

Composite Indices, Eigenvalues, and Contributions

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Inclusion of Weights in FAMD and MCA

In this study, weights were incorporated into the FAMD (Factorial Analysis for Mixed Data) and MCA (Multiple Correspondence Analysis) functions to account for the varying sample sizes across different groups. This weighting scheme ensures that the analysis accurately reflects the distribution and importance of each subgroup within the dataset. The weights were applied to balance the influence of different groups, such as:

- ▶ **Years:** Accounting for variations in sample sizes across different time periods.
- ▶ **Regions:** Ensuring representation from diverse geographical areas.
- ▶ **Sectors:** Reflecting the distribution of firms across various industry sectors.
- ▶ **Revenue Levels:** Balancing firms with different revenue scales.
- ▶ **Firm Sizes:** Adjusting for the representation of small, medium, and large firms.

By applying these weights, the analysis more accurately represents the population structure, leading to more reliable and generalizable results. The weighting helps mitigate biases that could arise from over- or under-represented groups, thereby enhancing the validity of the factor analysis.

Calculation Process

1. **Group Calculation:** The dataset was divided into subgroups based on year, region, revenue levels, sectors, and firm sizes.
2. **Count and Proportion:**
 - ▶ The number of observations in each subgroup was counted.
 - ▶ The proportion of each subgroup relative to the total number of observations was calculated.
3. **Initial Weight Assignment:** Each subgroup was assigned a weight based on the inverse of its proportion, giving more weight to smaller subgroups to balance their influence.
4. **Normalization:**
 - ▶ The weights were normalized within each year so that they sum to the total number of observations in that year.

List of variables by constructs: Access, Skills, and Usage.

Access

Code	Variable_Name
A2_A2	Percentage of employees using the computer out of the total employees
A1_B2b	IT training courses for employees without specialist ICT skills
A2_C2	Percentage of employees using computers connected to the internet
A2_C5a	Enterprise provides mobile devices with mobile connection
A2_C4_low	Internet download speed low
A2_C4_high	Internet download speed high
size_rev_small	Firm size small
size_rev,medium	Firm size medium
size_rev_large	Firm size large

Skills

Code	Variable_Name
S_B1	Employment of specialists in computer subjects
S_B2a	IT training courses for employees with specialist ICT skills
S_B5a1	Use of internal personnel for ICT infrastructure maintenance
S_B5b1	Use of internal personnel for office software support
S_B5c1	Use of internal personnel for enterprise software development
S_B5d1	Use of internal personnel for enterprise software support
S_B5e1	Use of internal personnel for web development
S_B5f1	Use of internal personnel for web development support
S_B5g1	Use of internal personnel for IT security management
size_rev_small	Firm size small
size_rev,medium	Firm size medium
size_rev_large	Firm size large

Usage

Code	Variable_Name
UMK_C7	Website
UC_C8a	Possibility to place orders or reservations online e.g., online shopping cart
UMK_C8c	Access to product catalogs or price lists
UMK_C8h	Links or references to company profiles on social media
UMK_C9a	Social network
UMK_C9c	Social media and multimedia
UM_E1	Using ERP software
UM_E2b	Use operational CRM software
UM_E2a	Use analytical CRM software
UM_C8g	Announcement of vacancies or possibility to apply for employment online
UC_J7	Web sales through intermediary websites or eCommerce sites, marketplaces or apps
size_rev_small	Firm size small
size_rev,medium	Firm size medium
size_rev_large	Firm size large

Composite Indices for 2014

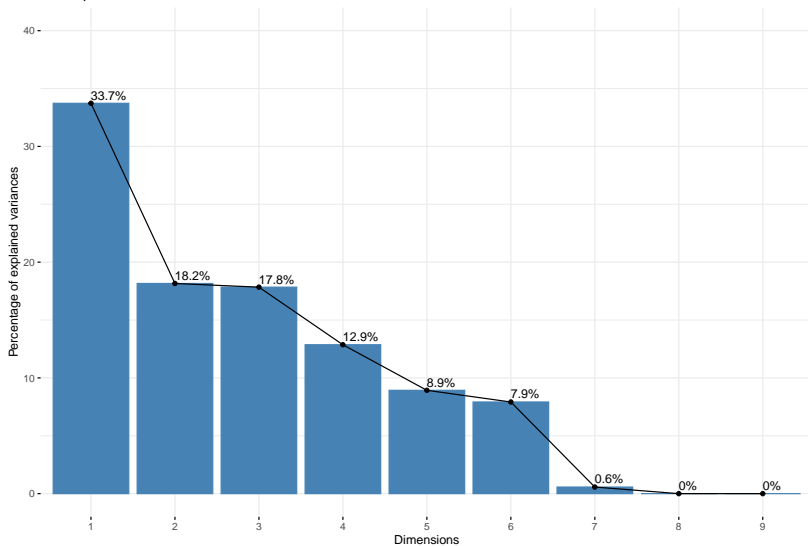
Access 2014 Composite Index

Eigenvalues Access 2014

	eigenvalue	variance.percent	cumulative.variance.percent
Dim.1	3.0353	33.7253	33.7253
Dim.2	1.6341	18.1572	51.8825
Dim.3	1.6055	17.8394	69.7219
Dim.4	1.1578	12.8644	82.5863
Dim.5	0.8034	8.9266	91.5129
Dim.6	0.7126	7.9178	99.4307
Dim.7	0.0512	0.5693	100.0000
Dim.8	0.0000	0.0000	100.0000
Dim.9	0.0000	0.0000	100.0000

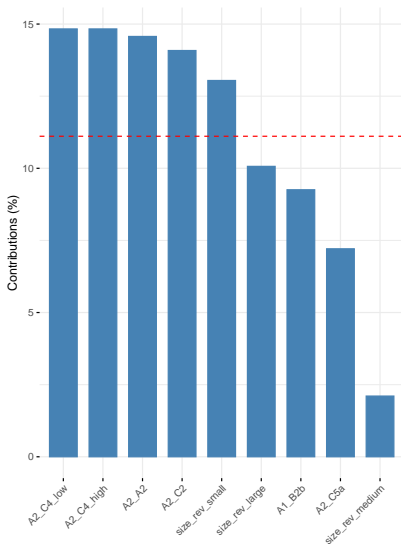
Screeplot Access 2014

Scree plot

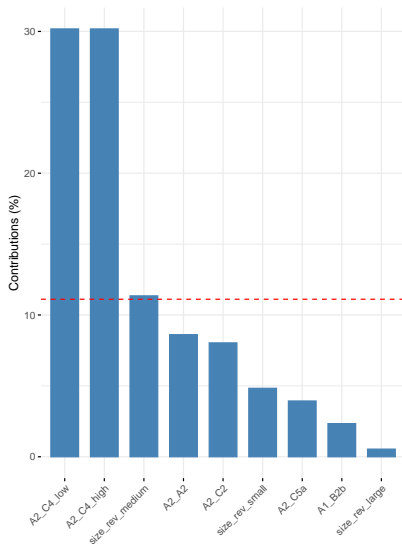


Contributions by Dimensions 1 and 2 Access 2014

A Contribution of variables to Dim-1

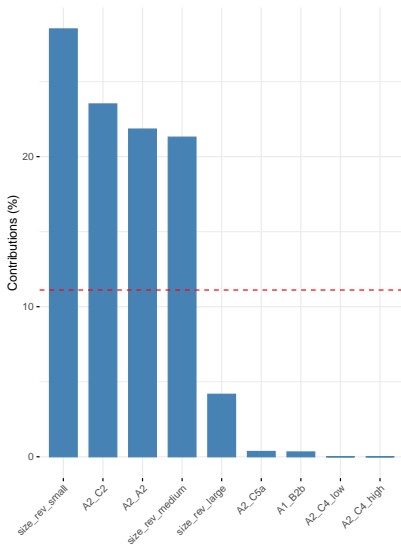


B Contribution of variables to Dim-2

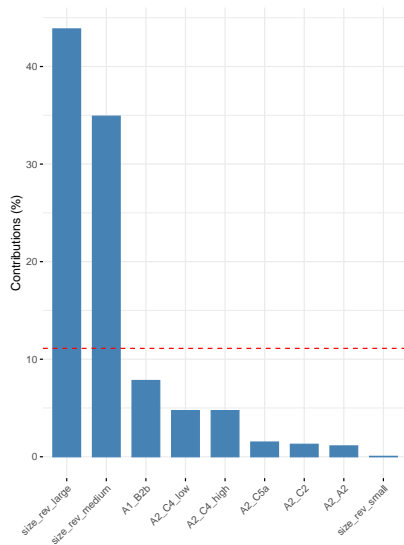


Contributions by Dimensions 3 and 4 Access 2014

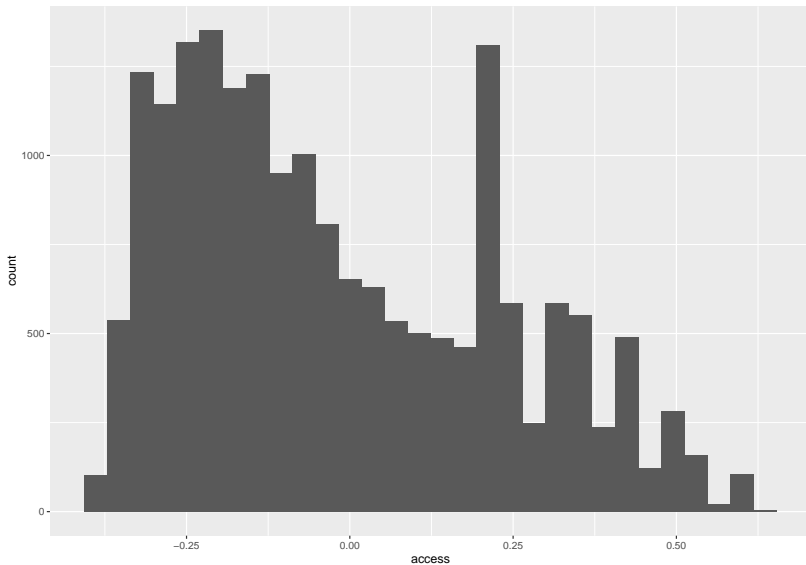
A Contribution of variables to Dim-3



B Contribution of variables to Dim-4



Index distribution Access 2014



Skills 2014 Composite Index

Eigenvalues Skills 2014

```
## [1] "Year: 2014"
```

```
## [1] "Index: skills"
```

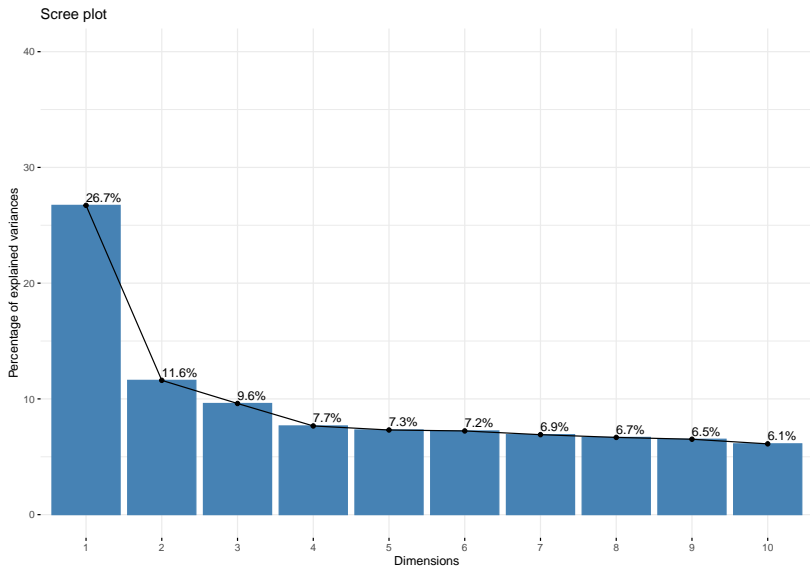
```
## [1] "Data dimensions: 18832" "Data dimensions: 13"
```

```
## [1] "Weights length: 18832"
```

```
## [1] "Data rows: 18832"
```

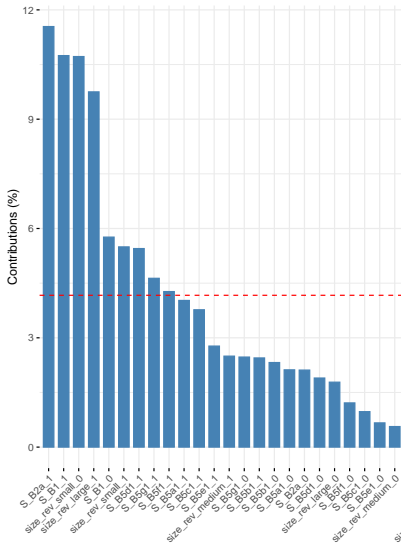
	eigenvalue	variance.percent	cumulative.variance.percent
Dim.1	0.2672	26.7201	26.7201
Dim.2	0.1160	11.6028	38.3229
Dim.3	0.0960	9.6030	47.9259
Dim.4	0.0766	7.6632	55.5891
Dim.5	0.0731	7.3140	62.9031
Dim.6	0.0723	7.2316	70.1347
Dim.7	0.0691	6.9100	77.0447
Dim.8	0.0667	6.6726	83.7173
Dim.9	0.0652	6.5151	90.2324
Dim.10	0.0612	6.1164	96.3488
Dim.11	0.0365	3.6512	100.0000
Dim.12	0.0000	0.0000	100.0000

Screeplot Skills 2014

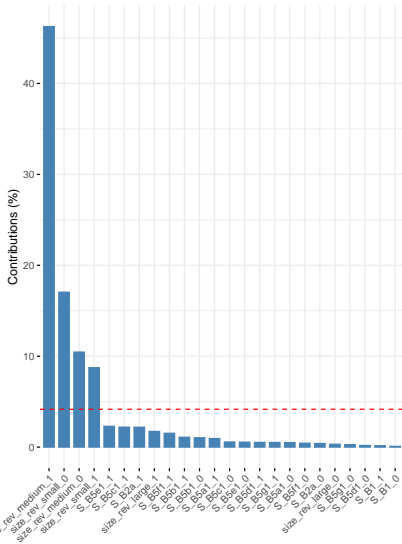


Contributions by Dimensions 1 and 2 Skills 2014

A Contribution of variables to Dim-1

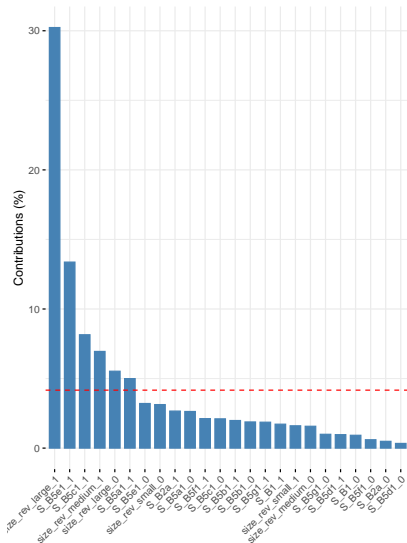


B Contribution of variables to Dim-2

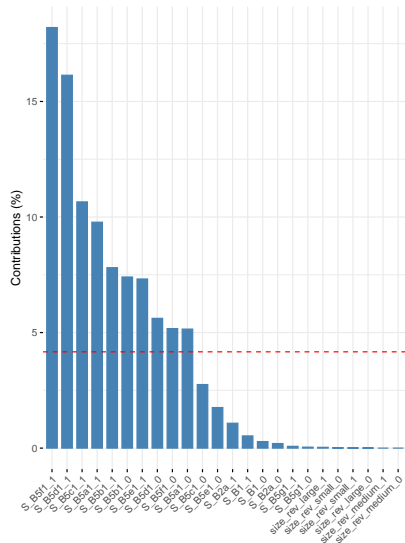


Contributions by Dimensions 3 and 4 Skills 2014

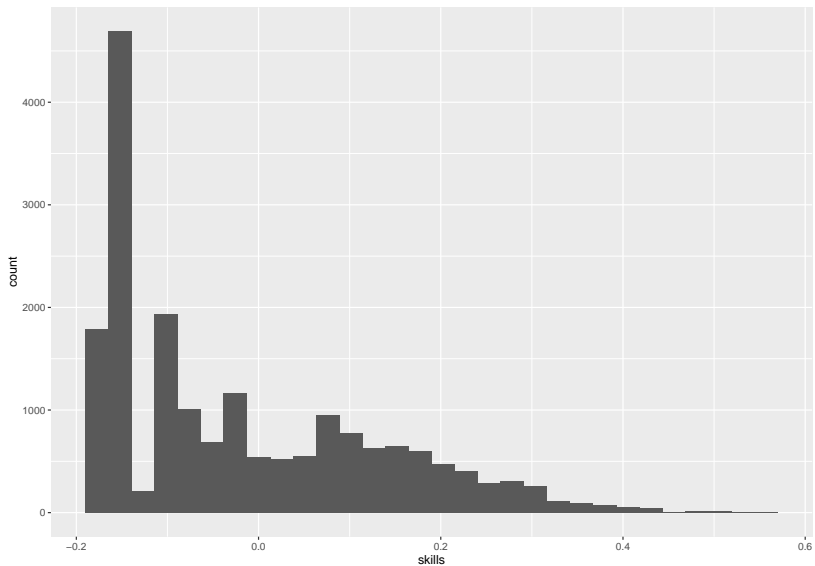
A Contribution of variables to Dim-3



B Contribution of variables to Dim-4



Index distribution Skills 2014



Usage 2014 Composite Index

Eigenvalues Usage 2014

[1] "Year: 2014"

[1] "Index: usage"

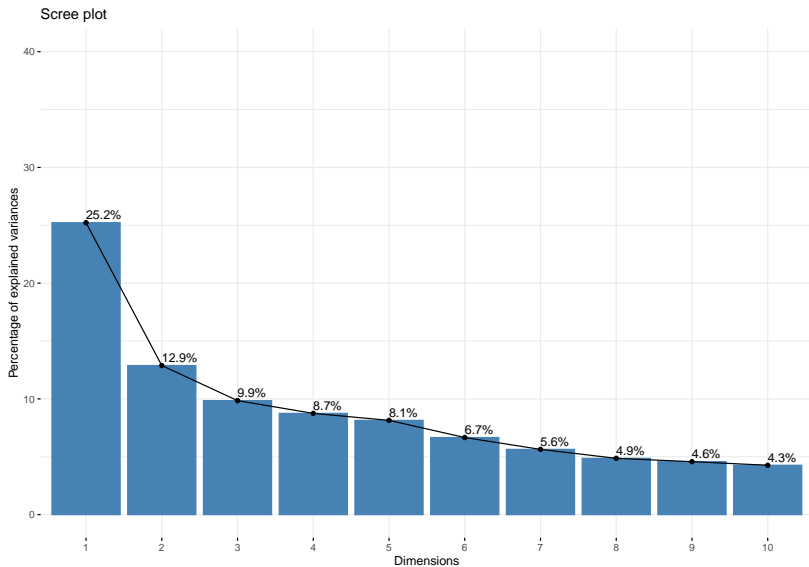
[1] "Data dimensions: 18832" "Data dimensions: 15"

[1] "Weights length: 18832"

[1] "Data rows: 18832"

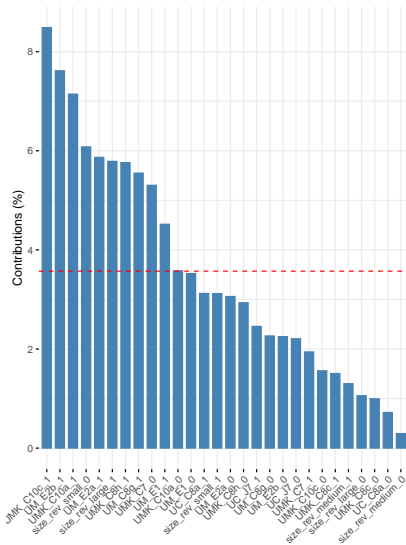
	eigenvalue	variance.percent	cumulative.variance.percent
Dim.1	0.2522	25.2227	25.2227
Dim.2	0.1288	12.8824	38.1051
Dim.3	0.0985	9.8521	47.9572
Dim.4	0.0875	8.7494	56.7066
Dim.5	0.0815	8.1460	64.8526
Dim.6	0.0666	6.6638	71.5164
Dim.7	0.0564	5.6391	77.1555
Dim.8	0.0487	4.8663	82.0218
Dim.9	0.0458	4.5759	86.5977
Dim.10	0.0427	4.2673	90.8650
Dim.11	0.0399	3.9859	94.8509
Dim.12	0.0285	2.8537	97.7046
Dim.13	0.0230	2.2954	100.0000
Dim.14	0.0000	0.0000	100.0000

Screeplot Usage 2014

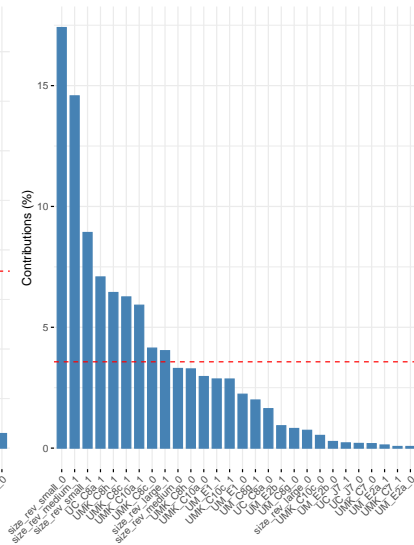


Contributions by Dimensions 1 and 2 Usage 2014

A Contribution of variables to Dim-1

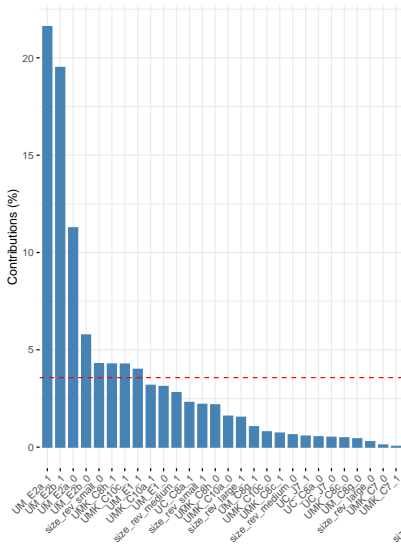


B Contribution of variables to Dim-2

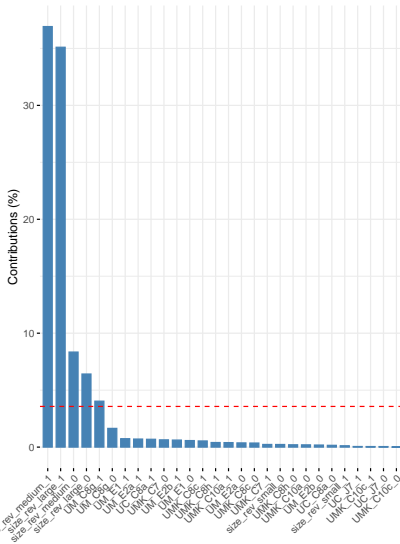


Contributions by Dimensions 3 and 4 Usage 2014

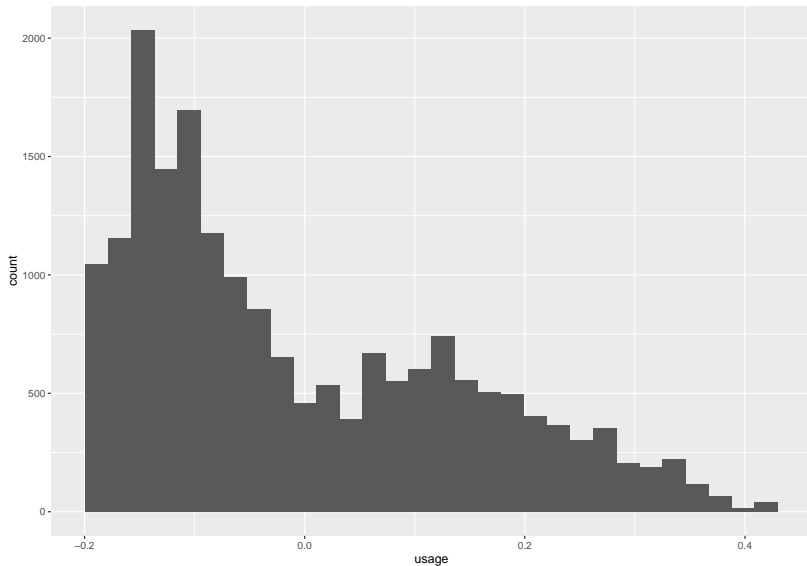
A Contribution of variables to Dim-3



B Contribution of variables to Dim-4



Index distribution Usage 2014



Composite Indices for 2015

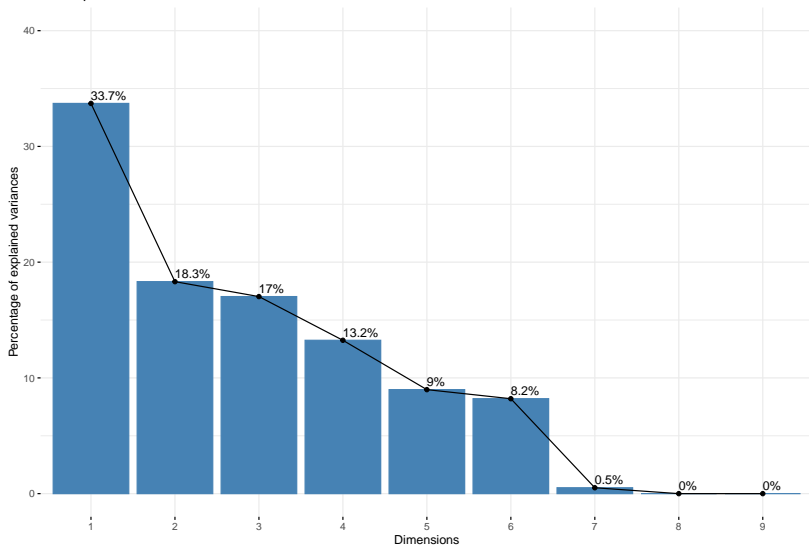
Access 2015 Composite Index

Eigenvalues Access 2015

	eigenvalue	variance.percent	cumulative.variance.percent
Dim.1	3.0342	33.7130	33.7130
Dim.2	1.6483	18.3147	52.0277
Dim.3	1.5324	17.0262	69.0539
Dim.4	1.1924	13.2494	82.3033
Dim.5	0.8087	8.9857	91.2890
Dim.6	0.7382	8.2021	99.4911
Dim.7	0.0458	0.5089	100.0000
Dim.8	0.0000	0.0000	100.0000
Dim.9	0.0000	0.0000	100.0000

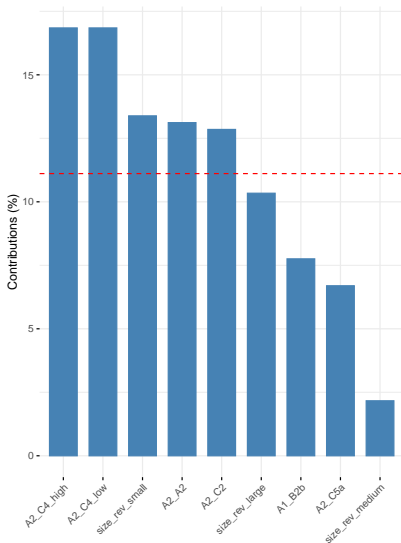
Screeplot Access 2015

Scree plot

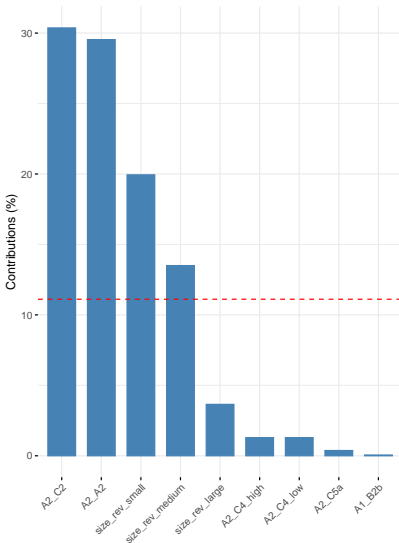


Contributions by Dimensions 1 and 2 Access 2015

A Contribution of variables to Dim-1

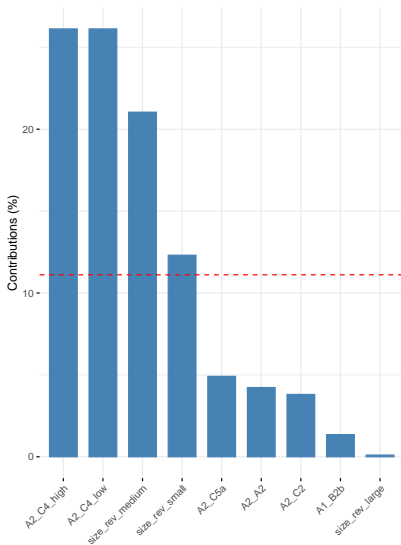


B Contribution of variables to Dim-2

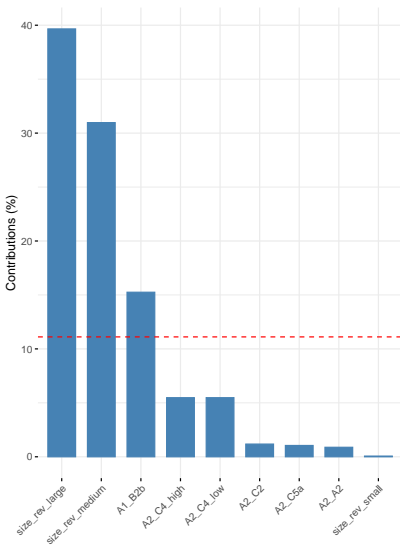


Contributions by Dimensions 3 and 4 Access 2015

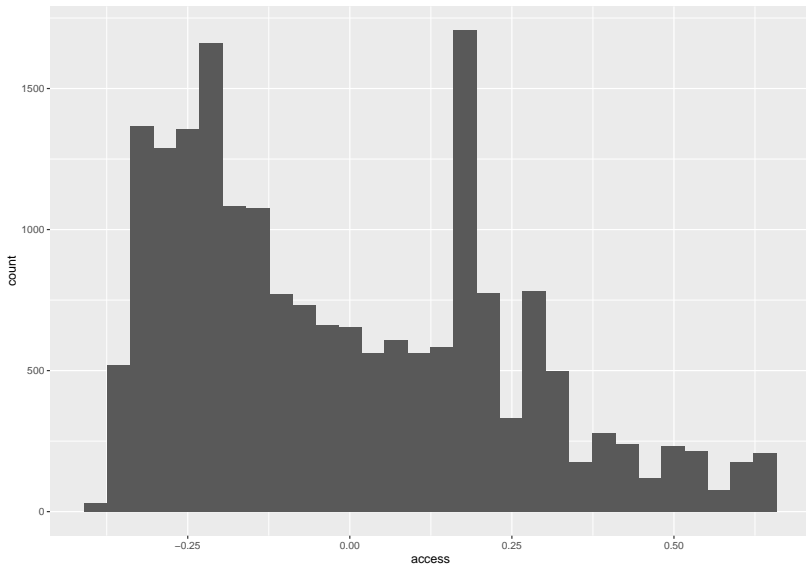
A Contribution of variables to Dim-3



B Contribution of variables to Dim-4



Index distribution Access 2015



Skills 2015 Composite Index

Eigenvalues Skills 2015

```
## [1] "Year: 2015"
```

```
## [1] "Index: skills"
```

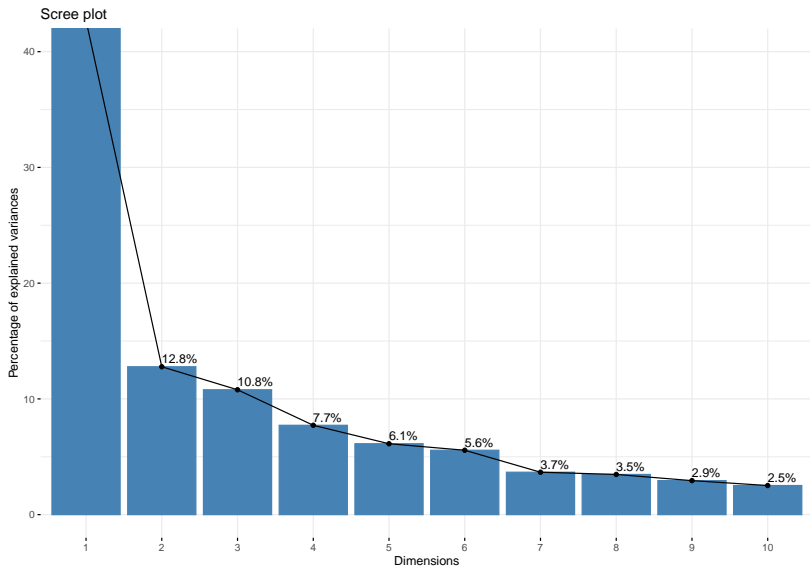
```
## [1] "Data dimensions: 19322" "Data dimensions: 13"
```

```
## [1] "Weights length: 19322"
```

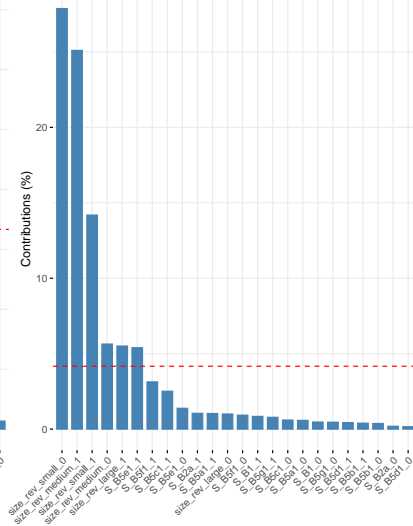
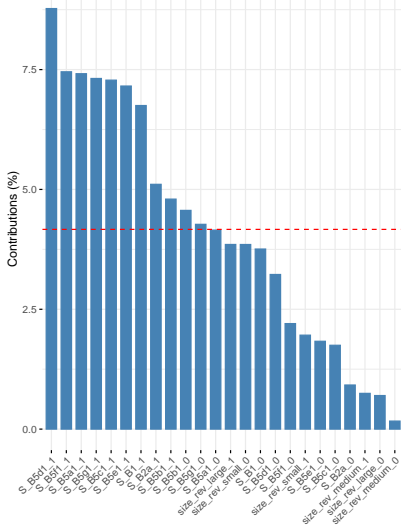
```
## [1] "Data rows: 19322"
```

	eigenvalue	variance.percent	cumulative.variance.percent
Dim.1	0.4270	42.6995	42.6995
Dim.2	0.1278	12.7782	55.4777
Dim.3	0.1079	10.7889	66.2666
Dim.4	0.0772	7.7205	73.9871
Dim.5	0.0613	6.1268	80.1139
Dim.6	0.0556	5.5630	85.6770
Dim.7	0.0367	3.6655	89.3425
Dim.8	0.0347	3.4727	92.8152
Dim.9	0.0294	2.9386	95.7538
Dim.10	0.0252	2.5160	98.2698
Dim.11	0.0173	1.7302	100.0000
Dim.12	0.0000	0.0000	100.0000

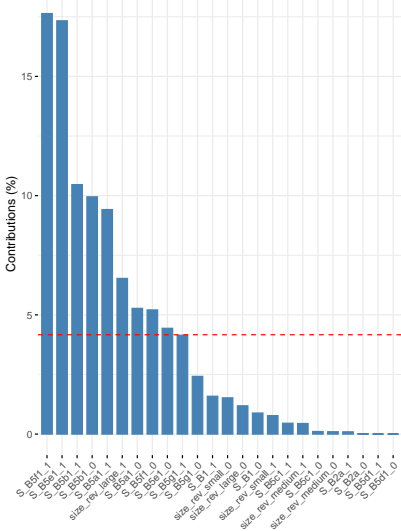
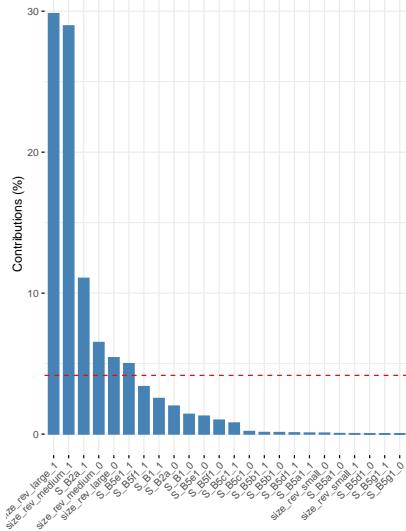
Screeplot Skills 2015



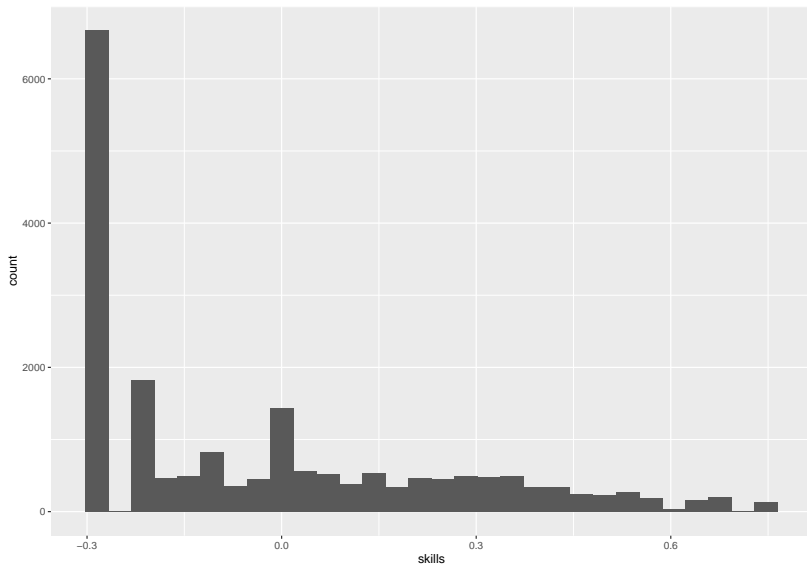
A Contribution of variables to Dim-1



A Contribution of variables to Dim-3



Index distribution Skills 2015



Usage 2015 Composite Index

Eigenvalues Usage 2015

[1] "Year: 2015"

[1] "Index: usage"

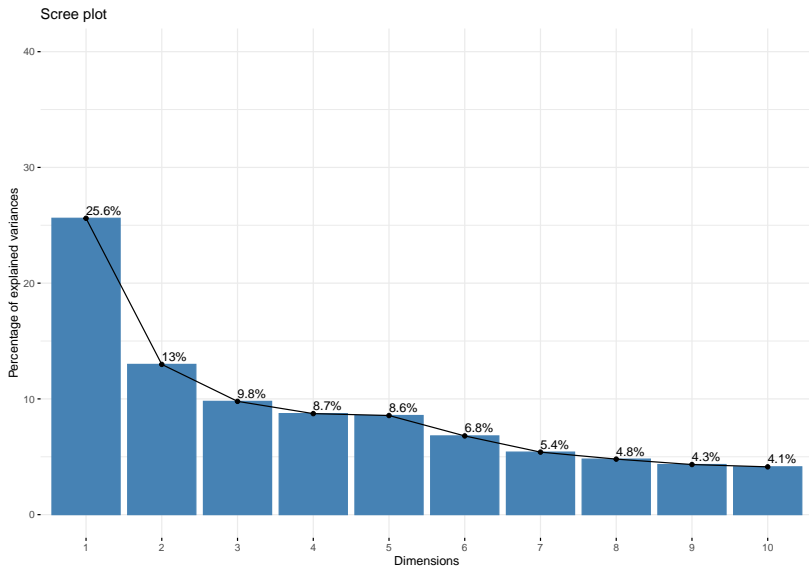
[1] "Data dimensions: 19322" "Data dimensions: 15"

[1] "Weights length: 19322"

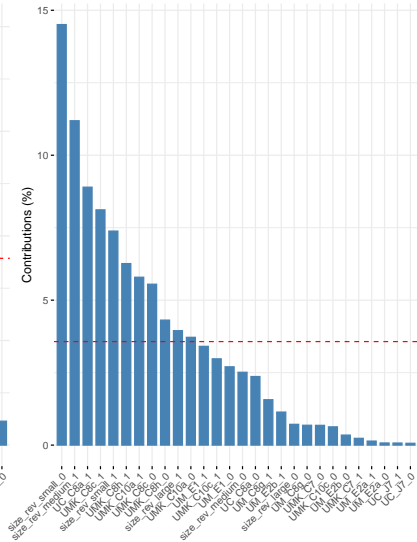
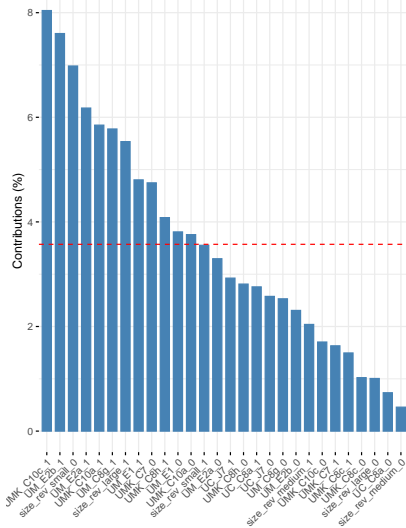
[1] "Data rows: 19322"

	eigenvalue	variance.percent	cumulative.variance.percent
Dim.1	0.2560	25.6046	25.6046
Dim.2	0.1298	12.9801	38.5848
Dim.3	0.0979	9.7882	48.3730
Dim.4	0.0873	8.7284	57.1014
Dim.5	0.0856	8.5639	65.6653
Dim.6	0.0680	6.8013	72.4666
Dim.7	0.0540	5.4027	77.8693
Dim.8	0.0480	4.7975	82.6668
Dim.9	0.0433	4.3294	86.9962
Dim.10	0.0413	4.1300	91.1262
Dim.11	0.0384	3.8415	94.9677
Dim.12	0.0285	2.8483	97.8161
Dim.13	0.0218	2.1839	100.0000
Dim.14	0.0000	0.0000	100.0000

Screeplot Usage 2015

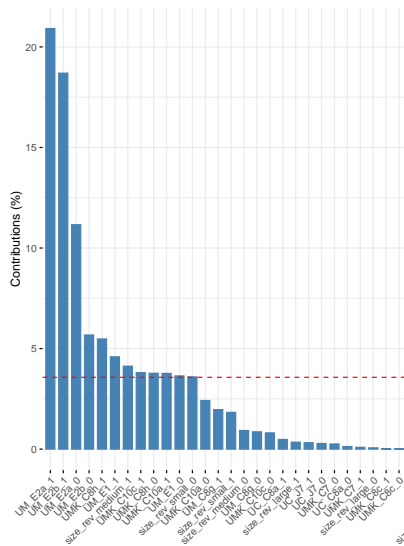


A Contribution of variables to Dim-1

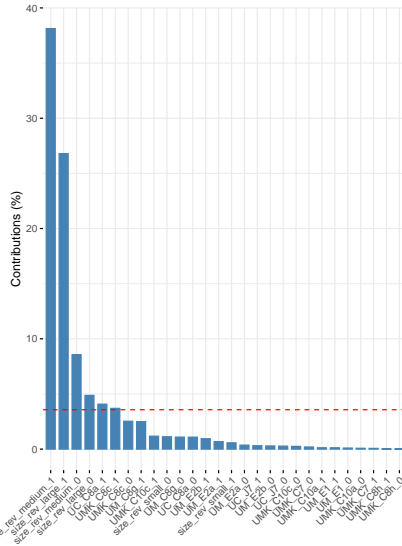


Contributions by Dimensions 3 and 4 Usage 2015

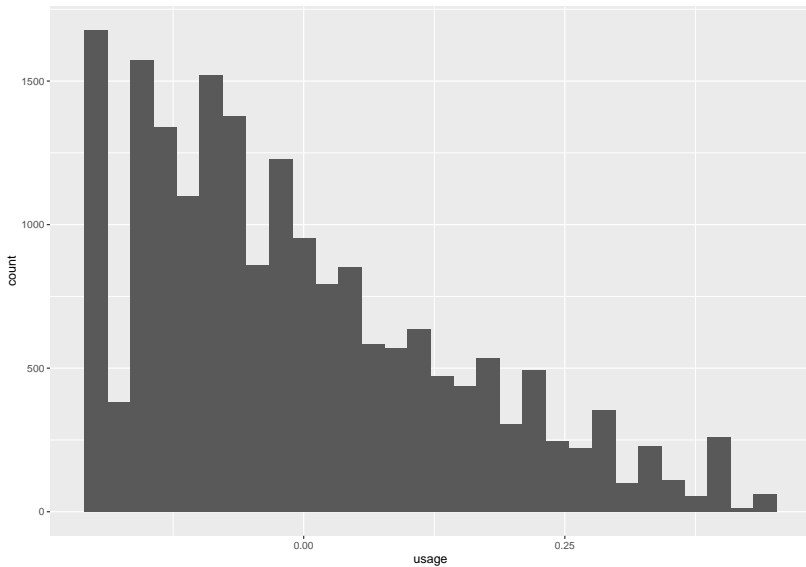
A Contribution of variables to Dim-3



B Contribution of variables to Dim-4



Index distribution Usage 2015



Composite Indices for 2016

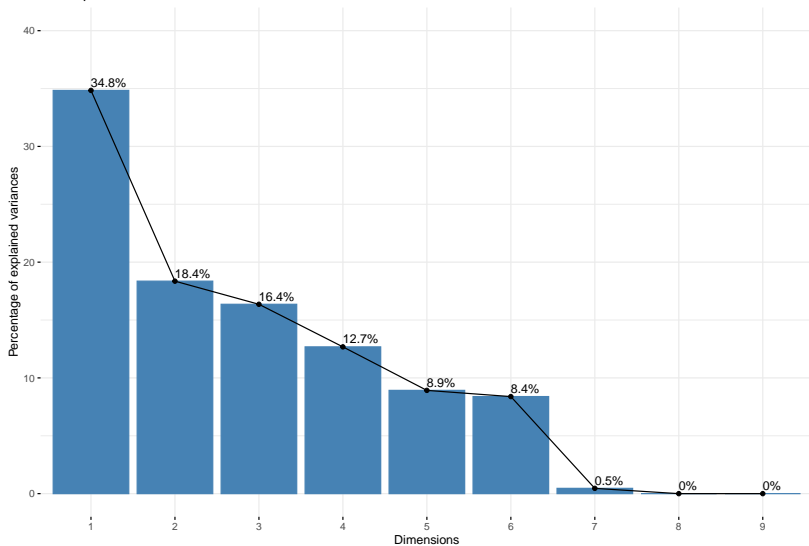
Access 2016 Composite Index

Eigenvalues Access 2016

	eigenvalue	variance.percent	cumulative.variance.percent
Dim.1	3.1354	34.8377	34.8377
Dim.2	1.6522	18.3578	53.1955
Dim.3	1.4724	16.3597	69.5551
Dim.4	1.1413	12.6808	82.2360
Dim.5	0.8029	8.9215	91.1574
Dim.6	0.7548	8.3862	99.5436
Dim.7	0.0411	0.4564	100.0000
Dim.8	0.0000	0.0000	100.0000
Dim.9	0.0000	0.0000	100.0000

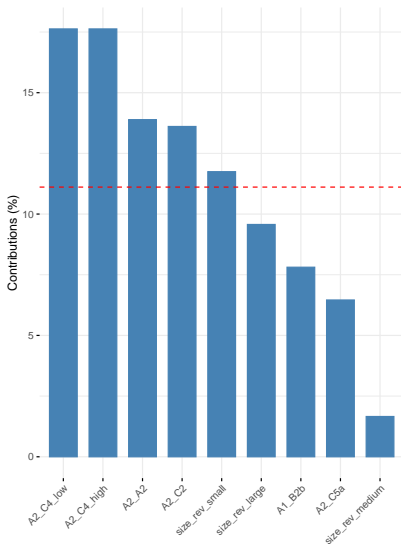
Screeplot Access 2016

Scree plot

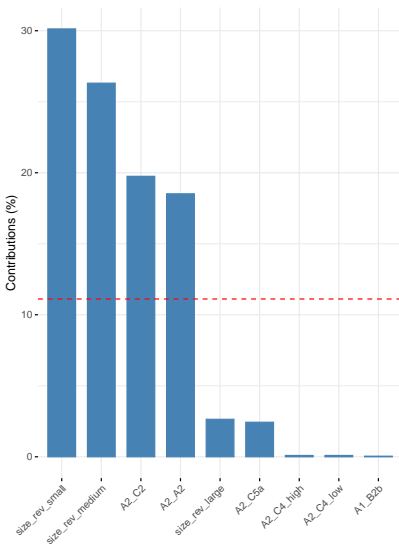


Contributions by Dimensions 1 and 2 Access 2016

A Contribution of variables to Dim-1

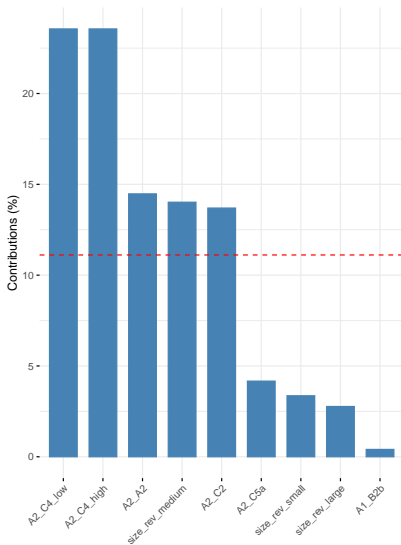


B Contribution of variables to Dim-2

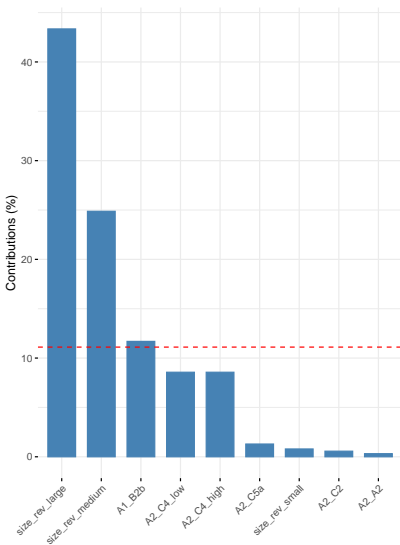


Contributions by Dimensions 3 and 4 Access 2016

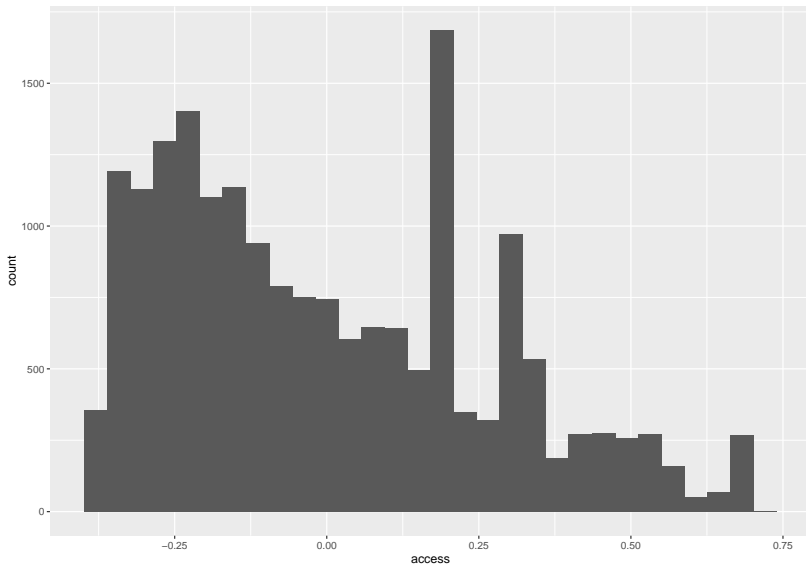
A Contribution of variables to Dim-3



B Contribution of variables to Dim-4



Index distribution Access 2016



Skills 2016 Composite Index

Eigenvalues Skills 2016

```
## [1] "Year: 2016"
```

```
## [1] "Index: skills"
```

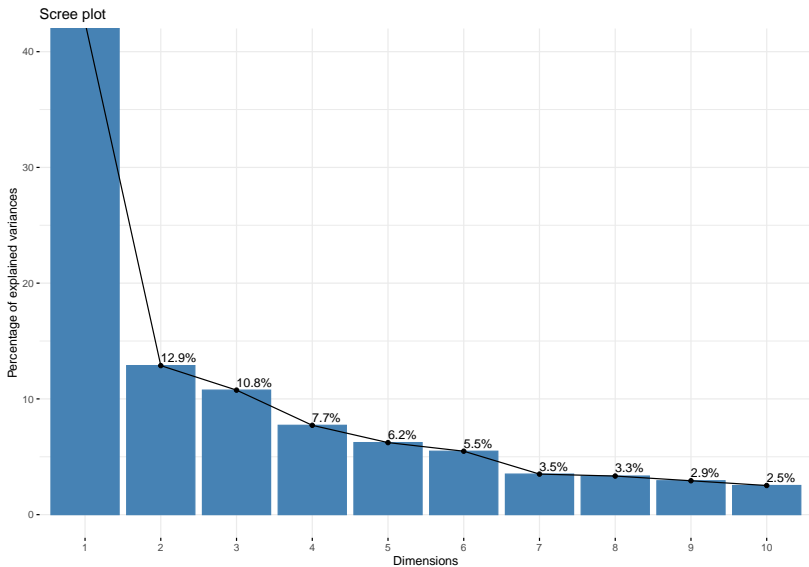
```
## [1] "Data dimensions: 18892" "Data dimensions: 13"
```

```
## [1] "Weights length: 18892"
```

```
## [1] "Data rows: 18892"
```

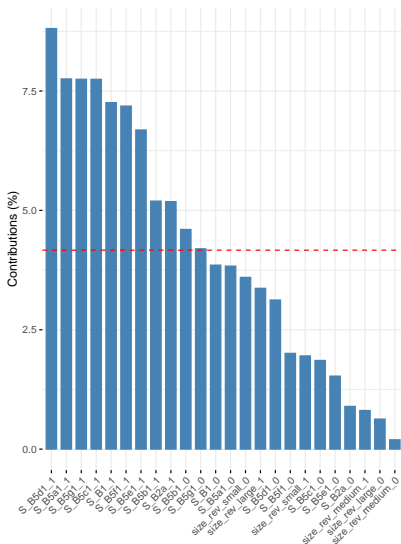
	eigenvalue	variance.percent	cumulative.variance.percent
Dim.1	0.4254	42.5370	42.5370
Dim.2	0.1288	12.8762	55.4132
Dim.3	0.1076	10.7588	66.1720
Dim.4	0.0772	7.7190	73.8910
Dim.5	0.0622	6.2248	80.1158
Dim.6	0.0548	5.4812	85.5970
Dim.7	0.0350	3.5032	89.1001
Dim.8	0.0333	3.3349	92.4351
Dim.9	0.0293	2.9276	95.3627
Dim.10	0.0252	2.5172	97.8799
Dim.11	0.0212	2.1201	100.0000
Dim.12	0.0000	0.0000	100.0000

Screeplot Skills 2016

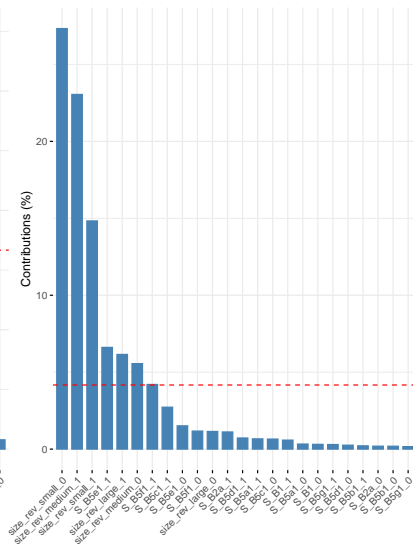


Contributions by Dimensions 1 and 2 Skills 2016

A Contribution of variables to Dim-1

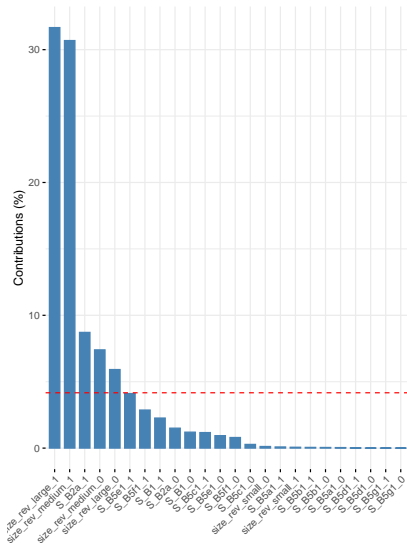


B Contribution of variables to Dim-2

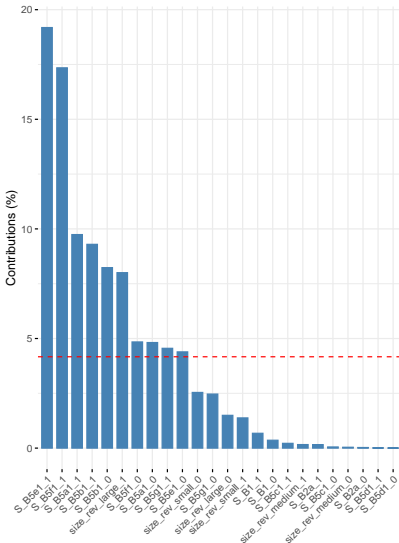


Contributions by Dimensions 3 and 4 Skills 2016

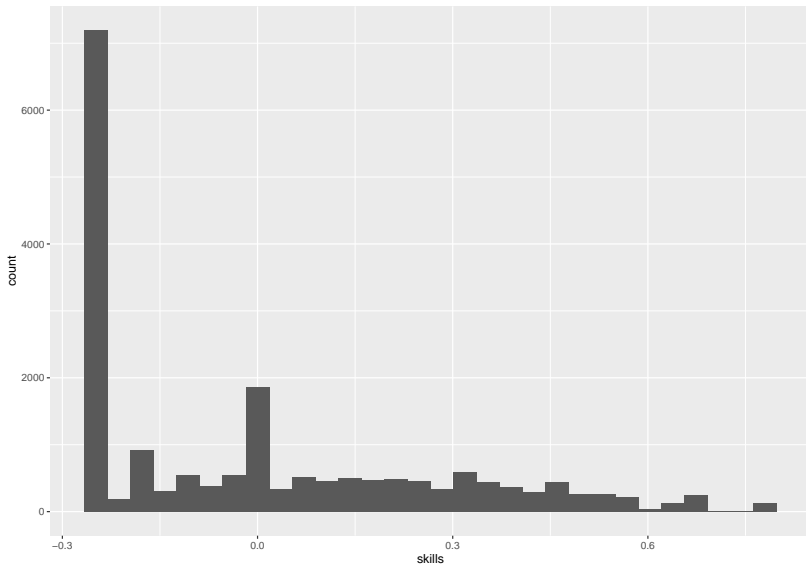
A Contribution of variables to Dim-3



B Contribution of variables to Dim-4



Index distribution Skills 2016



Usage 2016 Composite Index

Eigenvalues Usage 2016

[1] "Year: 2016"

[1] "Index: usage"

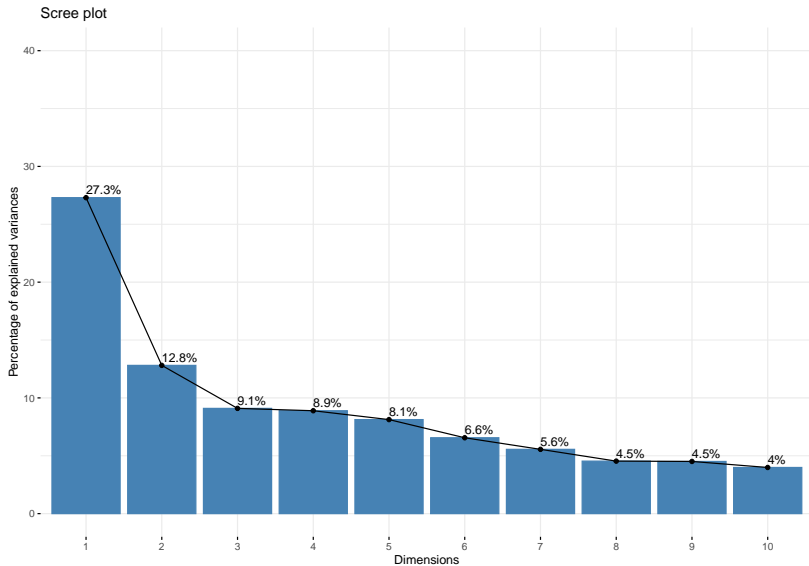
[1] "Data dimensions: 18892" "Data dimensions: 15"

[1] "Weights length: 18892"

[1] "Data rows: 18892"

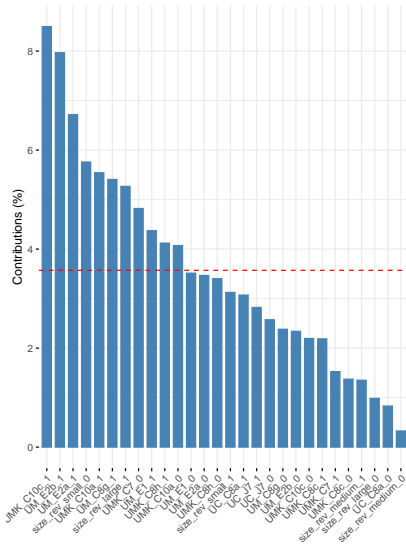
	eigenvalue	variance.percent	cumulative.variance.percent
Dim.1	0.2730	27.3004	27.3004
Dim.2	0.1281	12.8100	40.1104
Dim.3	0.0909	9.0942	49.2046
Dim.4	0.0889	8.8914	58.0960
Dim.5	0.0813	8.1261	66.2221
Dim.6	0.0656	6.5565	72.7786
Dim.7	0.0556	5.5554	78.3339
Dim.8	0.0454	4.5381	82.8720
Dim.9	0.0451	4.5096	87.3816
Dim.10	0.0399	3.9886	91.3703
Dim.11	0.0371	3.7145	95.0848
Dim.12	0.0259	2.5929	97.6777
Dim.13	0.0232	2.3223	100.0000
Dim.14	0.0000	0.0000	100.0000

Screeplot Usage 2016

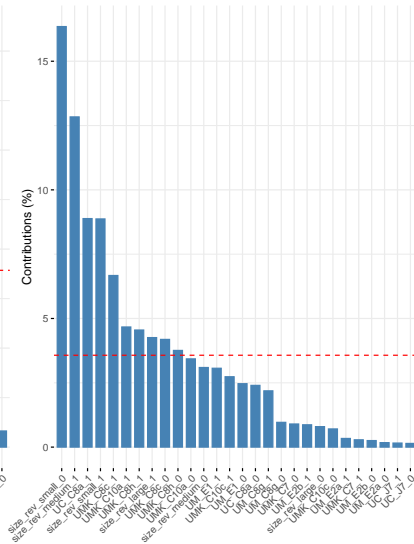


Contributions by Dimensions 1 and 2 Usage 2016

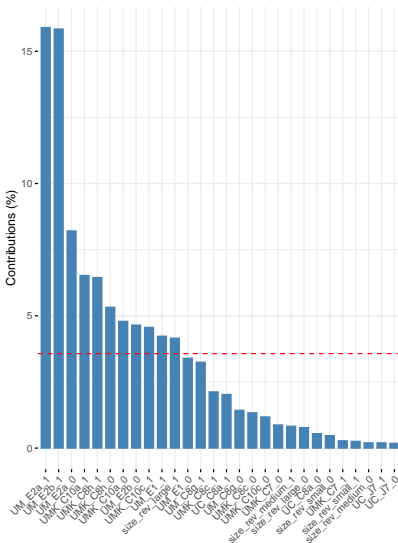
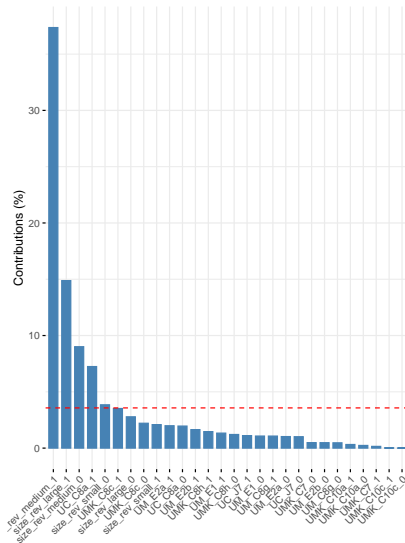
A Contribution of variables to Dim-1



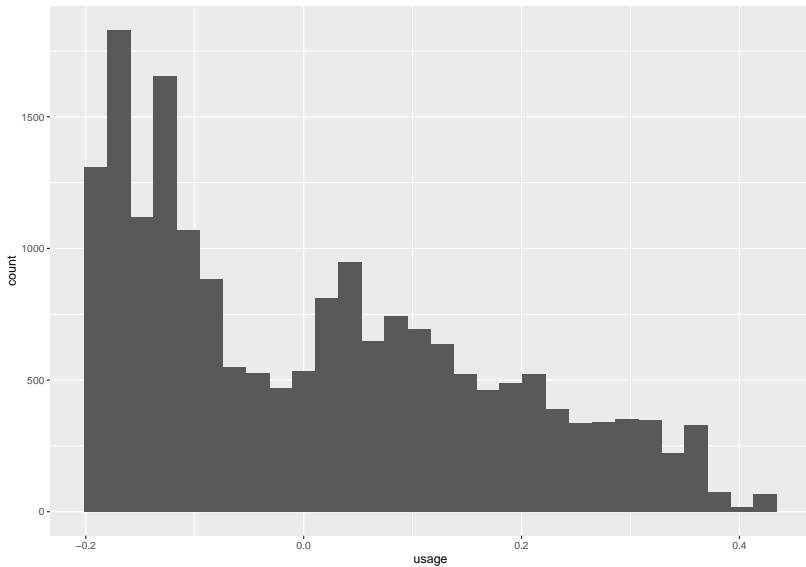
B Contribution of variables to Dim-2



A Contribution of variables to Dim-3



Index distribution Usage 2016



Composite Indices for 2017

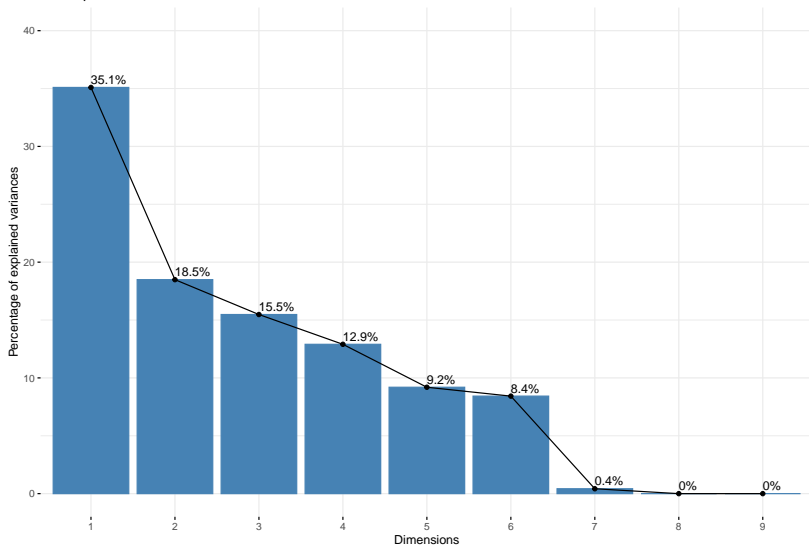
Access 2017 Composite Index

Eigenvalues Access 2017

	eigenvalue	variance.percent	cumulative.variance.percent
Dim.1	3.1585	35.0944	35.0944
Dim.2	1.6639	18.4878	53.5822
Dim.3	1.3928	15.4757	69.0579
Dim.4	1.1612	12.9021	81.9600
Dim.5	0.8273	9.1923	91.1523
Dim.6	0.7583	8.4253	99.5777
Dim.7	0.0380	0.4223	100.0000
Dim.8	0.0000	0.0000	100.0000
Dim.9	0.0000	0.0000	100.0000

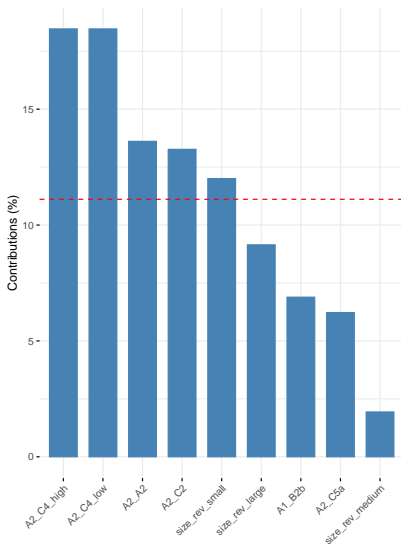
Screeplot Access 2017

Scree plot

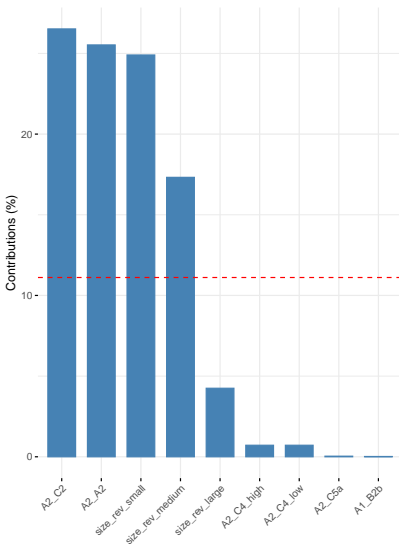


Contributions by Dimensions 1 and 2 Access 2017

A Contribution of variables to Dim-1

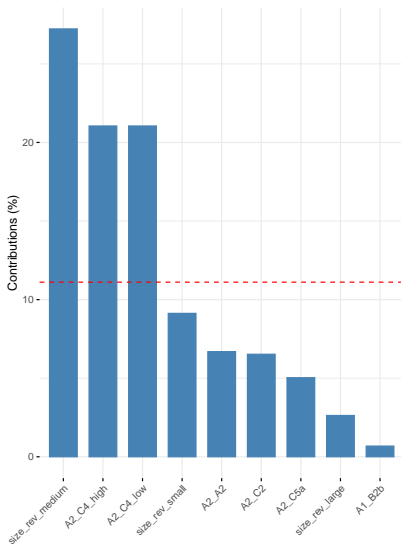


B Contribution of variables to Dim-2

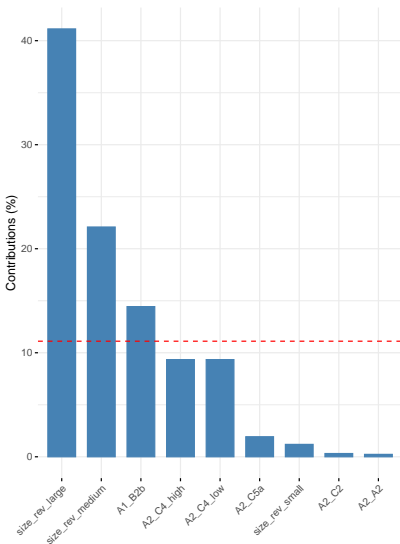


Contributions by Dimensions 3 and 4 Access 2017

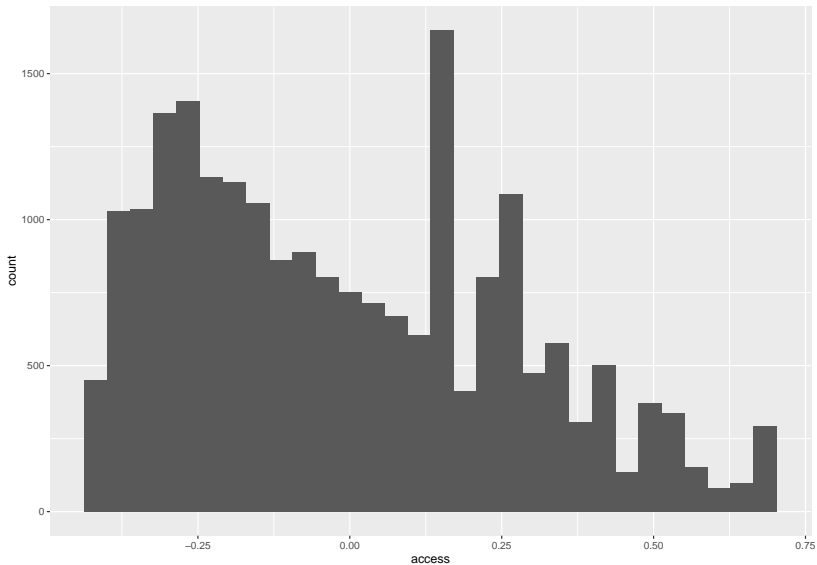
A Contribution of variables to Dim-3



B Contribution of variables to Dim-4



Index distribution Access 2017



Skills 2017 Composite Index

Eigenvalues Skills 2017

```
## [1] "Year: 2017"
```

```
## [1] "Index: skills"
```

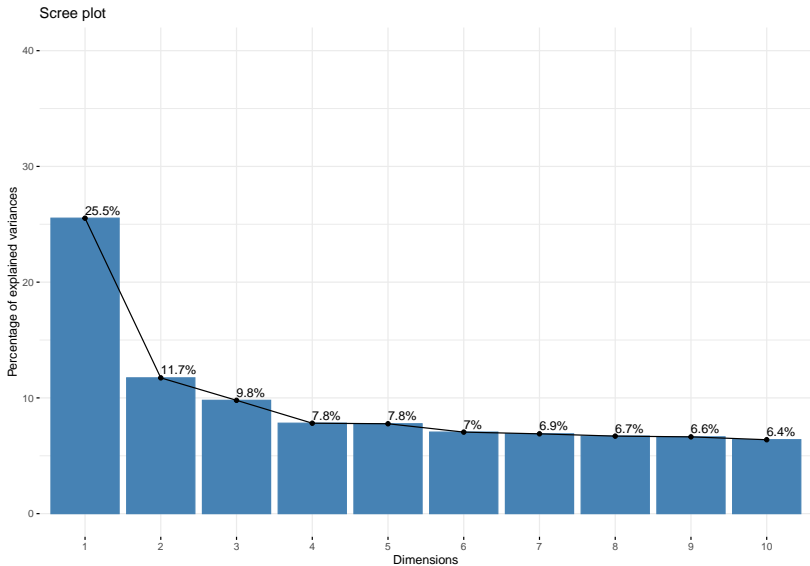
```
## [1] "Data dimensions: 21195" "Data dimensions: 13"
```

```
## [1] "Weights length: 21195"
```

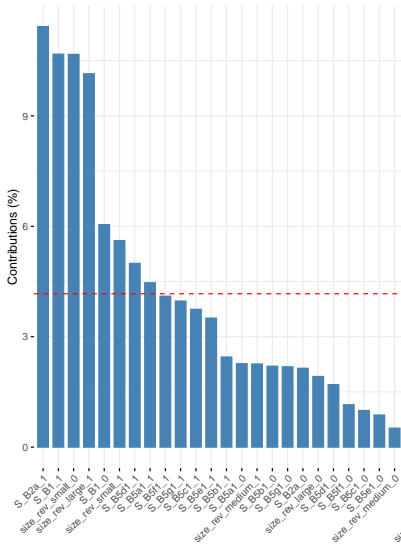
```
## [1] "Data rows: 21195"
```

	eigenvalue	variance.percent	cumulative.variance.percent
Dim.1	0.2553	25.5270	25.5270
Dim.2	0.1173	11.7312	37.2582
Dim.3	0.0979	9.7912	47.0494
Dim.4	0.0781	7.8133	54.8627
Dim.5	0.0777	7.7664	62.6291
Dim.6	0.0704	7.0448	69.6738
Dim.7	0.0690	6.8963	76.5701
Dim.8	0.0670	6.6980	83.2681
Dim.9	0.0663	6.6338	89.9019
Dim.10	0.0639	6.3870	96.2889
Dim.11	0.0371	3.7111	100.0000
Dim.12	0.0000	0.0000	100.0000

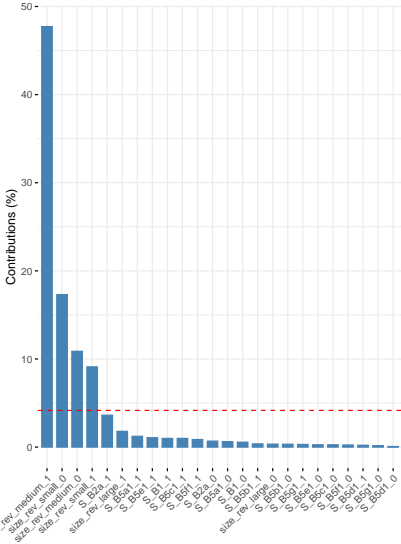
Screeplot Skills 2017



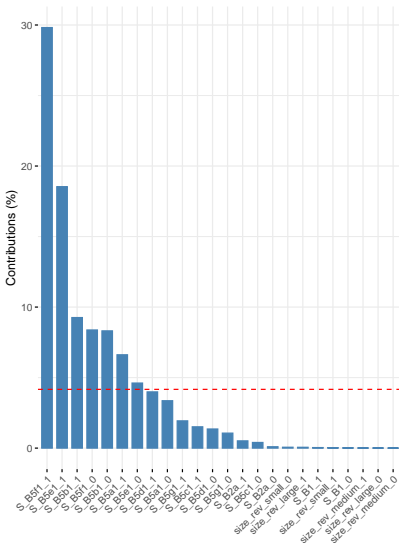
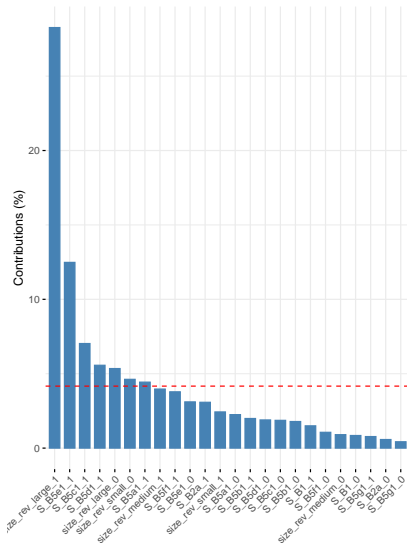
A Contribution of variables to Dim-1



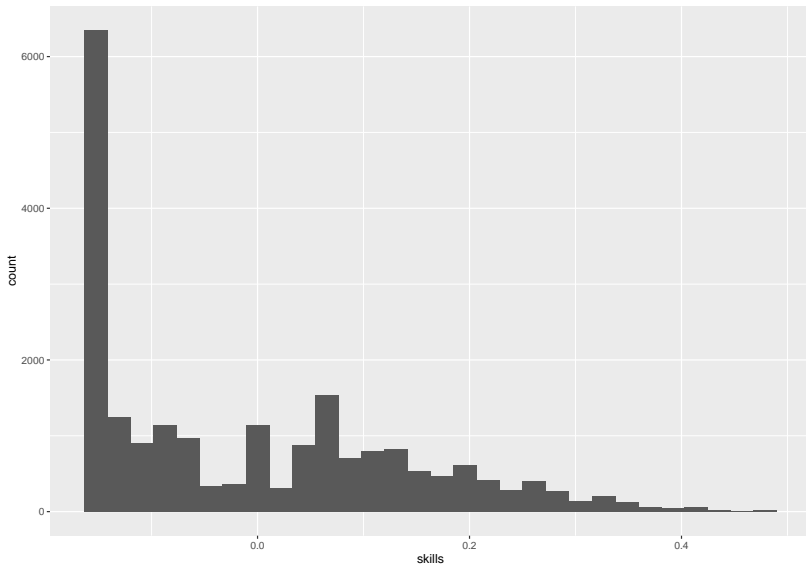
50 -



A Contribution of variables to Dim-3



Index distribution Skills 2017



Usage 2017 Composite Index

Eigenvalues Usage 2017

[1] "Year: 2017"

[1] "Index: usage"

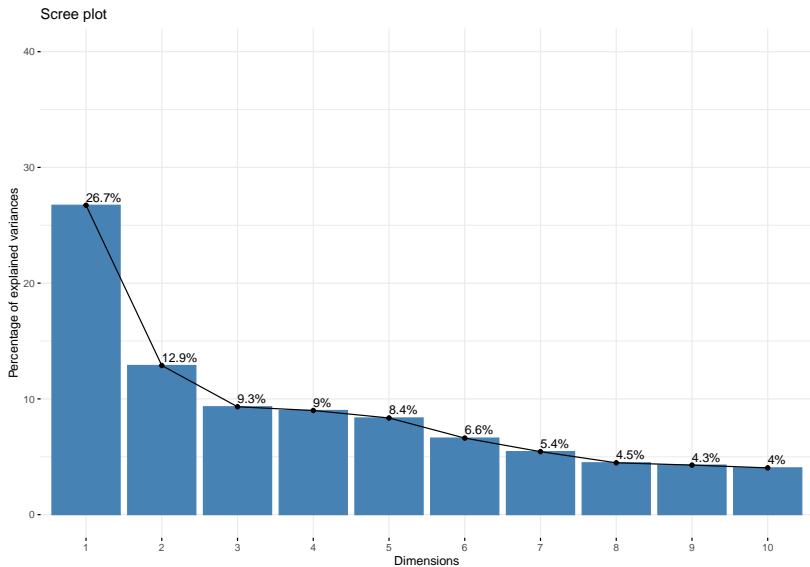
[1] "Data dimensions: 21195" "Data dimensions: 15"

[1] "Weights length: 21195"

[1] "Data rows: 21195"

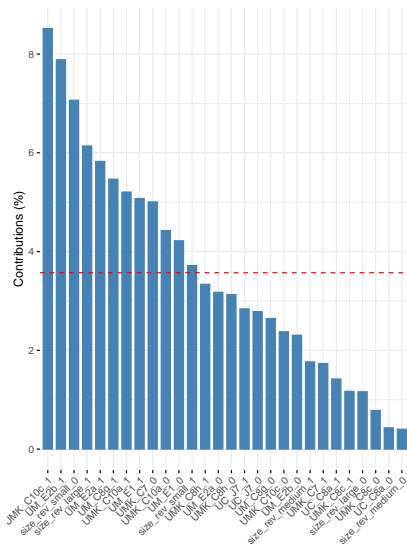
	eigenvalue	variance.percent	cumulative.variance.percent
Dim.1	0.2673	26.7314	26.7314
Dim.2	0.1288	12.8850	39.6164
Dim.3	0.0932	9.3201	48.9365
Dim.4	0.0900	8.9976	57.9341
Dim.5	0.0835	8.3524	66.2865
Dim.6	0.0661	6.6147	72.9012
Dim.7	0.0544	5.4421	78.3433
Dim.8	0.0448	4.4788	82.8221
Dim.9	0.0428	4.2812	87.1033
Dim.10	0.0404	4.0413	91.1446
Dim.11	0.0383	3.8320	94.9766
Dim.12	0.0269	2.6864	97.6630
Dim.13	0.0234	2.3370	100.0000
Dim.14	0.0000	0.0000	100.0000

Screeplot Usage 2017

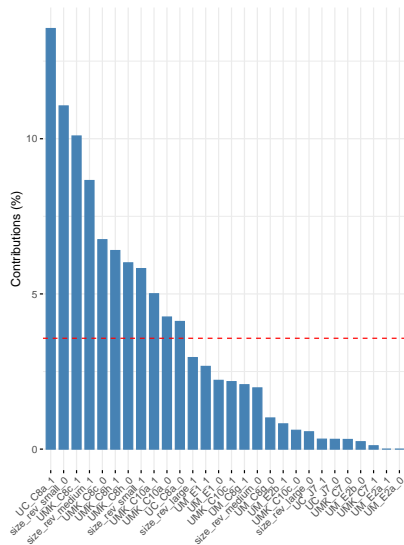


Contributions by Dimensions 1 and 2 Usage 2017

A Contribution of variables to Dim-1

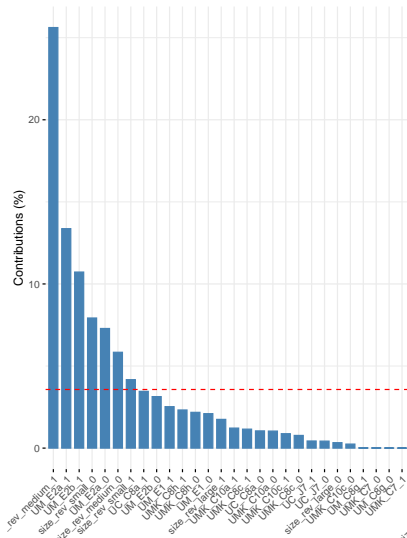


B Contribution of variables to Dim-2

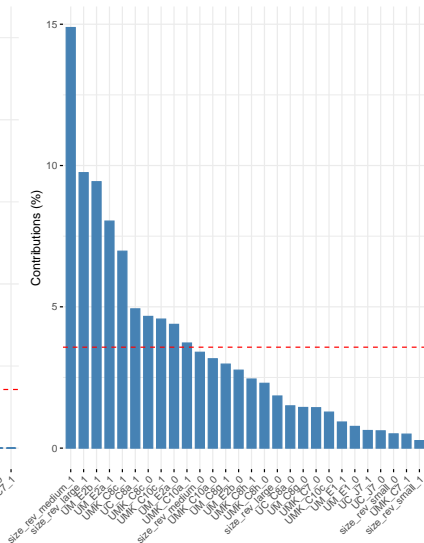


Contributions by Dimensions 3 and 4 Usage 2017

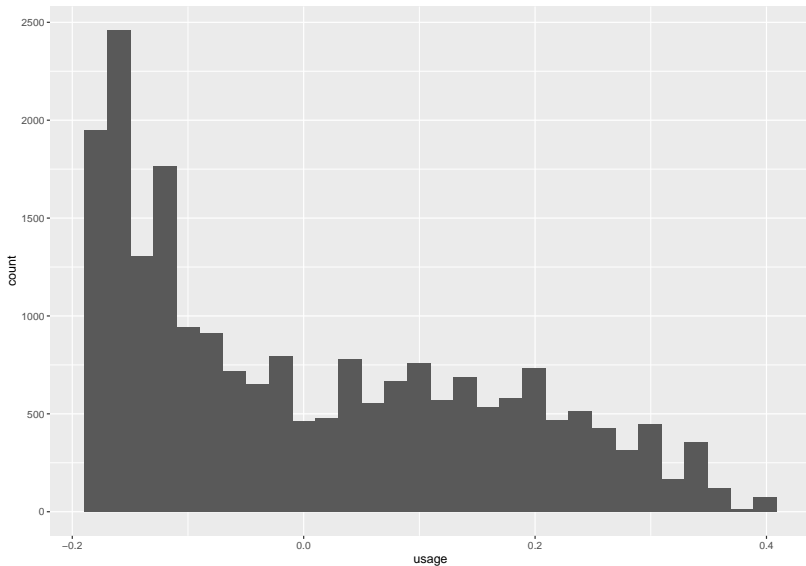
A Contribution of variables to Dim-3



B Contribution of variables to Dim-4



Index distribution Usage 2017



Composite Indices for 2018

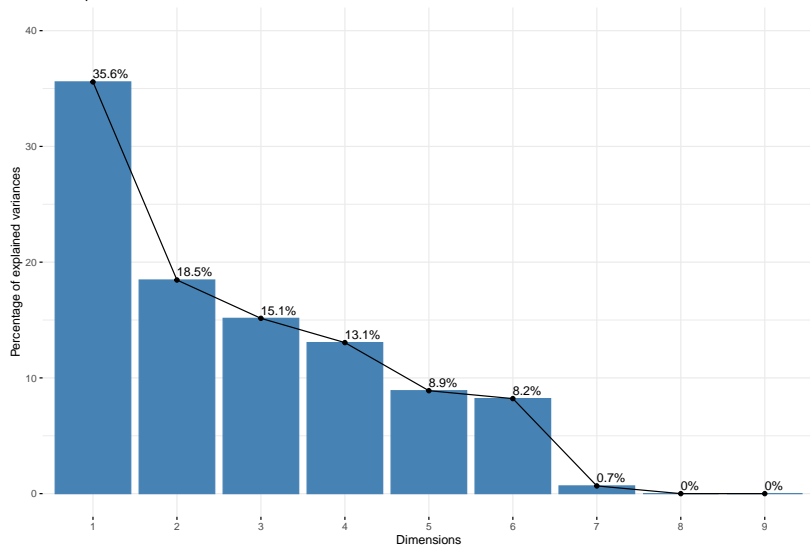
Access 2018 Composite Index

Eigenvalues Access 2018

	eigenvalue	variance.percent	cumulative.variance.percent
Dim.1	3.2015	35.5728	35.5728
Dim.2	1.6612	18.4578	54.0306
Dim.3	1.3632	15.1464	69.1770
Dim.4	1.1746	13.0507	82.2277
Dim.5	0.8004	8.8937	91.1214
Dim.6	0.7391	8.2120	99.3334
Dim.7	0.0600	0.6666	100.0000
Dim.8	0.0000	0.0000	100.0000
Dim.9	0.0000	0.0000	100.0000

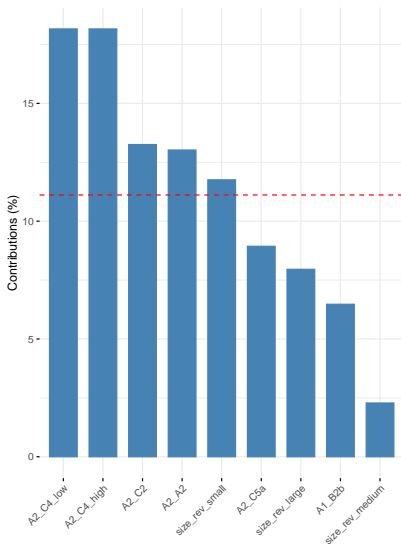
Screeplot Access 2018

Scree plot

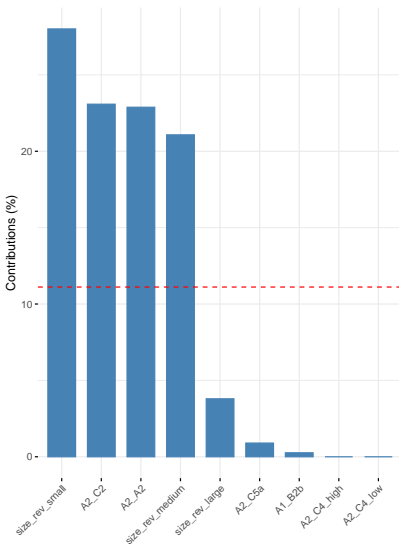


Contributions by Dimensions 1 and 2 Access 2018

A Contribution of variables to Dim-1

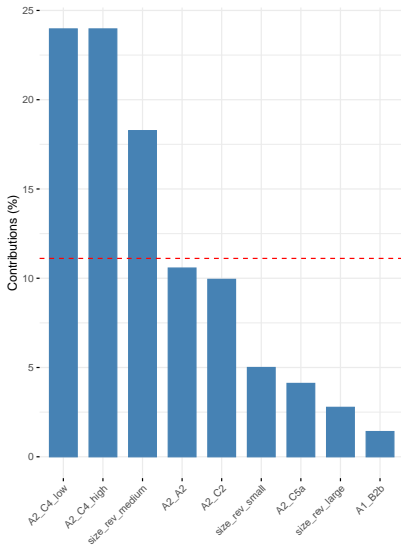


B Contribution of variables to Dim-2

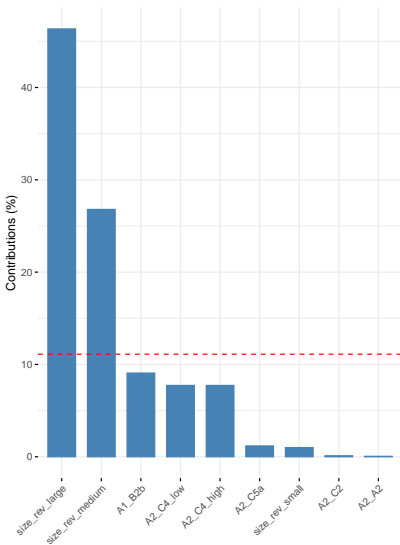


Contributions by Dimensions 3 and 4 Access 2018

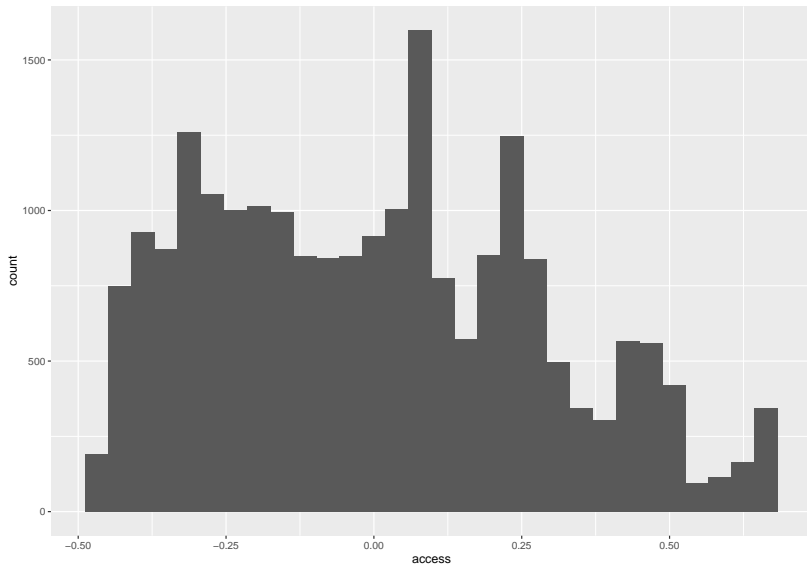
A Contribution of variables to Dim-3



B Contribution of variables to Dim-4



Index distribution Access 2018



Skills 2018 Composite Index

Eigenvalues Skills 2018

```
## [1] "Year: 2018"
```

```
## [1] "Index: skills"
```

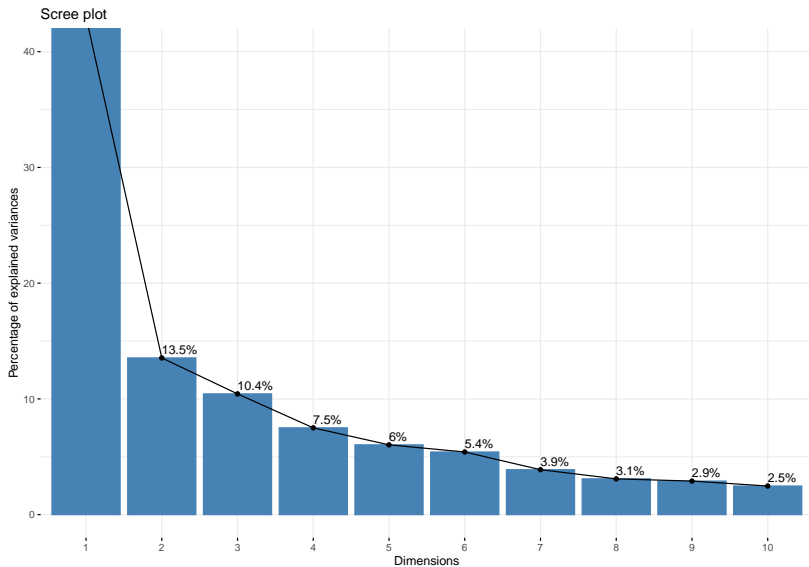
```
## [1] "Data dimensions: 21825" "Data dimensions: 13"
```

```
## [1] "Weights length: 21825"
```

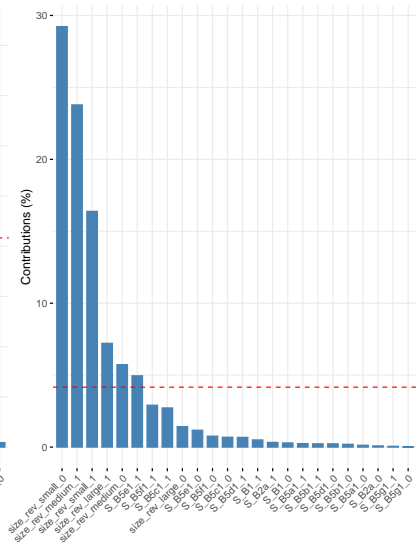
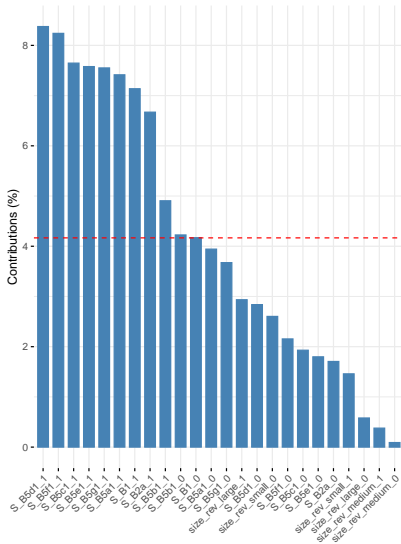
```
## [1] "Data rows: 21825"
```

	eigenvalue	variance.percent	cumulative.variance.percent
Dim.1	0.4301	43.0127	43.0127
Dim.2	0.1354	13.5403	56.5530
Dim.3	0.1043	10.4320	66.9850
Dim.4	0.0750	7.4994	74.4844
Dim.5	0.0603	6.0304	80.5148
Dim.6	0.0541	5.4131	85.9279
Dim.7	0.0388	3.8830	89.8109
Dim.8	0.0309	3.0919	92.9028
Dim.9	0.0290	2.9002	95.8030
Dim.10	0.0247	2.4740	98.2770
Dim.11	0.0172	1.7230	100.0000
Dim.12	0.0000	0.0000	100.0000

Screeplot Skills 2018

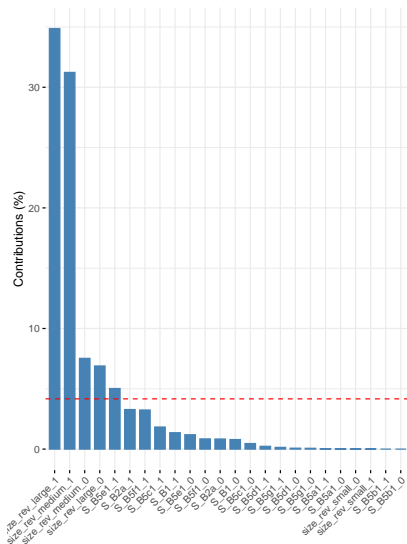


A Contribution of variables to Dim-1

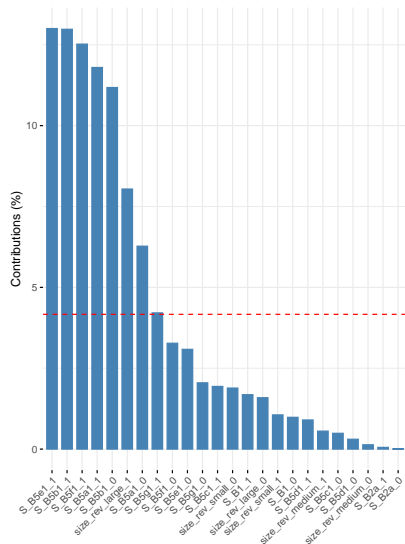


Contributions by Dimensions 3 and 4 Skills 2018

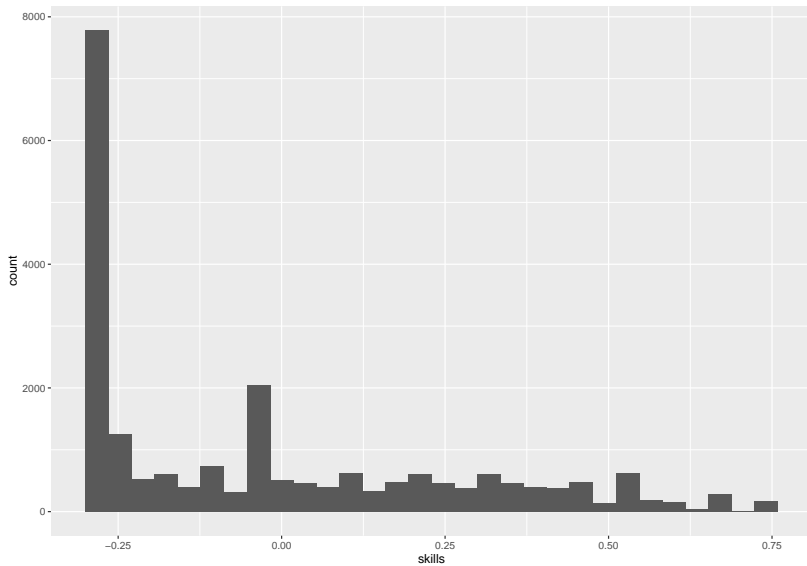
A Contribution of variables to Dim-3



B Contribution of variables to Dim-4



Index distribution Skills 2018



Usage 2018 Composite Index

Eigenvalues Usage 2018

[1] "Year: 2018"

[1] "Index: usage"

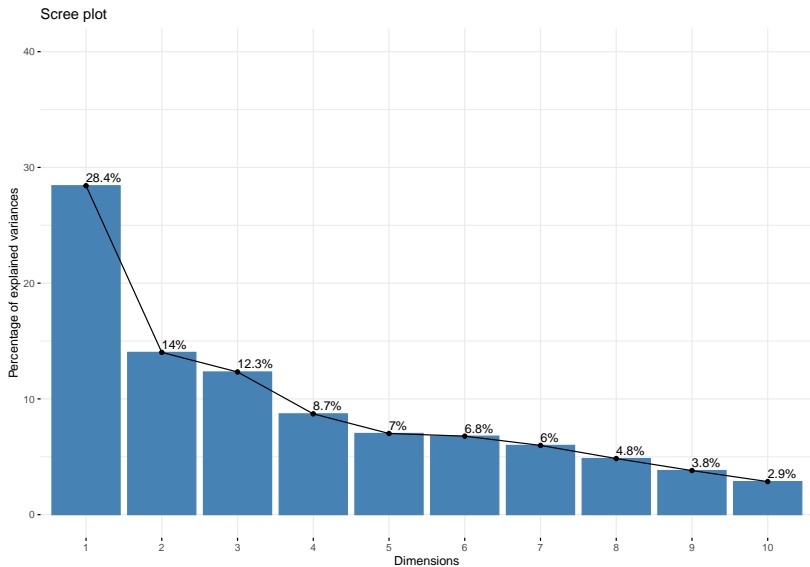
[1] "Data dimensions: 21825" "Data dimensions: 15"

[1] "Weights length: 21825"

[1] "Data rows: 21825"

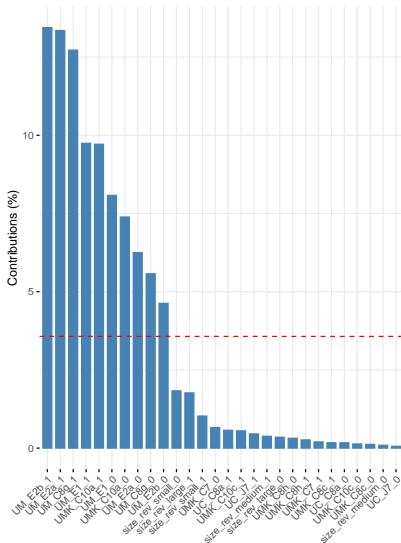
	eigenvalue	variance.percent	cumulative.variance.percent
Dim.1	0.2842	28.4180	28.4180
Dim.2	0.1402	14.0178	42.4358
Dim.3	0.1233	12.3265	54.7624
Dim.4	0.0871	8.7070	63.4694
Dim.5	0.0701	7.0124	70.4817
Dim.6	0.0678	6.7815	77.2633
Dim.7	0.0598	5.9827	83.2460
Dim.8	0.0485	4.8468	88.0928
Dim.9	0.0381	3.8075	91.9003
Dim.10	0.0286	2.8551	94.7554
Dim.11	0.0240	2.4019	97.1573
Dim.12	0.0188	1.8788	99.0361
Dim.13	0.0096	0.9639	100.0000
Dim.14	0.0000	0.0000	100.0000

Screeplot Usage 2018

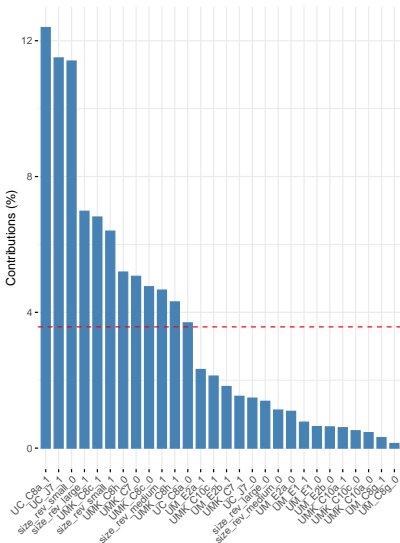


Contributions by Dimensions 1 and 2 Usage 2018

A Contribution of variables to Dim-1

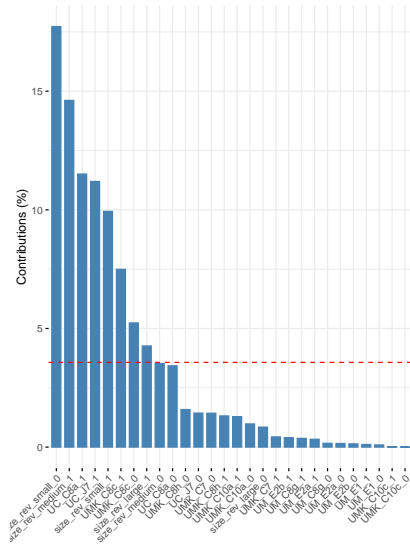


B Contribution of variables to Dim-2

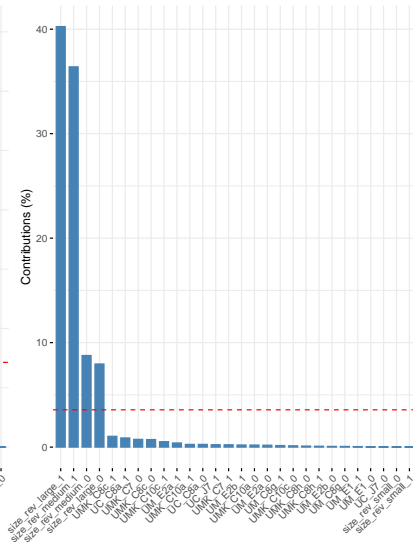


Contributions by Dimensions 3 and 4 Usage 2018

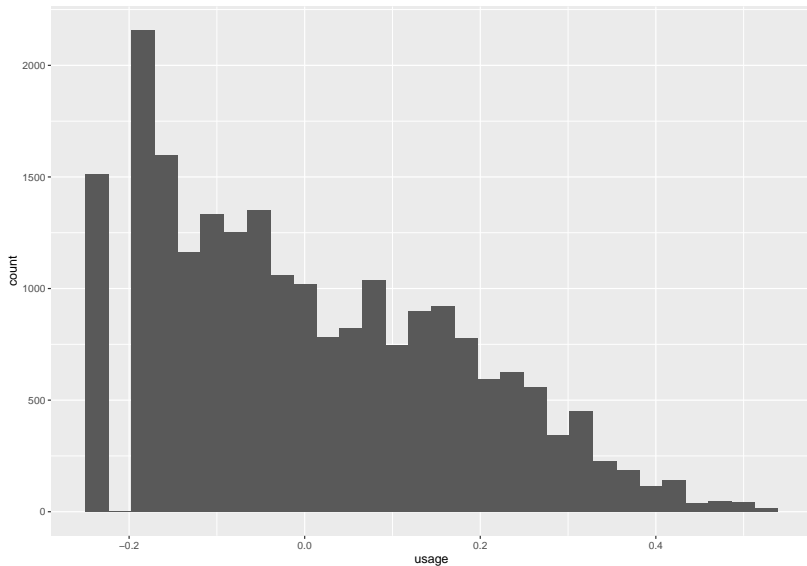
A Contribution of variables to Dim-3



B Contribution of variables to Dim-4



Index distribution Usage 2018



Composite Indices for 2019

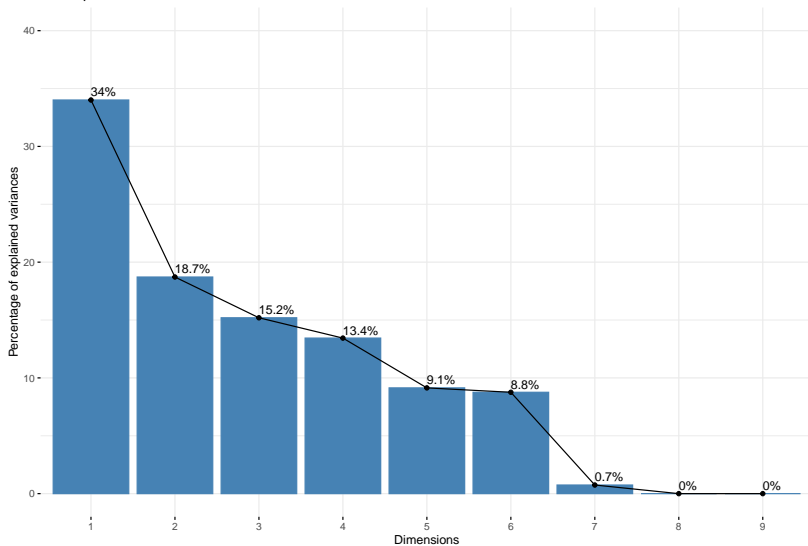
Access 2019 Composite Index

Eigenvalues Access 2019

	eigenvalue	variance.percent	cumulative.variance.percent
Dim.1	3.0609	34.0099	34.0099
Dim.2	1.6845	18.7161	52.7261
Dim.3	1.3675	15.1942	67.9203
Dim.4	1.2096	13.4397	81.3600
Dim.5	0.8224	9.1375	90.4975
Dim.6	0.7882	8.7575	99.2549
Dim.7	0.0671	0.7451	100.0000
Dim.8	0.0000	0.0000	100.0000
Dim.9	0.0000	0.0000	100.0000

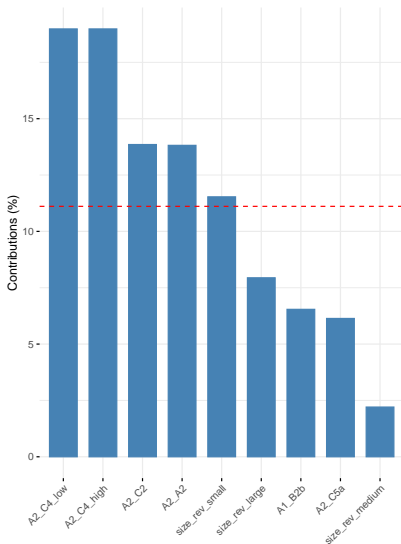
Screeplot Access 2019

Scree plot

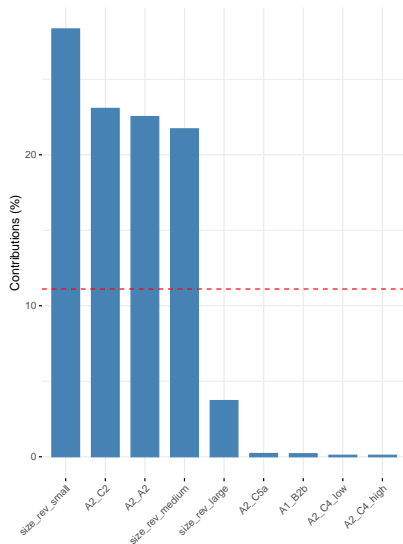


Contributions by Dimensions 1 and 2 Access 2019

A Contribution of variables to Dim-1

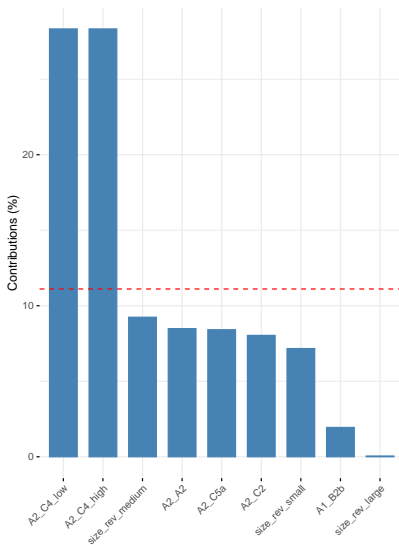


B Contribution of variables to Dim-2

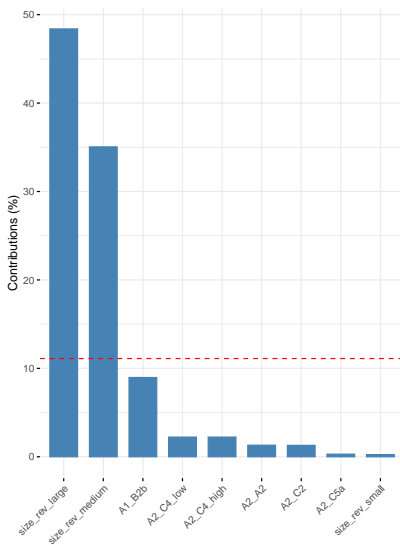


Contributions by Dimensions 3 and 4 Access 2019

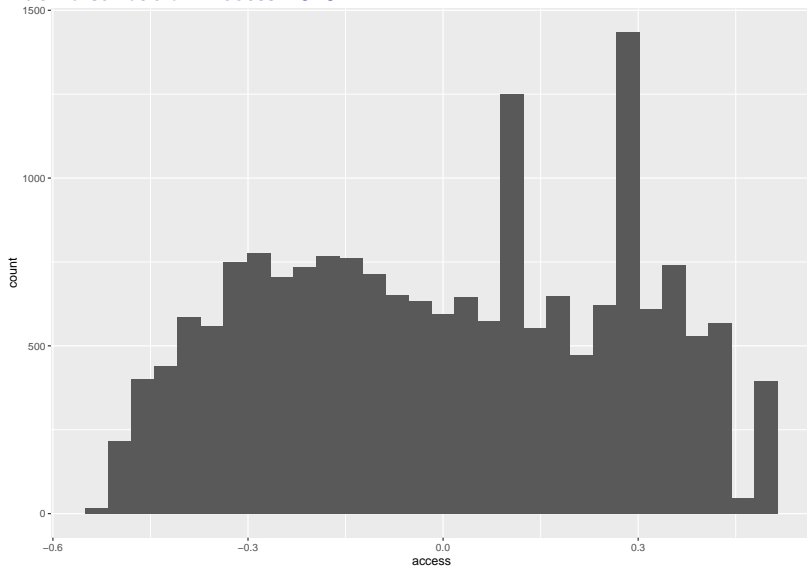
A Contribution of variables to Dim-3



B Contribution of variables to Dim-4



Index distribution Access 2019



Skills 2019 Composite Index

Eigenvalues Skills 2019

```
## [1] "Year: 2019"
```

```
## [1] "Index: skills"
```

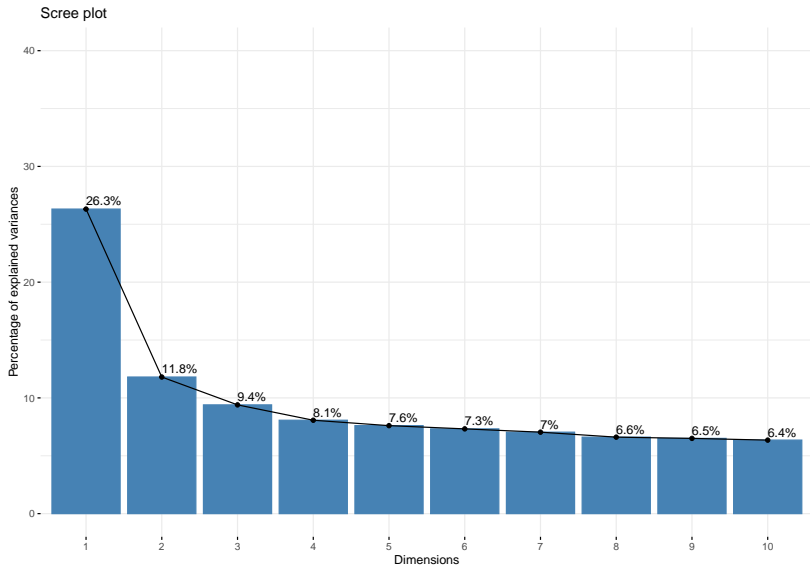
```
## [1] "Data dimensions: 18383" "Data dimensions: 13"
```

```
## [1] "Weights length: 18383"
```

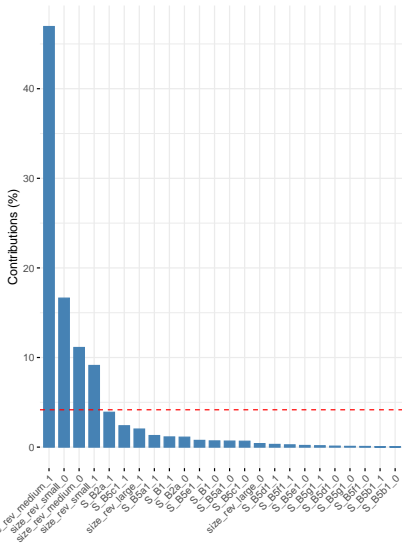
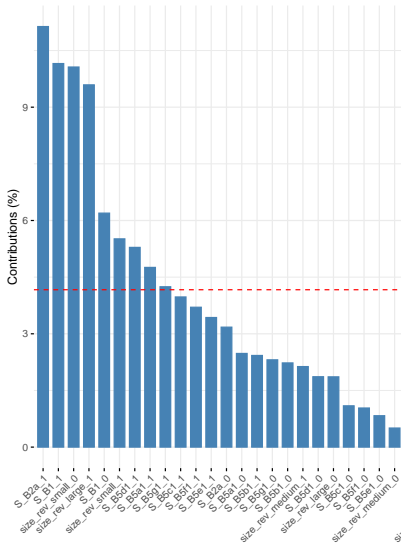
```
## [1] "Data rows: 18383"
```

	eigenvalue	variance.percent	cumulative.variance.percent
Dim.1	0.2631	26.3136	26.3136
Dim.2	0.1180	11.8030	38.1166
Dim.3	0.0940	9.3972	47.5138
Dim.4	0.0807	8.0701	55.5840
Dim.5	0.0760	7.6038	63.1878
Dim.6	0.0732	7.3236	70.5114
Dim.7	0.0704	7.0394	77.5508
Dim.8	0.0661	6.6092	84.1600
Dim.9	0.0650	6.5015	90.6615
Dim.10	0.0635	6.3536	97.0150
Dim.11	0.0298	2.9850	100.0000
Dim.12	0.0000	0.0000	100.0000

Screeplot Skills 2019

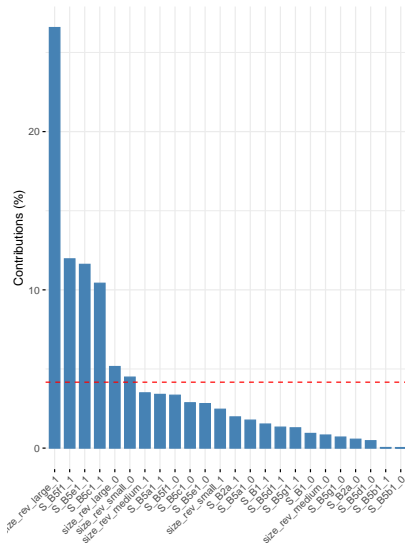


A Contribution of variables to Dim-1

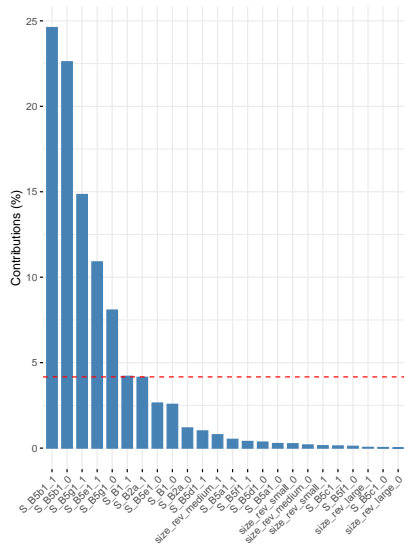


Contributions by Dimensions 3 and 4 Skills 2019

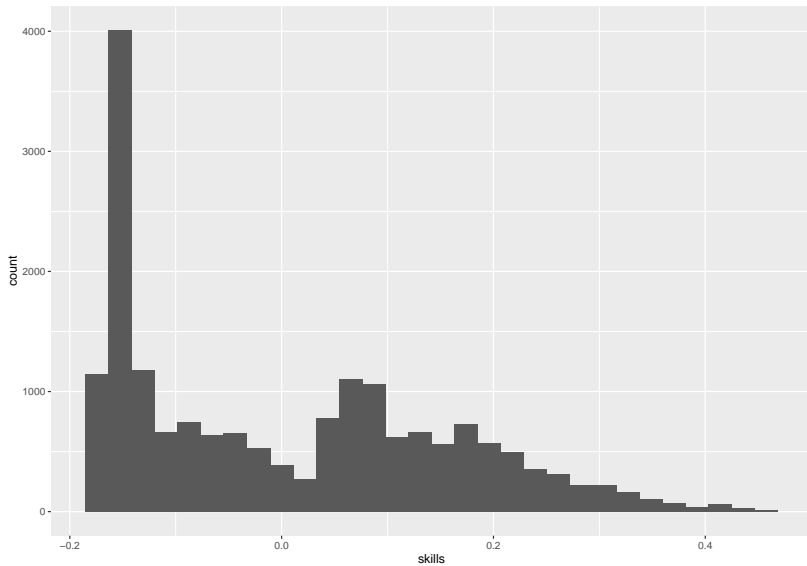
A Contribution of variables to Dim-3



B Contribution of variables to Dim-4



Index distribution Skills 2019



Usage 2019 Composite Index

Eigenvalues Usage 2019

[1] "Year: 2019"

[1] "Index: usage"

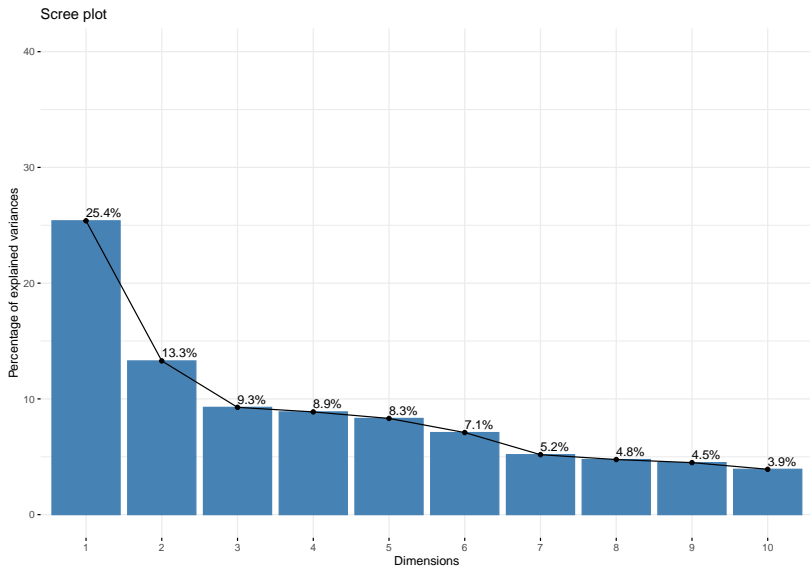
[1] "Data dimensions: 18383" "Data dimensions: 15"

[1] "Weights length: 18383"

[1] "Data rows: 18383"

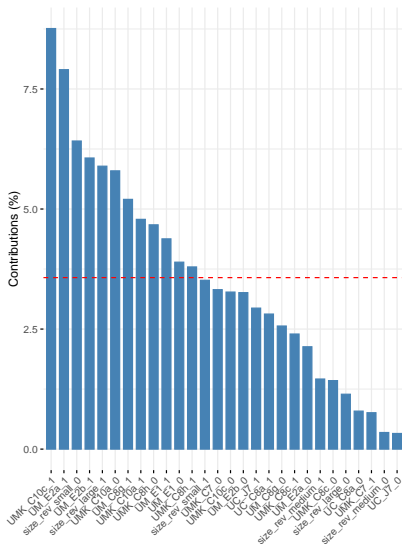
	eigenvalue	variance.percent	cumulative.variance.percent
Dim.1	0.2539	25.3876	25.3876
Dim.2	0.1328	13.2814	38.6690
Dim.3	0.0927	9.2716	47.9406
Dim.4	0.0888	8.8756	56.8162
Dim.5	0.0831	8.3132	65.1295
Dim.6	0.0709	7.0924	72.2219
Dim.7	0.0518	5.1814	77.4033
Dim.8	0.0476	4.7612	82.1645
Dim.9	0.0449	4.4939	86.6585
Dim.10	0.0392	3.9200	90.5785
Dim.11	0.0374	3.7414	94.3199
Dim.12	0.0299	2.9862	97.3061
Dim.13	0.0269	2.6939	100.0000
Dim.14	0.0000	0.0000	100.0000

Screeplot Usage 2019

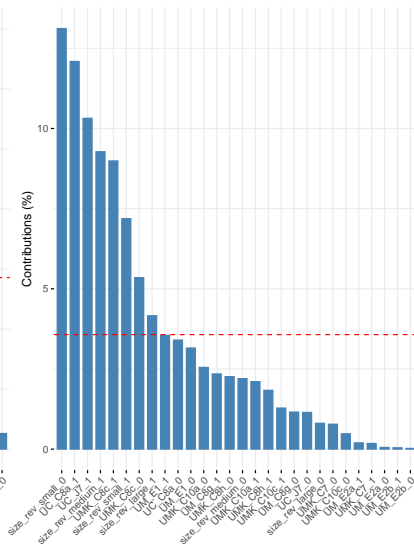


Contributions by Dimensions 1 and 2 Usage 2019

A Contribution of variables to Dim-1

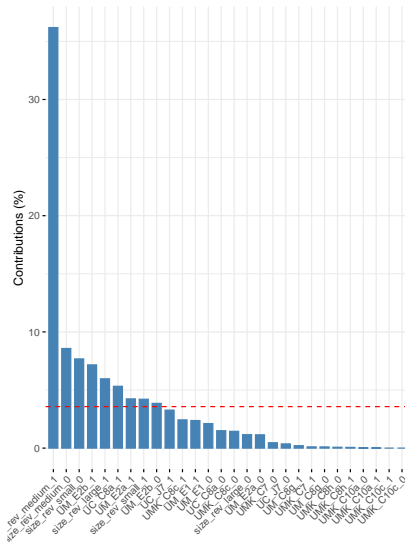


B Contribution of variables to Dim-2

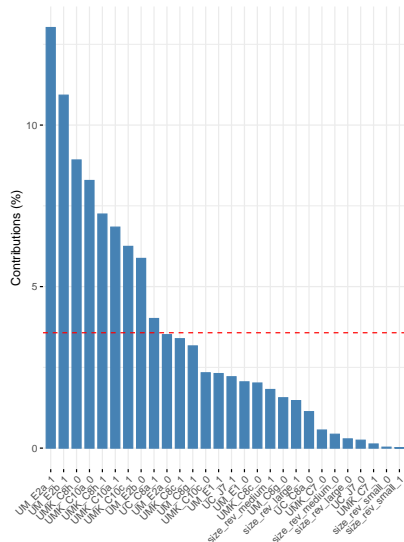


Contributions by Dimensions 3 and 4 Usage 2019

A Contribution of variables to Dim-3



B Contribution of variables to Dim-4



Index distribution Usage 2019

