Constructing an index of HIV policy environments for people who inject drugs (PWID) across European region

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The inherent problems of any index

- "…it is hard to imagine that debate on the use of composite indicators will ever be settled […] official statisticians may tend to resent composite indicators, whereby a lot of work in data collection and editing is "wasted" or "hidden" behind a single number of dubious significance. On the other hand, the temptation of stakeholders and practitioners to summarize complex and sometime elusive processes […] into a single figure […] seems likewise irresistible (Saisana et al., 2005a)

- "Composite indicators are much like mathematical or computational models. As such, their construction owes more to the craftsmanship of the modeller than to universally accepted scientific rules for encoding. With regard to models, the justification for a composite indicator lies in its fitness for the intended purpose and in peer acceptance." "Handbook on Constructing Composite Indicators" (OECD 2008)

The inherent problems of any index

- Arbitrary nature of the index's indicators
- Loss of information when indicators are aggregated
- Weighting scheme (which is also arbitrary)

Theoretical framework and methodology sources

- "Handbook on Constructing Composite Indicators" (OECD 2008)
- The choice of the indicators to be included to the index of HPEPWID was informed by international guidelines for prevention of HIV among PWID issued by WHO, UNAIDS, UNODC, international NGOs (e.g. International Harm Reduction Association (IHRA), International Network of People Who Use Drugs (INPUD)), and peer-reviewed literature in the field.
- Platt et al. (2013)
- Data availability

The indicators for construction of index of HIV policy environments for PWID

- Syringe exchange programs;
- Opiate substitution treatment;
- Antiretroviral treatment for HIV-positive PWID;
- Explicit inclusion of ‘harm reduction’ in national-level HIV prevention strategy;
- De-emphasizing criminalization through the use of administrative penalties for drug use possession for personal use
- Monitoring and evaluating HIV epidemics;
- Engagement of stakeholders in HIV prevention policy formation (indicated by evidence of a national organization of drug users);

Operationalization of the indicators for the index

1. OST per 100 IDUs (absent, low, medium, high)
2. NSP per 1 IDU (absent, low, medium, high)
3. Possession for personal use laws (no offence, non-criminal offence, criminal offence)
4. ART provision per 100 HIV-positive IDUs (absent, low, medium, high)
5. Monitoring and evaluating HIV epidemics (none – 0, behavioral or prevalence study- 1, both - 2)
6. Explicit mention of 'harm reduction' in national-level strategy(1/0)
7. Meaningful engagement of stakeholders in HIV prevention policy formation and programming (presence (1) or absence in a country (0) of a national self-organization of drug users.

Data Collection

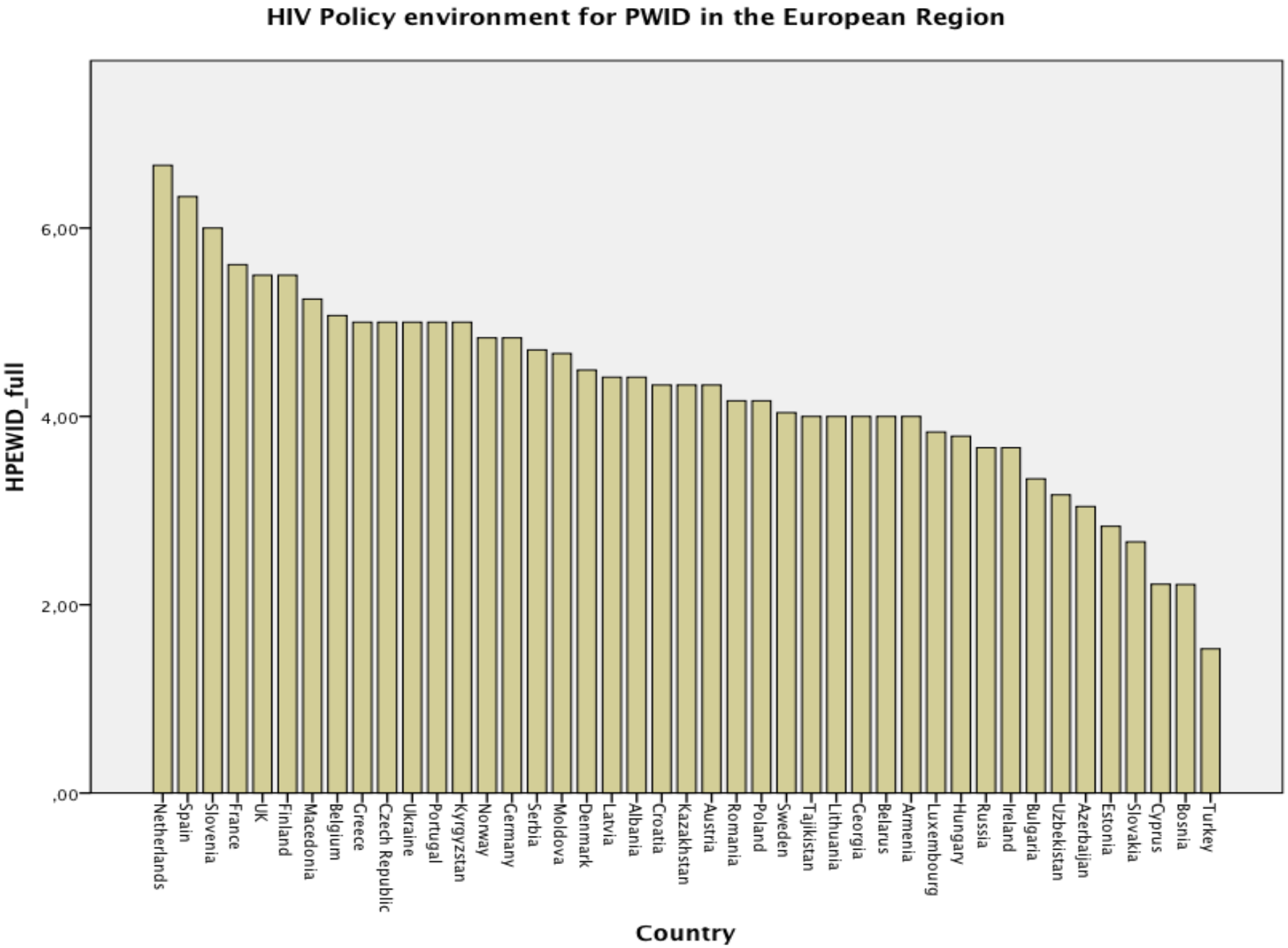
Survey of the peer-reviewed literature, grey literature in the form of world reports, regional reports, country reports, preliminary reports, technical reports, working papers, internet sites issued both by major agencies in the field of HIV/AIDS and drug use such as WHO, UNAIDS, UNODC, UNGASS, EMCDDA, World Bank, IHRA, PEPFAR as well as by various international (e.g. INPUD, ENPUD), national, regional, and local NGOs in the field. We have also reviewed countries' National Drug strategies, National HIV strategies, and National Criminal Codes to collect the data. Data collection also included numerous personal communications with experts from EMCDDA, Reference Group to the UN on HIV and Injection Drug Use, INPUD, ENPUD and a host of local NGOs. We have deleted Andorra, San Marino, Switzerland, Iceland, Israel, Monaco, Malta from the dataset as they lacked values for the most index indicators. Thus the final dataset contained 43 countries. Unfortunately, data on ART were present only for 27 countries in the region.

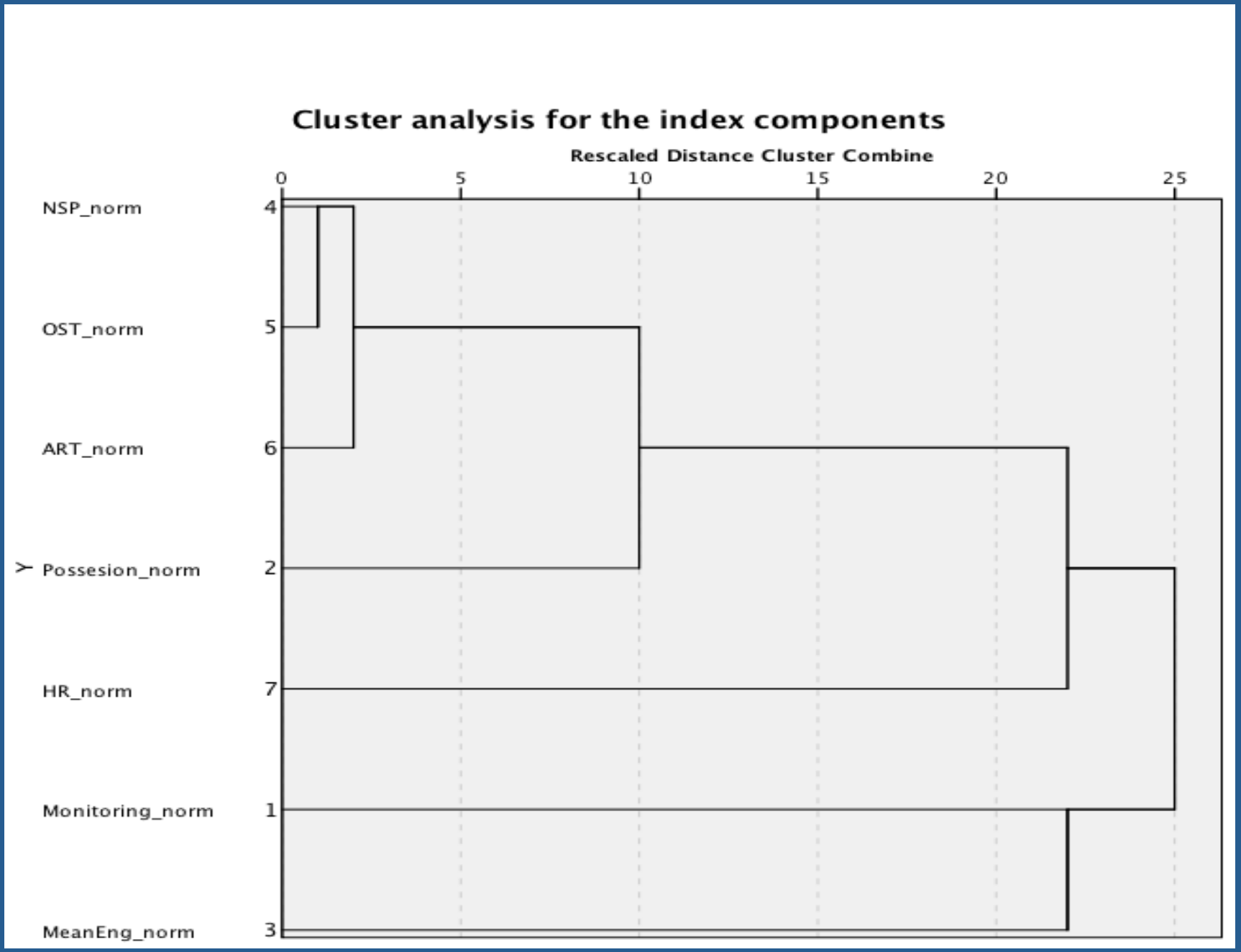
Imputation of missing data

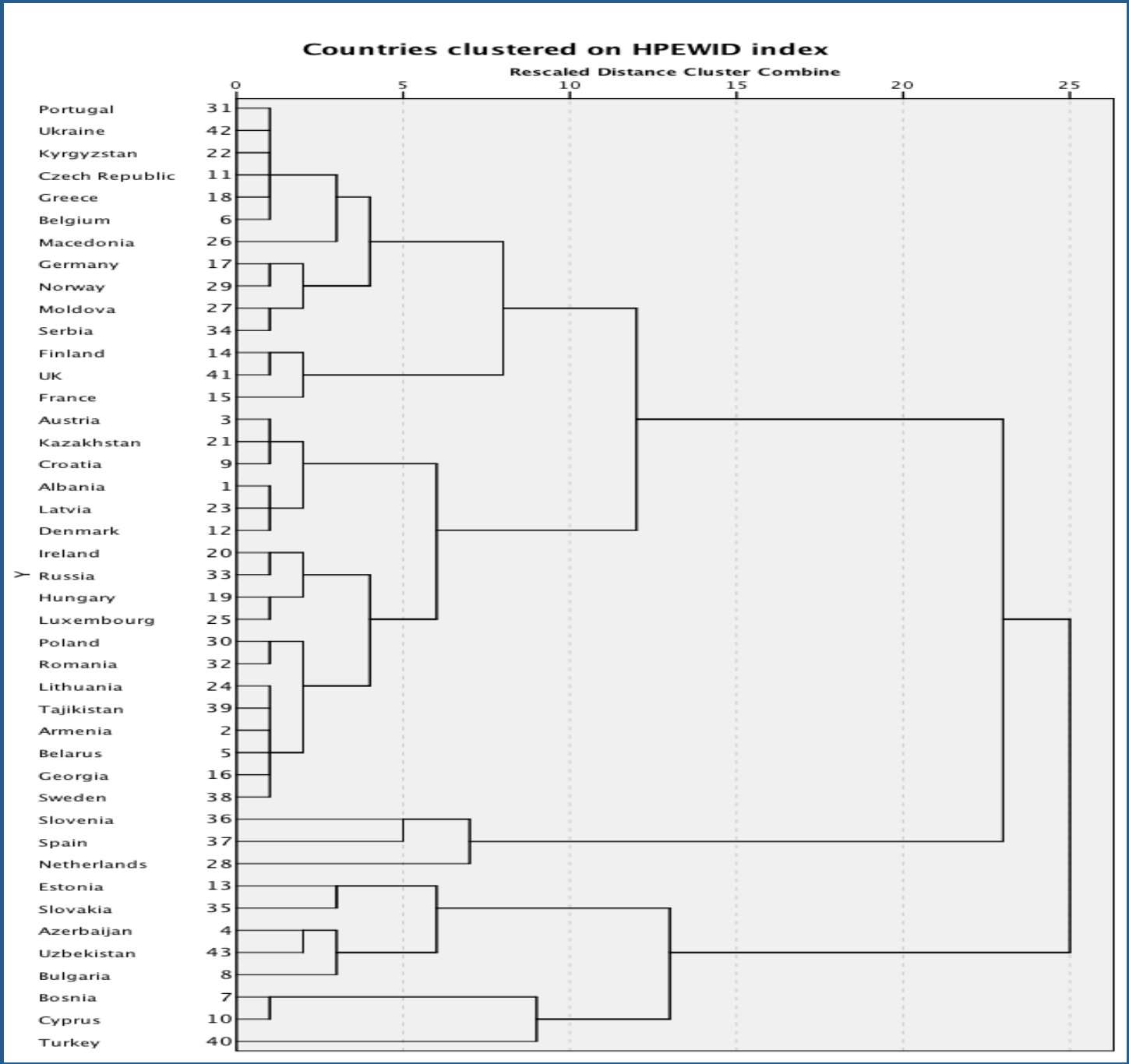
- Little's MCAR test significant (p = .024)
- There is not standard procedure that could definitely tell, whether the missing values are of MNAR of MAR nature. SPSS missing value analysis (MVA) package generates "Separate Variance t Tests" for the model used for prediction of missing values. After the execution of these tests we could see that the missingness of variable ART (to which the missing values were to be imputed) was related with the variable NSP (p = . 000), which indicates that the missing data are MAR, not MNAR.
- We used expectation maximization method (EM) for imputation of missing values as the literature supports the equivalence of multiple imputation (MI), (EM) estimations.

Building the index

- After obtaining the full dataset without missing values we built the HPEWID index normalizing each indicator using the Min-Max formula (X- Xmin)/(Xmax- Xmin) (employed at the construction of Human Development Index and other indices) and aggregating the normalized scores with equal weights


HIV Policy environment for PWID in the European Region
HPEWID_full
6,00
4,00
2,00
,00
Netherlands
Spain
Slovenia
France
UK
Finland
Macedonia
Belgium
Greece
Czech Republic
Ukraine
Portugal
Kyrgyzstan
Norway
Germany
Serbia
Moldova
Denmark
Latvia
Albania
Croatia
Kazakhstan
Austria
Romania
Poland
Sweden
Tajikistan
Lithuania
Georgia
Belarus
Armenia
Luxembourg
Hungary
Russia
Ireland
Bulgaria
Uzbekistan
Azerbaijan
Estonia
Slovakia
Cyprus
Bosnia
Turkey
Country


Cluster analysis for the index components
Rescaled Distance Cluster Combine
0
5
10
15
20
25
NSP_norm
4
OST_norm
5
ART_norm
6
Possesion_norm
2
HR_norm
7
Monitoring_norm
1
MeanEng_norm
3


Countries clustered on HPEWID index
Rescaled Distance Cluster Combine
0
5
10
15
20
25
Portugal 31
Ukraine 42
Kyrgyzstan 22
Czech Republic 11
Greece 18
Belgium 6
Macedonia 26
Germany 17
Norway 29
Moldova 27
Serbia 34
Finland 14
UK 41
France 15
Austria 3
Kazakhstan 21
Croatia 9
Albania 1
Latvia 23
Denmark 12
Ireland 20
Russia 33
Hungary 19
Luxembourg 25
Poland 30
Romania 32
Lithuania 24
Tajikistan 39
Armenia 2
Belarus 5
Georgia 16
Sweden 38
Slovenia 36
Spain 37
Netherlands 28
Estonia 13
Slovakia 35
Azerbaijan 4
Uzbekistan 43
Bulgaria 8
Bosnia 7
Cyprus 10
Turkey 40
Y

	Countries	Average index score	Descrption
First cluster	Slovenia Spain Netherlands	6,3	"Leaders"
Second cluster	Portugal Ukraine Kyrgyzstan Czech Republic Greece Belgium Macedonia Germany Norway Moldova Serbia Finland UK France	5,04	"Progressives"
Third cluster	Austria Kazakhstan Croatia Albania Latvia Denmark Ireland Russia Hungary Luxembourg Poland Romania Lithuania Tajikistan Armenia Belarus Georgia Sweden	3,8	Mixed – liberal - conservatives
Fourth cluster	Estonia Slovakia Azerbaijan Uzbekistan Bulgaria	3,01	Conservative 1
Fifth Cluster	Bosnia Cyprus	2,22	Conservative 2
Sixth cluster	Turkey	1,53	Most conservative

Thank you for your attention!

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