RIF Index

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### RIF\_all\_4: all parameters, country column

# Load necessary libraries  
required\_packages <- c("stringi", "dplyr")  
  
# Install missing packages  
new\_packages <- required\_packages[!(required\_packages %in% installed.packages()[, "Package"])]  
if(length(new\_packages)) install.packages(new\_packages)  
  
# Load packages  
lapply(required\_packages, library, character.only = TRUE)

##   
## Attaching package: 'dplyr'

## The following objects are masked from 'package:stats':  
##   
## filter, lag

## The following objects are masked from 'package:base':  
##   
## intersect, setdiff, setequal, union

## [[1]]  
## [1] "stringi" "stats" "graphics" "grDevices" "utils" "datasets"   
## [7] "methods" "base"   
##   
## [[2]]  
## [1] "dplyr" "stringi" "stats" "graphics" "grDevices" "utils"   
## [7] "datasets" "methods" "base"

# Define function RIF\_by\_type\_adapted  
RIF\_by\_type <- function(data, xmin, alfa) {  
 # Automatically detect the numerical and character columns  
 numeric\_col <- names(Filter(is.numeric, data))[1]  
 char\_col <- names(Filter(is.character, data))[1]  
   
 count <- data[[numeric\_col]]  
 filtered\_count <- count[count >= xmin]  
   
 if (length(filtered\_count) == 0) {  
 return(data.frame())  
 }  
   
 rank\_xmin <- 1:length(filtered\_count)  
 filtered\_data <- data[count >= xmin, ]  
 dt <- data.frame(Rank = rank\_xmin, Count = filtered\_count)  
 dt$log\_Rank <- log(dt$Rank)  
 dt$log\_Count <- log(dt$Count)  
   
 model <- lm(log\_Count ~ log\_Rank, data = dt)  
 s <- summary(model)  
   
 intercept <- coef(model)[1]  
 slope <- coef(model)[2]  
 delta <- exp(intercept)  
 beta <- slope  
   
 theta <- -alfa \* beta  
 fraction\_rank <- (rank\_xmin) ^ (-theta)  
 sum\_rank <- sum(fraction\_rank)  
 A\_rank <- 1 / sum\_rank  
   
 probabilities\_rank <- A\_rank \* fraction\_rank  
 ratio <- probabilities\_rank[1] / probabilities\_rank  
   
 fraction\_x <- 1 / (filtered\_count) ^ alfa  
 sum\_x <- sum(fraction\_x)  
 C\_rank <- 1 / sum\_x  
 B\_rank <- (A\_rank \* C\_rank) / (delta ^ alfa)  
   
 result\_data <- data.frame(  
 Rank = rank\_xmin,   
 Concept = filtered\_data[[char\_col]],  
 Count = filtered\_count,   
 Probability = round(probabilities\_rank, 3),  
 Ratio = round(ratio, 3),  
 alfa = round(alfa, 3),  
 xmin = xmin,  
 delta = round(delta, 3),  
 beta = round(beta, 3),  
 r.squared = round(s$r.squared, 3),   
 theta = round(theta, 3),  
 A = round(A\_rank, 3),  
 B = round(B\_rank, 3),  
 C = round(C\_rank, 3)  
 )  
   
 # Make all rows except the first one empty for columns from 'alfa' onwards  
 result\_data[-1, 6:ncol(result\_data)] <- ""  
  
 # Return the complete dataframe  
 return(result\_data)  
}

### RIF\_all\_4: All Keywords

data <- read.csv("../data/all\_cleaned\_keyword\_frequency.csv")  
  
RIF\_by\_type(data, 27, 2.337)

## Rank Concept Count Probability Ratio alfa xmin  
## 1 1 climate change 527 0.457 1.000 2.337 27  
## 2 2 vulnerability 394 0.151 3.024   
## 3 3 sustainability 234 0.079 5.777   
## 4 4 human 192 0.050 9.144   
## 5 5 natural hazard 174 0.035 13.058   
## 6 6 disaster management 172 0.026 17.469   
## 7 7 disaster 162 0.020 22.344   
## 8 8 adaptive management 161 0.017 27.652   
## 9 9 risk assessment 155 0.014 33.373   
## 10 10 adaptation 154 0.012 39.486   
## 11 11 social capital 142 0.010 45.975   
## 12 12 covid-19 141 0.009 52.827   
## 13 13 sustainable development 131 0.008 60.027   
## 14 14 social resilience 125 0.007 67.566   
## 15 15 livelihood 120 0.006 75.433   
## 16 16 urban planning 113 0.005 83.620   
## 17 17 decision making 111 0.005 92.118   
## 18 18 governance approach 109 0.005 100.919   
## 19 19 urban area 104 0.004 110.017   
## 20 20 flood 103 0.004 119.405   
## 21 21 migration 98 0.004 129.077   
## 22 22 community resilience 95 0.003 139.028   
## 23 23 neoliberalism 92 0.003 149.253   
## 24 24 social network analysis 83 0.003 159.746   
## 25 25 conceptual framework 82 0.003 170.503   
## 26 26 urbanization 79 0.003 181.521   
## 27 27 perception 79 0.002 192.793   
## 28 28 flooding 76 0.002 204.318   
## 29 29 adaptive capacity 75 0.002 216.091   
## 30 30 urban resilience 73 0.002 228.109   
## 31 31 rural area 73 0.002 240.367   
## 32 32 stakeholder 70 0.002 252.865   
## 33 33 fishery management 69 0.002 265.597   
## 34 34 local participation 67 0.002 278.561   
## 35 35 qualitative analysis 67 0.002 291.755   
## 36 36 ecosystem resilience 64 0.001 305.176   
## 37 37 survey 64 0.001 318.821   
## 38 38 urban development 62 0.001 332.687   
## 39 39 poverty 58 0.001 346.773   
## 40 40 strategic approach 55 0.001 361.077   
## 41 41 social media 54 0.001 375.595   
## 42 42 fishing community 53 0.001 390.325   
## 43 43 governance 53 0.001 405.267   
## 44 44 policy making 52 0.001 420.417   
## 45 45 environmental change 51 0.001 435.774   
## 46 46 food security 50 0.001 451.336   
## 47 47 spatiotemporal analysis 50 0.001 467.101   
## 48 48 fishery 47 0.001 483.067   
## 49 49 risk perception 47 0.001 499.233   
## 50 50 risk 47 0.001 515.597   
## 51 51 geographic information system 44 0.001 532.158   
## 52 52 gender 44 0.001 548.913   
## 53 53 earthquake 42 0.001 565.861   
## 54 54 environmental policy 42 0.001 583.002   
## 55 55 government 41 0.001 600.332   
## 56 56 community 41 0.001 617.852   
## 57 57 spatial analysis 41 0.001 635.559   
## 58 58 female 41 0.001 653.453   
## 59 59 participatory approach 39 0.001 671.531   
## 60 60 social-ecological system 39 0.001 689.794   
## 61 61 hazard assessment 39 0.001 708.238   
## 62 62 adult 38 0.001 726.864   
## 63 63 equity 37 0.001 745.670   
## 64 64 community development 37 0.001 764.655   
## 65 65 male 37 0.001 783.817   
## 66 66 development 37 0.001 803.157   
## 67 67 local government 37 0.001 822.671   
## 68 68 drought 36 0.001 842.361   
## 69 69 hazard management 36 0.001 862.224   
## 70 70 education 36 0.001 882.259   
## 71 71 rural development 35 0.001 902.465   
## 72 72 tourism 35 0.000 922.843   
## 73 73 innovation 35 0.000 943.389   
## 74 74 risk management 34 0.000 964.104   
## 75 75 comparative study 34 0.000 984.987   
## 76 76 nature-society relations 34 0.000 1006.037   
## 77 77 climate change adaptation 33 0.000 1027.252   
## 78 78 disaster planning 33 0.000 1048.633   
## 79 79 psychology 33 0.000 1070.177   
## 80 80 socioeconomic conditions 33 0.000 1091.885   
## 81 81 economic development 32 0.000 1113.755   
## 82 82 water management 32 0.000 1135.787   
## 83 83 agriculture 31 0.000 1157.980   
## 84 84 coping strategy 31 0.000 1180.333   
## 85 85 collective action 31 0.000 1202.845   
## 86 86 politics 30 0.000 1225.515   
## 87 87 knowledge 30 0.000 1248.344   
## 88 88 informal settlement 30 0.000 1271.329   
## 89 89 urban population 30 0.000 1294.471   
## 90 90 learning 29 0.000 1317.768   
## 91 91 rural population 29 0.000 1341.220   
## 92 92 rural economy 29 0.000 1364.827   
## 93 93 developing world 29 0.000 1388.587   
## 94 94 water supply 28 0.000 1412.500   
## 95 95 disaster risk reduction 28 0.000 1436.565   
## 96 96 empirical analysis 28 0.000 1460.782   
## 97 97 regression analysis 28 0.000 1485.149   
## 98 98 natural resource 28 0.000 1509.667   
## 99 99 household survey 28 0.000 1534.335   
## 100 100 flood control 27 0.000 1559.151   
## delta beta r.squared theta A B C  
## 1 671.805 -0.683 0.978 1.596 0.457 0 61.86  
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# Export to CSV  
# write.csv(RIF\_Colombia, file = "RIF\_Colombia.csv", row.names = FALSE)