Priority options for the 17 UN Sustainable Development Strategies-- Based on the model network perspective

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Abstract. The United Nations has set 17 Sustainable Development Goals (SDGs), which are expected to be achieved by 2030. In order to achieve these goals as soon as possible, we need to prioritize the selection of SDGs that have a significant role, a high impact, and a wide range of relevance, and focus our efforts on prioritizing these goals. This paper mainly adopts the method of building mathematical models to study, aiming at the relationship between 17SDGs, the selection of priorities, and the test of models, three models are mainly established after the target is quantified. On the combing of the relationship, the goal relation network between 17SDGs is obtained by establishing the grey relational degree - ISM coupling model. With regard to priority selection, the Dematel model was established to calculate the impact degree, affected degree, centrality, cause degree and weight of goals, and some priorities in 17SDGs were established through analysis. As for the model testing, based on the actual situation in China, the coupled model of grey forecasting and multiple linear regression was established to predict the situation of each SDGs after 10 years to achieve the role of model testing. Combined with the current reality, the model is actually applied against the background of the current international pandemic of COVID-19, and the goal relation network and priorities of the current 17SDGs are obtained. The results show that the current implementation of 17SDGs can be divided into one, two, and three levels in order of priority from urgent to slow. Focusing on achieving the highest priority goals in this general order will have a wider and more visible impact, while removing some obstacles and providing more support for the realization of the lower goals, so that all SDGs can be achieved as soon as possible.

Keywords: Grey Relational Analysis, Interpretative Structural Modeling, Dematel model, Multiple linear regression.

1. Introduction and literature review

1.1 Introduction

On September 25, 2015, the United Nations Sustainable Development Summit was held at its headquarters in New York, where 193 member States formally adopted 17 Sustainable Development Goals (SDGs). 17 The progressive realization of the SDGs will continue to address the social, economic and environmental dimensions of development in an integrated manner between 2015 and 2030, moving the world further towards a sustainable development path. Since then, the United Nations has worked to mobilize global efforts to achieve the 17 SDGs. 17SDGs cover a lot of areas, and its implementation is full of challenges. Based on this situation, it is necessary to make a judgment on the priority of 17SDGs, identify some of the broader priorities and work to achieve them first, reduce resistance to the realization of other SDGs, and thus improve the efficiency of achieving all SDGs.

1.2 Literature review

The Dematel model, proposed at A conference in Geneva in 1971 by A. Gabus and E. Fontela of Battelle Laboratory in the United States, is a systematic analysis method using graph theory and matrix tools. At present, Dematel model has been widely used in various fields. In 2015, Akyuz E et al. combined fuzzy set theory and Dematel model to assess the hazards of critical operations during the exhaust of crude oil tankers. In 2020, Zhang et al. combined DEMATEL with logic trees to identify the critical risks of subsea oil pipeline leaks and take emergency compensation measures. In 2020, Yue Rentian et al. used Dematel in conjunction with ISM to analyze the potential risks in the operation of airlines. It can be seen that the application scenarios of DEMATEL model are very rich, and it is widely used in environment, ocean and other aspects, but it is rarely used in the assessment of comprehensive matters.

About ISM, in 1976, in Societal Systems: Planning, Policy, and Complexity, John N. Warfield first used ISM technology to reveal the problem of complexity, and since then the ISM method was born. With the help of the computer, it uses the directed graph and the structure matrix to analyze the direct or indirect relations between all the components involved, and turns the various messy relations between the elements into a clear multi-level hierarchical structure model. ISM fully embodies and reflects people's thinking process, integrating two research methods of qualitative analysis and quantitative analysis, including human knowledge and practice, and quantitative data analysis. ISM has clear structure, simple calculation, intuitive conclusion, easy to understand, and high credibility. It can be widely used in various application scenarios such as evaluation. It has good compatibility and can be combined with a variety of models.

2. Model building

2.1 Relational network analysis based on grey relational degree and interpretive structure coupling model

After the index is selected and quantified, the gray correlation degree (GRA) -Interpretation structure coupling model (ISM) is established to obtain the relationship network of the target. The corresponding relationship between selected targets and indicators is as follows:

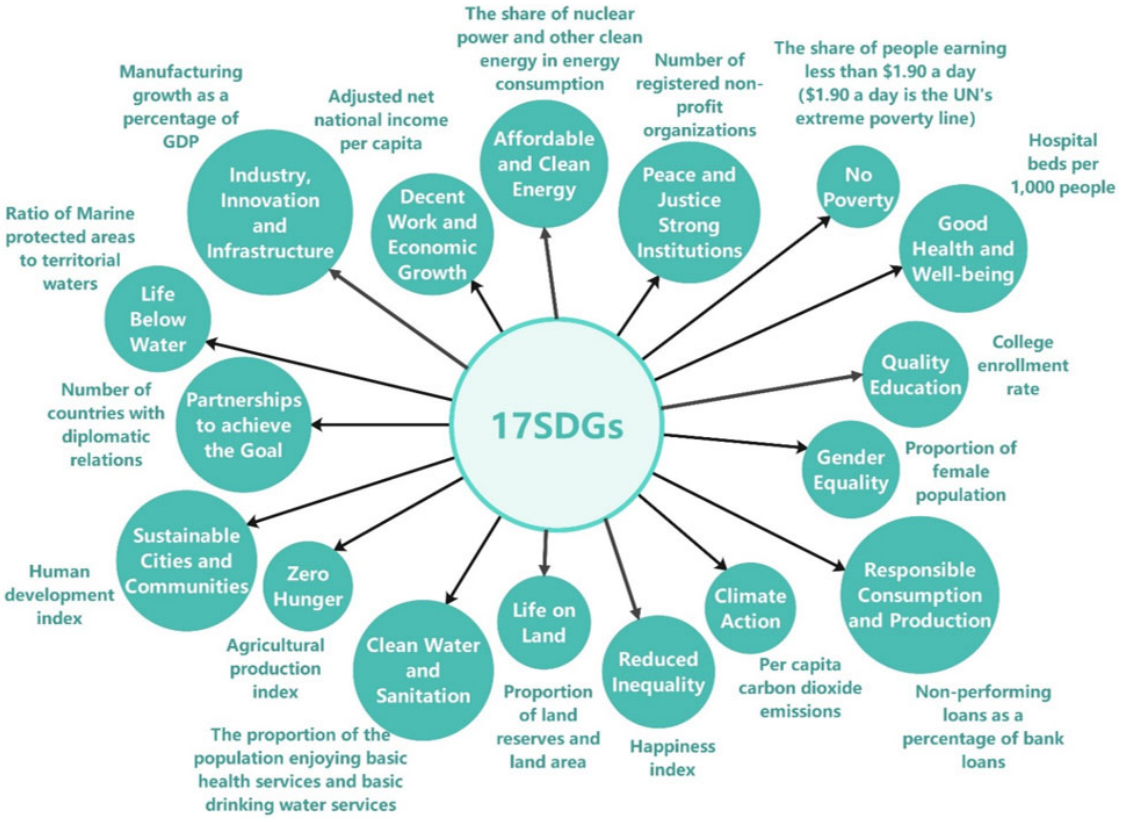


Fig 1: Selection index of 17 SDGs

For ease of expression and calculation, the following abbreviations of the 17 Sustainable Development Goals are simplified as follows:

TBL 1: Short schematic table

Simplified appellation	Full name	Goal number
NP	No Poverty	GOAL 1
ZH	Zero Hunger	GOAL 2
GHW	Good Health and Well-being	GOAL 3
QE	Quality Education	GOAL 4
GE	Gender Equality	GOAL 5
CWS	Clean Water and Sanitation	GOAL 6
ACE	Affordable and Clean Energy	GOAL 7
DWEG	Decent Work and Economic Growth	GOAL 8
3I	Industry, Innovation and Infrastructure	GOAL 9
RI	Reduced Inequality	GOAL 10
SCC	Sustainable Cities and Communities	GOAL 11
RCP	Responsible Consumption and Production	GOAL 12
CA	Climate Action	GOAL 13
LBW	Life Below Water	GOAL 14
LOL	Life on Land	GOAL 15
PJSI	Peace and Justice Strong Institutions	GOAL 16
PAG	Partnerships to achieve the Goal	GOAL 17

The above indexes are defined as x_1, x_2, x_3, …, x_{17}, and then grey relational degree analysis is carried out. The relevant data of the above indicators are obtained through the International Statistical Yearbook. After repairing the missing data and eliminating the outlier, and conducting the dimensionless processing of the data, the grey correlation coefficient is obtained from the following announcements:

$$\xi_{0i} = \frac{\Delta(min) + \rho\Delta(max)}{\Delta_{0i}(k) + \rho\Delta(max)} \quad (1)$$

Where ρ is the resolution coefficient and ρ>0. The smaller ρ is, the greater the resolution, and the general value interval of ρ is (0,1), where 0.5 is taken. Δmin and Δmax are the minimum and maximum difference of the second order respectively.

Then find the correlation degree r_i:

$$r_i = \frac{1}{N}\sum_{k=1}^{N}\xi_i(k) \quad (2)$$

Finally, the structural interpretation model is established. After gray analysis, the correlation degree among indicators is obtained, the threshold value is set at 0.8, and the correlation degree is 0 when it is lower than 0.8 and 1 when it is higher than 0.8. The adjacency matrix is constructed, and then the reachable matrix is solved.

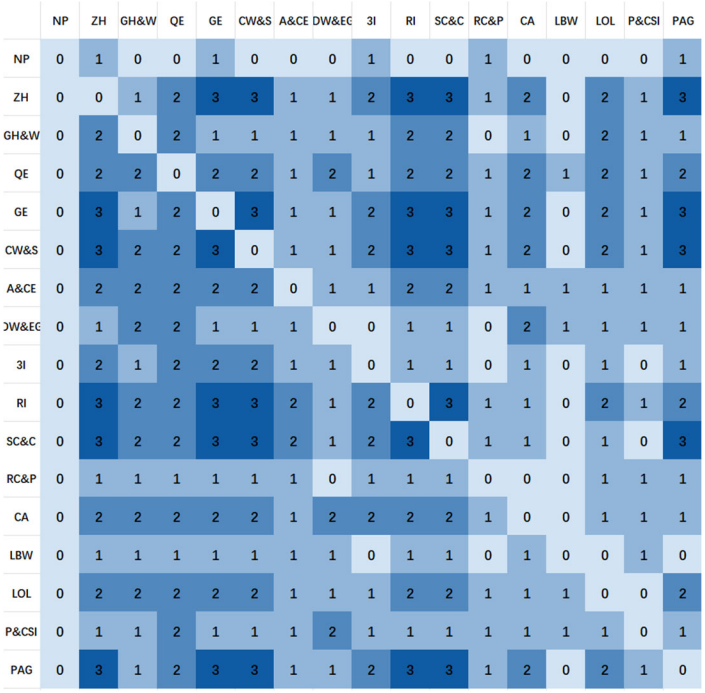
	NP	ZH	GH&W	QE	GE	CW&S	A&CE	DW&E	3I	RI	SC&C	RC&P	CA	LBW	LOL	P&CSI	PAG
NP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ZH	0	0	0	1	1	1	0	0	1	1	1	0	1	0	1	0	1
GH&W	0	1	0	1	0	0	0	0	0	1	1	0	0	0	1	0	0
QE	0	1	1	0	1	1	0	1	0	1	1	0	1	0	1	0	1
GE	0	1	0	1	0	1	0	0	1	1	1	0	1	0	1	0	1
CW&S	0	1	1	1	1	0	0	0	1	1	1	0	1	0	1	0	1
A&CE	0	1	1	1	1	1	0	0	0	1	1	0	0	0	0	0	0
DW&E	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0
3I	0	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0
RI	0	1	1	1	1	1	1	0	1	0	1	0	0	0	1	0	1
SC&C	0	1	1	1	1	1	1	0	1	1	0	0	0	0	0	0	1
RC&P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CA	0	1	1	1	1	1	0	1	1	1	1	0	0	0	0	0	0
LBW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LOL	0	1	1	1	1	1	0	0	0	1	1	0	0	0	0	0	1
P&CSI	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
PAG	0	1	0	1	1	1	0	0	1	1	1	0	1	0	1	0	0

FIG 2: Adjacency matrix

2.2 Priority selection based on multi-model composite

2.2.1 Priority selection based on Dematel model

The direct impact matrix was constructed, three social science experts were consulted, and they were invited to score 17 influencing factors, with 0 to 3 indicating the degree of influence as no influence, little influence, moderate influence, and great influence.



	NP	ZH	GH&W	QE	GE	CW&S	A&CE	DW&EC	3I	RI	SC&C	RC&P	CA	LBW	LOL	P&CSI	PAG
NP	0	1	0	0	1	0	0	0	1	0	0	1	0	0	0	0	1
ZH	0	0	1	2	3	3	1	1	2	3	3	1	2	0	2	1	3
GH&W	0	2	0	2	1	1	1	1	1	2	2	0	1	0	2	1	1
QE	0	2	2	0	2	2	1	2	1	2	2	1	2	1	2	1	2
GE	0	3	1	2	0	3	1	1	2	3	3	1	2	0	2	1	3
CW&S	0	3	2	2	3	0	1	1	2	3	3	1	2	0	2	1	3
A&CE	0	2	2	2	2	2	0	1	1	2	2	1	1	1	1	1	1
DW&EC	0	1	2	2	1	1	1	0	0	1	1	0	2	1	1	1	1
3I	0	2	1	2	2	2	1	1	0	1	1	0	1	0	1	0	1
RI	0	3	2	2	3	3	2	1	2	0	3	1	1	0	2	1	2
SC&C	0	3	2	2	3	3	2	1	2	3	0	1	1	0	1	0	3
RC&P	0	1	1	1	1	1	1	0	1	1	1	0	0	0	1	1	1
CA	0	2	2	2	2	2	1	2	2	2	2	1	0	0	1	1	1
LBW	0	1	1	1	1	1	1	1	0	1	1	0	1	0	0	1	0
LOL	0	2	2	2	2	2	1	1	1	2	2	1	1	1	0	0	2
P&CSI	0	1	1	2	1	1	1	2	1	1	1	1	1	1	1	0	1
PAG	0	3	1	2	3	3	1	1	2	3	3	1	2	0	2	1	0

FIG 3: Influence matrix

2.2.2 The comprehensive influence matrix is calculated

Let matrix A be the result of normalization directly affecting the processing, then:

$$A = (a_{ij})_{n\times n} = \frac{x_{ij}}{\max\limits_{1\le i\le n}\sum_{j=1}^{n} x_{ij}}; i, j = 1,2,\cdots,n \quad (3)$$

Calculate the comprehensive influence matrix T:

$$T = (A + A^2 + \cdots + A^k) = \sum_{K=1}^{\infty} A^k = A(1-A)^{-1} \quad (4)$$

2.2.3 Calculate the index and weight

For indicators, set impact degree to D_i, affected degree to C_i, center degree to M_i, and cause degree to R_i, then:

$$D_i = \sum_{j=1}^{n} x_{ij}, (i = 1,2,\cdots,n) \quad (5)$$

$$C_i = \sum_{j=1}^{n} x_{ij}, (i = 1,2,\cdots,n) \quad (6)$$

$$M_i = D_i + C_i \quad (7)$$

$$R_i = D_i - C_i \quad (8)$$

Regarding weights, the normalization process is carried out by combining D_i and C_i, and the weights of each element are obtained, as shown in the figure below:

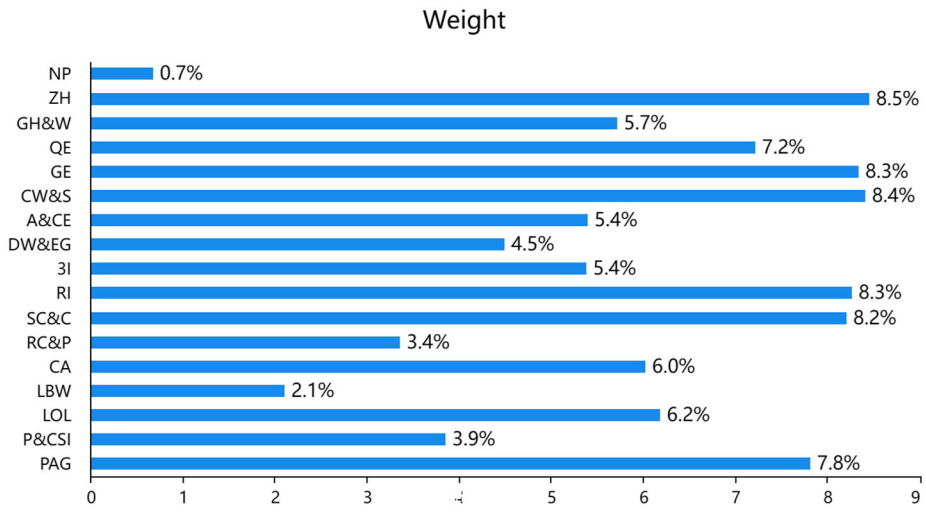


FIG 4: 17 SDGs weight diagram

2.2.4 Priority selection

According to the calculation of the impact degree index, the following results are obtained:

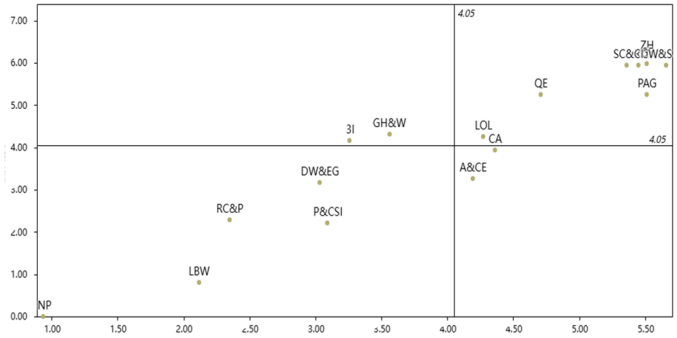


FIG 5: The degree of influence and be influenced

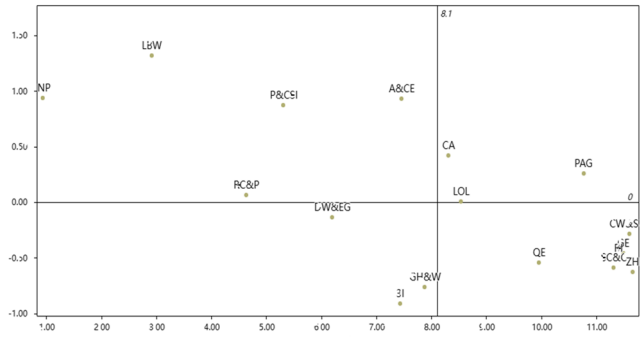


FIG 6: Centrality - C value graph

The first quadrant represents high centrality and high causation. This means that the factors of the indicators in the first quadrant are in high importance and they are also the cause factors. In the previous one, the figure shows that the factors with high influence are: 3I, GHW and ACE.In the latter one, according to the calculation results, NP, LBW, P&CSI, ACE and RCP are of high importance and are cause factors.

According to the above results of impact indicators, we choose the following five as priority development items. They are 3I、GHW、NP、P&CSI、RCP, and they're numbered in the order as Z_1, Z_2, Z_3, Z_4, Z_5.

2.2.5 The importance of priority analysis

3I (Industry, Innovation and Infrastructure) is in the area of infrastructure. If productivity, as well as health and education, is to be improved, investment in infrastructure is needed. The accelerating pace of growth and urbanization also calls for continued investment in sustainable infrastructure to strengthen cities' resilience to climate change while promoting economic growth and social stability. Inclusive and sustainable industrialization, together with innovation and infrastructure, can unleash economic dynamism and enhance economic competitiveness, thereby creating jobs and incomes, and play a key role in the introduction and diffusion of new technologies, facilitating international trade, and improving the efficiency of resource use.

GHW (Good Health and Well-being) focuses on maternal and child health and epidemic diseases. With regard to the former, the health of women and children is directly related to the reproduction of mankind, which will lead to the decline of the population and the lack of labor force, and the health of both is also related to the happiness of the family and the harmony of the society. The thing about pandemics is that they take a huge physical and psychological toll on people. It will not only reduce

the patient's labor creativity, but also consume a lot of medical resources and social resources. At the same time, intermittent pandemics can have a huge impact on economic development. In 2019, COVID-19 caused more and more people to suffer and destabilized the global economy, and its effects will continue well into 2023. Therefore, the impact on health and disease should not be underestimated, and it is necessary to guard against death and minimize its harm.

NP (No Poverty) aims to eliminate poverty in all its forms. Today, more than 700 million people (10% of the world's population) still live in extreme poverty, with their most basic needs such as health care, education, water and sanitation still unmet. The poverty rate in rural areas of the world is 17.2 percent, more than three times that of urban areas. In addition to backward areas, people with jobs who live in a privileged environment do not necessarily have a decent life. In fact, as recently as 2018, 8% of the world's employed workers and their families faced extreme poverty. One in five children lives in extreme poverty. In the face of poverty, it is very difficult to achieve the full range of human development, so this is an issue that needs to be prioritized and addressed.

PJSI (Peace and Justice Strong Institutions) calls for the creation of peaceful and inclusive societies for sustainable development, access to justice for all, and effective, accountable and inclusive institutions at all levels. In today's world of constant conflict, grave security conditions, inadequate institutional capacity and limited access to justice. These problems remain a major threat to sustainable development. More than 70 million people fled war, persecution and conflict in 2018, the highest number in the nearly 70-year history of the Office of the United Nations High Commissioner for Refugees (UNHCR). In addition, rights defenders, journalists and trade unionists have been killed, persecuted or disappeared in several countries. These upheavals will destroy social stability, disrupt social order, cause social unrest, affect economic development, have a series of adverse effects, and seriously slow down the pace of the construction of the 17 SDGs.

Responsible Consumption and Production (RCP) requires the adoption of sustainable consumption and production patterns. Since the last century, economic and social progress has been accompanied by environmental degradation, and environmental degradation is threatening the very systems on which our future development depends. We need to shift from focusing on the development of immediate interests and partial interests to the development of long-term interests and overall interests, so that economic development is coordinated with resources and the environment, in order to achieve a virtuous circle of society and economy, so that development in all aspects can continue to have momentum.

3. Model test

After the successful establishment of the GRA-ISM coupling model, this paper further tested the model to verify the accuracy and practicability of the model, and hoped to expand the model to some extent. To this end, this paper further optimizes the basic model, establishes a grey forecast-multiple linear coupling model, combines the reality of a region, links the five priorities and the rest of the general SDGs, and conducts an in-depth prediction test for the future sustainable development goals of the region.

3.1 Ten-year prediction test based on coupled model of grey prediction and multiple linear regression

Priorities have a high weight, a high degree of cause, a high degree of centrality and a large impact degree, and the priority development of these matters can effectively promote the development of other matters. Therefore, it is possible to study how ordinary matters will develop under the influence of development priorities by establishing multiple linear regression models of priority and ordinary matters.

Here, take China as an example to predict the situation after ten years. A multiple linear regression model was established between each common item and the five priorities, and the index data of each priority in China from 2010 to 2020 were collected. The index value of each priority in China after

10 years was obtained by using the gray prediction model, and the situation of each common item after 10 years was obtained by substituting the multiple linear regression.

3.1.1 Model building

In addition to the five priorities, the other common items are numbered as Y_1, Y_2, ⋯, Y_{12}, and the i common item is set as Y_i to establish a multiple linear regression model:

$$Y_i = \beta_i + \alpha_1 y_{i,1} + \cdots + \alpha_5 y_{i,5} \quad (9)$$

The results are as follows:

TBL 2: The corresponding coefficient of common and priority items

	Coefficient						p	R2
	NP	GHW	3I	RCP	PJSI	C		
ZH	-0.077	-2.022	-0.179	0.419	0.021	109.363	0.157	0.576
CWS	-0.561	1.484	0.006	-1.087	0.008	95.403	0.002	0.876
ACE	-0.005	0.292	-0.839	-2.011	0.089	23.329	0.669	0.289
PAG	-0.881	4.585	-0.046	7.508	-0.435	166.204	0.275	0.493
DWEG	-323.8	2684.54	-780.9	-4474.1	174.96	31425.613	0.007	0.820
RI	-0.026	0.071	-0.045	-0.366	0.003	7.516	0.019	0.768
QE	-1.017	2.861	-0.349	-4.911	0.200	61.445	0.00	0.918
GE	0.016	0.154	-0.059	-0.172	-0.003	51.312	0.284	0.487
SCC	-0.004	0.023	-0.003	-0.025	0.00	0.875	0.004	0.848
CA	-0.127	0.082	0.037	-1.029	0.037	7.679	0.245	0.512
LBW	0.417	3.221	-0.730	-2.908	0.254	9.319	0.246	0.512
LOL	0.346	3.065	-0.333	-1.450	-0.011	17.538	0.120	0.609

3.1.2 Grey prediction

First, the situation of priority indicators after ten years is calculated. Carry out the level ratio test and calculate the level ratio of the series:

$$\lambda(k) = \frac{x^{(0)}(k-1)}{x^{(0)}(k)}, k = 2,3,\cdots,n \quad (10)$$

Then the GM (1,1) model is established and the GM (1,1) grey prediction is carried out. After testing, the predicted value as a whole meets the high requirements, and the predicted value of China in 10 years is as follows:

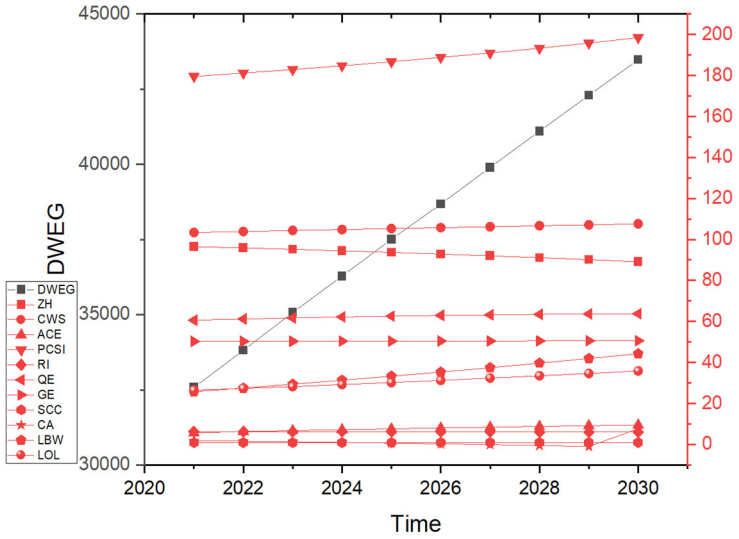


FIG 7: Projections for the next ten years

Because the DWEG (Decent Work and Economic Growth) prediction value is too large compared to other SDGs, the left and right sides of the numerical scale are separately represented. The value on the left is the value of Decent Work and Economic Growth represented by the black square marker line, and the value on the right is the value of the remaining SDGs.

As a whole, the predicted value meets the higher requirements, indicating that the prediction effect of the forecast model is better, and it can predict the relevant indicators in the future year more accurately. The prediction results show that most of the other SDGs represented by the red markers are in a stable state or slow growth state, but DWEG shows an obvious trend of rapid growth year by year, which indicates that China will continue to maintain the current state of rapid development in the next decade or so, promote durable, inclusive and sustainable economic growth, and achieve full and productive employment. Ensure decent work for all.

3.1.3 Evaluation of the test

- **Model reliability**

The goodness of fit was tested, and multiple linear regression equations between each common item and the five priorities were established respectively. The goodness of fit was obtained as follows:

TBL 3: Goodness of fit

SDGs	ZH	CES	ACE	PJSI	DWEG	3I	QE	GE	SCC	RCP	LBW	LOL
R^2	0.576	0.876	0.289	0.493	0.82	0.768	0.918	0.487	0.848	0.512	0.512	0.609

Among them, the fit degree between QE and the five priorities is above 0.9, and the independent variable can explain the dependent variable very well. The fit degree of CWS, DWEG and SCC with the five priorities is above 0.8, and the goodness of fit is high. The fit between RI and the five priorities exceeds 0.6, meeting the requirements in most forecasts; The fit of EN, PAG, GR, CA and LBW to the five priorities exceeds 0.3, which is the minimum fit requirement in the actual forecast; The goodness of fit for ACE was 0.289, slightly lower than 0.3. Except ACE, the goodness of fit of all models is within the acceptable range, and the fit degree of models is generally high.

- **Stability of forecast results**

Make a series of scatter plots for the predicted values of 12 general event indicators from 2020 to 2030:

FIG 8: Predicted values of ZH, CWS, PCSI

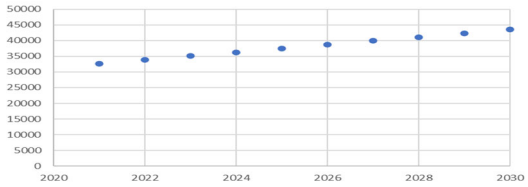


FIG 9: The predicted value of DWEG

FIG 10: Predicted values of ACE, RI, SCC, and CA

FIG 11: Predicted values of QE, GE, LBW and LOL

As can be seen from the scatter chart, PCSI, LBW and LOL tend to be basically stable and slightly increase during 2020-2030. ZH, CWS, RI, SCC, QE and GE are basically unchanged and stable in time series. ACE and DWEG kept increasing, while CA kept decreasing.

There is no big shock and noise in the forecast results, and the overall stability or stable trend is maintained, and the forecast results are stable.

3.2 Sensitivity analysis of the model

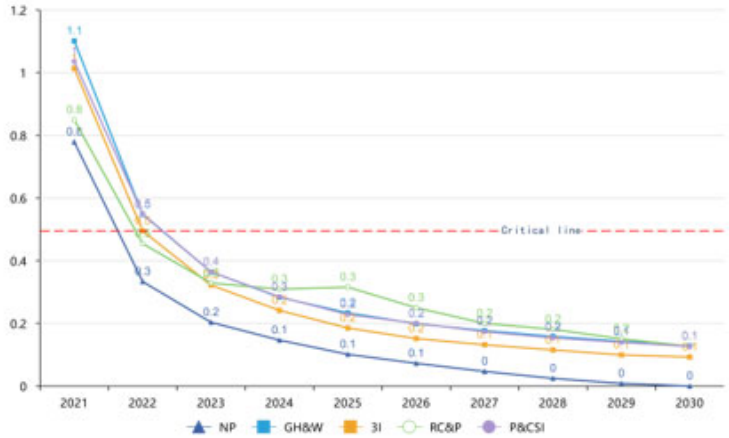


FIG 8: Quasi index test chart

Through the quasi-exponential test of the model, as shown in the figure, for NP, GHW, 3L, RCP and PJSI, the proportion of data with index 1 less than 0.5 is all greater than 80%, and the proportion of data with index 2 less than 0.5 is 100% except for the first two periods. In summary, we can conclude that the model has passed the sensitivity test.

4. Model Application -- Application analysis in the context of the COVID-19 pandemic

In late 2019, the COVID-19 pandemic broke out globally. According to the World Health Statistics 2023 Report released by WHO in May 2023, as of 11 March 2023, more than 759 million confirmed cases of COVID-19 and nearly 6.9 million deaths from COVID-19 were reported globally. This has a wide and far-reaching impact on the world, seriously endangering the health and well-being of people worldwide. Here, the COVID-19 pandemic is used as an example of a global pandemic to study the situation of the target network under the impact of a global pandemic.

4.1 The impact on the relationship network

Here, considering the international background of COVID-19 pandemic, the indicator measuring the goal of Good Health and Well-being is replaced by the cumulative proportion of people diagnosed with COVID-19, and the GRA-ISM model established above is substituted. Get a goal relation network in the context of the COVID-19 pandemic. The network of relationships is as follows:

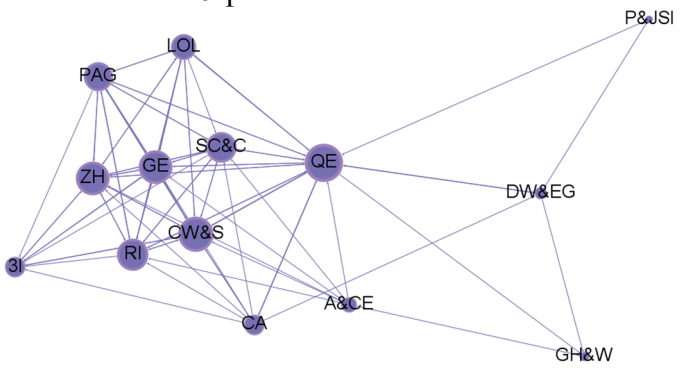


FIG 9: Goal relation network of the COVID-19 pandemic

4.2 Impact on priorities

In the previous article, we asked three experts to rate the impact of each goal. Now experts are regrading the scores, taking into account the impact of the COVID-19 pandemic. Among them, the impact scores of Good Health and Well-being increased significantly. The direct impact matrix re-scored by experts was obtained, and the Dematel model established above was substituted to calculate

the impact degree, affected degree, centrality, cause degree, and weight of each index value in the context of COVID-19 pandemic:

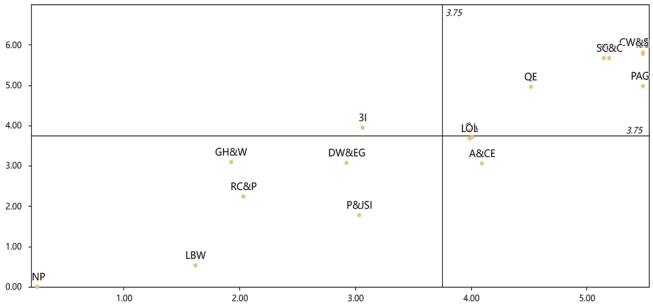


FIG 10: impact degree -- affected degree

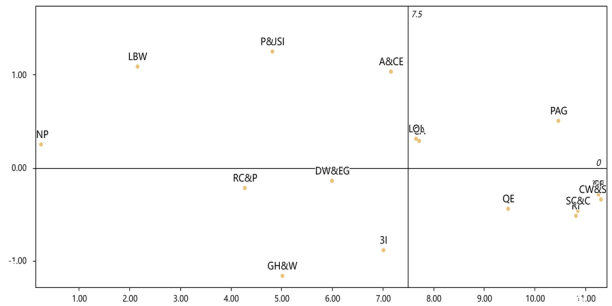


FIG 11:Centrality degree -- cause degree

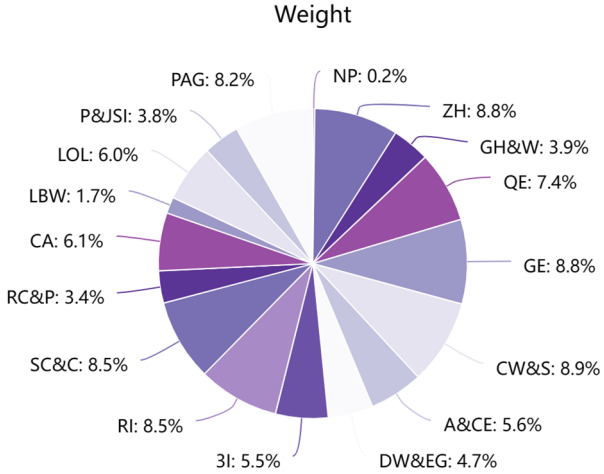


FIG 12: Weight chart

In the context of the COVID-19 pandemic, in addition to 3I, GHW, NP, PJSI, RCP, RI (Reducing Inequality) and GE (Gender equality) have been added as priorities.

4.3 Added priority resolution

Both newly added priorities highlight the pursuit of equality. RI focuses on reducing inequality within and between countries, and GE focuses on reducing inequality between genders.

With regard to RI, there may have been various inequalities in the past, but the COVID-19 pandemic has further intensified these problems and contradictions. In the United Kingdom, for example, local ethnic minorities face unequal treatment in many areas, including education, employment, health care, justice and political life. Due to entrenched structural racism, the proliferation of right-wing populism in recent years, and the neoliberal policies pursued by the British government for many years. The coronavirus outbreak is not just a public health crisis. It has also exposed multiple social problems in the UK, which are inevitable reflections of the contradictions inherent in its own political system. Some studies have shown that the outbreak of COVID-19 has had a huge impact on Latin America's economy and society. While the poverty rate has risen sharply, income inequality has intensified, and the income structure of the entire social class has moved downward. The health loss, economic shutdown, mass unemployment and the implementation of social isolation measures caused by the epidemic have made the vulnerable groups in society suffer a greater impact and their living conditions deteriorate. This crisis, combined with the inherent economic and social inequality, unfair distribution of wealth, irregular labor market, weak health and health systems and inadequate coverage of social security systems in Latin America, has further deepened the contradictions and conflicts in social development in the region. In this regard, in order to achieve RI, the government first needs to introduce large-scale social protection measures, including cash and in-kind transfer payment plans and contribution-type social insurance projects, which play a certain role in guaranteeing the basic life of low-income and difficult groups in special

periods. In addition, in the case of stabilizing the overall situation, it is also necessary to conduct an in-depth analysis of the national physical mechanism, find out the root cause of the problem, and change from the root cause.

As for GE, the COVID-19 pandemic has set back women's development and gender equality around the world to some extent. In terms of career development, on the one hand, it exacerbates the difficulty and vulnerability of women in employment, because industries that employ a large number of women have been hit harder by the COVID-19 pandemic, such as hospitality or domestic services, coupled with inherent biases in some workplaces, women tend to be dismissed at a higher rate than men. On the other hand, the traditional concept of social division of labor generally believes that women should assume more housework and child-rearing responsibilities, thus reducing women's time and ability to engage in paid labor, resulting in the absence of female leaders and workers in the epidemic, and exacerbating the diminishment of female image to a certain extent. In the family, women have to bear a surge of unpaid care tasks, and the heavy care work of COVID-19 patients consumes a lot of energy. At the same time, due to the economic and social pressure brought by various problems under the epidemic, coupled with the epidemic prevention policies such as closing down cities, curfews, and controls to reduce mobility, women are also more likely to become the target of vent and bear more risks of domestic violence. In this regard, to achieve GE, we should focus on putting women at the heart of recovery decision-making and processes, empowering women in all aspects, and explore gender equality governance tools in policy making, employment equality, family responsibility, health care, educational and technological equity, and political and cultural participation, with the establishment of prevention mechanisms as a long-term solution to risks.

In the process of achieving these two goals, policymakers can take many forms of action. To realize RI, the government first needs to introduce large-scale social protection measures, including cash and in-kind transfer payment plans and contribution-type social insurance projects, which play a certain role in guaranteeing the basic life of low-income and difficult groups in special periods. In addition, in the case of stabilizing the overall situation, it is also necessary to conduct an in-depth analysis of the national physical mechanism, find out the root cause of the problem, and change from the root cause. To achieve GE, the focus should be on putting women at the heart of recovery decisions and processes, empowering women across the board, and establishing prevention mechanisms as a long-term solution to risk. Focus on exploring gender equality governance tools in policy making, employment equality, family responsibility, health care, educational and technical equity, and political and cultural participation.

It follows that inequality has a very broad impact on society as a whole. In the past, the problems caused by inequality were able to maintain a delicate balance in the operation of society, but the negative effects of inequality have greatly increased under the influence of the COVID-19 pandemic, endangering the entire society. Therefore, prioritizing the implementation of these two goals is bound to lead to broad progress for society and effective benefits for the other SDGs.

4.4 Impact on UN 17 SDGs

In the context of the COVID-19 pandemic, the priority of RI and GE has been raised, and attention to the human rights of minorities and vulnerable groups should be an important issue for the United Nations.

The addition of RI and GE to the priority can effectively promote the development of NP, GHW and RCP on the one hand, and on the other hand, can backfire on the development of other SDGs, such as ACE and PJSI.

In this case, for the guidance of the method, combined with the previous comprehensive situation, this paper suggests that the implementation of 17SDGs should be divided into three levels of priority. The first layer includes PAG, SCC, QE, ZH, RI, and GE. The second layer includes 3I, PJSI, NP, GHW, and RCP. The third layer is for the remaining SDGs.

5. Conclusion

The realization of the United Nations 17SDGs aims to address international problems of an economic, social, cultural and human welfare nature, promoting and inspiring respect for human rights and fundamental freedoms for all, regardless of race, sex, language or religion. In order to achieve goals for the benefit of all mankind as soon as possible, this paper aims to identify the priorities for development through model construction. For one thing, through the establishment of GRA-ISM coupling model, the grey relational degree analysis is carried out to obtain the relational degree. On this basis, the structure interpretation model is established, the adjacency matrix is constructed and solved, and the goal relation network is obtained. For another, by establishing the Dematel model, Based on the calculated impact degree, affected degree, centrality, cause degree and weight, the development priorities are established. The model test found that, in the case of China as the research area, the coupled grey forecaster-multiple linear regression model was established to predict the situation of each SDGs after 10 years, which showed the reliability of the model, the stability of the prediction results, and the feasibility of the practical application of the prediction results. Based on the international background of the current epidemic, 17SDGs are divided into priority levels. According to the specific situation of the current post-epidemic era, the first priority selected includes PAG, SCC, QE, ZH, RI, GE, the second priority includes 3I, PJSI, NP, GHW, and RCP, and the third priority is the remaining SDGs.

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