

FULLER'S METHOD

specification of weights for selected criteria

on 09.05.2018 - 10:16:12

Input data for calculation of weights:

	Points	Weights
income (USD)	1	0.10000
living expenditure	3	0.30000
employment rate	2	0.20000
life expectancy	4	0.40000
homicide rate	0	0.00000

Fuller's triangle (Use shortcut Ctrl+J for change in preferences):

income (USD)	income (USD)	income (USD)	income (USD)
living expenditure	employment rate	life expectancy	homicide rate
living expenditure	living expenditure	living expenditure	
employment rate	life expectancy	homicide rate	
employment rate	employment rate		
life expectancy	homicide rate		
life expectancy			
homicide rate			

SAATY'S PROCEDURE

specification of weights for selected criteria

on 09.05.2018 - 10:17:00

Input data for calculation of weights:

	Points	Weights		
income (USD)	1.44332	0.26659		
housing expenditure	0.92373	0.17094		
employment rate	0.52234	0.09712		
life expectancy	2.25568	0.41876		
homicide rate	0.25023	0.04660		
	Lambda	5.39529	Consistency	YES
	CI	0.09882	Iteration	4

Saaty's triangle (Use shortcut C

income (USD)	income (USD)	income (USD)	income (USD)
housing expenditure	employment rate	life expectancy	homicide rate
3	3	3	5
housing expenditure	housing expenditure	housing expenditure	
employment rate	life expectancy	homicide rate	
3	3	5	
employment rate	employment rate		
life expectancy	homicide rate		
3	3		
life expectancy			
homicide rate			
5			

Saaty's matrix:

	income (USD)	housing expenditure	employment rate	life expectancy	homicide rate
income (USD)	1.00000	3.00000	3.00000	0.33333	5.00000
housing expenditure	0.33333	1.00000	3.00000	0.33333	5.00000
employment rate	0.33333	0.33333	1.00000	0.33333	3.00000
life expectancy	3.00000	3.00000	3.00000	1.00000	5.00000
homicide rate	0.20000	0.20000	0.33333	0.20000	1.00000

Weighting sum approach - WSA

Actual problem for 5 alternatives and 5 criteria

on 09.05.2018 - 10:19:54

Input data:

	MAX	MIN	MAX	MAX	MIN
	income (USD)	ing expeditur	employment rate	life expectancy	homicide rate
Czech Republic	21103	24	72	78.7	0.8
Austria	32544	21	72	81.3	0.4
Germany	33652	20	75	80.7	0.4
Poland	18906	23	65	76.7	0.8
Slovak Republic	20256	24	65	77.6	1.3
Weights	0.26659	0.17094	0.09712	0.41876	0.04660

Modified input data:

	MAX	MAX	MAX	MAX	MAX
	income (USD)	ing expeditur	employment rate	life expectancy	homicide rate
Czech Republic	21103	0	72	78.7	0.5
Austria	32544	3	72	81.3	0.9
Germany	33652	4	75	80.7	0.9
Poland	18906	1	65	76.7	0.5
Slovak Republic	20256	0	65	77.6	0
Weights	0.26659	0.17094	0.09712	0.41876	0.04660
Ideal	33652	4	75	81.3	0.9
Basal	18906	0	65	76.7	0

Normalised criterion matrix R:

	MAX	MAX	MAX	MAX	MAX
	income (USD)	ing expeditur	employment rate	life expectancy	homicide rate
Czech Republic	0.14899	0.00000	0.70000	0.43478	0.55556
Austria	0.92486	0.75000	0.70000	1.00000	1.00000
Germany	1.00000	1.00000	1.00000	0.86957	1.00000
Poland	0.00000	0.25000	0.00000	0.00000	0.55556
Slovak Republic	0.09155	0.00000	0.00000	0.19565	0.00000
Weights	0.26659	0.17094	0.09712	0.41876	0.04660

u(alternat)

0.31566

0.90810

0.94538

0.06862

0.10634

TOPSIS Method

Actual problem for 5 alternatives and 5 criteria

on 09.05.2018 - 10:20:11

Input data:

	MAX	MIN	MAX	MAX	MIN
	income (USD)	ing expeditur	ployment rate	life expectancy	homicide rate
Czech Republic	21103	24	72	78.7	0.8
Austria	32544	21	72	81.3	0.4
Germany	33652	20	75	80.7	0.4
Poland	18906	23	65	76.7	0.8
Slovak Republic	20256	24	65	77.6	1.3
Weights	0.26659	0.17094	0.09712	0.41876	0.04660

Modified input data:

	MAX	MIN	MAX	MAX	MIN
	income (USD)	ing expeditur	ployment rate	life expectancy	homicide rate
Czech Republic	21103	24	72	78.7	0.8
Austria	32544	21	72	81.3	0.4
Germany	33652	20	75	80.7	0.4
Poland	18906	23	65	76.7	0.8
Slovak Republic	20256	24	65	77.6	1.3
Weights	0.26659	0.17094	0.09712	0.41876	0.04660

Normalised criterion matrix R:

	MAX	MIN	MAX	MAX	MIN
	income (USD)	ing expeditur	ployment rate	life expectancy	homicide rate
Czech Republic	0.36167	0.47790	0.46053	0.44540	0.44105
Austria	0.55774	0.41816	0.46053	0.46012	0.22053
Germany	0.57673	0.39825	0.47972	0.45672	0.22053
Poland	0.32401	0.45799	0.41575	0.43409	0.44105
Slovak Republic	0.34715	0.47790	0.41575	0.43918	0.71671
Weights	0.26659	0.17094	0.09712	0.41876	0.04660

Weighted criterion matrix W:

	MAX	MIN	MAX	MAX	MIN
	income (USD)	ing expeditur	ployment rate	life expectancy	homicide rate
Czech Republic	0.09642	0.08169	0.04473	0.18652	0.02055
Austria	0.14869	0.07148	0.04473	0.19268	0.01028
Germany	0.15375	0.06808	0.04659	0.19126	0.01028
Poland	0.08638	0.07829	0.04038	0.18178	0.02055
Slovak Republic	0.09255	0.08169	0.04038	0.18391	0.03340
Weights	0.26659	0.17094	0.09712	0.41876	0.04660

Ideal	0.15375	0.06808	0.04659	0.19268	0.01028
Basal	0.08638	0.08169	0.04038	0.18178	0.03340

di+	di-	ci
0.06016	0.01752	0.22558
0.00638	0.06826	0.91454
0.00142	0.07340	0.98099
0.07005	0.01329	0.15946
0.06769	0.00653	0.08794

ELECTRE I Method

Actual problem for 5 alternatives and 5 criteria

on 09.05.2018 - 10:20:36

Input data:

	MAX	MIN	MAX	MAX	MIN
	income (USD)	ing expeditur	employment rate	life expectancy	homicide rate
Czech Republi	21103	24	72	78.7	0.8
Austria	32544	21	72	81.3	0.4
Germany	33652	20	75	80.7	0.4
Poland	18906	23	65	76.7	0.8
Slovak Republ	20256	24	65	77.6	1.3
Weights	0.26659	0.17094	0.09712	0.41876	0.04660

Modified input data:

	MAX	MAX	MAX	MAX	MAX
	income (USD)	ing expeditur	employment rate	life expectancy	homicide rate
Czech Republi	21103	0	72	78.7	0.5
Austria	32544	3	72	81.3	0.9
Germany	33652	4	75	80.7	0.9
Poland	18906	1	65	76.7	0.5
Slovak Republ	20256	0	65	77.6	0
Weights	0.26659	0.17094	0.09712	0.41876	0.04660

Matrix C:

	Czech Republi	Austria	Germany	Poland	Slovak Republ
Czech Republi	---	0.09712	0.00000	0.82906	1.00000
Austria	1.00000	---	0.46535	1.00000	1.00000
Germany	1.00000	0.58124	---	1.00000	1.00000
Poland	0.21753	0.00000	0.00000	---	0.31465
Slovak Republ	0.17094	0.00000	0.00000	0.78247	---

Matrix D:

	Czech Republi	Austria	Germany	Poland	Slovak Republ
Czech Republi	---	1.00000	1.00000	0.00046	0.00000
Austria	0.00000	---	1.00000	0.00000	0.00000
Germany	0.00000	0.00054	---	0.00000	0.00000
Poland	1.00000	1.00000	1.00000	---	1.00000
Slovak Republ	1.00000	1.00000	1.00000	0.00074	---

Matrix P:

	EFEKT				
	Czech Republi	Austria	Germany	Poland	Slovak Republ

Czech Republic	0	0	0	1	1
Austria	1	0	0	1	1
Germany	1	1	0	1	1
Poland	0	0	0	0	0
Slovak Republic	0	0	0	1	0
C = 0.50000		D = 0.50000			

PROMETHEE method

Actual problem for 5 alternatives and 5 criteria

on 09.05.2018 - 10:21:28

Preference function:

	3 - linear	▼	3 - linear	▼	3 - linear	▼	3 - linear	▼	3 - linear	▼
	income (USD);sing expeditur;ployment rate;life expectancy;homicide rate									
q-indif										
p-abs-pref	10000		2		2		1		0.2	
sigma										

Input data:

	MAX	MIN	MAX	MAX	MIN
	income (USD);sing expeditur;ployment rate;life expectancy;homicide rate				
Czech Republi	21103	24	72	78.7	0.8
Austria	32544	21	72	81.3	0.4
Germany	33652	20	75	80.7	0.4
Poland	18906	23	65	76.7	0.8
Slovak Republ	20256	24	65	77.6	1.3
Weights	0.26659	0.17094	0.09712	0.41876	0.04660

Matrix A:

	Czech Republi	Austria	Germany	Poland	Slovak Republ
Czech Republi	0.00000	0.00000	0.00000	0.57445	0.58505
Austria	0.90288	0.00000	0.25125	1.00000	1.00000
Germany	1.00000	0.21213	0.00000	1.00000	1.00000
Poland	0.08547	0.00000	0.00000	0.00000	0.13206
Slovak Republ	0.00000	0.00000	0.00000	0.41287	0.00000
F(-)	0.49709	0.05303	0.06281	0.74683	0.67928

F(+)	F
0.28988	-0.20721
0.78853	0.73550
0.80303	0.74022
0.05438	-0.69245
0.10322	-0.57606

Multicriteria evaluation of alternatives

input and edit of data

on 09.05.2018

	max	▼ min	▼ max	▼ max	▼ min	▼
	income (USD)	ing expeditur	employment rate	life expectancy	homicide rate	
Czech Republi	21103	24	72	78.7	0.8	
Austria	32544	21	72	81.3	0.4	
Germany	33652	20	75	80.7	0.4	
Poland	18906	23	65	76.7	0.8	
Slovak Republ	20256	24	65	77.6	1.3	
Weights	0.26659	0.17094	0.09712	0.41876	0.04660	

Test

Dominated

Non-dominated

Non-dominated

Dominated

Dominated

	income (USD)	housing expenditure (%)
Czech Repu	21103	24
Austria	32544	21
Germany	33652	20
Poland	18906	23
Slovak Rep	20256	24

employment rate (%)	life expectancy	homicide rate	
	72	78.7	0.8
	72	81.3	0.4
	75	80.7	0.4
	65	76.7	0.8
	65	77.6	1.3