MixAll_updated

PMS

2023-05-29

```
##     CSDUID       DBUID DBRPLAMX DBRPLAMY PRUID
## 1 1001519 10010202002  8979444  2148775    10
## 2 1001519 10010203001  8979186  2149065    10
## 3 1001519 10010204001  8979382  2148616    10
## 4 1001519 10010204002  8979490  2148537    10
## 5 1001519 10010204004  8979255  2148525    10
##                                             PRNAME CDUID        CDNAME
## 1 Newfoundland and Labrador / Terre-Neuve-et-Labrador  1001 Division No.  1
## 2 Newfoundland and Labrador / Terre-Neuve-et-Labrador  1001 Division No.  1
## 3 Newfoundland and Labrador / Terre-Neuve-et-Labrador  1001 Division No.  1
## 4 Newfoundland and Labrador / Terre-Neuve-et-Labrador  1001 Division No.  1
## 5 Newfoundland and Labrador / Terre-Neuve-et-Labrador  1001 Division No.  1
##   CDTYPE  CCSUID    CCSNAME  CSDNAME.x CSDTYPE ERUID           ERNAME FEDUID
## 1    CDR 1001519 St. John's St. John's      CY  1010 Avalon Peninsula  10007
## 2    CDR 1001519 St. John's St. John's      CY  1010 Avalon Peninsula  10007
## 3    CDR 1001519 St. John's St. John's      CY  1010 Avalon Peninsula  10007
## 4    CDR 1001519 St. John's St. John's      CY  1010 Avalon Peninsula  10007
## 5    CDR 1001519 St. John's St. John's      CY  1010 Avalon Peninsula  10007
##                                                   FEDNAME SACCODE SACTYPE
## 1 St. John's South--Mount Pearl / St. John's-Sud--Mount Pearl     001       1
## 2 St. John's South--Mount Pearl / St. John's-Sud--Mount Pearl     001       1
## 3 St. John's South--Mount Pearl / St. John's-Sud--Mount Pearl     001       1
## 4 St. John's South--Mount Pearl / St. John's-Sud--Mount Pearl     001       1
## 5 St. John's South--Mount Pearl / St. John's-Sud--Mount Pearl     001       1
##   CMAUID CMAPUID    CMANAME CMATYPE      CTUID  CTNAME   ADAUID    DAUID
## 1    001   10001 St. John's       B 0010003.01 0003.01 10010015 10010202
## 2    001   10001 St. John's       B 0010003.01 0003.01 10010015 10010203
## 3    001   10001 St. John's       B 0010003.01 0003.01 10010015 10010204
## 4    001   10001 St. John's       B 0010003.01 0003.01 10010015 10010204
## 5    001   10001 St. John's       B 0010003.01 0003.01 10010015 10010204
##   PMS_DBPOP PMS_DAUID PMS_DAPOP PMS_CSDUID PMS_CSDNAME PMS_CSDTYPE PMS_CSDPOP
## 1       116  10010202       444    1001519  St. John's          CY    108,860
## 2       350  10010203       350    1001519  St. John's          CY    108,860
## 3        66  10010204       541    1001519  St. John's          CY    108,860
## 4         0  10010204       541    1001519  St. John's          CY    108,860
## 5       177  10010204       541    1001519  St. John's          CY    108,860
##   PMS_CMAUID PMS_CMAPUID PMS_CMANAME PMS_CMATYPE PMS_CMAPOP PMS_PRUID
## 1          1       10001  St. John's           B    205,955        10
## 2          1       10001  St. John's           B    205,955        10
## 3          1       10001  St. John's           B    205,955        10
## 4          1       10001  St. John's           B    205,955        10
## 5          1       10001  St. John's           B    205,955        10
```

```
##                                     PMS_PRNAME PMS_PRPOP  PMS_lon
## 1 Newfoundland and Labrador / Terre-Neuve-et-Labrador  519,716 -52.7463
## 2 Newfoundland and Labrador / Terre-Neuve-et-Labrador  519,716 -52.7469
## 3 Newfoundland and Labrador / Terre-Neuve-et-Labrador  519,716 -52.7482
## 4 Newfoundland and Labrador / Terre-Neuve-et-Labrador  519,716 -52.7476
## 5 Newfoundland and Labrador / Terre-Neuve-et-Labrador  519,716 -52.7502
##   PMS_lat PMS_in_db_emp PMS_prox_idx_emp PMS_in_db_pharma PMS_prox_idx_pharma
## 1 47.5388             1           0.0218                0              0.0184
## 2 47.5423             1           0.0232                0              0.0068
## 3 47.5380             1           0.0218                0              0.0316
## 4 47.5368             0           0.0209                0              0.0316
## 5 47.5379             1           0.0205                0              0.0316
##   PMS_in_db_childcare PMS_prox_idx_childcare PMS_in_db_health
## 1                   0                 0.0155                0
## 2                   0                 0.0158                1
## 3                   0                 0.0126                0
## 4                   0                 0.0124                0
## 5                   0                 0.0056                0
##   PMS_prox_idx_health PMS_in_db_grocery PMS_prox_idx_grocery PMS_in_db_educpri
## 1              0.0076                 0                   NA                 0
## 2              0.0095                 0               0.0346                 0
## 3              0.0073                 0                   NA                 0
## 4              0.0073                 0                   NA                 0
## 5              0.0033                 0                   NA                 0
##   PMS_prox_idx_educpri PMS_in_db_educsec PMS_prox_idx_educsec PMS_in_db_lib
## 1                   NA                 0                   NA             0
## 2                   NA                 0                   NA             0
## 3                   NA                 0                   NA             0
## 4                   NA                 0                   NA             0
## 5                   NA                 0                   NA             0
##   PMS_prox_idx_lib PMS_in_db_parks PMS_prox_idx_parks PMS_in_db_transit
## 1               NA               0                 NA                 1
## 2               NA               0                 NA                 1
## 3               NA               0                 NA                 1
## 4               NA               0                 NA                 0
## 5               NA               0                 NA                 0
##   PMS_prox_idx_transit PMS_transit_na PMS_amenity_dense PMS_suppressed
## 1               0.0155              0                 0              0
## 2               0.0069              0                 0              0
## 3               0.0117              0                 0              0
## 4               0.0184              0                 0              0
## 5               0.0091              0                 0              0
##   CSDNAME.y PROVINCE BUILD_AREA AVG_LAT AVG_LONG NUMBER_BUILD CSD_AREA IOR_X
## 1      <NA>     <NA>         NA      NA       NA           NA       NA    89
## 2      <NA>     <NA>         NA      NA       NA           NA       NA    89
## 3      <NA>     <NA>         NA      NA       NA           NA       NA    89
## 4      <NA>     <NA>         NA      NA       NA           NA       NA    89
## 5      <NA>     <NA>         NA      NA       NA           NA       NA    89
##   IOR_Pruid IOR_CSDname IOR_CSDtype IOR_Index_of_remoteness IOR_CSDpop2021
## 1        10  St. John's          CY                0.247038         110525
## 2        10  St. John's          CY                0.247038         110525
## 3        10  St. John's          CY                0.247038         110525
## 4        10  St. John's          CY                0.247038         110525
## 5        10  St. John's          CY                0.247038         110525
```

```
##           IOR_DGUID
## 1 2021A00051001519
## 2 2021A00051001519
## 3 2021A00051001519
## 4 2021A00051001519
## 5 2021A00051001519
```

subsampling data

```
##           amenity num_clusters          dunn calinski_harabasz   xie_beni
## 1 PMS_prox_idx_emp            2 0.0048756201           36146.75   1801.850
## 2 PMS_prox_idx_emp            3 0.0019906881           45145.91   8236.425
## 3 PMS_prox_idx_emp            4 0.0009753716           54968.60  33718.409
## 4 PMS_prox_idx_emp            5 0.0008262071           64439.08  36117.361
## 5 PMS_prox_idx_emp            6 0.0007462710           74901.02  34396.357
## 6 PMS_prox_idx_emp            7 0.0006436406           84727.25  40834.448
## 7 PMS_prox_idx_emp            8 0.0005449808           95227.49  54916.523
##   davies_bouldin  sil_coef
## 1      0.5904999 0.6232520
## 2      0.6082230 0.5798034
## 3      0.6137737 0.5591248
## 4      0.6102806 0.5487249
## 5      0.5970415 0.5579698
## 6      0.6010127 0.5497902
## 7      0.6012573 0.5455292
```

standardize the scores

```
##  [1] 2 6 8 2 6 3 2 5 7 8
```

Cutoff function

getting cutoffs and metrics for optimal cluster

```
##  [1] 0.6232520 0.5554010 0.5392840 0.5884967 0.5422555 0.5723044 0.6032770
##  [8] 0.5578845 0.5353518 0.5228019
```

```
##  [1] 0.0048756201 0.0009070629 0.0007350807 0.0074211949 0.0011638264
##  [6] 0.0005417082 0.0012760844 0.0025461249 0.0004623193 0.0017488977
```

```
##  [1]  1801.8502 12435.2005 16284.7896   651.3144  5697.6989 34459.1632
##  [7] 10180.8773   942.9000 25660.3654  4198.4727
```

```
##  [1] 36146.75 27071.22 41648.29 19105.11 16455.66 19780.24 10059.37 12316.08
##  [9] 28797.46 24461.55
```

```
##  [1] 0.5904999 0.6014043 0.6000744 0.6586801 0.6136526 0.6407317 0.6409490
##  [8] 0.6181851 0.6347900 0.6280249
```

```
##  [1] 2 6 8 2 6 3 2 5 7 8


## $PMS_prox_idx_emp
## [1] -5.559766
##
## $PMS_prox_idx_pharma
## [1] -4.514426 -3.945066 -3.403702 -2.820939 -2.110315
##
## $PMS_prox_idx_childcare
## [1] -4.761841 -4.083409 -3.545647 -3.060805 -2.624859 -2.168492 -1.550226
##
## $PMS_prox_idx_health
## [1] -5.971854
##
## $PMS_prox_idx_grocery
## [1] -4.316246 -3.655447 -3.158254 -2.605043 -1.918686
##
## $PMS_prox_idx_educpri
## [1] -2.879729 -2.027229
##
## $PMS_prox_idx_educsec
## [1] -2.504091
##
## $PMS_prox_idx_lib
## [1] -2.693421 -2.293633 -1.803026 -1.155697
##
## $PMS_prox_idx_parks
## [1] -4.834603 -4.031374 -3.428056 -2.915998 -2.416314 -1.838223
##
## $PMS_prox_idx_transit
## [1] -7.509742 -6.348548 -5.484720 -4.809756 -4.230170 -3.640091 -2.947899
```