International Research Journal of Management and Social Sciences, Vol. II, Issue 3, Oct - Dec 2021
ISSN (ONLINE):2710-0308 www.irjmss.com ISSN (PRINT):2710-0316
DOI: 10.5281/zenodo.10317383

Designing a Checklist for Corruption Measurement in China

Ayesha Mumtaz
College of Public Administration, Zhejiang University, Hagzhou, Zhejang, China.
Email: ayeshamumtaz@zju.edu.pk

Hamid Mukhtar
School of Law, University of Okara, Okara, Punjab, Pakistan.

Hafiz Abdul Rehman Saleem
Department of Law, University of Sahiwal, Sahiwal, Punjab, Pakistan.

Received on: 20-10-2021 Accepted on: 24-11-2021

Abstract

The present study has been conducted to construct a valid and reliable checklist of indicators for the construction of corruption measurement model in China. The study has used a DMAIC (Define, Measure, Analyze, Improve, and Control) tool of six sigma technique for the checklist process improvement. Twenty-four experts with diversified background were included in the study to evaluate the applicability of the adapted version of corruption measurement tool in the Chinese context. The checklist comprised of five major departments under administrative sector; human resource management, financial management, asset management, external control, and services and authority departments. Kruskal Wallis test, Cronbach's alpha, R^2, and internal consistency were applied to check the reliability and validity of the checklist. The results showed that all the indicators are applicable in the Chinese context and the designed checklist is highly reliable and valid for the construction of administrative corruption measurement model in China. This tool could be used in measuring the administrative level corruption in China and other researchers can test its applicability in different contexts for future use.

Keywords: Corruption, Measurement, Checklist, Validity, Reliability, China.

1. Introduction and background:

Corruption measurement is a widespread practice these days among researchers from diverse fields. The corruption measurement models got popularity since the transparency international published the most cited Corruption Perception index in 1995 (Galtung, 2006) Since then, many international institutions have been putting their efforts to measure corruption by using different approaches and research methods. The most popular among those indexes is the Bribe payers' index, BEEPS, Control of corruption index of world governance indicators and many more (Lambsdorff, 2006). The research methods and data

sources of all indexes are different but the most commonly used approach is the perception based approach to measure corruption. A perception-based approach is considered the most appropriate method to measure corruption because of the hidden and vague nature of corruption (Kaufmann, Kraay, & Mastruzzi, 2007).

The use of checklists in social science research is not very common and the researchers couldn't find the much literature about the use of checklists in corruption measurement models. A checklist, commonly is defined as a list of items or criteria arranged in a systematic order, allowing the researcher to record the presence or absence of individual items listed to ensure that all are considered or completed (Scriven, 2000). A checklist has several objectives, including memory recall, standardization and regulation of processes or methodologies, providing a framework for evaluations or as a diagnostic tool. Use of tools for assessment is very useful technique of research especially assessment related studies. There is not much literature about the use of checklist for developing a new model for assessment. Hence, some researchers from the field of education use checklist approach to evaluate the performances of the students and teachers as well. The researchers use different tools to construct a complete measurement model to measure corruption. Tabish and Jha presented a checklist of irregularities in public sector procurement in India by utilizing multiple national and international sources (Tabish S.Z.S, 2011). Shan Ming constructed a measurement model of the corruption in public sector construction projects in China. He used the checklist of indicators to construct a complete model. He adopted the checklist of Tabish and Jha (2011), and modified the checklist according to Chinese context and checked the reliability and variability of the modified checklist of the indicators. At the end, the study proposes a new model ''a fuzzy theory'' to measure corruption in construction project. (Shan, Chan, Le, Xia, & Hu, 2015). Yun in 2004 conducted a review study on the corruption measurement models and presented an alternate corruption measurement model for public sector corruption in Korea by utilizing the existing sources of indicators.(Yun, 2004). In addition, there are many corruption indexes proposed by different national and international organizations. Checklists are widely used in the field of health sciences for different purposes. A study conducted on the development of the medical checklists to improve the quality of patient care. In this study the author uses literature review as a method to design a new and effective checklist (Hales, Terblanche, Fowler, & Sibbald, 2007). Another study stated that the use of checklist usually took place at the initial phase of the assessment or for evaluating the existing systems. This paper constructed a checklist to analyze how people use a computer technology (Kaptelinin & Nardi, 1997). Validity and reliability of the checklist are considered as important and useful method for better results (Hassanein, El-Sayed, & Raouf, 2013). Moreover, use of reliability and validity test provide error-free results and the research is considered more authentic. Validity is basically an indicator that shows the items chosen for checklists are sound and appropriate with the research aims and objectives. Validity shows that how solely the items of checklist represent the phenomenon which we are going to measure. On the other hand, reliability refers to the extent to which assessments are consistent. One of the measures of the reliability is to check the internal consistency of the indicators contained in a checklist.(Clark & Watson, 1995) In a clinical review about checklist, there are four types of checklists mentioned. The first one is called static parallel, these checklists are completed by one operator (person), implemented as a series of read and do task. The second type of

checklist is static sequential with verification, it involves a challenge and response as one person needs the items and the second person verifies that all the items of checklists are completed or within parameters. The third type of checklist is called static sequential with verification and confirmation and these checklists are often used in team-based settings where tasks are done by many team members. The fourth type of checklist is dynamic and it uses flow charts to make and guide complex decisions. There are multiple options to select and the rest of the team decides the most favorable procedure (Winters et al., 2009).

The method of developing a checklist is new and researchers from different fields use different methods to design checklists. By reviewing the literature the authors couldn't find any specific method to design checklist for social science studies. Based on the UNDP proposed checklist for measuring corruption and our own research and experience, we propose a new way to develop the checklist for measuring administrative corruption in China. If the development of the checklist method is approved scientifically then they can help to alter the theory into practice. To construct a checklist, it is important to select the experts from the concerned field with the proper knowledge and expertise. If the checklist lacks any important aspect of the targeted phenomenon, then the items may not be affected and the outcomes will not be satisfactory. The best way to organize a checklist is to review the published literature about the concerned subject to compile the more suitable items. For more evidence-based studies, the researchers should consult more academic sources to compile the items for a specific checklist. Before conducting the pilot study, the checklist must be undergone by repeated revisions and cross-checking. When an initial draft of the checklist is completed, it should be pilot tested and revised by the researchers according to the findings. Validity and reliability of the checklist should be assessed before implementing it to further use. Both validity and reliability of the checklist can be checked by using statistical methods.(Scriven, 2000).

This study has been conducted to design the checklist for corruption measurement model for China in a more systematic way. The main purpose of this study is to check the reliability and validity of the checklist. The DMAIC (define, measure, analyze, improve and control) tool of six sigma technique has been used to construct the checklist in an organized way. In the next part of the paper, the Kruskal Wallis (H) test, Cronbach's alpha, the coefficient of determination (R-square), and internal consistency(r), of the items have been conducted to check the reliability and validity of the checklist.

2. **Research Design**:

For this pilot study, the researchers used Six Sigma framework tools to construct a checklist for corruption measurement model. The first step to designing a corruption measurement model is the construction of the checklist consisted of a set of indicators. Six sigma is a project framework which is widely used in health sciences and business management researches. Six Sigma is usually practiced in areas where there is need of evolutionary and continuous process. It is used when there is the need for some unique approach or where the existed process is inadequate to fulfill the requirement (Hassanein et al., 2013). DMAIC (Define, Measure, Analyze, Improve, Control) is one of the designing tools of six sigma and it is used when a research aim is to achieve simple performance improvement model.(Pyzdek, 2003)

ISSN (ONLINE):2710-0308 www.irjmss.com ISSN (PRINT):2710-0316
DOI: 10.5281/zenodo.10317383

2.1. Sample size:

The study has been conducted on 24 experts selected from the government sector and from academics. A checklist consisted of total 74 indicators, lying under the five major administrative departments were disseminated to experts for evaluation. Each of them was provided with a survey questionnaire to evaluate the favorability of the indicators in the Chinese context. The detailed demographic table of the participants is given below in the results section.

2.2. Tools:

The checklist was constructed by reviewing the literature and with the help of the USAID handbook about the tools for assessing corruption and integrity in institutions. (Lanyi & Azfar, 2005). Five sectors were selected as target areas under the administrative sector i-e Human Resource Management, Public management, Asset management, financial management, and service and control department. These four areas were evaluated based on Governance, Capacity and performance indicators.

The indicators in the capacity section aim to establish whether a specific institution has sufficient resources and guarantees for its autonomy with regard to other authorities or actors. The institution has enough capacity to control corruption, autonomy and efficiency of the organization. Indicators in this section have focused on the needed human capacity reflected in the administrative and management capacities as well as the material resources to perform their functions transparently. The indicators in the 'governance' category captured the quality of the governance of a specific institution in terms of its decisions, the integrity of its personnel (the quality of being honest and having strong moral principles; moral uprightness.), and the accountability of its actions. It also covers the establishment of policies, and continuous monitoring of their proper implementation, by the members of the governing body of an organization. It includes the mechanisms required to balance the powers of the members (with the associated accountability), and their primary duty of enhancing the prosperity and viability of the organization. The governance indicators assess the existence of the necessary institutional framework and implementation capability to check or combat corruption. It includes; strategies, plans, policies, legislation, regulations and operational budget. Similarly, the third group of indicators, the performance indicators targeted the output of institutions, the ultimate result of their activities in relation to the fight against corruption. Performance indicators provide information about the practical consequences of efforts put in place by authorities. Performance indicators permit measuring to what degree new regulations resulted in, for example, better access to justice as experienced by the population.

2.3. Procedure:

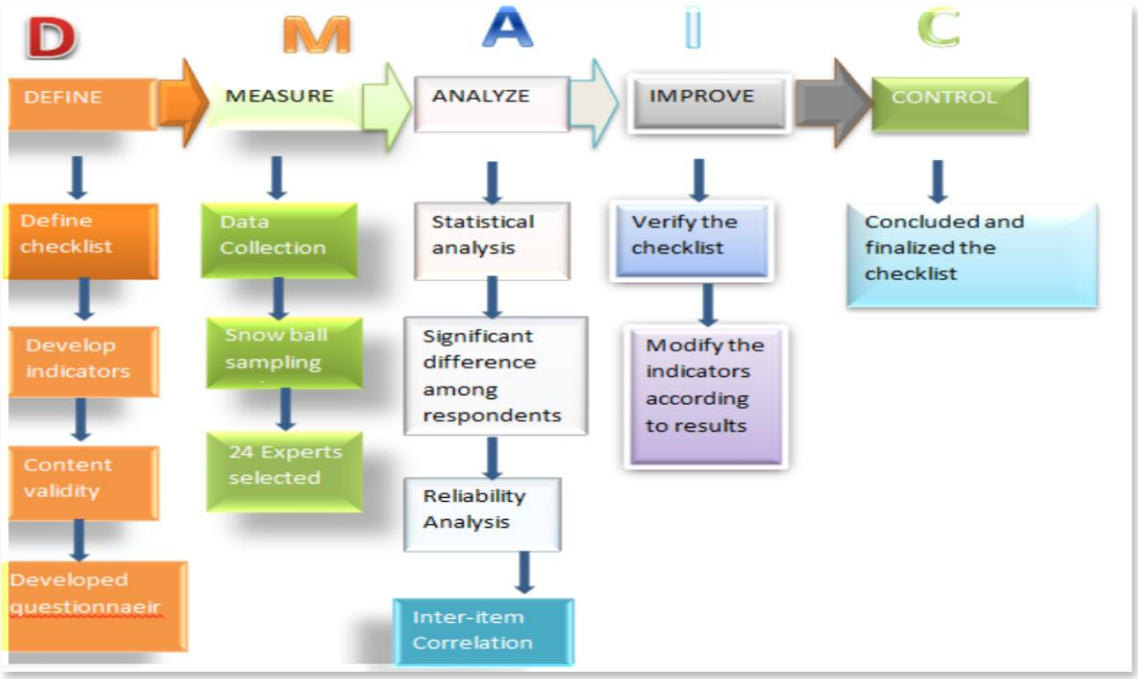
By applying the six sigma DMAIC tool described in figure 1 below, five steps were conducted. The first step was to define. It is basically all about content validity. After selecting the desired indicators, the items were modified according to the laws, regulations and policies of Chinese government. After choosing the indicators, the list was modified and verified by the group of legal experts in China Rule of Law Research Centre in Hangzhou. After finalizing the list, a questionnaire was developed, based on those selected indicators. 30 experts were

ISSN (ONLINE):2710-0308 www.irjmss.com ISSN (PRINT):2710-0316
DOI: 10.5281/zenodo.10317383

approached to check whether the selected indicators were favorable in Chinese context or not. Table 1 depicts the background of the experts which portrays that the most of the experts were experienced in their fields. Most of them were from diversified professional backgrounds and locations which made the survey process more reliable and valid. The next step according to the DMAIC was the 'Measure' which means data collection here. The data was collected by disseminating the checklist to 30 experts in March 2017 and got the complete responses in June 2017. There were total 74 indicators in the checklist which were compiled in five major administrative areas exposed in table 2. The third step was 'Analyze' rendering six sigma tool DMAIC. In order to test the reliability and validity of the items chosen for corruption measurement model, statistical analysis was applied by using the SPSS 20. Kruskal Wallis test was run to check if there was a significant difference among the respondents in terms of their experience, employer, position and geographic location. Furthermore, Cronbach's Alpha was applied to test the reliability of the checklist and the values lied below the suggested cutoff criteria for reliability is 0.7. (Lance, Butts, & Michels, 2006; Nunnally, 1978). R^2 was conducted which is known as the coefficient of determination and it is used to predict how good one term is predicting the other. R-square is a descriptive measure between 0 to 1 and it is considered quite acceptable at 20 % (0.20) (Hassanein et al., 2013). Internal consistency of the indicators was calculated as well. It is a correlation between the indicators and lies between -1 to +1. The threshold for internal consistency was set up as greater than .25 as suggested by researchers. (Clark & Watson, 1995; Hassanein et al., 2013; Pennington, 2003). The fourth step is 'Improve' in the six sigma technique. In this step, the checklist has been improved on the basis of the responses gathered from the experts. The checklist achieved the reliability and variability results displayed in table 3. The last step in six sigma framework is 'Control' phase in which researcher finally concluded and verified the reliable checklist to measure the administrative corruption in China. Hence, checklist was formulated to further evaluate the new model to measure the corruption.

Figure 1: DMAIC Tool

ISSN (ONLINE):2710-0308 www.irjmss.com ISSN (PRINT):2710-0316
DOI: 10.5281/zenodo.10317383



Source: Author

2.4. Statistical Analysis:

Statistical analysis was conducted by using the SPSS version 20. Data were presented using Kruskal Wallis Test, Cronbach's Alpha test, $R^{2,}$ and internal consistency analysis was conducted to check the reliability and validity of the checklist.

3. Results and Conclusion:

This part presents and discusses the reliability and validity results of the checklist by using Kruskal Wallis, Cronbach's Alpha, (R^2) and internal consistency. This pilot study was conducted by the researchers in 2016-2017 as a first step of the main project ''measuring administrative corruption in China. The designing of the checklist is a very important step in assessment studies. Table 1 expresses that the complete set of indicators contained in the checklist selected for this study. As mentioned earlier, the checklist consists of five major departments under administrative sector named as first-grade indicators in the checklist. Second-grade indicators further consisted of the sub-indicators under the main selected areas. Third-grade indicators or sub items are displayed in column 3 of the table.

Table 1: Checklist of Indicators

No:	Areas (First Grade Indicators)	Second Grade Indicators	Third Grade Indicators
1	**HR Management**	1) Public procurement and promotions	17 Indicators

ISSN (ONLINE):2710-0308 www.irjmss.com ISSN (PRINT):2710-0316
DOI: 10.5281/zenodo.10317383

		2) Compensation and Benefits General Administrative	5 indicators
		3) structure/Preventive Measures/openness of information	19 indicators
2	**Public Financial Management**	1) Budget	8 indicators
		2) Treasury	3 indicators
		3) Accounting	9 indicators
3	**Asset Management**	General Questions	5 Indicators
4	**External Control or Supervision**	General Questions	5 indicators
5	**Services and Authority**	General Questions	4 indicators
	Total		74 Indicators

3.1. *Backgrounds of the Respondents:*

Table 2 represents the background of the 24 experts who were selected for the evaluation of the checklist. They were selected from the academic and non-academic fields as per their experience, position, and geographic locations to make the study more valid and reliable.

Table 2: Background of Respondents:

Number	Employer	Position	Experience	Location
1	Non-Academic	Director	20	Central China
2	Non-Academic	Dean	12	Southern China
3	Non-Academic	General Manager	10	Eastern China
4	Non-Academic	Vice Dean	11	Eastern China
5	Non-Academic	Dean	16	Northern China
6	Non-Academic	Director	17	Western China
7	Non-Academic	General Manager	10	Southern China
8	Non-Academic	Vice Dean	13	Northern China
9	Non-Academic	General Manager	11	Western China
10	Non-Academic	Director	18	Eastern China
11	Non-Academic	Dean	15	Southern China
12	Non-Academic	Vice Dean	10	Eastern China
13	Non-Academic	Dean	14	Eastern China
14	Non-Academic	Director	15	Northern China
15	Non-Academic	General Manager	12	Western China
16	Academic	Professor	15	Central China
17	Academic	Assistant .professor	10	Southern China
18	Academic	Assistant .professor	11	Eastern China
19	Academic	Assistant .professor	10	Western China

ISSN (ONLINE):2710-0308 www.irjmss.com ISSN (PRINT):2710-0316
DOI: 10.5281/zenodo.10317383

20	Academic	Professor	13	Northern China
21	Academic	Professor	11	Eastern China
22	Academic	Assistant .professor	17	Western China
23	Academic	Assistant .professor	20	Southern China
24	Academic	Assistant .professor	16	Central China

Source: Authors

All the participants were selected from diverse backgrounds. There were 36% respondents from academic and 66% were from Non-academic filed. They were selected from different parts of China to make the survey more reliable as 16% were from central China, 16% from the Northern China, 24% were from eastern China and 20% were selected from Western China. All of the respondents were experienced as 14 of them had 10 to 14 years to experience, and 10 of them had 15 to 20 years of experience in their fields.

3.2. Kruskal Wallis test:

In order to check the heterogeneity among the respondents from diversified backgrounds, Kruskal Wallis test applied on table 2. Table 3 shows the results of the Kruskal Wallis test applied by using SPSS 20, on the background of the respondents to see if there is a significant difference between them. According to the Kruskal, the significant difference proved when the asymptotic value is lower than 0.05.(Kruskal & Wallis, 1952). The results in Table 3 reveal that the entire values lie above the 0.05 according to the Kruskal Wallis suggested threshold. Therefore we may conclude that there is no significant difference among the background of respondents.

Table 3: Significance Results of the Interviewees

#	Indicators	Asymptotic. Significance. Of Kruskal Wallis test			
		Employer	**Experience**	**Location.**	**Positions**
1	**Hiring processes are transparent.**	0.374	0.157	0.502	0.406
2	**There are laws and detailed implementing regulations governing public employment**	0.374	0.157	0.502	0.406
3	**There are Merit-based recruitment and hiring in institutions**	0.439	0.924	0.558	0.416
4	**There are merit-based promotions.**	0.439	0.924	0.558	0.416
5	**Job descriptions are created and used for hiring and promotion**	0.756	0.701	0.649	0.665
6	**Positions are advertised publicly to ensure fair and open competition**	0.263	0.669	0.47	0.524
7	**Assignment and promotion processes are transparent/ performance management transfer and promotions**	0.16	0.524	0.714	0.176
8	**Job performances are**	1	1	1	1

ISSN (ONLINE):2710-0308 www.irjmss.com ISSN (PRINT):2710-0316
DOI: 10.5281/zenodo.10317383

	documented				
9	**Promotions are based on documented performances**	0.197	0.276	0.434	0.7
10	**Processes of evaluation are transparent**	0.58	0.798	0.486	0.188
11	**Procedure for employee discipline and termination is clear**	0.299	0.033	0.136	0.563
12	**There is a trend of Buying and selling positions**	0.062	0.604	0.643	0.524
13	**Political interventions in appointments are common**	0.747	0.82	0.791	0.228
14	**There is wide use of Revolving doors**	0.695	0.191	0.26	0.25
15	**Unsuccessful bidders can seek official review of procurement decisions**	0.802	0.485	0.29	0.676
16	**Unsuccessful bidders can seek review of procurement decisions in the courts**	0.501	0.537	0.525	0.036
17	**There are prescribed rules for the removal of public officers**	0.448	0.518	0.05	0.545
18	**Per diems and allowances are offered**	0.241	0.66	0.456	0.612
19	**Raises are based on documented performance**	0.68	0.272	0.025	0.902
20	**Absenteeism and other malpractices are existed**	0.25	0.989	0.293	0.101
21	**Shirking behavior is common(avoid or neglect responsibility)**	0.556	0.42	0.914	0.598
22	**Gift giving is very common to take benefits**	0.399	0.348	0.315	0.807
23	**trainings are regularly conducted for civil servants on rules and procedures governing recruitment, hiring and promotion**	0.933	0.623	0.258	0.344
24	**Agency/ Ministries publish annual reports containing basic information about their work, organization and finances**	0.613	0.762	0.271	0.226
25	**There are publically available reports on public sector employment statistics.**	1	0.829	0.719	0.201
26	**There are publically available reports containing information on public sector salaries.**	0.374	0.809	0.279	0.351
27	**There is a law governing the public right to obtain access to government records**	0.899	0.27	0.251	0.752

ISSN (ONLINE):2710-0308 www.irjmss.com ISSN (PRINT):2710-0316
DOI: 10.5281/zenodo.10317383

28	**There are regulations implementing the law**	0.899	0.754	0.417	0.351
29	**The law and regulations clearly set forth a presumption in favor of public disclosure of information**	0.58	0.798	0.848	0.188
30	**There are prescribed time limits for government to provide information**	0.899	0.17	0.502	0.219
31	**The cost of obtaining information from the government usually set at a reasonable rate.**	0.876	0.568	0.139	0.656
32	**One can appeal to the courts a government failure to provide information**	0.899	0.809	0.756	0.219
33	**Administrative agencies are required to give reasons in writing for decision taken**	0.709	0.315	0.47	0.524
34	**There are Rules designed to prevent nepotism exist in public offices and are enforced**	0.876	0.831	0.314	0.656
35	**Civil servants dismiss from employment on grounds of corruption or professional malfeasance are barred from public service**	0.709	0.604	0.535	0.524
36	**There are conflict of interest rules for public procurement officials**	0.275	0.568	0.714	0.361
37	**The conflict of interest rules for public procurement officials have been enforced in practice**	0.899	0.754	0.417	0.351
38	**There is legal protection of whistle blowers and witnesses**	0.709	0.604	0.535	0.524
39	**There are Complaints mechanisms against corruption.**	0.58	0.798	0.434	0.546
40	**Number of corruption cases that are reported and forwarded to the prosecutor's office available easily.**	0.58	0.798	0.141	0.806
41	**Publicized laws and government data about corruption available easily.**	0.899	0.27	0.309	0.752
42	**Number of complains about inadequate management and non-compliance with HR standards are available.**	0.693	0.45	0.468	0.38
43	**Budgeting format and procedures are transparent and available to public.**	0.58	0.798	0.54	0.546
44	**Government-approved price list for preparing budget estimates available.**	0.275	0.568	0.714	0.361

ISSN (ONLINE):2710-0308 www.irjmss.com ISSN (PRINT):2710-0316
DOI: 10.5281/zenodo.10317383

45	**Sources of revenue are disclosed publicly.**	0.374	0.754	0.309	0.533
46	**There are defined rules and regulations for the revenue collection and accounting procedures.**	0.899	0.184	0.21	0.752
47	**Processes for revenue collection and accounting are clean**	0.097	0.798	0.848	0.154
48	**Auditing and record keeping procedures are free of corruption**	0.876	0.568	0.139	0.656
49	**Criminal sanctions for stealing public funds are enforced**	0.709	0.315	0.382	0.524
50	**Public offices regularly perform audits of their own budgets**	0.709	0.315	0.47	0.524
51	**Existence of treasury single account (TSA)in public offices.**	0.374	0.27	0.756	0.351
52	**There is timely reconciliation of government accounts present in every public institution**	0.299	0.586	0.71	0.362
53	**There are no unregulated expenditure procedures/ Expenditure administration and control**	0.899	0.809	0.65	0.219
54	**Records are based on double entry accounting.**	0.275	0.568	0.714	0.361
55	**There is proper Preparation of monthly reliable budget execution reports (treasury general ledgers, flash reports, etc.);**	0.275	0.568	0.714	0.361
56	**Publication of budget execution information on the same basis as the original budget/ Regularly publishes periodic budget execution reports**	0.275	0.568	0.714	0.361
57	**Off-budget costs of government programs are accounted and reported by the Ministry of Finance or equivalent**	0.275	0.568	0.714	0.361
58	**Publication of administrative accounts 6 months after end-FY (fiscal year).**	0.58	0.798	0.54	0.546
59	**Transmission of audited accounts to the legislators 6 months from the end of FY (Fiscal year)**	0.57	0.409	0.536	0.347
60	**Accurate, timely and transparent record keeping is present is Chinese public institutions**	0.374	0.809	0.502	0.351
61	**Accounting and reporting of revenue is regularly conducted in public offices.**	0.709	0.315	0.382	0.524

ISSN (ONLINE):2710-0308 www.irjmss.com ISSN (PRINT):2710-0316
DOI: 10.5281/zenodo.10317383

62	**There is a regular, complete accounting of the existence and ownership of the value of all of the institution's fiscal operations**	1	1	1	1
63	**There are proper laws and regulations addressing asset management system in public institutions in china**	0.439	0.834	0.558	0.221
64	**There are proper Procedures/mechanisms for tracking inventory**	0.709	0.604	0.535	0.524
65	**Procedures for allocating and properly using equipment and materials**	0.58	0.588	0.848	0.101
66	**Audit processes (optional, because already discussed in the accounting section)**	0.58	0.798	0.848	0.188
67	**Sales policies and practices are clear and publicly available and followed by employees**	0.58	0.624	0.248	0.806
68	**Identification of organizations involved in supervision.**	0.263	0.935	0.649	0.378
69	**Any mechanisms for complaint in the agency being overseen.**	0.613	0.735	0.509	0.364
70	**There is a supervising body that reviews hiring and promotion decisions and ensures fairness and professionalism in recruitment.**	0.275	0.568	0.714	0.361
71	**The oversight body can rule against government on a case involving alleged unfairness in recruitment, hiring, or promotion**	0.709	0.604	0.535	0.524
72	**Existence of Policies and real practices with regard to legal redress**	1	0.345	0.254	0.764
73	**Services the government agency provides and the authority it exercises are satisfactory.**	0.299	0.362	0.57	0.362
74	**The clients of these services and authorities have right to complain against bribe or any type of corruption.**	0.197	0.276	0.434	0.7
75	**Other sources of these services or authorities are available**	0.709	0.604	0.643	0.524
76	**Each agency meets the demand for services fairly**	0.709	0.604	0.643	0.524

Source: Author

3.3. *Reliability and Internal Consistency:*

Table 4 illustrates the results of the reliability and validity of the checklist. The designed

International Research Journal of Management and Social Sciences, Vol. II, Issue 3, Oct - Dec 2021
ISSN (ONLINE):2710-0308 www.irjmss.com ISSN (PRINT):2710-0316
DOI: 10.5281/zenodo.10317383

checklist has proved reliable as the Cranach's alpha results were appropriate according to the suggested threshold by different researchers as explained above. The reliability score of each administrative department were greater than 0.7 and hence fulfilled the preselected criterion to be reliable. Moreover, Coefficient of determination (R^2), which showed that how good one indicator was to predict other, was also calculated in this study and the threshold of 20% (0.25) was suggested cutoff criteria. Table 4 showed that all the values of the R^2 were acceptable and hence proved the checklist reliable for further use. The last column of Table 4 presents the results of the inter-item or subscales internal consistency which were also satisfying the condition that the correlation among the sub items was greater than 0.25.

Table 4: Reliability and Internal Consistency Results

No:	Areas (First Grade Indicators)	Third Grade Indicators	Cronbach's Alpha ≥0.7	R^2 ≥0.20	Inter-item Consistency ≥0.25
1	**HR Management**	17 Indicators 5 indicators 19 indicators	0.95	0.90	0.3
2	**Public Financial Management**	8 indicators 3 indicators 9 indicators	0.96	0.92	0.55
3	**Asset Management**	5 Indicators	0.82	0.67	0.49
4	**External Control or Supervision**	5 indicators	0.88	0.77	0.63
5	**Services and Authority**	4 indicators	0.77	0.59	0.49
		Total: 74 Indicators			

Source: Author

4. Conclusion:

This study has basically been conducted to design the checklist for the construction of corruption measurement model for the administrative sector in China. The study has sorted out the two main research questions that how to design a checklist, and how to check the validity and reliability of the checklist. Although, lots of research have been done in the field of corruption, but there is lack of proper systematic research to measure and investigate corruption in the administrative sector in China. Most of the indicators in the checklist have been adopted by the USAID presented checklist for the assessing the integrity of institutions and some were included by the authors of this study. The study has adopted a step by step procedure to reach a final conclusion. This study introduced the new procedure to construct the checklist for corruption measurement by using six sigma frameworks. First of all the team of experts was selected to verify the content of the checklist and hence verified the checklist by approving the selected items for the model. The researchers adopted several tools of

reliability and validity as Kruskal Wallis test, Cronbach's alpha, R-squared, and inter-item correlation, to make it more reliable and valid tool for further research purpose. The use of Kruskal Wallis, Cronbach's alpha, R^2, and inter-item correlation proved the checklist reliable with the help of accurate results. None of the indicators was excluded from the list because the results were reliable. The use of a checklist in health sciences and education is common but we cannot find much literature in other disciplines. The use of a checklist in assessment studies is very useful and convenient and it can be adopted as a part of effective assessment studies tool in social sciences research. This model of the checklist can be useful for the policymakers and researchers in the social sciences fields who conduct assessment studies. A reliable tool can be constructed by other researchers following the methods adopted in this study. The implication of this pilot study can be expanded nationally and internationally and contributed in the world of knowledge for corruption measurement models. To summarize, the results revealed that the checklist is valid and reliable for the further use and all the items or indicators in the checklist are reliable and valid.

References

1. Clark, L. A., & Watson, D. (1995). Constructing validity: Basic issues in objective scale development. *Psychological assessment, 7*(3), 309.
2. Galtung, F. (2006). Measuring the immeasurable: boundaries and functions of (macro) corruption indices. *Measuring corruption, 101*.
3. Hales, B., Terblanche, M., Fowler, R., & Sibbald, W. (2007). Development of medical checklists for improved quality of patient care. *International Journal for Quality in Health Care, 20*(1), 22-30.
4. Hassanein, S., El-Sayed, Z., & Raouf, H. A. (2013). Validity and Reliability of Checklists Used for Objective Structured Clinical Examination: Piloting Modified Tools.
5. Kaptelinin, V., & Nardi, B. (1997). The Activity Theory Checklist: A Tool for Representing the" Space" of Context. *Unpublished communications with the authors and tutorial at CHI, 97*.
6. Kaufmann, D., Kraay, A., & Mastruzzi, M. (2007). Measuring corruption: myths and realities.
7. Kruskal, W. H., & Wallis, W. A. (1952). Use of ranks in one-criterion variance analysis. *Journal of the American Statistical Association, 47*(260), 583-621.
8. Lambsdorff, J. G. (2006). Measuring corruption–the validity and precision of subjective indicators (CPI). *Measuring corruption, 81*, 81.
9. Lance, C. E., Butts, M. M., & Michels, L. C. (2006). The sources of four commonly reported cutoff criteria: What did they really say? *Organizational research methods, 9*(2), 202-220.
10. Lanyi, A., & Azfar, O. (2005). Tools for Assessing Corruption and Integrity in Institutions: A Handbook. *United States Agency for International Development, United States Government*.
11. Nunnally, J. (1978). Psychometric methods (pp. 245): New York: McGraw-Hill.
12. Pennington, D. C. (2003). *Essential personality*: Oxford University Press.
13. Pyzdek, T. (2003). *Six Sigma Handbook*. New York: The McGraw-HIll Companies, Inc.
14. Scriven, M. (2000). The logic and methodology of checklists. *Интернет–ресурс http://www. which. edu/evaluate/checklists/papers/logic&methodology_dec07. pdf*.
15. Shan, M., Chan, A. P., Le, Y., Xia, B., & Hu, Y. (2015). Measuring corruption in public construction projects in China. *Journal of Professional Issues in Engineering Education and Practice, 141*(4), 05015001.
16. Tabish S.Z.S, J. K. N. (2011). Analyses and evaluation of irregularities in public procurement in India. *Construction Management and Economics, 29*(3), 261-274.
17. Winters, B. D., Gurses, A. P., Lehmann, H., Sexton, J. B., Rampersad, C. J., & Pronovost, P. J. (2009). Clinical review: checklists-translating evidence into practice. *Critical Care, 13*(6), 210.
18. Yun, J.-S. (2004). Model for measuring Korean administrative corruption: focusing on the application of the AHP method. *International Area Review, 7*(1), 221-245.