灰色邓氏关联度分析

% P12 -- The Study on the Grey Relational Degree and Its Application

function r1 = gld\_deng(x)

s = size(x);

len = s(2);

num = s(1);

ro = 0.5;

for i = 1: num

x(i,:) = x(i,:)./x(i,1);

end

dx(num,len) = 0;

for i = 2 : num

for k = 1 : len

dx(i,k) = abs(x(1,k) - x(i,k));

end

end

max\_dx = max(max(dx));

min\_dx = min(min(dx));

r(1,1:len-1) = 1;

for i = 2 : num

for k = 1 : len

r(i,k) = (min\_dx + ro\*max\_dx)/(dx(i,k) + ro\*max\_dx);

end

end

r1 = sum(r(2:num,:),2)/(len);

改进灰色绝对关联度分析

% P11 -- The Study on the Grey Relational Degree and Its Application

function r1 = gld\_gjjd(x)

s = size(x);

len = s(2);

num = s(1);

for i = 1: num

x(i,:) = x(i,:)./x(i,1);

end

dx(num,len-1) = 0;

for i = 1 : num

for j = 1 : len - 1

dx(i,j) = x(i,j+1) - x(i,j);

end

end

c = 1;

beta(1,1:len-1) = 0;

w(1,1:len-1) = 0;

for i = 2 : num

temp = sum(abs(x(i,:) - x(1,:)),2);

for k = 1 : len - 1

beta(i,k) = atan((dx(i,k) - dx(1,k))/(1 + dx(i,k)\*dx(1,k)));

if beta(i,k) < 0

beta(i,k) = pi + beta(i,k);

end

w(i,k) = 1 - abs(x(i,k) - x(1,k))/temp;

end

end

r = c./(c + tan(beta./2));

wr = w.\*r;

r1 = sum(wr(2:num,:),2)/(len - 1);

灰色绝对关联度分析

% P18 -- The Study on the Grey Relational Degree and Its Application

function r1 = gld\_jd(x)

s = size(x);

len = s(2);

num = s(1);

for i = 1: num

x(i,:) = x(i,:)./x(i,1);

end

dx(num,len-1) = 0;

for i = 1 : num

for j = 1 : len - 1

dx(i,j) = x(i,j+1) - x(i,j);

end

end

r(1,1:len-1) = 1;

for i = 2 : num

for k = 1 : len - 1

r(i,k) = 1/(1 + abs(dx(1,k) - dx(i,k)));

end

end

r1 = sum(r(2:num,:),2)/(len - 1);

灰色T型关联度分析

% P19 -- The Study on the Grey Relational Degree and Its Application

function r1 = gld\_t(x)

s = size(x);

len = s(2);

num = s(1);

dx(num,len-1) = 0;

for i = 1 : num

for j = 1 : len - 1

dx(i,j) = abs(x(i,j+1) - x(i,j));

end

d\_x = sum(dx(i,:),2)/(len - 1);

x(i,:) = x(i,:)./d\_x;

end

dx(num,len-1) = 0;

for i = 1 : num

for j = 1 : len - 1

dx(i,j) = x(i,j+1) - x(i,j);

end

end

r(1,1:len-1) = 1;

for i = 2 : num

for k = 1 : len - 1

if dx(1,k)\*dx(i,k) == 0

r(i,k) = sign(dx(1,k)\*dx(i,k));

else

r(i,k) = sign(dx(1,k)\*dx(i,k))\*min(abs(dx(1,k)),abs(dx(i,k))) / max(abs(dx(1,k)),abs(dx(i,k)));

end

end

end

r1 = sum(r(2:num,:),2)/(len - 1);

灰色斜率关联度分析

% P20 -- The Study on the Grey Relational Degree and Its Application

function r1 = gld\_xl(x)

s = size(x);

len = s(2);

num = s(1);

for i = 1: num

x(i,:) = x(i,:)./x(i,1);

end

dx(num,len-1) = 0;

for i = 1 : num

for j = 1 : len - 1

dx(i,j) = x(i,j+1) - x(i,j);

end

end

r(1,1:len-1) = 1;

for i = 2 : num

for k = 1 : len - 1

r(i,k) = 1/(1 + abs(dx(1,k)/x(1,k+1) - dx(i,k)/x(i,k+1)));

end

end

r1 = sum(r(2:num,:),2)/(len - 1);