Influence Path Analysis of Coordination between Material and Spiritual Civilization Based on the VAR Model

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Abstract. This paper quantitatively analyzes the degree of coordination between China's material civilization and spiritual civilization by establishing an entropy method-coupled coordination degree model. Based on the quantitative results, indicators of China's 1987-2021 tax policy, monetary policy, and open economy policy are introduced to construct a vector autoregressive model to deeply analyze the dynamic relationship between the level of coordination and these influencing factors from multiple perspectives. It is found that maintaining a robust monetary policy, optimizing the structure of foreign trade and exports, and optimizing the structure of taxation are conducive to further enhancing the level of the degree of harmonization between China's material and spiritual civilization, and promoting the high-quality development of China's modernization.

Keywords: Material and spiritual civilization, Coupled coordination evaluation model, VAR model, Impulse response, Variance decomposition.

1. Introduction

Chinese-style modernization, a modernization of material and spiritual civilization in a coordinated way, presents a new picture that is different from the Western modernization model. The study and analysis of the Chinese path to modernization, and the extraction of experience from China's solutions, wisdom, and development, can provide references for the development of countries in various regions, bring new opportunities to the world, promote the overall progress of humanity, and thus contribute to the common modernization of all countries.

The modernization featuring the coordinated development of material and spiritual civilization has a profound impact on the development of Chinese society. As pointed out by Xu Qinfa et al. (2022) [1], with the rapid advancement of China's material civilization, the form and market size of spiritual civilization development are also undergoing continuous changes, which promote the construction of economic modernization and urban culture. Especially in the post-epidemic era, under the downward economic pressure and fast-paced social stress, the coordinated development of material and spiritual civilization is of particular importance to the all-round development of individuals, the overall enrichment of materials, and the overall progress of society. Therefore, it is utterly manifest that the study of how to realize a Chinese-style modernization in which material civilization and spiritual civilization are coordinated has become a historical necessity.

In recent years, Chinese domestic academics have achieved certain research results in exploring the evaluation system of Chinese-style modernization indicators. Various scholars have quantitatively analyzed the level of the modernization with Chinese characteristics through different evaluation dimension perspectives and different measurement methods, which provides prerequisites for further exploring the influencing factors of Chinese-style modernization. Xu Yinliang et al. (2022)[2] evaluated the degree of coordination of industrialization, urbanization and agricultural modernization using hierarchical analysis based on the perspective of the "Five Development Concepts", with economy, innovation, coordination, greenness, sharing and security as the evaluation criteria. Zhang Wang et al. (2023)[3] started from the perspective of common prosperity and used the three evaluation indicators of co-construction of prosperity, sharing of prosperity, and co-existence of prosperity to conduct statistical measurements utilizing methods such as the entropy method, Dagum Gini coefficient and decomposition method, and Moran index. However, Chinese domestic academics have a certain lag in the determination of evaluation dimensions, the selection of specific indicators,
and the formulation of quantitative standards as a whole. Some studies are either subject to historical and cognitive limitations or lack a systematic, long-term, and overall perspective [4]. Meanwhile, although there are abundant researches on the evaluation system of Chinese modernization, authoritative literatures analyzing the level of Chinese modernization from the perspective of the coordinated development of material and spiritual civilization are rare.

In the research of exploring factors influencing harmonization of material and spiritual civilization, although there are some research results in academia, most of them lack empirical analyses to support the theoretical predictions. Moreover, no study that considers the diverse effects of long-term dynamic changes in different components on the modernization with Chinese characteristics has been found.

Therefore, from the perspective of in-depth study of the new Chinese-style modernization, this paper firstly takes the indicators related to China's material civilization and spiritual civilization as the basic elements of the study, and introduces the coupled coordination degree model to quantitatively study out the degree of coordination between China's material civilization and spiritual civilization from 1987 to 2021. It is worth mentioning that, in order to reduce the influence of subjective factors and guarantee the credibility and scientificity of the research results, this paper introduces the entropy method to objectively assign weights. Secondly, in order to deeply analyze the dynamic change relationship between the influencing factors and Chinese-style modernization from multiple perspectives, this paper introduces the VAR model to analyze the influencing factors of Chinese-style modernization. Finally, on the basis of the empirical results, this paper also puts forward relevant suggestions on the development path and mechanism of coordinating material civilization and spiritual civilization. In this way, it can fill the gaps of the existing research and provide strong factual support and reference for the realization of Chinese-style modernization.

2. **Construction of an indicator system for material and spiritual civilization**

In the proliferation of Chinese-style modernization, the coordinated development of material and spiritual civilization is the result of the synergistic effect of multiple factors and subjects. Therefore, in order to promote the effective circulation and synergy of the relevant elements of material and spiritual civilization, and further promote the implementation of the Chinese-style modernization strategy, this paper selects secondary indicators based on the theoretical basis of definition analysis and academic achievements, and on the practical basis of data availability and comparability, so as to obtain a scientific system of indicators of the coordinated development of Chinese-style modernization, an indicator system for the coordinated development of material and spiritual civilization –, as shown in Table 1.

This paper takes the data related to China's material and spiritual civilization from 1987 to 2021 as a research sample, and uses econometric software such as SPSSAU and Stata for research and analysis. In order to guarantee the authenticity, reliability, accessibility and comparability of the data sources and avoid subjective errors in the collection of data, the raw data in this paper are mainly investigated through authoritative data websites such as the National Bureau of Statistics of China and China Stock Market & Accounting Research Database (CSMAR). It should be specifically noted that this work removes some abnormal numbers and linearly or exponentially interpolates the missing data based on comparison with reality. R2 values are greater than 0.9, indicating that the fitting impact is good. The advancement index of the cultural undertakings is obtained by using the TOPSIS method through the main cultural institution data such as the number of public library institutions, museums, art performance groups, and mass cultural service institutions.
Table 1. Indicator system for the degree of coordination between material and spiritual civilization.

<table>
<thead>
<tr>
<th>Systems</th>
<th>Level I index</th>
<th>Level II index</th>
<th>Indicate Attributes</th>
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</thead>
<tbody>
<tr>
<td>Material culture</td>
<td>Economic development</td>
<td>Gross domestic product</td>
<td>GDP</td>
</tr>
<tr>
<td></td>
<td>Household consumption</td>
<td>Consumption expenditure per inhabitant</td>
<td>PCE</td>
</tr>
<tr>
<td></td>
<td>Employment and livelihood</td>
<td>occupation rate</td>
<td>OR</td>
</tr>
<tr>
<td></td>
<td>Urban-rural gap</td>
<td>Ratio of disposable income per capita</td>
<td>RDPI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>for urban and rural residents</td>
<td></td>
</tr>
<tr>
<td>Spiritual culture</td>
<td>Art consumption</td>
<td>Consumer spending on the arts</td>
<td>ACE</td>
</tr>
<tr>
<td></td>
<td>Educational knowledge</td>
<td>Average years of schooling</td>
<td>AYE</td>
</tr>
<tr>
<td></td>
<td>Science, technology and innovation</td>
<td>Expenditure on research and experimental</td>
<td>R&amp;D</td>
</tr>
<tr>
<td></td>
<td></td>
<td>development by scientific research and</td>
<td></td>
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<td></td>
<td></td>
<td>development organizations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cultural development</td>
<td>Index of the level of development of the</td>
<td>DCU</td>
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<tr>
<td></td>
<td></td>
<td>cultural sector</td>
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</table>

3. Quantitative study on the degree of coordination between material and spiritual civilization

3.1. Analysis of the mechanism of the coupled and coordinated relationship between material civilization and spiritual civilization

As a concept in physics, coupling refers to the phenomenon that two or more systems or modes of motion interact with each other in various ways and thus combine to form a whole. The degree of coupling describes the strength of the interaction of systems or elements [5]. The degree of coupling coordination is a measure of the degree of harmony and consistency between systems or between elements within a system in the process of development, reflecting the tendency of the system to move from disorder to order [6]. By characterizing the deviation formula between multiple systems, social scientists have employed the concept of coupling degree from physics to measure the coupling coordination degree model. [7].

The description related to coupling has a certain unity with the coordination of material and spiritual civilization. There is a relationship of mutual interaction, mutual support, and mutual promotion between material and spiritual civilization. One aspect of them should not be simply emphasized. The improvement of spiritual civilization should be continuously promoted on the basis of material conditions, which coincides with the concept of coupling.

3.2. Normalization of data

The indicators examined in this research may not be comparable because of the positive and negative orientations of different indicators as well as the quantitative disparities between them. It is necessary to normalize and standardize the data. At the same time, since some data are zero, in order to avoid meaningless assignment numbers, this paper adopts the processing method of +0.001, so that the data processing result is a positive number slightly greater than zero.

When the data is a positive indicator, the specific formula is as follows:

$$x'_{	heta ij} = \frac{x_{\theta ij} - \min (x_{\theta ij})}{\max (x_{ij}) - \min (x_{ij})} + 0.001$$  \hspace{1cm} (1)

When the data is an inverse indicator, the specific formula is as follows:

$$x'_{\theta ij} = \frac{\max (x_{\theta ij}) - x_{\theta ij}}{\max (x_{ij}) - \min (x_{ij})} + 0.001$$  \hspace{1cm} (2)
\(x'_{\theta ij}(\theta=1, 2, \ldots, 31; i=1, 2; j=1, 2, \ldots)\), is the evaluation coefficient of the indicator of dimensionless processing, and \(x_{\theta ij}\) is the actual observed value of the jth indicator under the ith system in the \(\theta\)th year, i represents the system, \(\theta\) represents the year, and j represents the indicator.

3.3. Entropy method

After selecting the indicators, in order to ensure the objectivity and scientificity of the final measurement results of the material civilization index and spiritual civilization index. This study adopts the entropy value method to determine the weights. The entropy value method has certain objective advantages and a strong theoretical basis. The weights of each index will be set automatically by the objective weight-setting rules, but there is no subjective historical information of the authoritative authorizer. It is a rule-based, objective empowerment method, which can more accurately describe the weights of each indicator.

In order to realize the horizontal and vertical comparability of the research object and avoid the influence of subjective factors as much as possible, this paper adopts the following processing and calculation steps:

(a) Calculate the weight of the jth indicator for the ith system \(S_{ij}\) (m=2):

\[
S_{ij} = \frac{x_{\theta ij}}{\sum_{\theta=1}^{m} x_{\theta ij}}
\]  

(b) Calculate the entropy value of the jth indicator \(e_j\):

\[
e_j = -\frac{1}{\ln m} \sum_{i=1}^{m} S_{ij} \ln S_{ij}
\]

(c) Based on the entropy value \(e_j\) Find the degree of variation \(a_j\):

\[
a_j = 1 - e_j
\]

(d) Calculate the weight of the jth indicator (p=2):

\[
w_j = \frac{a_j}{\sum_{j=1}^{p} a_j}
\]

3.4. Constructing a comprehensive evaluation system for China's material and spiritual civilization

Based on the results of the weighting analysis, the comprehensive evaluation indices of each of China's material civilization and spiritual civilization can be obtained by using the mathematical method of linear weighting. The calculation formula is as follows:

\[
u_{t-1,2} = \sum_{i=1}^{m} w_{ij} u_{ij} \sum_{t=1}^{m} w_{ij} = 1
\]

Of these, the \(u_i\) and \(u_2\) respectively represent the comprehensive evaluation indices of China's material civilization and spiritual civilization, and \(w_{ij}\) represent the weights.

3.5. Coupled Evaluation Models

In this paper, the coupling degree model of material and spiritual civilization is analyzed based on the capacity coupling coefficient model in physics. The coupling degree model of the binary system of material and spiritual civilization is as follows:
Where \( C \) represents the coupling degree, the \( u_1 \) and \( u_2 \) represents the comprehensive evaluation indices of material civilization and spiritual civilization, respectively. Since there are certain differences in the development of material civilization and spiritual civilization in their respective systems, it is possible that the development level of both is low, while the coupling degree is relatively high, which deviates from the actual situation. For this reason, the coupling coordination degree model is constructed:

\[
\begin{align*}
C &= 2 \times \sqrt{\frac{u_1 \times u_2}{(u_1 + u_2)^2}} \\
D &= \sqrt{C \times T} \\
T &= \alpha u_1 + \beta u_2 \\
\alpha + \beta &= 1
\end{align*}
\]

Where \( D \) is the coupling coordination degree of the material civilization system and the spiritual civilization system. \( T \) is the comprehensive evaluation index of the material and spiritual civilization, and \( \alpha, \beta \) is the undetermined coefficient. Since there are certain differences in the degree of mutual promotion between the development of material civilization and spiritual civilization - the material civilization level is relatively high compared with the spiritual civilization level after 1987, the influence on the degree of coupling is limited. Therefore, this paper assigns values of 0.4 and 0.6 to \( \alpha \) and \( \beta \), respectively.

In order to directly reflect the coupling degree of the coordinated development of the material civilization system and the spiritual civilization system, the coupling coordination degree \( D \) of the two subsystems is graded [8]: when \( 0 \leq D \leq 0.2 \), the system is in a recession period; when \( 0.2 \leq D \leq 0.4 \), the system is in an acceptable disorder period; when \( 0.4 \leq D \leq 0.6 \), the system is in a transition period; when \( 0.6 \leq D \leq 0.8 \), the system is in a developmental period; when \( 0.8 \leq D \leq 1 \), the coupled system is in a high coordination period.

### 3.6. Results and analysis of the measurement of China’s material and spiritual civilization

Based on the above comprehensive evaluation system of China’s material and spiritual civilization, each indicator is weighted and summed to obtain the comprehensive evaluation scores of China’s material and spiritual civilization from 1987 to 2021. At the same time, based on the coupling coordination degree model, the coupling coordination degree and level of China’s material and spiritual civilization binary system from 1987 to 2021 are calculated, and the coupling type is divided accordingly, as shown in Figure 1.

As can be seen from Figure 1, during the sample period, the overall level of China’s material and spiritual civilization showed a trend of increasing year by year, among which the comprehensive level of spiritual civilization was better than that of material civilization after 2006. At the same time, although the coupling coordination degree declined significantly around 2003 due to the impact of the SARS epidemic, the overall development trend of the coupling degree was obviously rising - developing from the acceptable disorder period in 1987 to the period of high coordination in 2021. It shows that China has made certain achievements in the process of realizing the grand blueprint of “Chinese-style modernization featuring the coordinated development of material and spiritual civilization”.

\[
\begin{align*}
C &= 2 \times \sqrt{\frac{u_1 \times u_2}{(u_1 + u_2)^2}} \\
D &= \sqrt{C \times T} \\
T &= \alpha u_1 + \beta u_2 \\
\alpha + \beta &= 1
\end{align*}
\]
4. Factors affecting the degree of coordination between China's material and spiritual civilization

4.1. Selection of indicators

4.1.1. Coupling Coordination Degree of Material and Spiritual Civilization in China

Based on the above quantitative analysis, this paper uses the coupling coordination degree of material and spiritual civilization in China to characterize the degree of coordination between material and spiritual civilization in China, denoted as HAR.

4.1.2. Tax policy

Taxation plays a fundamental, pillar and guaranteeing role in national governance, and is an important condition and guarantee for the coordinated development of material and spiritual civilization. Taxation has the functions of “Automatic Stabilizer” and “Discretionary”, which is conducive to promoting the organic combination of an effective market and a competent government, and safeguarding the sustained and healthy development of the economy; at the same time, the reasonable distribution of tax funds is beneficial to the incubation and catalytic development of cultural undertakings. However, if tax revenue is too high, it will also lead to tax burdens, making it difficult for cultural institutions to operate. Referring to the research results of Jin Chunyu et al. (2021) [9], this paper selects tax revenue to characterize tax policy from the perspective of total quantity, denoted as TAX.

4.1.3. Monetary policy

Monetary policy, especially money supply, has a dual impact on material and spiritual civilization. On the one hand, a moderate money supply can promote stable economic growth, drive industrial development, increase employment, and enhance people's sense of well-being. On the other hand, inappropriate monetary policy may lead to inflation, financial risks and asset bubbles, which will impact on rational consumerism. Thus, this paper refers to the research results of Lu Jin et al. (2023) [10] and selects the broad money supply to characterize monetary policy, denoted as M2.

4.1.4. Open economic policy

The role of open economic policy in the modernization of the coordinated development of material and spiritual civilization also has a distinctly non-linear character. On the one hand, open door policies can promote economic growth, trade liberalization, cultural diversity and exchange, and technological advancement and innovation. On the other hand, over-reliance on external resources and markets may expose the country to the risk of unstable resource supply, and at the same time may bring the impact of foreign cultures, which may cause impact and erosion of the country's traditional culture and values.
Referring to the research results of Wang Lei (2018) [11], this paper characterizes the open economic policy in terms of export trade volume, denoted as OPEN.

Considering that the natural logarithmic transformation of data can linearize its trend, reduce the magnitude difference, avoid the influence of heteroscedasticity to a certain extent, and increase the stationarity of the time series data, without changing the relationship of the original sequence, this paper takes the logarithm of other data except HAR. The variables after taking the logarithm are denoted as LnTAX, LnM2, and LnOPEN, respectively.

4.2. Introduction to the VAR model

This paper uses the VAR model to study and analyze the above data, which can avoid possible bidirectional causality between these variables. In addition, the VAR model does not impose any constraints on the model coefficients, thus making each equation have the same explanatory variables - a number of period lagged values of all the explanatory variables [12] which effectively avoids falling into the overly complex theoretical exploration of the relationship between HAR and its influencing factors, and circumvents the problem of complex endogeneity. At the same time, the VAR model can better demonstrate the long-term dynamic relationship and synergistic effect between the variables.

This paper takes HAR as the explanatory variable, LnTAX as the core explanatory variable, LnM2 and LnOPEN as the control variables, and use Stata to estimate the model and variables. The specific model is as follows:

$$y_t = \varphi_1 y_{t-1} + \cdots + \varphi_p y_{t-p} + \theta_1 x_{t-1} \cdots + \theta_r x_{t-r} + \varepsilon_t$$

Where $y_t$ is the m-dimensional vector of endogenous variables with p-order lag, and $x_{t-1}$ is the n-dimensional vector of exogenous variables with r-order lags, $\theta'$ and $\varphi$ are the matrix of coefficients to be estimated, and $\varepsilon_t$ is the random disturbance term.

4.3. Construction of VAR model and empirical results

4.3.1. Descriptive statistics

A simple descriptive statistical analysis of HAR, LnTAX, LnM2, and LnOPEN showed that all four variables had standard deviations less than 1.75, and the data were relatively smooth.

4.3.2. Correlation analysis

The correlation test of the four variables HAR, LnTAX, LnM2, and LnOPEN reveals that the correlation coefficients between the variables are greater than 0.83, which indicates that the correlation strength between the four variables is strong. Therefore, a VAR model is introduced to further study the variables.

4.3.3. Unit root test

In order to prevent the phenomenon of pseudo-regression and thus improve the validity of the empirical results, the unit root test should be carried out on each sequence. This paper uses the ADF and PP tests to detect whether there is a unit root in the series. The results of the unit root test for the four variables are shown in Table 2.

<table>
<thead>
<tr>
<th>variant</th>
<th>ADF</th>
<th>PP</th>
<th>in the end</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAR</td>
<td>0.9965</td>
<td>0.9969</td>
<td>uneven</td>
</tr>
<tr>
<td>D. HAR</td>
<td>0.0000</td>
<td>0.0000</td>
<td>smooth</td>
</tr>
<tr>
<td>LnTAX</td>
<td>0.3627</td>
<td>0.6282</td>
<td>uneven</td>
</tr>
<tr>
<td>D. LnTAX</td>
<td>0.0695</td>
<td>0.0839</td>
<td>smooth</td>
</tr>
<tr>
<td>LnM2</td>
<td>0.0000</td>
<td>0.0006</td>
<td>smooth</td>
</tr>
<tr>
<td>LnOPEN</td>
<td>0.0486</td>
<td>0.0283</td>
<td>smooth</td>
</tr>
</tbody>
</table>
Where D. indicates that the original data has been differenced once. As can be seen from Table 2, the original series did not all pass the unit root test, so the post-differential test was performed, and all of them passed the unit root test after the first-order differencing. It shows that HAR, LnTAX, LnM2, and LnOPEN are all I(1) sequences of the first-order single integer, and they meet the requirements of the same-order single integer. There may be a cointegration relationship between them. Therefore, a cointegration test is performed on the data. If the cointegration test is passed, the original data can still be used for regression.

4.3.4. Cointegration tests

Based on the results of the stationarity test, this paper conducts a cointegration analysis on the data and finds that there are three cointegration relationships between the variables.

4.3.5. Lag Order Selection

This paper follows the AIC criterion and selects the optimal lag order according to the statistics LR, FPE, AIC, HQIC, and SBIC. Finally, the lag order is selected to be 2.

4.3.6. Stability tests

The stability test results satisfy that the AR characteristic polynomial coefficients are less than 1, indicating that the VAR autoregressive model established in this study is a stable model, and further prediction studies can be carried out.

4.3.7. Granger causality tests

Considering that there may be pseudo-regression among the time series of some economic variables, and the significant correlations among variables sometimes do not have economic significance. Although the above test shows that there is a long-term equilibrium relationship between the variables, it is also necessary to conduct a Granger causality test to initially determine whether the equilibrium relationship between the variables constitutes a causal relationship. The test results show that at the 10% significance level, LnTAX, LnM2, and LnOPEN are Granger causes of HAR, and there is a unidirectional causal relationship between LnM2 and HAR. This also implies that there is a significant dependence between HAR and LnTAX, LnM2, and LnOPEN, and changes in any of the variables can cause changes in HAR.

4.3.8. Impulse response analysis

In order to more intuitively depict the dynamic interaction and effect between variables, this paper adopts the impulse response function (IRF) to measure the impact trajectory of a standard deviation shock of random disturbance on the current and future values of other variables. This paper selects a response period of 20 years to observe the impulse response function curve of HAR to LnTAX, LnM2, and LnOPEN. The results are shown in Figure 2, where the horizontal axis indicates the number of lagged periods of the shock effect, the vertical axis is the change of the dependent variable HAR, the gray area represents the 95% confidence interval, and the middle curve represents the estimated value of the IRF points.

Observation of Figure 2 shows that:

(1) After giving HAR a one-unit standard deviation shock in the current period, it will cause a significant positive effect on itself. After the eleventh period, it will gradually turn into a negative effect and then tend to be stable. That is, the coordination index of material and spiritual civilization has a promoting effect on itself in the early stage, and an inhibitory effect in the later stage.

(2) LnM2 and LnOPEN have a positive effect on HAR in the early stage and a negative effect in the later stage. In the current period, when LnM2 and LnOPEN are hit by one unit standard deviation, they will give a positive shock to HAR. This positive effect will last for a period of time, gradually turn into a negative effect, and then stabilize. In other words, the open economic policy and monetary policy have a positive impact on the coordination index of material and spiritual civilization in the early stage, but turn into a negative impact in the later stage, and the negative shock of the open economic policy lasts longer and has a greater effect.
(3) LnTAX has a short-term negative effect and a long-term positive effect on HAR. When LnTAX is subjected to a one-unit standard deviation shock in the current period, it will give a negative shock to HAR. This negative shock will reach the peak in the fourth year, and then turn into a positive shock in the long term, eventually tending to be stable. Ergo, the tax policy has a short-term inhibitory effect on the index of coordination between material and spiritual civilization, and then turns into a sustained promotional effect.

![Figure 2. Impulse Response Plot.](image)

4.3.9. Variance Decomposition

In the VAR model, the variance decomposition, as a supplement to the impulse response analysis, can explain the contribution of each endogenous variable to the random disturbance term of the predictor variables, thereby judging the relative importance of each variable to the disturbance term of the predicted variable. The results of the variance decomposition are shown in Figure 3.

![Figure 3. Variance Decomposition of HAR.](image)

Observing the variance decomposition result Figure 3, it can be found that the variance decomposition contribution rate of HAR to itself reaches the maximum value of 100% in the first period, and then decreases year by year, and decreases to about 65% in the twentieth period. This indicates that the coordination index of spiritual civilization and material civilization has a large contribution to its own variance in the current period, and then it will decline, and finally it will maintain a relatively strong influence. The variance decomposition contribution rates of LnTAX, LnM2, and LnOPEN to HAR are 0 in the first period. After the second period, the contribution rates continue to rise, and finally stabilize at about 18%, 4%, and 11%, respectively. This result suggests that there is a time lag in the influence of the variance of open economic policy, monetary policy, and tax policy on the variance of the coordinated development level, and the contribution is limited.
5. Conclusions and recommendations

5.1. Conclusion

This paper adopts the data from 1987 to 2021 to establish an indicator system for Chinese-style modernization - the coordinated development of material and spiritual civilization, and uses the entropy method - coupling coordination model to quantitatively analyze the degree of coordination between material and spiritual civilization. Based on the quantitative research results, the VAR model is further constructed, and the dynamic influence relationship between tax policy, monetary policy, and open economic policy on the degree of coordination of the coupling of material civilization and spiritual civilization is empirically analyzed through the cointegration test, Granger causality test, impulse response function analysis, and variance decomposition. The conclusions drawn are as follows:

First, on the whole, the level of comprehensive development of China's material and spiritual civilization has been rising year by year, and the degree of coupling and coordination between the two has become increasingly evident. Moreover, the improvement of the coupling and coordination degree of material civilization and spiritual civilization is affected not only by the accumulative effect of its own level in the early stage, but also by the joint influence of tax policy, monetary policy, and open economy policy. According to the results of impulse response and variance analysis, tax policy plays the role of first suppressing and then promoting, while monetary policy and open economic policy first promote and then suppress. In the long-term contribution to the coordinated development index, tax policy contributes the most, open economy policy is the second, and monetary policy is the smallest, but the contribution of all three is limited.

Second, there is an "inverted U-shaped" relationship between monetary policy, open economy policy and the coordination of material and spiritual civilization. This may be due to the fact that, at the beginning of the development of the degree of coordination, increasing the money supply and the volume of export trade are conducive to promoting economic growth and improving material life. However, when the degree of coordination reaches a certain level, over-expansion of the money supply may lead to inflation and asset bubbles; over-reliance on trade exports will make the economy too sensitive to changes in the external environment, increasing economic vulnerability and uncertainty.

Third, tax policy inhibits the development of the coordinated level of material and spiritual civilization in the early stage, but plays a facilitating role in the later stage. This may be because the high demand for investment and consumption by enterprises and individuals during the initial phase of high economic growth. The increase in tax burden may have a dampening effect on economic growth. At the same time, public service facilities and social welfare are relatively imperfect, and the increase in tax revenues may lead to excessive government investment in inefficient areas, thereby restricting the process of coordinated development. When the material and spiritual needs of society have been met to a certain extent, the increase in tax revenues can be used to increase support for the development of public services, innovations and efficient areas, to enhance the quality of life of the people and to promote the overall development of society.

5.2. Recommendations for response

Based on the above conclusions, in order to further improve the level of coordination between China's material and spiritual civilization, and to promote the high-quality development of China's modernization, it is necessary to focus on maintaining a sound monetary policy, optimizing the structure of foreign trade exports, and optimizing the structure of taxation. First, the monetary policy needs to be kept basically neutrality, smooth the transmission path of monetary policy, and promote market regulation to balance supply and demand, so as to provide a healthy and stable macro environment for sustained economic development. The second is to optimize the foreign trade export structure, to build a dual circulation development pattern with the domestic circulation as the mainstay, expand domestic demand, and improve economic independence and risk resistance. Third, the tax
structure will be optimized to reduce the tax burden on enterprises and individuals, encourage investment and consumption, and promote the development of economic activities. At the same time, it will increase support for efficient areas, innovative industries and the construction of a social security system. While optimizing the economic structure, improve social equity and safeguard the basic rights of the people.

References