _est_r~x | _est_r~j | aut1 | aut2 |
    | | AutA;AutB;AutC;AutD;AutE;AutF |        1 |        1 |    1 |    1 |
    | |-------------------------------------------------------------------|
    | |    aut3     |     aut4       |      aut5       |       aut6        |
```

| | 1 | | 1 | | 1 | | 1 | |
+---+

+---+
68. | art_id | journa~d | citati~s | x |
| 68 | 7 | 28 | -.8127742 |
|----------------------------+----------------------------------|
| authors | _est_r~x | _est_r~j | aut1 | aut2 |
| AutA | 1 | 1 | 1 | 0 |
|----------------------------+----------------------------------|
| aut3 | aut4 | aut5 | aut6 |
| 0 | 0 | 0 | 0 |
+---+

+---+
69. | art_id | journa~d | citati~s | x |
| 69 | 5 | 39 | -.3579273 |
|----------------------------+----------------------------------|
| authors | _est_r~x | _est_r~j | aut1 | aut2 |
| AutA | 1 | 1 | 1 | 0 |
|----------------------------+----------------------------------|
| aut3 | aut4 | aut5 | aut6 |
| 0 | 0 | 0 | 0 |
+---+

+---+
70. | art_id | journa~d | citati~s | x |
| 70 | 7 | 27 | -.8320007 |
|----------------------------+----------------------------------|
| authors | _est_r~x | _est_r~j | aut1 | aut2 |
| AutA;AutB | 1 | 1 | 1 | 1 |
|----------------------------+----------------------------------|
| aut3 | aut4 | aut5 | aut6 |
| 0 | 0 | 0 | 0 |
+---+

+---+
71. | art_id | journa~d | citati~s | x |
| 71 | 5 | 29 | -.7093763 |
|----------------------------+----------------------------------|
| authors | _est_r~x | _est_r~j | aut1 | aut2 |
| AutA;AutB;AutC;AutD;AutE;AutF | 1 | 1 | 1 | 1 |
|----------------------------+----------------------------------|
| aut3 | aut4 | aut5 | aut6 |
| 1 | 1 | 1 | 1 |
+---+

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```
72. |     art_id      |    journa~d     |     citati~s     |            x        |
    |        72       |            3    |            36    |       -.9649825     |
    |------------------------------------+-------------------------------------|
    |                          authors |  _est_r~x | _est_r~j | aut1 | aut2 |
    |                             AutA |         1 |        1 |    1 |    0 |
    |------------------------------------------------------------------------|
    |     aut3        |     aut4        |     aut5         |      aut6          |
    |        0        |        0        |        0         |        0          |
    +------------------------------------------------------------------------+


    +------------------------------------------------------------------------+
73. |     art_id      |    journa~d     |     citati~s     |            x        |
    |        73       |            9    |            26    |        .1883628     |
    |------------------------------------+-------------------------------------|
    |                          authors |  _est_r~x | _est_r~j | aut1 | aut2 |
    |                    AutA;AutB;AutC |         1 |        1 |    1 |    1 |
    |------------------------------------------------------------------------|
    |     aut3        |     aut4        |     aut5         |      aut6          |
    |        1        |        0        |        0         |        0          |
    +------------------------------------------------------------------------+


    +------------------------------------------------------------------------+
74. |     art_id      |    journa~d     |     citati~s     |            x        |
    |        74       |            7    |            31    |        .7626509     |
    |------------------------------------+-------------------------------------|
    |                          authors |  _est_r~x | _est_r~j | aut1 | aut2 |
    |                    AutA;AutB;AutC |         1 |        1 |    1 |    1 |
    |------------------------------------------------------------------------|
    |     aut3        |     aut4        |     aut5         |      aut6          |
    |        1        |        0        |        0         |        0          |
    +------------------------------------------------------------------------+


    +------------------------------------------------------------------------+
75. |     art_id      |    journa~d     |     citati~s     |            x        |
    |        75       |            7    |            36    |       -1.345739     |
    |------------------------------------+-------------------------------------|
    |                          authors |  _est_r~x | _est_r~j | aut1 | aut2 |
    |                    AutA;AutB;AutC |         1 |        1 |    1 |    1 |
    |------------------------------------------------------------------------|
    |     aut3        |     aut4        |     aut5         |      aut6          |
    |        1        |        0        |        0         |        0          |
    +------------------------------------------------------------------------+


    +------------------------------------------------------------------------+
76. |     art_id      |    journa~d     |     citati~s     |            x        |
    |        76       |            2    |            33    |       -1.415193     |
    |------------------------------------+-------------------------------------|
    |                          authors |  _est_r~x | _est_r~j | aut1 | aut2 |
```

```
|                              AutA |         1 |         1 |    1 |     0 |
|----------------------------------------------------------------------|
|    aut3     |     aut4     |     aut5     |       aut6       |
|      0      |      0      |      0      |        0        |
+----------------------------------------------------------------------+
```

```
        +----------------------------------------------------------------------+
 77. |   art_id    |   journa~d   |   citati~s    |              x       |
     |      77     |       5      |       22      |     -.5878691        |
     |----------------------------------------------------------------------|
     |                    authors | _est_r~x | _est_r~j | aut1 | aut2 |
     |                       AutA |        1 |        1 |    1 |    0 |
     |----------------------------------------------------------------------|
     |    aut3     |     aut4     |     aut5     |       aut6       |
     |      0      |      0      |      0      |        0        |
     +----------------------------------------------------------------------+
```

```
        +----------------------------------------------------------------------+
 78. |   art_id    |   journa~d   |   citati~s    |              x       |
     |      78     |       2      |       26      |     -1.290222        |
     |----------------------------------------------------------------------|
     |                    authors | _est_r~x | _est_r~j | aut1 | aut2 |
     |            AutA;AutB;AutC | 1 |        1 |    1 |    1 |
     |----------------------------------------------------------------------|
     |    aut3     |     aut4     |     aut5     |       aut6       |
     |      1      |      0      |      0      |        0        |
     +----------------------------------------------------------------------+
```

```
        +----------------------------------------------------------------------+
 79. |   art_id    |   journa~d   |   citati~s    |              x       |
     |      79     |       6      |       29      |     -.3055488        |
     |----------------------------------------------------------------------|
     |                    authors | _est_r~x | _est_r~j | aut1 | aut2 |
     |            AutA;AutB;AutC | 1 |        1 |    1 |    1 |
     |----------------------------------------------------------------------|
     |    aut3     |     aut4     |     aut5     |       aut6       |
     |      1      |      0      |      0      |        0        |
     +----------------------------------------------------------------------+
```

```
        +----------------------------------------------------------------------+
 80. |   art_id    |   journa~d   |   citati~s    |              x       |
     |      80     |       4      |       37      |      .2425353        |
     |----------------------------------------------------------------------|
     |                    authors | _est_r~x | _est_r~j | aut1 | aut2 |
     |                 AutA;AutB | 1 |        1 |    1 |    1 |
     |----------------------------------------------------------------------|
     |    aut3     |     aut4     |     aut5     |       aut6       |
     |      0      |      0      |      0      |        0        |
```

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      +----------------------------------------------------------------+

      +----------------------------------------------------------------+
81. |     art_id      |     journa~d    |    citati~s     |          x      |
    |        81       |        3        |        35       |    -1.138787    |
    |-----------------------------------+----------------------------------|
    |                           authors | _est_r~x | _est_r~j | aut1 | aut2 |
    |                              AutA |        1 |        1 |    1 |    0 |
    |-----------------------------------+----------------------------------|
    |     aut3        |      aut4       |      aut5       |       aut6      |
    |        0        |        0        |        0        |         0      |
      +----------------------------------------------------------------+


      +----------------------------------------------------------------+
82. |     art_id      |     journa~d    |    citati~s     |          x      |
    |        82       |       10        |        24       |     1.237919    |
    |-----------------------------------+----------------------------------|
    |                           authors | _est_r~x | _est_r~j | aut1 | aut2 |
    |               AutA;AutB;AutC;AutD |        1 |        1 |    1 |    1 |
    |-----------------------------------+----------------------------------|
    |     aut3        |      aut4       |      aut5       |       aut6      |
    |        1        |        1        |        0        |         0      |
      +----------------------------------------------------------------+


      +----------------------------------------------------------------+
83. |     art_id      |     journa~d    |    citati~s     |          x      |
    |        83       |        6        |        30       |     1.462004    |
    |-----------------------------------+----------------------------------|
    |                           authors | _est_r~x | _est_r~j | aut1 | aut2 |
    |                         AutA;AutB |        1 |        1 |    1 |    1 |
    |-----------------------------------+----------------------------------|
    |     aut3        |      aut4       |      aut5       |       aut6      |
    |        0        |        0        |        0        |         0      |
      +----------------------------------------------------------------+


      +----------------------------------------------------------------+
84. |     art_id      |     journa~d    |    citati~s     |          x      |
    |        84       |        7        |        20       |     2.348689    |
    |-----------------------------------+----------------------------------|
    |                           authors | _est_r~x | _est_r~j | aut1 | aut2 |
    |                              AutA |        1 |        1 |    1 |    0 |
    |-----------------------------------+----------------------------------|
    |     aut3        |      aut4       |      aut5       |       aut6      |
    |        0        |        0        |        0        |         0      |
      +----------------------------------------------------------------+


      +----------------------------------------------------------------+
85. |     art_id      |     journa~d    |    citati~s     |          x      |
```

```
|         85       |           4     |          31     |      .7492698    |
|--------------------------+---------------------------------------------|
|                   authors | _est_r~x | _est_r~j | aut1 | aut2 |
|                      AutA |        1 |        1 |    1 |    0 |
|--------------------------+---------------------------------------------|
|     aut3       |      aut4      |      aut5      |      aut6       |
|      0         |       0       |       0       |       0        |
+-----------------------------------------------------------------+


+-----------------------------------------------------------------+
86. |    art_id    |    journa~d    |    citati~s    |          x      |
|      86      |       5      |       30      |     .9811502     |
|--------------------------+---------------------------------------------|
|                   authors | _est_r~x | _est_r~j | aut1 | aut2 |
|       AutA;AutB;AutC;AutD |        1 |        1 |    1 |    1 |
|--------------------------+---------------------------------------------|
|     aut3       |      aut4      |      aut5      |      aut6       |
|      1         |       1       |       0       |       0        |
+-----------------------------------------------------------------+


+-----------------------------------------------------------------+
87. |    art_id    |    journa~d    |    citati~s    |          x      |
|      87      |       4      |       39      |     .226038      |
|--------------------------+---------------------------------------------|
|                   authors | _est_r~x | _est_r~j | aut1 | aut2 |
|       AutA;AutB;AutC;AutD |        1 |        1 |    1 |    1 |
|--------------------------+---------------------------------------------|
|     aut3       |      aut4      |      aut5      |      aut6       |
|      1         |       1       |       0       |       0        |
+-----------------------------------------------------------------+


+-----------------------------------------------------------------+
88. |    art_id    |    journa~d    |    citati~s    |          x      |
|      88      |       7      |       24      |     1.006857     |
|--------------------------+---------------------------------------------|
|                   authors | _est_r~x | _est_r~j | aut1 | aut2 |
|                AutA;AutB |        1 |        1 |    1 |    1 |
|--------------------------+---------------------------------------------|
|     aut3       |      aut4      |      aut5      |      aut6       |
|      0         |       0       |       0       |       0        |
+-----------------------------------------------------------------+


+-----------------------------------------------------------------+
89. |    art_id    |    journa~d    |    citati~s    |          x      |
|      89      |       5      |       24      |    -.2218018     |
|--------------------------+---------------------------------------------|
|                   authors | _est_r~x | _est_r~j | aut1 | aut2 |
|                AutA;AutB |        1 |        1 |    1 |    1 |
```

```
|------------------------------------------------------------------------|
|     aut3     |      aut4     |      aut5     |        aut6             |
|      0       |       0      |       0      |         0               |
+------------------------------------------------------------------------+


      +------------------------------------------------------------------+
90. | |   art_id    |   journa~d   |    citati~s    |            x       |
      |     90      |       6      |      31        |      .7223159     |
      |------------------------------+-----------------------------------|
      |                   authors | _est_r~x | _est_r~j | aut1 | aut2 |
      |                      AutA |       1 |       1 |   1 |   0 |
      |------------------------------------------------------------------|
      |     aut3     |      aut4     |      aut5     |        aut6       |
      |      0       |       0      |       0      |         0         |
      +------------------------------------------------------------------+


      +------------------------------------------------------------------+
91. | |   art_id    |   journa~d   |    citati~s    |            x       |
      |     91      |       6      |      30        |      .2530005     |
      |------------------------------+-----------------------------------|
      |                   authors | _est_r~x | _est_r~j | aut1 | aut2 |
      |                      AutA |       1 |       1 |   1 |   0 |
      |------------------------------------------------------------------|
      |     aut3     |      aut4     |      aut5     |        aut6       |
      |      0       |       0      |       0      |         0         |
      +------------------------------------------------------------------+


      +------------------------------------------------------------------+
92. | |   art_id    |   journa~d   |    citati~s    |            x       |
      |     92      |       7      |      37        |     -1.443321     |
      |------------------------------+-----------------------------------|
      |                   authors | _est_r~x | _est_r~j | aut1 | aut2 |
      |              AutA;AutB;AutC |       1 |       1 |   1 |   1 |
      |------------------------------------------------------------------|
      |     aut3     |      aut4     |      aut5     |        aut6       |
      |      1       |       0      |       0      |         0         |
      +------------------------------------------------------------------+


      +------------------------------------------------------------------+
93. | |   art_id    |   journa~d   |    citati~s    |            x       |
      |     93      |       4      |      37        |     -.9973699     |
      |------------------------------+-----------------------------------|
      |                   authors | _est_r~x | _est_r~j | aut1 | aut2 |
      |                  AutA;AutB |       1 |       1 |   1 |   1 |
      |------------------------------------------------------------------|
      |     aut3     |      aut4     |      aut5     |        aut6       |
      |      0       |       0      |       0      |         0         |
      +------------------------------------------------------------------+
```

```
     +----------------------------------------------------------+
94.  |    art_id    |    journa~d    |    citati~s    |        x        |
     |      94      |       2        |       30       |    1.033468     |
     |-----------------------------------+----------------------|
     |                     authors | _est_r~x | _est_r~j | aut1 | aut2 |
     |              AutA;AutB;AutC |        1 |        1 |    1 |    1 |
     |-----------------------------------------------------------|
     |    aut3      |     aut4       |     aut5       |      aut6       |
     |      1       |      0         |      0         |       0        |
     +----------------------------------------------------------+


     +----------------------------------------------------------+
95.  |    art_id    |    journa~d    |    citati~s    |        x        |
     |      95      |       3        |       37       |   -1.053058     |
     |-----------------------------------+----------------------|
     |                     authors | _est_r~x | _est_r~j | aut1 | aut2 |
     |                       AutA |        1 |        1 |    1 |    0 |
     |-----------------------------------------------------------|
     |    aut3      |     aut4       |     aut5       |      aut6       |
     |      0       |      0         |      0         |       0        |
     +----------------------------------------------------------+


     +----------------------------------------------------------+
96.  |    art_id    |    journa~d    |    citati~s    |        x        |
     |      96      |       2        |       23       |    .3320688     |
     |-----------------------------------+----------------------|
     |                     authors | _est_r~x | _est_r~j | aut1 | aut2 |
     |              AutA;AutB;AutC |        1 |        1 |    1 |    1 |
     |-----------------------------------------------------------|
     |    aut3      |     aut4       |     aut5       |      aut6       |
     |      1       |      0         |      0         |       0        |
     +----------------------------------------------------------+


     +----------------------------------------------------------+
97.  |    art_id    |    journa~d    |    citati~s    |        x        |
     |      97      |       9        |       32       |    -.476414     |
     |-----------------------------------+----------------------|
     |                     authors | _est_r~x | _est_r~j | aut1 | aut2 |
     |                  AutA;AutB |        1 |        1 |    1 |    1 |
     |-----------------------------------------------------------|
     |    aut3      |     aut4       |     aut5       |      aut6       |
     |      0       |      0         |      0         |       0        |
     +----------------------------------------------------------+


     +----------------------------------------------------------+
98.  |    art_id    |    journa~d    |    citati~s    |        x        |
     |      98      |       8        |       26       |    1.598897     |
```

```
|---------------------------+---------------------------------|
|                   authors | _est_r~x | _est_r~j | aut1 | aut2 |
|                      AutA |        1 |        1 |    1 |    0 |
|---------------------------+---------------------------------|
|       aut3   |     aut4   |      aut5    |      aut6       |
|          0   |        0   |         0    |         0       |
+---------------------------------------------------------------+


+---------------------------------------------------------------+
 99. |    art_id   |    journa~d   |     citati~s   |          x     |
     |        99   |         5     |        25      |     .8515619   |
     |---------------------------+---------------------------------|
     |                   authors | _est_r~x | _est_r~j | aut1 | aut2 |
     |          AutA;AutB;AutC   |        1 |        1 |    1 |    1 |
     |---------------------------+---------------------------------|
     |       aut3   |     aut4   |      aut5    |      aut6       |
     |          1   |        0   |         0    |         0       |
     +---------------------------------------------------------------+


+---------------------------------------------------------------+
100. |    art_id   |    journa~d   |     citati~s   |          x     |
     |       100   |        10     |        28      |    -.5463751   |
     |---------------------------+---------------------------------|
     |                   authors | _est_r~x | _est_r~j | aut1 | aut2 |
     |               AutA;AutB   |        1 |        1 |    1 |    1 |
     |---------------------------+---------------------------------|
     |       aut3   |     aut4   |      aut5    |      aut6       |
     |          0   |        0   |         0    |         0       |
     +---------------------------------------------------------------+
```

We are now able to run the regression adding a fixed effect per author

```
[7]: reghdfe citations x aut1-aut6, a(journal)
     estimates store reg_wide_yxja
```

```
(dropped 3 singleton observations)
(MWFE estimator converged in 1 iterations)

HDFE Linear regression                          Number of obs   =          97
Absorbing 1 HDFE group                          F(   7,     81) =        0.85
                                                Prob > F        =      0.5477
                                                R-squared       =      0.1387
                                                Adj R-squared   =     -0.0208
                                                Within R-sq.    =      0.0686
                                                Root MSE        =      5.8151
```

```
------------------------------------------------------------------------------
  citations |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
------------+-----------------------------------------------------------------
          x | -1.339499    .6417399    -2.09   0.040    -2.61636    -.062638
       aut1 | -.9999574    3.024211    -0.33   0.742    -7.017189   5.017274
       aut2 | -.2533989    1.490441    -0.17   0.865    -3.218908    2.71211
       aut3 | -.5722966    1.677897    -0.34   0.734    -3.910785   2.766192
       aut4 |  .5879442    2.218738     0.26   0.792    -3.826648   5.002536
       aut5 | -4.489337    3.385103    -1.33   0.188    -11.22463   2.245957
       aut6 |  2.017592    3.927387     0.51   0.609    -5.796676    9.83186
       _cons |  31.91177    3.194075     9.99   0.000     25.55656   38.26698
------------------------------------------------------------------------------

Absorbed degrees of freedom:
-----------------------------------------------------+
 Absorbed FE | Categories  - Redundant  = Num. Coefs |
------------+----------------------------------------|
 journal_id |      9            0            9        |
-----------------------------------------------------+
```

Note: I need to explicitly introduce a dummy per author!

This works because we have a small dataset. But what if my dataset is large?

Solution: use **reghdfe** with the **group** option

First we need to reshape the data and put it in an article-author line format (long shape)

```
[8]:  reshape long aut, i(art_id) j(j)
      drop if aut==0
      drop aut
      rename j author_id
      drop authors _est*
      save citations_long, replace
```

```
(note: j = 1 2 3 4 5 6)

Data                                wide   ->   long
-----------------------------------------------------------------------------
Number of obs.                       100   ->      600
Number of variables                   14   ->       10
j variable (6 values)                      ->    j
xij variables:
                  aut1 aut2 … aut6    ->    aut
-----------------------------------------------------------------------------

(374 observations deleted)
```

```
(note: file citations_long.dta not found)
file citations_long.dta saved
```

[9]: `%browse`

```
          +------------------------------------------------------+
          | art_id   author~d   journa~d   citati~s          x |
          |------------------------------------------------------|
   1.  |      1          2          4         38   -1.096598 |
   2.  |      1          3          4         38   -1.096598 |
   3.  |      1          4          4         38   -1.096598 |
   4.  |      1          5          4         38   -1.096598 |
   5.  |      1          6          4         38   -1.096598 |
          |------------------------------------------------------|
   6.  |      2          1         12         34    3.182043 |
   7.  |      2          2         12         34    3.182043 |
   8.  |      2          3         12         34    3.182043 |
   9.  |      2          4         12         34    3.182043 |
  10.  |      3          1          4         22    2.319085 |
          |------------------------------------------------------|
  11.  |      3          4          4         22    2.319085 |
  12.  |      4          1          4         37    .5314979 |
  13.  |      4          2          4         37    .5314979 |
  14.  |      5          1          3         29   -.1263452 |
  15.  |      5          2          3         29   -.1263452 |
          |------------------------------------------------------|
  16.  |      6          1          3         25   -1.066023 |
  17.  |      6          2          3         25   -1.066023 |
  18.  |      7          2          4         34    2.314123 |
  19.  |      8          1          6         35    .7701448 |
  20.  |      8          2          6         35    .7701448 |
          |------------------------------------------------------|
  21.  |      9          1          4         32    .0731317 |
  22.  |      9          2          4         32    .0731317 |
  23.  |     10          1         10         31    .7151871 |
  24.  |     10          2         10         31    .7151871 |
  25.  |     11          1          8         39    .6309603 |
          |------------------------------------------------------|
  26.  |     11          2          8         39    .6309603 |
  27.  |     11          4          8         39    .6309603 |
  28.  |     12          1          3         27    .0993462 |
  29.  |     12          2          3         27    .0993462 |
  30.  |     13          1          2         25   -2.583632 |
```

|--|
31.	13	2	2	25	−2.583632
32.	14	1	7	29	.6905127
33.	14	2	7	29	.6905127
34.	15	1	8	25	−2.063772
35.	15	2	8	25	−2.063772
36.	16	1	8	32	−1.246508
37.	16	2	8	32	−1.246508
38.	16	5	8	32	−1.246508
39.	17	1	3	19	−.6599711
40.	17	2	3	19	−.6599711
41.	18	1	6	32	−1.478867
42.	18	2	6	32	−1.478867
43.	19	2	7	32	.3071749
44.	19	6	7	32	.3071749
45.	20	2	5	31	−.4103581
46.	20	3	5	31	−.4103581
47.	20	4	5	31	−.4103581
48.	20	5	5	31	−.4103581
49.	21	1	6	32	−1.235868
50.	21	2	6	32	−1.235868
51.	22	1	5	34	−.4452573
52.	23	1	8	27	.8285742
53.	23	3	8	27	.8285742
54.	24	1	8	42	.8201761
55.	25	1	6	37	−.3326353
56.	26	1	6	30	−.5047406
57.	26	2	6	30	−.5047406
58.	26	3	6	30	−.5047406
59.	27	1	4	23	.5701295
60.	27	2	4	23	.5701295
61.	28	1	6	26	.5886264
62.	29	1	6	30	−1.290243
63.	30	1	10	33	−.8219085
64.	30	2	10	33	−.8219085
65.	31	1	7	32	1.148723
66.	31	2	7	32	1.148723
67.	32	1	6	25	.9319192
68.	32	2	6	25	.9319192
69.	32	3	6	25	.9319192
70.	33	1	5	36	.4637992

```
     |---------------------------------------------------|
 71. |    34           1           3          35    -.4446257 |
 72. |    35           1           9          27     1.454637 |
 73. |    36           1           5          37     .1202357 |
 74. |    36           2           5          37     .1202357 |
 75. |    36           3           5          37     .1202357 |
     |---------------------------------------------------|
 76. |    37           1           5          45     .6168431 |
 77. |    38           1           7          28    -1.154497 |
 78. |    38           2           7          28    -1.154497 |
 79. |    39           1           4          39    -.0999358 |
 80. |    40           1           9          28     1.416823 |
     |---------------------------------------------------|
 81. |    41           1           4          24     1.066625 |
 82. |    41           2           4          24     1.066625 |
 83. |    41           3           4          24     1.066625 |
 84. |    41           4           4          24     1.066625 |
 85. |    41           5           4          24     1.066625 |
     |---------------------------------------------------|
 86. |    42           1           7          27    -.9381732 |
 87. |    42           2           7          27    -.9381732 |
 88. |    42           3           7          27    -.9381732 |
 89. |    43           1           6          16    -1.436606 |
 90. |    44           1           4          25     .8336254 |
     |---------------------------------------------------|
 91. |    45           1           4          34     .9235147 |
 92. |    45           2           4          34     .9235147 |
 93. |    46           2           4          25     .2232714 |
 94. |    46           3           4          25     .2232714 |
 95. |    46           4           4          25     .2232714 |
     |---------------------------------------------------|
 96. |    47           1          13          33      .442765 |
 97. |    47           2          13          33      .442765 |
 98. |    47           3          13          33      .442765 |
 99. |    47           4          13          33      .442765 |
100. |    48           1           9          21     .1972646 |
     |---------------------------------------------------|
101. |    49           1           7          22     1.828233 |
102. |    50           1           4          33     .3725476 |
103. |    50           2           4          33     .3725476 |
104. |    50           3           4          33     .3725476 |
105. |    50           4           4          33     .3725476 |
     |---------------------------------------------------|
106. |    51           1           4          33    -.8173643 |
107. |    51           2           4          33    -.8173643 |
108. |    51           3           4          33    -.8173643 |
109. |    51           4           4          33    -.8173643 |
110. |    52           1           5          20     1.574457 |
```

```
      |----------------------------------------------|
111.  |    52         2         5        20    1.574457 |
112.  |    52         3         5        20    1.574457 |
113.  |    53         1         5        39    1.716935 |
114.  |    53         2         5        39    1.716935 |
115.  |    54         1         6        34     .338451 |
      |----------------------------------------------|
116.  |    54         2         6        34     .338451 |
117.  |    54         3         6        34     .338451 |
118.  |    54         4         6        34     .338451 |
119.  |    55         1         4        37    .0942601 |
120.  |    55         2         4        37    .0942601 |
      |----------------------------------------------|
121.  |    55         3         4        37    .0942601 |
122.  |    56         1         5        26    -.914588 |
123.  |    56         2         5        26    -.914588 |
124.  |    57         1        11        23    1.259047 |
125.  |    58         1         6        36   -1.000023 |
      |----------------------------------------------|
126.  |    59         1         2        31   -.1631394 |
127.  |    59         2         2        31   -.1631394 |
128.  |    60         1         4        32    .5729514 |
129.  |    60         2         4        32    .5729514 |
130.  |    60         3         4        32    .5729514 |
      |----------------------------------------------|
131.  |    61         1         5        32    .5039716 |
132.  |    62         1         4        33   -.3318768 |
133.  |    62         2         4        33   -.3318768 |
134.  |    62         3         4        33   -.3318768 |
135.  |    62         4         4        33   -.3318768 |
      |----------------------------------------------|
136.  |    63         1         5        42   -1.345239 |
137.  |    63         2         5        42   -1.345239 |
138.  |    63         3         5        42   -1.345239 |
139.  |    63         4         5        42   -1.345239 |
140.  |    64         1         9        37   -.5360869 |
      |----------------------------------------------|
141.  |    64         2         9        37   -.5360869 |
142.  |    65         2         9        25    .4335161 |
143.  |    65         3         9        25    .4335161 |
144.  |    65         4         9        25    .4335161 |
145.  |    65         5         9        25    .4335161 |
      |----------------------------------------------|
146.  |    65         6         9        25    .4335161 |
147.  |    66         1         3        34   -.5601428 |
148.  |    67         1         3        26   -.7533434 |
149.  |    67         2         3        26   -.7533434 |
150.  |    67         3         3        26   -.7533434 |
```

```
      |----------------------------------------------------|
151.  |     67          4          3         26    -.7533434  |
152.  |     67          5          3         26    -.7533434  |
153.  |     67          6          3         26    -.7533434  |
154.  |     68          1          7         28    -.8127742  |
155.  |     69          1          5         39    -.3579273  |
      |----------------------------------------------------|
156.  |     70          1          7         27    -.8320007  |
157.  |     70          2          7         27    -.8320007  |
158.  |     71          1          5         29    -.7093763  |
159.  |     71          2          5         29    -.7093763  |
160.  |     71          3          5         29    -.7093763  |
      |----------------------------------------------------|
161.  |     71          4          5         29    -.7093763  |
162.  |     71          5          5         29    -.7093763  |
163.  |     71          6          5         29    -.7093763  |
164.  |     72          1          3         36    -.9649825  |
165.  |     73          1          9         26     .1883628  |
      |----------------------------------------------------|
166.  |     73          2          9         26     .1883628  |
167.  |     73          3          9         26     .1883628  |
168.  |     74          1          7         31     .7626509  |
169.  |     74          2          7         31     .7626509  |
170.  |     74          3          7         31     .7626509  |
      |----------------------------------------------------|
171.  |     75          1          7         36    -1.345739  |
172.  |     75          2          7         36    -1.345739  |
173.  |     75          3          7         36    -1.345739  |
174.  |     76          1          2         33    -1.415193  |
175.  |     77          1          5         22    -.5878691  |
      |----------------------------------------------------|
176.  |     78          1          2         26    -1.290222  |
177.  |     78          2          2         26    -1.290222  |
178.  |     78          3          2         26    -1.290222  |
179.  |     79          1          6         29    -.3055488  |
180.  |     79          2          6         29    -.3055488  |
      |----------------------------------------------------|
181.  |     79          3          6         29    -.3055488  |
182.  |     80          1          4         37     .2425353  |
183.  |     80          2          4         37     .2425353  |
184.  |     81          1          3         35    -1.138787  |
185.  |     82          1         10         24     1.237919  |
      |----------------------------------------------------|
186.  |     82          2         10         24     1.237919  |
187.  |     82          3         10         24     1.237919  |
188.  |     82          4         10         24     1.237919  |
189.  |     83          1          6         30     1.462004  |
190.  |     83          2          6         30     1.462004  |
```

```
        |--------------------------------------------------|
191. |       84          1          7          20      2.348689 |
192. |       85          1          4          31      .7492698 |
193. |       86          1          5          30      .9811502 |
194. |       86          2          5          30      .9811502 |
195. |       86          3          5          30      .9811502 |
        |--------------------------------------------------|
196. |       86          4          5          30      .9811502 |
197. |       87          1          4          39       .226038 |
198. |       87          2          4          39       .226038 |
199. |       87          3          4          39       .226038 |
200. |       87          4          4          39       .226038 |
        +--------------------------------------------------+
```

Using the long dataset we can still obtain the same results as with the wide dataset we do. For example, If we want to obtain the results of

`regress citation x`

as if it were run in the wide data we do:

```
[10]: reghdfe citations x, group(art_id)
      estimates store reg_long_yx
```

```
(MWFE estimator converged in 1 iterations)

HDFE Linear regression                          Number of obs   =         100
Absorbing 1 HDFE group                          F(   1,     98) =        1.82
                                                Prob > F        =      0.1805
                                                R-squared       =      0.0182
                                                Adj R-squared   =      0.0082
                                                Within R-sq.    =      0.0182
                                                Root MSE        =      5.7103


-------------------------------------------------------------------------------
   citations |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+-----------------------------------------------------------------
           x |  -.7321277   .5428297    -1.35   0.181    -1.809356    .3451002
       _cons |   30.50843   .5721567    53.32   0.000       29.373    31.64386
-------------------------------------------------------------------------------
```

```
[11]: estimates table reg_wide_yx reg_long_yx, keep(x) b(%7.4f) se(%7.4f) stats(N␣
      ↪r2_a)
```

```
----------------------------------
```

```
    Variable | reg_w~x    reg_l~x
-------------+--------------------
           x | -0.7321    -0.7321
             |  0.5428     0.5428
-------------+--------------------
           N |     100        100
        r2_a |  0.0082     0.0082
-----------------------------------
                     legend: b/se
```

To obtain the same results as

`reghdfe citations x, a(journal)`

in the wide dataset we do:

```
[12]: reghdfe citations x, group(art_id) a(journal)
      estimates store reg_long_yxj
```

```
(dropped 3 singleton observations)
(MWFE estimator converged in 1 iterations)

HDFE Linear regression                       Number of obs   =          97
Absorbing 1 HDFE group                       F(   1,     87) =        3.76
                                             Prob > F        =      0.0556
                                             R-squared       =      0.1136
                                             Adj R-squared   =      0.0219
                                             Within R-sq.    =      0.0415
                                             Root MSE        =      5.6921


------------------------------------------------------------------------------
    citations |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
           x | -1.184256    .6104138    -1.94   0.056    -2.39752    .0290073
        _cons |  30.49536    .5780516    52.76   0.000    29.34642     31.6443
------------------------------------------------------------------------------

Absorbed degrees of freedom:
-----------------------------------------------------+
 Absorbed FE | Categories  - Redundant  = Num. Coefs |
-------------+---------------------------------------|
  journal_id |         9           0           9     |
-----------------------------------------------------+
```

```
[13]: estimates table reg_wide_yxj reg_long_yxj, keep(x) b(%7.4f) se(%7.4f) stats(N␣
      ↪r2_a)
```

```
          ----------------------------------
          Variable |  reg_w~j   reg_l~j
          -------------+--------------------
                 x |  -1.1843    -1.1843
                   |   0.6104     0.6104
          -------------+--------------------
                 N |       97         97
              r2_a |   0.0219     0.0219
          ----------------------------------
                        legend: b/se
```

And finally, if we want to run the equivalent to

`reghdfe citations x aut1-aut6, a(journal)`

in the wide dataset we can do either:

[14]:
```
reghdfe citations x, group(art_id) individual(author_id) a(journal_id␣
  ↪author_id) aggregation(sum)
estimates store reg_long_yxja
```

```
(dropped 3 singleton observations)
(MWFE estimator converged in 14 iterations)

HDFE Linear regression                            Number of obs   =         97
Absorbing 2 HDFE groups                           F(   1,     81) =       4.36
                                                  Prob > F        =     0.0400
                                                  R-squared       =     0.1387
                                                  Adj R-squared   =    -0.0208
                                                  Within R-sq.    =     0.0510
                                                  Root MSE        =     5.8151


------------------------------------------------------------------------------
   citations |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
           x |  -1.339499   .6417399    -2.09   0.040    -2.61636    -.062638
       _cons |   30.49813   .5905429    51.64   0.000    29.32313    31.67312
------------------------------------------------------------------------------

Absorbed degrees of freedom:
-----------------------------------------------------+
 Absorbed FE | Categories  - Redundant  = Num. Coefs |
-------------+---------------------------------------|
  journal_id |         9           0          9      |
   author_id |         6           0          6     ?|
-----------------------------------------------------+
? = number of redundant parameters may be higher
```

```
[15]: estimates table reg_wide_yxja reg_long_yxja, keep(x) b(%7.4f) se(%7.4f) stats(N␣
      ↪r2_a)
```

```
         ----------------------------------
          Variable |   reg_w~a    reg_l~a
         -------------+--------------------
                 x |   -1.3395    -1.3395
                   |    0.6417     0.6417
         -------------+--------------------
                 N |        97         97
              r2_a |   -0.0208    -0.0208
         ----------------------------------
                           legend: b/se
```

- To obtain the same values as in the "wide" data I had to specify the option "**aggregation(sum)**"
- By default **reghdfe** assumes the option "**aggregation(mean)**"

- The option "**aggregation(sum)**" assumes that the contribution of the authors to **y** is the summation of the author's fixed effects.
- An alternative would be to assume that the contribution to **y** is given by the average of the author's fixed effects

- Let us run the model with the default option using two alternative specifications:

```
[16]: reghdfe citations x i.journal_id, group(art_id) individual(author_id)␣
      ↪a(author_id) keepsingletons
      estimates store reg_long_yxja2
      reghdfe citations x, group(art_id) individual(author_id) a(journal_id␣
      ↪author_id) keepsingletons
      estimates store reg_long_yxja3
```

```
WARNING: Singleton observations not dropped; statistical significance is biased
> (link)
(MWFE estimator converged in 6 iterations)

HDFE Linear regression                          Number of obs    =         100
Absorbing 1 HDFE group                          F(  12,     82) =        1.19
                                                Prob > F         =      0.3047
                                                R-squared        =      0.1550
                                                Adj R-squared    =     -0.0201
                                                Within R-sq.     =      0.1482
                                                Root MSE         =      5.7913


--------------------------------------------------------------------------------
    citations |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
```

```
           x |  -1.296932    .6349505    -2.04   0.044    -2.560051    -.0338135
             |
   journal_id |
           3 |   2.059242    3.093768     0.67   0.508    -4.095248     8.213731
           4 |   5.899507    2.894826     2.04   0.045     .1407762     11.65824
           5 |   5.152631    2.879131     1.79   0.077    -.5748774     10.88014
           6 |   2.636606    2.859037     0.92   0.359    -3.050929     8.324141
           7 |   1.343273    2.943648     0.46   0.649     -4.51258     7.199126
           8 |   5.388293    3.505686     1.54   0.128    -1.585632     12.36222
           9 |    1.34391    3.361434     0.40   0.690    -5.343054     8.030874
          10 |   2.020704    3.860312     0.52   0.602    -5.658687     9.700095
          11 |  -3.061031    6.470356    -0.47   0.637    -15.93263     9.810568
          12 |   11.51318    6.859656     1.68   0.097    -2.132861     25.15922
          13 |   6.960522     6.48879     1.07   0.287    -5.947749     19.86879
             |
        _cons |    27.1131    2.459724    11.02   0.000     22.21993     32.00628
-------------------------------------------------------------------------------


Absorbed degrees of freedom:
-----------------------------------------------------+
 Absorbed FE | Categories  - Redundant  = Num. Coefs |
-------------+---------------------------------------|
   author_id |         6           0           6    ?|
-----------------------------------------------------+
? = number of redundant parameters may be higher



WARNING: Singleton observations not dropped; statistical significance is biased
> (link)
(MWFE estimator converged in 11 iterations)

HDFE Linear regression                            Number of obs   =        100
Absorbing 2 HDFE groups                           F(   1,     81) =       4.12
                                                  Prob > F        =     0.0456
                                                  R-squared       =     0.1550
                                                  Adj R-squared   =    -0.0327
                                                  Within R-sq.    =     0.0484
                                                  Root MSE        =     5.8269


-------------------------------------------------------------------------------
   citations |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+-----------------------------------------------------------------
           x |  -1.296932    .6388579    -2.03   0.046    -2.568059    -.0258055
       _cons |   30.54579    .5842253    52.28   0.000     29.38336     31.70821
-------------------------------------------------------------------------------

Absorbed degrees of freedom:
-----------------------------------------------------+
```

```
   Absorbed FE | Categories  - Redundant  = Num. Coefs |
   ------------+------------------------------------|
    journal_id |      12           0          12     |
     author_id |       6           0           6    ?|
   -------------------------------------------------+
   ? = number of redundant parameters may be higher
```

And now we replicate these results with the wide dataset:

```
[17]: use citations_wide, clear
```

```
[18]: egen naut=rowtotal(aut1-aut6)
```

```
[19]: forval j=1/6 {
      qui replace aut`j'=aut`j'/naut
      }
```

```
[20]: %browse
```

```
      +------------------------------------------------------------+
   1. |    art_id    |   journa~d   |   citati~s   |            x   |
      |        1     |        4     |       38     |    -1.096598   |
      |------------------------------------------------------------|
      |                     authors | _est_r~x | _est_r~j |    aut1 |
      |       AutB;AutC;AutD;AutE;AutF |      1 |        1 |       0 |
      |------------------------------------------------------------|
      |     aut2 |     aut3 |     aut4 |     aut5 |     aut6 | naut  |
      |      .2  |      .2  |      .2  |      .2  |      .2  |   5   |
      +------------------------------------------------------------+

      +------------------------------------------------------------+
   2. |    art_id    |   journa~d   |   citati~s   |            x   |
      |        2     |       12     |       34     |     3.182043   |
      |------------------------------------------------------------|
      |                     authors | _est_r~x | _est_r~j |    aut1 |
      |           AutA;AutB;AutC;AutD |      1 |        0 |    .25  |
      |------------------------------------------------------------|
      |     aut2 |     aut3 |     aut4 |     aut5 |     aut6 | naut  |
      |     .25  |     .25  |     .25  |      0   |      0   |   4   |
      +------------------------------------------------------------+

      +------------------------------------------------------------+
   3. |    art_id    |   journa~d   |   citati~s   |            x   |
      |        3     |        4     |       22     |     2.319085   |
      |------------------------------------------------------------|
      |                     authors | _est_r~x | _est_r~j |    aut1 |
```

```
         |            AutA; AutD |        1 |        1 |      .5 |
         |-----------------------------------------------------------|
         |   aut2 |    aut3 |     aut4 |     aut5 |     aut6 | naut  |
         |      0 |       0 |       .5 |        0 |        0 |    2  |
         +-----------------------------------------------------------+


         +-----------------------------------------------------------+
4.  |   art_id   |  journa~d   |  citati~s   |            x        |
    |      4     |       4     |      37     |       .5314979      |
    |-----------------------------------------------------------|
    |               authors | _est_r~x | _est_r~j |     aut1 |
    |              AutA;AutB |        1 |        1 |       .5 |
    |-----------------------------------------------------------|
    |   aut2 |    aut3 |     aut4 |     aut5 |     aut6 | naut  |
    |     .5 |       0 |        0 |        0 |        0 |    2  |
    +-----------------------------------------------------------+


         +-----------------------------------------------------------+
5.  |   art_id   |  journa~d   |  citati~s   |            x        |
    |      5     |       3     |      29     |     -.1263452       |
    |-----------------------------------------------------------|
    |               authors | _est_r~x | _est_r~j |     aut1 |
    |              AutA;AutB |        1 |        1 |       .5 |
    |-----------------------------------------------------------|
    |   aut2 |    aut3 |     aut4 |     aut5 |     aut6 | naut  |
    |     .5 |       0 |        0 |        0 |        0 |    2  |
    +-----------------------------------------------------------+


         +-----------------------------------------------------------+
6.  |   art_id   |  journa~d   |  citati~s   |            x        |
    |      6     |       3     |      25     |     -1.066023       |
    |-----------------------------------------------------------|
    |               authors | _est_r~x | _est_r~j |     aut1 |
    |              AutA;AutB |        1 |        1 |       .5 |
    |-----------------------------------------------------------|
    |   aut2 |    aut3 |     aut4 |     aut5 |     aut6 | naut  |
    |     .5 |       0 |        0 |        0 |        0 |    2  |
    +-----------------------------------------------------------+


         +-----------------------------------------------------------+
7.  |   art_id   |  journa~d   |  citati~s   |            x        |
    |      7     |       4     |      34     |      2.314123       |
    |-----------------------------------------------------------|
    |               authors | _est_r~x | _est_r~j |     aut1 |
    |                  AutB |        1 |        1 |        0 |
    |-----------------------------------------------------------|
    |   aut2 |    aut3 |     aut4 |     aut5 |     aut6 | naut  |
    |      1 |       0 |        0 |        0 |        0 |    1  |
```

```
     +---------------------------------------------------------------+

     +---------------------------------------------------------------+
 8.  |   art_id     |   journa~d    |    citati~s    |           x    |
     |       8      |        6      |        35      |      .7701448  |
     |---------------------------------------------------------------|
     |                     authors | _est_r~x | _est_r~j |     aut1 |
     |                   AutA;AutB  |        1 |        1 |       .5 |
     |---------------------------------------------------------------|
     |   aut2  |    aut3  |    aut4  |    aut5  |    aut6  | naut  |
     |    .5   |       0  |       0  |       0  |       0  |    2  |
     +---------------------------------------------------------------+


     +---------------------------------------------------------------+
 9.  |   art_id     |   journa~d    |    citati~s    |           x    |
     |       9      |        4      |        32      |      .0731317  |
     |---------------------------------------------------------------|
     |                     authors | _est_r~x | _est_r~j |     aut1 |
     |                   AutA;AutB  |        1 |        1 |       .5 |
     |---------------------------------------------------------------|
     |   aut2  |    aut3  |    aut4  |    aut5  |    aut6  | naut  |
     |    .5   |       0  |       0  |       0  |       0  |    2  |
     +---------------------------------------------------------------+


     +---------------------------------------------------------------+
10.  |   art_id     |   journa~d    |    citati~s    |           x    |
     |      10      |       10      |        31      |      .7151871  |
     |---------------------------------------------------------------|
     |                     authors | _est_r~x | _est_r~j |     aut1 |
     |                   AutA;AutB  |        1 |        1 |       .5 |
     |---------------------------------------------------------------|
     |   aut2  |    aut3  |    aut4  |    aut5  |    aut6  | naut  |
     |    .5   |       0  |       0  |       0  |       0  |    2  |
     +---------------------------------------------------------------+


     +---------------------------------------------------------------+
11.  |   art_id     |   journa~d    |    citati~s    |           x    |
     |      11      |        8      |        39      |      .6309603  |
     |---------------------------------------------------------------|
     |                     authors | _est_r~x | _est_r~j |     aut1 |
     |               AutA;AutB;AutD |        1 |        1 | .3333333 |
     |---------------------------------------------------------------|
     |    aut2    |   aut3  |    aut4    |    aut5  |    aut6  | naut  |
     | .3333333   |      0  | .3333333   |       0  |       0  |    3  |
     +---------------------------------------------------------------+


     +---------------------------------------------------------------+
12.  |   art_id     |   journa~d    |    citati~s    |           x    |
```

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```
    |       12        |             3         |             27      |         .0993462     |
    |-------------------------------------------------------------------------------|
    |                               authors | _est_r~x | _est_r~j |           aut1 |
    |                             AutA;AutB |        1 |        1 |             .5 |
    |-------------------------------------------------------------------------------|
    |     aut2 |      aut3 |      aut4 |      aut5 |        aut6  | naut  |
    |      .5 |         0 |         0 |         0 |           0  |    2  |
    +-------------------------------------------------------------------------------+


    +-------------------------------------------------------------------------------+
13. |   art_id    |    journa~d    |    citati~s    |              x      |
    |      13     |           2    |           25    |      -2.583632     |
    |-------------------------------------------------------------------------------|
    |                               authors | _est_r~x | _est_r~j |           aut1 |
    |                             AutA;AutB |        1 |        1 |             .5 |
    |-------------------------------------------------------------------------------|
    |     aut2 |      aut3 |      aut4 |      aut5 |        aut6  | naut  |
    |      .5 |         0 |         0 |         0 |           0  |    2  |
    +-------------------------------------------------------------------------------+


    +-------------------------------------------------------------------------------+
14. |   art_id    |    journa~d    |    citati~s    |              x      |
    |      14     |           7    |           29    |       .6905127     |
    |-------------------------------------------------------------------------------|
    |                               authors | _est_r~x | _est_r~j |           aut1 |
    |                             AutA;AutB |        1 |        1 |             .5 |
    |-------------------------------------------------------------------------------|
    |     aut2 |      aut3 |      aut4 |      aut5 |        aut6  | naut  |
    |      .5 |         0 |         0 |         0 |           0  |    2  |
    +-------------------------------------------------------------------------------+


    +-------------------------------------------------------------------------------+
15. |   art_id    |    journa~d    |    citati~s    |              x      |
    |      15     |           8    |           25    |      -2.063772     |
    |-------------------------------------------------------------------------------|
    |                               authors | _est_r~x | _est_r~j |           aut1 |
    |                             AutA;AutB |        1 |        1 |             .5 |
    |-------------------------------------------------------------------------------|
    |     aut2 |      aut3 |      aut4 |      aut5 |        aut6  | naut  |
    |      .5 |         0 |         0 |         0 |           0  |    2  |
    +-------------------------------------------------------------------------------+


    +-------------------------------------------------------------------------------+
16. |   art_id    |    journa~d    |    citati~s    |              x      |
    |      16     |           8    |           32    |      -1.246508     |
    |-------------------------------------------------------------------------------|
    |                               authors | _est_r~x | _est_r~j |           aut1 |
    |                        AutA;AutB;AutE |        1 |        1 | .3333333 |
```

```
|----------------------------------------------------------------|
|    aut2  |     aut3 |     aut4 |     aut5 |      aut6 | naut  |
| .3333333 |        0 |        0 | .3333333 |         0 |    3  |
+----------------------------------------------------------------+


     +----------------------------------------------------------------+
17.  |   art_id  |  journa~d   |   citati~s   |              x     |
     |      17   |        3    |       19     |      -.6599711     |
     |----------------------------------------------------------------|
     |                   authors | _est_r~x | _est_r~j |     aut1 |
     |                 AutA;AutB |        1 |        1 |       .5 |
     |----------------------------------------------------------------|
     |    aut2  |     aut3 |     aut4 |     aut5 |      aut6 | naut  |
     |      .5  |        0 |        0 |        0 |         0 |    2  |
     +----------------------------------------------------------------+


     +----------------------------------------------------------------+
18.  |   art_id  |  journa~d   |   citati~s   |              x     |
     |      18   |        6    |       32     |      -1.478867     |
     |----------------------------------------------------------------|
     |                   authors | _est_r~x | _est_r~j |     aut1 |
     |                 AutA;AutB |        1 |        1 |       .5 |
     |----------------------------------------------------------------|
     |    aut2  |     aut3 |     aut4 |     aut5 |      aut6 | naut  |
     |      .5  |        0 |        0 |        0 |         0 |    2  |
     +----------------------------------------------------------------+


     +----------------------------------------------------------------+
19.  |   art_id  |  journa~d   |   citati~s   |              x     |
     |      19   |        7    |       32     |       .3071749     |
     |----------------------------------------------------------------|
     |                   authors | _est_r~x | _est_r~j |     aut1 |
     |                 AutB;AutF |        1 |        1 |        0 |
     |----------------------------------------------------------------|
     |    aut2  |     aut3 |     aut4 |     aut5 |      aut6 | naut  |
     |      .5  |        0 |        0 |        0 |        .5 |    2  |
     +----------------------------------------------------------------+


     +----------------------------------------------------------------+
20.  |   art_id  |  journa~d   |   citati~s   |              x     |
     |      20   |        5    |       31     |      -.4103581     |
     |----------------------------------------------------------------|
     |                   authors | _est_r~x | _est_r~j |     aut1 |
     |         AutB;AutC;AutD;AutE |        1 |        1 |        0 |
     |----------------------------------------------------------------|
     |    aut2  |     aut3 |     aut4 |     aut5 |      aut6 | naut  |
     |     .25  |      .25 |      .25 |      .25 |         0 |    4  |
     +----------------------------------------------------------------+
```

```
     +--------------------------------------------------------+
21.  |   art_id    |   journa~d    |   citati~s   |           x      |
     |     21      |       6       |      32      |     -1.235868    |
     |--------------------------------------------------------|
     |                    authors | _est_r~x | _est_r~j |   aut1 |
     |                  AutA;AutB |        1 |        1 |     .5 |
     |--------------------------------------------------------|
     |   aut2  |    aut3  |    aut4  |    aut5  |    aut6  | naut  |
     |     .5  |       0  |       0  |       0  |       0  |   2   |
     +--------------------------------------------------------+


     +--------------------------------------------------------+
22.  |   art_id    |   journa~d    |   citati~s   |           x      |
     |     22      |       5       |      34      |     -.4452573    |
     |--------------------------------------------------------|
     |                    authors | _est_r~x | _est_r~j |   aut1 |
     |                       AutA |        1 |        1 |      1 |
     |--------------------------------------------------------|
     |   aut2  |    aut3  |    aut4  |    aut5  |    aut6  | naut  |
     |     0   |       0  |       0  |       0  |       0  |   1   |
     +--------------------------------------------------------+


     +--------------------------------------------------------+
23.  |   art_id    |   journa~d    |   citati~s   |           x      |
     |     23      |       8       |      27      |      .8285742    |
     |--------------------------------------------------------|
     |                    authors | _est_r~x | _est_r~j |   aut1 |
     |                  AutA;AutC |        1 |        1 |     .5 |
     |--------------------------------------------------------|
     |   aut2  |    aut3  |    aut4  |    aut5  |    aut6  | naut  |
     |     0   |      .5  |       0  |       0  |       0  |   2   |
     +--------------------------------------------------------+


     +--------------------------------------------------------+
24.  |   art_id    |   journa~d    |   citati~s   |           x      |
     |     24      |       8       |      42      |      .8201761    |
     |--------------------------------------------------------|
     |                    authors | _est_r~x | _est_r~j |   aut1 |
     |                       AutA |        1 |        1 |      1 |
     |--------------------------------------------------------|
     |   aut2  |    aut3  |    aut4  |    aut5  |    aut6  | naut  |
     |     0   |       0  |       0  |       0  |       0  |   1   |
     +--------------------------------------------------------+


     +--------------------------------------------------------+
25.  |   art_id    |   journa~d    |   citati~s   |           x      |
     |     25      |       6       |      37      |     -.3326353    |
```

```
|---------------------------------------------------------------|
|                       authors | _est_r~x | _est_r~j |     aut1 |
|                          AutA |        1 |        1 |        1 |
|---------------------------------------------------------------|
|      aut2 |     aut3 |     aut4 |     aut5 |     aut6 | naut |
|         0 |        0 |        0 |        0 |        0 |    1 |
+---------------------------------------------------------------+


     +---------------------------------------------------------------+
 26. |   art_id    |  journa~d   |   citati~s   |           x       |
     |     26      |      6      |      30      |     -.5047406     |
     |---------------------------------------------------------------|
     |                       authors | _est_r~x | _est_r~j |     aut1 |
     |                 AutA;AutB;AutC |        1 |        1 | .3333333 |
     |---------------------------------------------------------------|
     |      aut2 |     aut3 |     aut4 |     aut5 |     aut6 | naut |
     |  .3333333 | .3333333 |        0 |        0 |        0 |    3 |
     +---------------------------------------------------------------+


     +---------------------------------------------------------------+
 27. |   art_id    |  journa~d   |   citati~s   |           x       |
     |     27      |      4      |      23      |      .5701295     |
     |---------------------------------------------------------------|
     |                       authors | _est_r~x | _est_r~j |     aut1 |
     |                     AutA;AutB |        1 |        1 |       .5 |
     |---------------------------------------------------------------|
     |      aut2 |     aut3 |     aut4 |     aut5 |     aut6 | naut |
     |        .5 |        0 |        0 |        0 |        0 |    2 |
     +---------------------------------------------------------------+


     +---------------------------------------------------------------+
 28. |   art_id    |  journa~d   |   citati~s   |           x       |
     |     28      |      6      |      26      |      .5886264     |
     |---------------------------------------------------------------|
     |                       authors | _est_r~x | _est_r~j |     aut1 |
     |                          AutA |        1 |        1 |        1 |
     |---------------------------------------------------------------|
     |      aut2 |     aut3 |     aut4 |     aut5 |     aut6 | naut |
     |         0 |        0 |        0 |        0 |        0 |    1 |
     +---------------------------------------------------------------+


     +---------------------------------------------------------------+
 29. |   art_id    |  journa~d   |   citati~s   |           x       |
     |     29      |      6      |      30      |     -1.290243     |
     |---------------------------------------------------------------|
     |                       authors | _est_r~x | _est_r~j |     aut1 |
     |                          AutA |        1 |        1 |        1 |
     |---------------------------------------------------------------|
```

```
      |     aut2 |     aut3 |     aut4 |     aut5 |     aut6 | naut |
      |        0 |        0 |        0 |        0 |        0 |    1 |
      +--------------------------------------------------------------+


      +--------------------------------------------------------------+
 30.  |  art_id   |  journa~d  |  citati~s  |              x       |
      |     30    |     10     |     33     |       -.8219085      |
      |--------------------------------------------------------------|
      |                  authors | _est_r~x | _est_r~j |     aut1 |
      |                AutA;AutB |        1 |        1 |       .5 |
      |--------------------------------------------------------------|
      |     aut2 |     aut3 |     aut4 |     aut5 |     aut6 | naut |
      |       .5 |        0 |        0 |        0 |        0 |    2 |
      +--------------------------------------------------------------+


      +--------------------------------------------------------------+
 31.  |  art_id   |  journa~d  |  citati~s  |              x       |
      |     31    |      7     |     32     |        1.148723      |
      |--------------------------------------------------------------|
      |                  authors | _est_r~x | _est_r~j |     aut1 |
      |                AutA;AutB |        1 |        1 |       .5 |
      |--------------------------------------------------------------|
      |     aut2 |     aut3 |     aut4 |     aut5 |     aut6 | naut |
      |       .5 |        0 |        0 |        0 |        0 |    2 |
      +--------------------------------------------------------------+


      +--------------------------------------------------------------+
 32.  |  art_id   |  journa~d  |  citati~s  |              x       |
      |     32    |      6     |     25     |        .9319192      |
      |--------------------------------------------------------------|
      |                  authors | _est_r~x | _est_r~j |     aut1 |
      |           AutA;AutB;AutC |        1 |        1 | .3333333 |
      |--------------------------------------------------------------|
      |     aut2 |     aut3 |     aut4 |     aut5 |     aut6 | naut |
      | .3333333 | .3333333 |        0 |        0 |        0 |    3 |
      +--------------------------------------------------------------+


      +--------------------------------------------------------------+
 33.  |  art_id   |  journa~d  |  citati~s  |              x       |
      |     33    |      5     |     36     |        .4637992      |
      |--------------------------------------------------------------|
      |                  authors | _est_r~x | _est_r~j |     aut1 |
      |                     AutA |        1 |        1 |        1 |
      |--------------------------------------------------------------|
      |     aut2 |     aut3 |     aut4 |     aut5 |     aut6 | naut |
      |        0 |        0 |        0 |        0 |        0 |    1 |
      +--------------------------------------------------------------+
```

```
     +--------------------------------------------------------------+
 34. |  art_id    |   journa~d    |   citati~s    |           x     |
     |      34    |          3    |          35   |      -.4446257  |
     |------------------------------------------------------------- |
     |                      authors | _est_r~x | _est_r~j |    aut1 |
     |                         AutA |       1 |       1 |        1 |
     |------------------------------------------------------------- |
     |    aut2  |    aut3  |    aut4  |    aut5  |    aut6  | naut   |
     |       0  |       0  |       0  |       0  |       0  |    1   |
     +--------------------------------------------------------------+


     +--------------------------------------------------------------+
 35. |  art_id    |   journa~d    |   citati~s    |           x     |
     |      35    |          9    |          27   |       1.454637  |
     |------------------------------------------------------------- |
     |                      authors | _est_r~x | _est_r~j |    aut1 |
     |                         AutA |       1 |       1 |        1 |
     |------------------------------------------------------------- |
     |    aut2  |    aut3  |    aut4  |    aut5  |    aut6  | naut   |
     |       0  |       0  |       0  |       0  |       0  |    1   |
     +--------------------------------------------------------------+


     +--------------------------------------------------------------+
 36. |  art_id    |   journa~d    |   citati~s    |           x     |
     |      36    |          5    |          37   |       .1202357  |
     |------------------------------------------------------------- |
     |                      authors | _est_r~x | _est_r~j |    aut1 |
     |                 AutA;AutB;AutC |       1 |       1 | .3333333 |
     |------------------------------------------------------------- |
     |    aut2    |    aut3    |    aut4  |    aut5  |    aut6  | naut |
     | .3333333   | .3333333   |       0  |       0  |       0  |    3 |
     +--------------------------------------------------------------+


     +--------------------------------------------------------------+
 37. |  art_id    |   journa~d    |   citati~s    |           x     |
     |      37    |          5    |          45   |       .6168431  |
     |------------------------------------------------------------- |
     |                      authors | _est_r~x | _est_r~j |    aut1 |
     |                         AutA |       1 |       1 |        1 |
     |------------------------------------------------------------- |
     |    aut2  |    aut3  |    aut4  |    aut5  |    aut6  | naut   |
     |       0  |       0  |       0  |       0  |       0  |    1   |
     +--------------------------------------------------------------+


     +--------------------------------------------------------------+
 38. |  art_id    |   journa~d    |   citati~s    |           x     |
     |      38    |          7    |          28   |      -1.154497  |
     |------------------------------------------------------------- |
```

```
        |                   authors | _est_r~x | _est_r~j |     aut1 |
        |                   AutA;AutB |        1 |        1 |       .5 |
        |------------------------------------------------------------|
        |    aut2 |     aut3 |     aut4 |     aut5 |     aut6 | naut  |
        |      .5 |        0 |        0 |        0 |        0 |    2  |
        +------------------------------------------------------------+


        +------------------------------------------------------------+
  39. | art_id   | journa~d   | citati~s   |             x        |
        |     39   |        4   |       39   |    -.0999358        |
        |------------------------------------------------------------|
        |                   authors | _est_r~x | _est_r~j |     aut1 |
        |                      AutA |        1 |        1 |        1 |
        |------------------------------------------------------------|
        |    aut2 |     aut3 |     aut4 |     aut5 |     aut6 | naut  |
        |       0 |        0 |        0 |        0 |        0 |    1  |
        +------------------------------------------------------------+


        +------------------------------------------------------------+
  40. | art_id   | journa~d   | citati~s   |             x        |
        |     40   |        9   |       28   |     1.416823        |
        |------------------------------------------------------------|
        |                   authors | _est_r~x | _est_r~j |     aut1 |
        |                      AutA |        1 |        1 |        1 |
        |------------------------------------------------------------|
        |    aut2 |     aut3 |     aut4 |     aut5 |     aut6 | naut  |
        |       0 |        0 |        0 |        0 |        0 |    1  |
        +------------------------------------------------------------+


        +------------------------------------------------------------+
  41. | art_id   | journa~d   | citati~s   |             x        |
        |     41   |        4   |       24   |     1.066625        |
        |------------------------------------------------------------|
        |                   authors | _est_r~x | _est_r~j |     aut1 |
        |     AutA;AutB;AutC;AutD;AutE |        1 |        1 |       .2 |
        |------------------------------------------------------------|
        |    aut2 |     aut3 |     aut4 |     aut5 |     aut6 | naut  |
        |      .2 |       .2 |       .2 |       .2 |        0 |    5  |
        +------------------------------------------------------------+


        +------------------------------------------------------------+
  42. | art_id   | journa~d   | citati~s   |             x        |
        |     42   |        7   |       27   |    -.9381732        |
        |------------------------------------------------------------|
        |                   authors | _est_r~x | _est_r~j |     aut1 |
        |              AutA;AutB;AutC |        1 |        1 | .3333333 |
        |------------------------------------------------------------|
        |    aut2 |     aut3 |     aut4 |     aut5 |     aut6 | naut  |
```

```
          | .3333333 | .3333333 |          0 |          0 |           0 |     3  |
          +--------------------------------------------------------------------+


          +--------------------------------------------------------------------+
     43.  |  art_id      |  journa~d     |   citati~s    |                  x  |
          |      43      |        6      |        16     |        -1.436606    |
          |--------------------------------------------------------------------|
          |                    authors  | _est_r~x | _est_r~j |        aut1 |
          |                       AutA  |        1 |        1 |           1 |
          |--------------------------------------------------------------------|
          |   aut2  |    aut3  |    aut4  |    aut5  |     aut6  | naut  |
          |     0   |      0   |      0   |      0   |       0   |   1   |
          +--------------------------------------------------------------------+


          +--------------------------------------------------------------------+
     44.  |  art_id      |  journa~d     |   citati~s    |                  x  |
          |      44      |        4      |        25     |         .8336254    |
          |--------------------------------------------------------------------|
          |                    authors  | _est_r~x | _est_r~j |        aut1 |
          |                       AutA  |        1 |        1 |           1 |
          |--------------------------------------------------------------------|
          |   aut2  |    aut3  |    aut4  |    aut5  |     aut6  | naut  |
          |     0   |      0   |      0   |      0   |       0   |   1   |
          +--------------------------------------------------------------------+


          +--------------------------------------------------------------------+
     45.  |  art_id      |  journa~d     |   citati~s    |                  x  |
          |      45      |        4      |        34     |         .9235147    |
          |--------------------------------------------------------------------|
          |                    authors  | _est_r~x | _est_r~j |        aut1 |
          |                  AutA;AutB  |        1 |        1 |          .5 |
          |--------------------------------------------------------------------|
          |   aut2  |    aut3  |    aut4  |    aut5  |     aut6  | naut  |
          |    .5   |      0   |      0   |      0   |       0   |   2   |
          +--------------------------------------------------------------------+


          +--------------------------------------------------------------------+
     46.  |  art_id      |  journa~d     |   citati~s    |                  x  |
          |      46      |        4      |        25     |         .2232714    |
          |--------------------------------------------------------------------|
          |                    authors  | _est_r~x | _est_r~j |        aut1 |
          |               AutB;AutC;AutD  |        1 |        1 |           0 |
          |--------------------------------------------------------------------|
          |   aut2  |    aut3  |    aut4  |    aut5  |     aut6  | naut  |
          | .3333333 | .3333333 | .3333333 |      0   |       0   |   3   |
          +--------------------------------------------------------------------+


          +--------------------------------------------------------------------+
```

```
47. |   art_id    |   journa~d    |   citati~s    |           x       |
    |       47    |        13     |        33     |       .442765    |
    |-------------------------------------------------------------------|
    |                        authors | _est_r~x | _est_r~j |      aut1 |
    |           AutA;AutB;AutC;AutD  |        1 |        0 |       .25 |
    |-------------------------------------------------------------------|
    |     aut2  |      aut3  |      aut4  |      aut5  |      aut6  | naut |
    |      .25  |       .25  |       .25  |        0   |        0  |   4  |
    +-------------------------------------------------------------------+


    +-------------------------------------------------------------------+
48. |   art_id    |   journa~d    |   citati~s    |           x       |
    |       48    |         9     |        21     |      .1972646    |
    |-------------------------------------------------------------------|
    |                        authors | _est_r~x | _est_r~j |      aut1 |
    |                           AutA |        1 |        1 |        1 |
    |-------------------------------------------------------------------|
    |     aut2  |      aut3  |      aut4  |      aut5  |      aut6  | naut |
    |       0   |        0   |        0   |        0   |        0  |   1  |
    +-------------------------------------------------------------------+


    +-------------------------------------------------------------------+
49. |   art_id    |   journa~d    |   citati~s    |           x       |
    |       49    |         7     |        22     |      1.828233    |
    |-------------------------------------------------------------------|
    |                        authors | _est_r~x | _est_r~j |      aut1 |
    |                           AutA |        1 |        1 |        1 |
    |-------------------------------------------------------------------|
    |     aut2  |      aut3  |      aut4  |      aut5  |      aut6  | naut |
    |       0   |        0   |        0   |        0   |        0  |   1  |
    +-------------------------------------------------------------------+


    +-------------------------------------------------------------------+
50. |   art_id    |   journa~d    |   citati~s    |           x       |
    |       50    |         4     |        33     |      .3725476    |
    |-------------------------------------------------------------------|
    |                        authors | _est_r~x | _est_r~j |      aut1 |
    |           AutA;AutB;AutC;AutD  |        1 |        1 |       .25 |
    |-------------------------------------------------------------------|
    |     aut2  |      aut3  |      aut4  |      aut5  |      aut6  | naut |
    |      .25  |       .25  |       .25  |        0   |        0  |   4  |
    +-------------------------------------------------------------------+


    +-------------------------------------------------------------------+
51. |   art_id    |   journa~d    |   citati~s    |           x       |
    |       51    |         4     |        33     |      -.8173643   |
    |-------------------------------------------------------------------|
    |                        authors | _est_r~x | _est_r~j |      aut1 |
```

```
    |           AutA;AutB;AutC;AutD |        1 |         1 |      .25 |
    |-------------------------------------------------------------------|
    |    aut2 |     aut3 |     aut4 |      aut5 |      aut6 | naut |
    |     .25 |      .25 |      .25 |         0 |         0 |    4 |
    +-------------------------------------------------------------------+


    +-------------------------------------------------------------------+
52. |    art_id   |   journa~d   |   citati~s   |              x      |
    |        52   |          5   |          20   |      1.574457      |
    |-------------------------------------------------------------------|
    |                     authors | _est_r~x | _est_r~j |     aut1 |
    |              AutA;AutB;AutC |        1 |        1 | .3333333 |
    |-------------------------------------------------------------------|
    |    aut2 |     aut3 |     aut4 |      aut5 |      aut6 | naut |
    | .3333333 | .3333333 |        0 |         0 |         0 |    3 |
    +-------------------------------------------------------------------+


    +-------------------------------------------------------------------+
53. |    art_id   |   journa~d   |   citati~s   |              x      |
    |        53   |          5   |          39   |      1.716935      |
    |-------------------------------------------------------------------|
    |                     authors | _est_r~x | _est_r~j |     aut1 |
    |                   AutA;AutB |        1 |        1 |       .5 |
    |-------------------------------------------------------------------|
    |    aut2 |     aut3 |     aut4 |      aut5 |      aut6 | naut |
    |      .5 |        0 |        0 |         0 |         0 |    2 |
    +-------------------------------------------------------------------+


    +-------------------------------------------------------------------+
54. |    art_id   |   journa~d   |   citati~s   |              x      |
    |        54   |          6   |          34   |       .338451      |
    |-------------------------------------------------------------------|
    |                     authors | _est_r~x | _est_r~j |     aut1 |
    |           AutA;AutB;AutC;AutD |        1 |        1 |      .25 |
    |-------------------------------------------------------------------|
    |    aut2 |     aut3 |     aut4 |      aut5 |      aut6 | naut |
    |     .25 |      .25 |      .25 |         0 |         0 |    4 |
    +-------------------------------------------------------------------+


    +-------------------------------------------------------------------+
55. |    art_id   |   journa~d   |   citati~s   |              x      |
    |        55   |          4   |          37   |      .0942601      |
    |-------------------------------------------------------------------|
    |                     authors | _est_r~x | _est_r~j |     aut1 |
    |              AutA;AutB;AutC |        1 |        1 | .3333333 |
    |-------------------------------------------------------------------|
    |    aut2 |     aut3 |     aut4 |      aut5 |      aut6 | naut |
    | .3333333 | .3333333 |        0 |         0 |         0 |    3 |
```

```
     +----------------------------------------------------------------+

     +----------------------------------------------------------------+
56. |   art_id    |   journa~d    |   citati~s    |            x     |
    |       56    |           5   |          26   |       -.914588   |
    |----------------------------------------------------------------|
    |                     authors | _est_r~x | _est_r~j |     aut1 |
    |                     AutA;AutB |        1 |        1 |       .5 |
    |----------------------------------------------------------------|
    |    aut2 |     aut3 |     aut4 |     aut5 |      aut6 | naut  |
    |     .5 |        0 |        0 |        0 |         0 |    2  |
     +----------------------------------------------------------------+


     +----------------------------------------------------------------+
57. |   art_id    |   journa~d    |   citati~s    |            x     |
    |       57    |          11   |          23   |      1.259047    |
    |----------------------------------------------------------------|
    |                     authors | _est_r~x | _est_r~j |     aut1 |
    |                        AutA |        1 |        0 |        1 |
    |----------------------------------------------------------------|
    |    aut2 |     aut3 |     aut4 |     aut5 |      aut6 | naut  |
    |      0 |        0 |        0 |        0 |         0 |    1  |
     +----------------------------------------------------------------+


     +----------------------------------------------------------------+
58. |   art_id    |   journa~d    |   citati~s    |            x     |
    |       58    |           6   |          36   |      -1.000023   |
    |----------------------------------------------------------------|
    |                     authors | _est_r~x | _est_r~j |     aut1 |
    |                        AutA |        1 |        1 |        1 |
    |----------------------------------------------------------------|
    |    aut2 |     aut3 |     aut4 |     aut5 |      aut6 | naut  |
    |      0 |        0 |        0 |        0 |         0 |    1  |
     +----------------------------------------------------------------+


     +----------------------------------------------------------------+
59. |   art_id    |   journa~d    |   citati~s    |            x     |
    |       59    |           2   |          31   |      -.1631394   |
    |----------------------------------------------------------------|
    |                     authors | _est_r~x | _est_r~j |     aut1 |
    |                     AutA;AutB |        1 |        1 |       .5 |
    |----------------------------------------------------------------|
    |    aut2 |     aut3 |     aut4 |     aut5 |      aut6 | naut  |
    |     .5 |        0 |        0 |        0 |         0 |    2  |
     +----------------------------------------------------------------+


     +----------------------------------------------------------------+
60. |   art_id    |   journa~d    |   citati~s    |            x     |
```

```
    |       60       |            4        |             32      |        .5729514     |
    |--------------------------------------------------------------------------------|
    |                          authors | _est_r~x | _est_r~j |       aut1 |
    |                     AutA;AutB;AutC |        1 |        1 | .3333333 |
    |--------------------------------------------------------------------------------|
    |      aut2 |      aut3 |      aut4 |      aut5 |      aut6 | naut  |
    | .3333333 | .3333333 |        0 |        0 |        0 |     3 |
    +--------------------------------------------------------------------------------+


        +----------------------------------------------------------------------------+
61. |   art_id    |   journa~d    |   citati~s    |               x     |
    |      61     |        5      |        32     |        .5039716     |
    |--------------------------------------------------------------------------------|
    |                          authors | _est_r~x | _est_r~j |       aut1 |
    |                             AutA |        1 |        1 |        1 |
    |--------------------------------------------------------------------------------|
    |      aut2 |      aut3 |      aut4 |      aut5 |      aut6 | naut  |
    |        0 |        0 |        0 |        0 |        0 |     1 |
    +--------------------------------------------------------------------------------+


        +----------------------------------------------------------------------------+
62. |   art_id    |   journa~d    |   citati~s    |               x     |
    |      62     |        4      |        33     |       -.3318768     |
    |--------------------------------------------------------------------------------|
    |                          authors | _est_r~x | _est_r~j |       aut1 |
    |          AutA;AutB;AutC;AutD |        1 |        1 |       .25 |
    |--------------------------------------------------------------------------------|
    |      aut2 |      aut3 |      aut4 |      aut5 |      aut6 | naut  |
    |      .25 |      .25 |      .25 |        0 |        0 |     4 |
    +--------------------------------------------------------------------------------+


        +----------------------------------------------------------------------------+
63. |   art_id    |   journa~d    |   citati~s    |               x     |
    |      63     |        5      |        42     |       -1.345239     |
    |--------------------------------------------------------------------------------|
    |                          authors | _est_r~x | _est_r~j |       aut1 |
    |          AutA;AutB;AutC;AutD |        1 |        1 |       .25 |
    |--------------------------------------------------------------------------------|
    |      aut2 |      aut3 |      aut4 |      aut5 |      aut6 | naut  |
    |      .25 |      .25 |      .25 |        0 |        0 |     4 |
    +--------------------------------------------------------------------------------+


        +----------------------------------------------------------------------------+
64. |   art_id    |   journa~d    |   citati~s    |               x     |
    |      64     |        9      |        37     |       -.5360869     |
    |--------------------------------------------------------------------------------|
    |                          authors | _est_r~x | _est_r~j |       aut1 |
    |                        AutA;AutB |        1 |        1 |       .5 |
```

	aut2	aut3	aut4	aut5	aut6	naut
	.5	0	0	0	0	2

65.	art_id	journa~d	citati~s		x
	65	9	25		.4335161

		authors	_est_r~x	_est_r~j	aut1
	AutB;AutC;AutD;AutE;AutF		1	1	0

	aut2	aut3	aut4	aut5	aut6	naut
	.2	.2	.2	.2	.2	5

66.	art_id	journa~d	citati~s		x
	66	3	34		-.5601428

		authors	_est_r~x	_est_r~j	aut1
		AutA	1	1	1

	aut2	aut3	aut4	aut5	aut6	naut
	0	0	0	0	0	1

67.	art_id	journa~d	citati~s		x
	67	3	26		-.7533434

		authors	_est_r~x	_est_r~j	aut1
	AutA;AutB;AutC;AutD;AutE;AutF		1	1	.1666667

	aut2	aut3	aut4	aut5	aut6	naut
	.1666667	.1666667	.1666667	.1666667	.1666667	6

68.	art_id	journa~d	citati~s		x
	68	7	28		-.8127742

		authors	_est_r~x	_est_r~j	aut1
		AutA	1	1	1

	aut2	aut3	aut4	aut5	aut6	naut
	0	0	0	0	0	1

```
     +--------------------------------------------------------------+
69.  |   art_id    |   journa~d    |    citati~s   |           x    |
     |      69     |        5      |        39     |     -.3579273  |
     |-------------------------------------------------------------|
     |                      authors |  _est_r~x | _est_r~j |   aut1  |
     |                         AutA |        1  |        1 |      1  |
     |-------------------------------------------------------------|
     |    aut2  |     aut3  |     aut4  |     aut5  |    aut6  | naut  |
     |       0  |        0  |        0  |        0  |       0  |    1  |
     +--------------------------------------------------------------+


     +--------------------------------------------------------------+
70.  |   art_id    |   journa~d    |    citati~s   |           x    |
     |      70     |        7      |        27     |     -.8320007  |
     |-------------------------------------------------------------|
     |                      authors |  _est_r~x | _est_r~j |   aut1  |
     |                    AutA;AutB |        1  |        1 |     .5  |
     |-------------------------------------------------------------|
     |    aut2  |     aut3  |     aut4  |     aut5  |    aut6  | naut  |
     |      .5  |        0  |        0  |        0  |       0  |    2  |
     +--------------------------------------------------------------+


     +--------------------------------------------------------------+
71.  |   art_id    |   journa~d    |    citati~s   |           x    |
     |      71     |        5      |        29     |     -.7093763  |
     |-------------------------------------------------------------|
     |                           authors |  _est_r~x | _est_r~j |   aut1  |
     | AutA;AutB;AutC;AutD;AutE;AutF |        1  |        1 | .1666667  |
     |-------------------------------------------------------------|
     |    aut2  |     aut3  |     aut4  |     aut5  |    aut6  | naut  |
     | .1666667 | .1666667 | .1666667 | .1666667 | .1666667 |    6  |
     +--------------------------------------------------------------+


     +--------------------------------------------------------------+
72.  |   art_id    |   journa~d    |    citati~s   |           x    |
     |      72     |        3      |        36     |     -.9649825  |
     |-------------------------------------------------------------|
     |                      authors |  _est_r~x | _est_r~j |   aut1  |
     |                         AutA |        1  |        1 |      1  |
     |-------------------------------------------------------------|
     |    aut2  |     aut3  |     aut4  |     aut5  |    aut6  | naut  |
     |       0  |        0  |        0  |        0  |       0  |    1  |
     +--------------------------------------------------------------+


     +--------------------------------------------------------------+
73.  |   art_id    |   journa~d    |    citati~s   |           x    |
     |      73     |        9      |        26     |      .1883628  |
```

```
|---------------------------------------------------------------|
|                        authors | _est_r~x | _est_r~j |    aut1 |
|              AutA;AutB;AutC |        1 |        1 | .3333333 |
|---------------------------------------------------------------|
|      aut2 |      aut3 |     aut4 |     aut5 |    aut6 | naut |
| .3333333 | .3333333 |        0 |        0 |        0 |    3 |
+---------------------------------------------------------------+


        +---------------------------------------------------------------+
74. |  art_id   |  journa~d   |  citati~s   |              x   |
    |     74    |        7    |        31   |      .7626509   |
    |---------------------------------------------------------------|
    |                        authors | _est_r~x | _est_r~j |    aut1 |
    |              AutA;AutB;AutC |        1 |        1 | .3333333 |
    |---------------------------------------------------------------|
    |      aut2 |      aut3 |     aut4 |     aut5 |    aut6 | naut |
    | .3333333 | .3333333 |        0 |        0 |        0 |    3 |
    +---------------------------------------------------------------+


        +---------------------------------------------------------------+
75. |  art_id   |  journa~d   |  citati~s   |              x   |
    |     75    |        7    |        36   |     -1.345739   |
    |---------------------------------------------------------------|
    |                        authors | _est_r~x | _est_r~j |    aut1 |
    |              AutA;AutB;AutC |        1 |        1 | .3333333 |
    |---------------------------------------------------------------|
    |      aut2 |      aut3 |     aut4 |     aut5 |    aut6 | naut |
    | .3333333 | .3333333 |        0 |        0 |        0 |    3 |
    +---------------------------------------------------------------+


        +---------------------------------------------------------------+
76. |  art_id   |  journa~d   |  citati~s   |              x   |
    |     76    |        2    |        33   |     -1.415193   |
    |---------------------------------------------------------------|
    |                        authors | _est_r~x | _est_r~j |    aut1 |
    |                        AutA |        1 |        1 |        1 |
    |---------------------------------------------------------------|
    |      aut2 |      aut3 |     aut4 |     aut5 |    aut6 | naut |
    |        0 |        0 |        0 |        0 |        0 |    1 |
    +---------------------------------------------------------------+


        +---------------------------------------------------------------+
77. |  art_id   |  journa~d   |  citati~s   |              x   |
    |     77    |        5    |        22   |     -.5878691   |
    |---------------------------------------------------------------|
    |                        authors | _est_r~x | _est_r~j |    aut1 |
    |                        AutA |        1 |        1 |        1 |
    |---------------------------------------------------------------|
```

```
    |       aut2 |       aut3 |       aut4 |       aut5 |       aut6 | naut  |
    |          0 |          0 |          0 |          0 |          0 |   1   |
    +------------------------------------------------------------------------+


    +------------------------------------------------------------------------+
78. |    art_id   |   journa~d   |   citati~s   |               x           |
    |       78    |         2    |         26   |       -1.290222           |
    |------------------------------------------------------------------------|
    |                   authors | _est_r~x | _est_r~j |      aut1 |
    |             AutA;AutB;AutC |        1 |        1 | .3333333 |
    |------------------------------------------------------------------------|
    |       aut2 |       aut3 |       aut4 |       aut5 |       aut6 | naut  |
    | .3333333 | .3333333 |          0 |          0 |          0 |   3   |
    +------------------------------------------------------------------------+


    +------------------------------------------------------------------------+
79. |    art_id   |   journa~d   |   citati~s   |               x           |
    |       79    |         6    |         29   |       -.3055488           |
    |------------------------------------------------------------------------|
    |                   authors | _est_r~x | _est_r~j |      aut1 |
    |             AutA;AutB;AutC |        1 |        1 | .3333333 |
    |------------------------------------------------------------------------|
    |       aut2 |       aut3 |       aut4 |       aut5 |       aut6 | naut  |
    | .3333333 | .3333333 |          0 |          0 |          0 |   3   |
    +------------------------------------------------------------------------+


    +------------------------------------------------------------------------+
80. |    art_id   |   journa~d   |   citati~s   |               x           |
    |       80    |         4    |         37   |        .2425353           |
    |------------------------------------------------------------------------|
    |                   authors | _est_r~x | _est_r~j |      aut1 |
    |                   AutA;AutB |        1 |        1 |        .5 |
    |------------------------------------------------------------------------|
    |       aut2 |       aut3 |       aut4 |       aut5 |       aut6 | naut  |
    |        .5 |          0 |          0 |          0 |          0 |   2   |
    +------------------------------------------------------------------------+


    +------------------------------------------------------------------------+
81. |    art_id   |   journa~d   |   citati~s   |               x           |
    |       81    |         3    |         35   |       -1.138787           |
    |------------------------------------------------------------------------|
    |                   authors | _est_r~x | _est_r~j |      aut1 |
    |                       AutA |        1 |        1 |         1 |
    |------------------------------------------------------------------------|
    |       aut2 |       aut3 |       aut4 |       aut5 |       aut6 | naut  |
    |          0 |          0 |          0 |          0 |          0 |   1   |
    +------------------------------------------------------------------------+
```

```
     +----------------------------------------------------------+
82.  | art_id      |  journa~d    |  citati~s    |         x    |
     |    82       |      10      |      24      |    1.237919  |
     |----------------------------------------------------------|
     |                  authors | _est_r~x | _est_r~j |    aut1  |
     |        AutA;AutB;AutC;AutD |     1 |       1 |      .25  |
     |----------------------------------------------------------|
     |   aut2 |     aut3 |     aut4 |     aut5 |    aut6 | naut  |
     |    .25 |      .25 |      .25 |        0 |       0 |    4  |
     +----------------------------------------------------------+


     +----------------------------------------------------------+
83.  | art_id      |  journa~d    |  citati~s    |         x    |
     |    83       |       6      |      30      |    1.462004  |
     |----------------------------------------------------------|
     |                  authors | _est_r~x | _est_r~j |    aut1  |
     |              AutA;AutB |     1 |       1 |       .5  |
     |----------------------------------------------------------|
     |   aut2 |     aut3 |     aut4 |     aut5 |    aut6 | naut  |
     |     .5 |        0 |        0 |        0 |       0 |    2  |
     +----------------------------------------------------------+


     +----------------------------------------------------------+
84.  | art_id      |  journa~d    |  citati~s    |         x    |
     |    84       |       7      |      20      |    2.348689  |
     |----------------------------------------------------------|
     |                  authors | _est_r~x | _est_r~j |    aut1  |
     |                    AutA |     1 |       1 |       1  |
     |----------------------------------------------------------|
     |   aut2 |     aut3 |     aut4 |     aut5 |    aut6 | naut  |
     |      0 |        0 |        0 |        0 |       0 |    1  |
     +----------------------------------------------------------+


     +----------------------------------------------------------+
85.  | art_id      |  journa~d    |  citati~s    |         x    |
     |    85       |       4      |      31      |    .7492698  |
     |----------------------------------------------------------|
     |                  authors | _est_r~x | _est_r~j |    aut1  |
     |                    AutA |     1 |       1 |       1  |
     |----------------------------------------------------------|
     |   aut2 |     aut3 |     aut4 |     aut5 |    aut6 | naut  |
     |      0 |        0 |        0 |        0 |       0 |    1  |
     +----------------------------------------------------------+


     +----------------------------------------------------------+
86.  | art_id      |  journa~d    |  citati~s    |         x    |
     |    86       |       5      |      30      |    .9811502  |
     |----------------------------------------------------------|
```

```
|                         authors | _est_r~x | _est_r~j |     aut1 |
|           AutA;AutB;AutC;AutD |        1 |        1 |      .25 |
|-------------------------------------------------------------------|
|     aut2 |     aut3 |     aut4 |     aut5 |     aut6 | naut |
|      .25 |      .25 |      .25 |        0 |        0 |    4 |
+-------------------------------------------------------------------+


+-------------------------------------------------------------------+
87. |   art_id   |  journa~d  |  citati~s   |             x   |
|       87   |        4   |        39   |      .226038    |
|-------------------------------------------------------------------|
|                         authors | _est_r~x | _est_r~j |     aut1 |
|           AutA;AutB;AutC;AutD |        1 |        1 |      .25 |
|-------------------------------------------------------------------|
|     aut2 |     aut3 |     aut4 |     aut5 |     aut6 | naut |
|      .25 |      .25 |      .25 |        0 |        0 |    4 |
+-------------------------------------------------------------------+


+-------------------------------------------------------------------+
88. |   art_id   |  journa~d  |  citati~s   |             x   |
|       88   |        7   |        24   |     1.006857    |
|-------------------------------------------------------------------|
|                         authors | _est_r~x | _est_r~j |     aut1 |
|                   AutA;AutB |        1 |        1 |       .5 |
|-------------------------------------------------------------------|
|     aut2 |     aut3 |     aut4 |     aut5 |     aut6 | naut |
|       .5 |        0 |        0 |        0 |        0 |    2 |
+-------------------------------------------------------------------+


+-------------------------------------------------------------------+
89. |   art_id   |  journa~d  |  citati~s   |             x   |
|       89   |        5   |        24   |    -.2218018    |
|-------------------------------------------------------------------|
|                         authors | _est_r~x | _est_r~j |     aut1 |
|                   AutA;AutB |        1 |        1 |       .5 |
|-------------------------------------------------------------------|
|     aut2 |     aut3 |     aut4 |     aut5 |     aut6 | naut |
|       .5 |        0 |        0 |        0 |        0 |    2 |
+-------------------------------------------------------------------+


+-------------------------------------------------------------------+
90. |   art_id   |  journa~d  |  citati~s   |             x   |
|       90   |        6   |        31   |     .7223159    |
|-------------------------------------------------------------------|
|                         authors | _est_r~x | _est_r~j |     aut1 |
|                         AutA |        1 |        1 |        1 |
|-------------------------------------------------------------------|
|     aut2 |     aut3 |     aut4 |     aut5 |     aut6 | naut |
```

```
          |        0 |        0 |        0 |        0 |        0 |    1 |
          +------------------------------------------------------------+


          +------------------------------------------------------------+
91. |   art_id    |   journa~d   |   citati~s   |            x   |
    |      91     |        6     |       30     |     .2530005   |
    |------------------------------------------------------------|
    |                   authors | _est_r~x | _est_r~j |     aut1 |
    |                      AutA |        1 |        1 |        1 |
    |------------------------------------------------------------|
    |    aut2 |    aut3 |    aut4 |    aut5 |     aut6 | naut |
    |       0 |       0 |       0 |       0 |        0 |    1 |
          +------------------------------------------------------------+


          +------------------------------------------------------------+
92. |   art_id    |   journa~d   |   citati~s   |            x   |
    |      92     |        7     |       37     |    -1.443321   |
    |------------------------------------------------------------|
    |                   authors | _est_r~x | _est_r~j |     aut1 |
    |              AutA;AutB;AutC |        1 |        1 | .3333333 |
    |------------------------------------------------------------|
    |      aut2 |      aut3 |    aut4 |    aut5 |     aut6 | naut |
    | .3333333 | .3333333 |       0 |       0 |        0 |    3 |
          +------------------------------------------------------------+


          +------------------------------------------------------------+
93. |   art_id    |   journa~d   |   citati~s   |            x   |
    |      93     |        4     |       37     |    -.9973699   |
    |------------------------------------------------------------|
    |                   authors | _est_r~x | _est_r~j |     aut1 |
    |                 AutA;AutB |        1 |        1 |       .5 |
    |------------------------------------------------------------|
    |    aut2 |    aut3 |    aut4 |    aut5 |     aut6 | naut |
    |      .5 |       0 |       0 |       0 |        0 |    2 |
          +------------------------------------------------------------+


          +------------------------------------------------------------+
94. |   art_id    |   journa~d   |   citati~s   |            x   |
    |      94     |        2     |       30     |     1.033468   |
    |------------------------------------------------------------|
    |                   authors | _est_r~x | _est_r~j |     aut1 |
    |              AutA;AutB;AutC |        1 |        1 | .3333333 |
    |------------------------------------------------------------|
    |      aut2 |      aut3 |    aut4 |    aut5 |     aut6 | naut |
    | .3333333 | .3333333 |       0 |       0 |        0 |    3 |
          +------------------------------------------------------------+


          +------------------------------------------------------------+
```

```
95. |   art_id    |   journa~d    |   citati~s    |            x      |
    |       95    |          3    |          37   |    -1.053058     |
    |-----------------------------------------------------------------|
    |                         authors | _est_r~x | _est_r~j |    aut1 |
    |                            AutA |        1 |        1 |       1 |
    |-----------------------------------------------------------------|
    |    aut2 |    aut3 |    aut4 |    aut5 |    aut6 | naut  |
    |       0 |       0 |       0 |       0 |       0 |    1  |
    +-----------------------------------------------------------------+


    +-----------------------------------------------------------------+
96. |   art_id    |   journa~d    |   citati~s    |            x      |
    |       96    |          2    |          23   |     .3320688     |
    |-----------------------------------------------------------------|
    |                         authors | _est_r~x | _est_r~j |    aut1 |
    |                  AutA;AutB;AutC |        1 |        1 | .3333333 |
    |-----------------------------------------------------------------|
    |    aut2 |    aut3 |    aut4 |    aut5 |    aut6 | naut  |
    | .3333333 | .3333333 |       0 |       0 |       0 |    3  |
    +-----------------------------------------------------------------+


    +-----------------------------------------------------------------+
97. |   art_id    |   journa~d    |   citati~s    |            x      |
    |       97    |          9    |          32   |     -.476414     |
    |-----------------------------------------------------------------|
    |                         authors | _est_r~x | _est_r~j |    aut1 |
    |                       AutA;AutB |        1 |        1 |      .5 |
    |-----------------------------------------------------------------|
    |    aut2 |    aut3 |    aut4 |    aut5 |    aut6 | naut  |
    |      .5 |       0 |       0 |       0 |       0 |    2  |
    +-----------------------------------------------------------------+


    +-----------------------------------------------------------------+
98. |   art_id    |   journa~d    |   citati~s    |            x      |
    |       98    |          8    |          26   |     1.598897     |
    |-----------------------------------------------------------------|
    |                         authors | _est_r~x | _est_r~j |    aut1 |
    |                            AutA |        1 |        1 |       1 |
    |-----------------------------------------------------------------|
    |    aut2 |    aut3 |    aut4 |    aut5 |    aut6 | naut  |
    |       0 |       0 |       0 |       0 |       0 |    1  |
    +-----------------------------------------------------------------+


    +-----------------------------------------------------------------+
99. |   art_id    |   journa~d    |   citati~s    |            x      |
    |       99    |          5    |          25   |     .8515619     |
    |-----------------------------------------------------------------|
    |                         authors | _est_r~x | _est_r~j |    aut1 |
```

```
|                  AutA;AutB;AutC |          1 |          1 | .3333333 |
|-----------------------------------------------------------------------|
|      aut2 |      aut3 |      aut4 |      aut5 |      aut6 | naut  |
| .3333333 | .3333333 |          0 |          0 |          0 |    3 |
+-----------------------------------------------------------------------+


+-----------------------------------------------------------------------+
100. |    art_id    |   journa~d    |   citati~s    |           x    |
     |       100    |         10    |         28    |    -.5463751   |
     |-----------------------------------------------------------------|
     |                    authors | _est_r~x | _est_r~j |      aut1 |
     |                  AutA;AutB |         1 |         1 |        .5 |
     |-----------------------------------------------------------------|
     |      aut2 |      aut3 |      aut4 |      aut5 |      aut6 | naut  |
     |        .5 |         0 |         0 |         0 |         0 |    2 |
     +-----------------------------------------------------------------+
```

[21]: `reghdfe citations x aut1-aut6, nocons a(journal_id) keepsingletons`
`estimates` store reg_wide_yxja2

```
WARNING: Singleton observations not dropped; statistical significance is biased
> (link)
(MWFE estimator converged in 1 iterations)
note: aut6 omitted because of collinearity

HDFE Linear regression                          Number of obs   =        100
Absorbing 1 HDFE group                          F(   6,     82) =       0.95
                                                Prob > F        =     0.4664
                                                R-squared       =     0.1550
                                                Adj R-squared   =    -0.0201
                                                Within R-sq.    =     0.0648
                                                Root MSE        =     5.7913


------------------------------------------------------------------------------
   citations |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
           x | -1.296932   .6349505    -2.04   0.044    -2.560051   -.0338135
        aut1 | -6.598418   10.50028    -0.63   0.531    -27.48682    14.28998
        aut2 | -7.278314   11.02983    -0.66   0.511    -29.22016    14.66353
        aut3 | -8.702311   11.22261    -0.78   0.440    -31.02766    13.62304
        aut4 | -8.135489   13.11509    -0.62   0.537    -34.22559    17.95461
        aut5 | -19.79464   18.19326    -1.09   0.280    -55.98683    16.39756
        aut6 |         0  (omitted)
------------------------------------------------------------------------------
```

```
Absorbed degrees of freedom:
-------------------------------------------------+
 Absorbed FE | Categories  - Redundant  = Num. Coefs |
-------------+-----------------------------------|
  journal_id |        12          0          12    |
-------------------------------------------------+
```

[22]:
```
estimates table reg_wide_yxja2 reg_long_yxja2 reg_long_yxja3, keep(x) b(%7.4f)␣
 ↪se(%7.4f) stats(N r2_a)
```

```
-------------------------------------------
    Variable | reg_w~2   reg_l~2   reg_l~3
-------------+-----------------------------
           x | -1.2969   -1.2969   -1.2969
             |  0.6350    0.6350    0.6389
-------------+-----------------------------
           N |     100       100       100
        r2_a | -0.0201   -0.0201   -0.0327
-------------------------------------------
                             legend: b/se
```

The results are the same … with the exception of the last regression. This is because counting dof
is no easy task with more then one absorbed variable in a long format. With large datasets this
should be irrelevant.