

How Does Institutional Context Matter? The Local Discrepancy in Social Credit System Implementation in China

Keywords: Social Credit System, China, Policy Implementation, Institutional Context, LDA

Extended Abstract

The Social Credit System (SCS) launched by the State Council in China in 2014 is the first digitally implemented nationwide scoring system that aims to assess the creditworthiness of Chinese citizens. The existing research has not touched on how to incorporate the local institutional context of the social, economic, and environmental political realities into analyzing as well as comparing the design and implementation of different SCSs in local China. By employing both traditional statistical analysis methods and unsupervised machine learning toward data collected from local governmental websites of two county-level cities---Rongcheng and Danyang, this exploratory research attempts to reveal how institutional context might contribute to explaining the local discrepancies of SCS implementation between these two cities as well as finds out how performative SCS is in local China. Specifically, this research reveals local credit-related policy, micro-level implementation of SCS, and micro-level results of SCS implementation in Rongcheng and Danyang are divergent, which might be a result of distinctive institutional actors, institutional characteristics, and socioeconomic realities between the two cities

Theoretical contributions:

This research might enrich the literature on micro-level implementation analysis that emphasizes the contextuality in determining the implementation “success” (Berman, 1978). Specifically, this research revises the conceptual framework of institutional context as a way of incorporating local institutional actors, institutional characteristics, as well as political, economic, and cultural realities in adopting a project to its local settings.

Data and methods:

For data collection, Data is mainly collected from the official website of SCS ---“Credit Rongcheng” (信用荣成) and “Credit Danyang”(信用丹阳) through web scraping from 2020 to 2022. Specifically, the dataset used in this research combines 1) 287 policy documents in Rongcheng and 109 policy documents in Danyang 2) 1455 and 1578 items in “information regarding administrative penalties” in Rongcheng and Danyang, respectively, 3) 1644 and 918 items in blacklist and red list in Rongcheng and Danyang, respectively, 4) 13707 and 140 items in “Current social credit situation”(信用动态) that containing credit-related activities(used as a measurement of implementation in the research) in Rongcheng and Danyang, respectively.

In terms of data preprocessing, data cleaning is mainly conducted through Python accounting for missing values, removing outliers and repeated values, and correcting inconsistent data points. Regarding data analysis, for quantitative data, Data analysis is mainly conducted through SPSS by categorizing the reasons being penalized or rewarded, the issue department, and the penalty payments in each year. For qualitative text data, Latent Dirichlet Allocation (LDA), as one of the unsupervised topic modeling models in Gensim library, is applied to the titles of “Current social credit situation”(信用动态). After that, the result of topic modeling is visualized through pyLDAvis.

Main findings:

First, micro-level policy in Rongcheng and Danyang is different. For policy documents in Rongcheng, only 3% of the total documents are credit-related policies issued by the Rongcheng government, covering mainly the judicial industry. Other than that, all other documents are related to either credit-related activities or reposting policy from central

government. For policy documents in Danyang, 17.4% of the total documents are credit-related policies issued by the Danyang government, containing policies regarding optimizing the business environment, government integrity, constructing civilized cities, etc.

Second, the implementation process in Rongcheng and Danyang differs from each other and different kinds of problems in implementation can be recognized. For Rongcheng, by analyzing the topic modeling results of current credit situation (figure 2 and figure 4) as well as the local policy documents, we can find that the implementation of Rongcheng mainly considers propagandizing social credit system itself. For Danyang, based on the analysis results of current credit situation in Danyang (figure 1 and figure 3) as well as the analysis of local policy, we can conclude that both addresses the issue of optimizing the business environment, governmental integrity, and civilized city construction. Also, it is shown that the total number of credit-related activities in Danyang is limited and the publicity of SCS is lacking. As a result of distinctive propaganda intensity between Rongcheng and Danyang, enterprises in Rongcheng are more aware of the reward and punishment mechanism of SCS and are likely to restrain dishonest behaviors. In this way, as shown in the administrative penalties data, the proportion of enterprises with repeated punishment (greater than or equal to 2) in administrative penalties is lower in Rongcheng. Moreover, this discrepancy of implementation might be shown as effects of core institutional actors --- local governmental officials.

Third, the micro-level results of implementing SCS in Rongcheng and Danyang have different emphases in the regulatory field. Specifically, by comparing the reasons being penalized regarding administrative penalties (as shown in table 1 and table 2), the research finds that Rongcheng largely focuses on food safety issues (22.61%) and drug management (9.48%) while Danyang concentrates on different kinds of environmental protections issues (31.63%) such as air and water pollution. This discrepancy in micro-level implementation might be partially explained by either the different industrial structures or different stages of economic development in these two cities. Further analysis will be explored in the research.

Impacts:

With respecting to policymaking and policy revising in general, this research provides a new way of setting, evaluating, and revising SCS--- a combination of both subjective manual analysis as well as objective analysis employing both traditional statistical analysis methods and unsupervised machine learning. This quantitative evaluation method presents a thorough evaluation concerning policy implementation in different places, enabling a further sociological analysis that excavates institutional context and the larger political, economic, and social settings influence the context.

Also, concerning the global impact of this research project, by providing a detailed account of the digitally implemented surveillance system in local China, this research project might give insight into the construction of other algorithms and big data-empowered systems in other countries. In this way, when other institutions with distinct institutional context build their own systems empowered by new algorithms and technologies, they are likely to construct the system with a careful examination of their local institutional context as well as the economic, social, and political settings.

References

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- "Credit China". <https://www.creditchina.gov.cn/>
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Table 1. Reasons Being Penalized in “Information Regarding Administrative Penalties in Danyang

Illegal Acts Classification	Environmental Protection	Production Safety	Fire Control	Highway Safety	Transportation	Use of Medical Security funds	Use of Medical Security funds	Taxation	Invoice Management	Labor security	Internet Cafe Management	Others*
count	500	227	121	139	82	63	63	32	29	23	20	435
Percentage	31.63%	14.36%	7.65%	8.79%	5.19%	3.98%	3.98%	2.02%	1.83%	1.45%	1.27%	21.82%
Sum	1581	100.00%										

*Classifications that counted less than 1%, including food safety (0.51%), Drugs Mangement (0.19%)

Table 2. Reasons Being Penalized in “Information Regarding Administrative Penalties in Rongcheng

Rongcheng

Illegal Acts Classification	Food Safety	Drugs Mangement	Production Safety	Fire Control	Administrative Penalties	Advertising Law	Product Quality Management	Public Health Management	Paid use of Plastic Bags	Taxation	Metrological Law	Tobacco Mangement	Invoice Management	Others**
Count	329	138	252	105	69	40	36	28	28	26	25	21	17	262
Percentage	22.61%	9.48%	17.32%	7.22%	4.75%	2.75%	2.47%	1.92%	1.92%	1.79%	1.72%	1.44%	1.17%	18.01%
Sum	1455	100.00%												

** Classification that counted less than 1%, including air Pollution (0.76%), Enviromental Protection (0.04%), Water Pollution (0.21%), Noise Control (0.14%)

0.028*“诚信” + 0.025*“开展” + 0.021*“活动” + 0.014*“社会” + 0.014*“和” + 0.014*“文明” + 0.014*“志愿” + 0.014*“政务” + 0.012*“宣传” + 0.010*“、”
0.037*“诚信” + 0.026*“企业” + 0.022*“商务” + 0.016*“、” + 0.012*“召开” + 0.012*“品牌” + 0.011*“信用” + 0.011*“社会” + 0.011*“体系” + 0.011*“监督员”
0.051*“诚信” + 0.017*“社会” + 0.017*“经营” + 0.017*“文明” + 0.012*“企业” + 0.012*“称号” + 0.012*“为” + 0.012*“家” + 0.012*“单位” + 0.012*“经营户”
0.048*“诚信” + 0.024*“工作” + 0.024*“推进” + 0.018*“开展” + 0.012*“-” + 0.012*“会” + 0.012*“示范” + 0.012*“建设” + 0.012*“金融” + 0.012*“环境”
0.075*“诚信” + 0.023*“政务” + 0.016*“服务” + 0.015*“召开” + 0.013*“商务” + 0.010*“报告” + 0.010*“首个” + 0.010*“2021” + 0.010*“信用” + 0.010*“年”
0.022*“修复” + 0.015*“+” + 0.015*“培训” + 0.015*“会” + 0.015*“文明” + 0.015*“2022” + 0.015*“企业信用” + 0.015*“召开” + 0.015*“信用” + 0.008*“诚信”
0.019*“建设” + 0.019*“诚信” + 0.019*“促进” + 0.016*“治理” + 0.010*“司法” + 0.010*“服务” + 0.010*“打造” + 0.010*“优秀” + 0.010*“环境” + 0.010*“四有式”
0.064*“诚信” + 0.021*“社会” + 0.017*“企业” + 0.014*“2022” + 0.013*“知识产权” + 0.013*“司法” + 0.012*“环境” + 0.012*“家庭” + 0.012*“举办” + 0.009*“活动”
0.033*“诚信” + 0.028*“企业” + 0.024*“信用” + 0.021*“开展” + 0.018*“家” + 0.018*“示范” + 0.017*“活动” + 0.015*“社会” + 0.014*“2022” + 0.013*“宣传”
0.023*“信用” + 0.023*“开展” + 0.023*“企业” + 0.015*“诚信” + 0.015*“文明” + 0.015*“活动” + 0.015*“银行” + 0.008*“和” + 0.008*“身边” + 0.008*“引领”

Figure 1. Topic Modeling Results for Danyang

0.229*"信用" + 0.113*"活动" + 0.109*"宣传" + 0.107*"开展" + 0.075*"暨" + 0.074*"基金" + 0.015*"家村" + 0.010*"社区" + 0.005*"实现" + 0.005
*"山村"
0.033*"街道" + 0.029*"文明" + 0.020*"-" + 0.019*"志愿" + 0.017*"新" + 0.016*"实践" + 0.015*"服务" + 0.015*"活动" + 0.014*"食堂" + 0.014*"暖
心"
0.024*"建设" + 0.020*"企业" + 0.020*"体系" + 0.018*"发展" + 0.018*"信用" + 0.018*"-" + 0.017*"推进" + 0.016*"服务" + 0.015*"为" + 0.013*"我
市"
0.074*"建设" + 0.066*"诚信" + 0.021*"万里行" + 0.018*"行政" + 0.017*"方案" + 0.016*"城市" + 0.015*"审批" + 0.015*"让" + 0.015*"-" + 0.013
*"综合"
0.029*"安全" + 0.026*"管理" + 0.021*"生产" + 0.021*"工作" + 0.021*"整治" + 0.020*"局" + 0.014*"镇" + 0.014*"经济" + 0.012*"交通运输" + 0.011
*"应急"
0.069*"召开" + 0.046*"工作" + 0.035*"会议" + 0.022*"推进" + 0.018*"会" + 0.016*"举行" + 0.015*"培训" + 0.011*"问题" + 0.011*"疫情" + 0.010
*"全市"
0.196*"发放" + 0.098*"信用" + 0.086*"村" + 0.070*"暨" + 0.070*"基金" + 0.047*"开展" + 0.039*"活动" + 0.035*"宣传" + 0.006*"庄村" + 0.006
*"踵"
0.021*"工作" + 0.016*"社区" + 0.014*"、" + 0.013*"攻坚" + 0.012*"教育" + 0.012*"除恶" + 0.012*"扫黑" + 0.011*"案件" + 0.011*"非法" + 0.011
*"精神"
0.041*"开展" + 0.028*"整治" + 0.028*"安全" + 0.025*"行动" + 0.024*"专项" + 0.022*"检查" + 0.021*"工作" + 0.020*"生产" + 0.013*"市场" + 0.013
*"大"
0.079*"信用" + 0.039*"街道" + 0.028*"+" + 0.023*"社区" + 0.016*"志愿" + 0.015*"开展" + 0.014*"活动" + 0.012*"治理" + 0.011*"举办" + 0.011
*"寻山"

Figure 2. Topic Modeling Results for Rongcheng

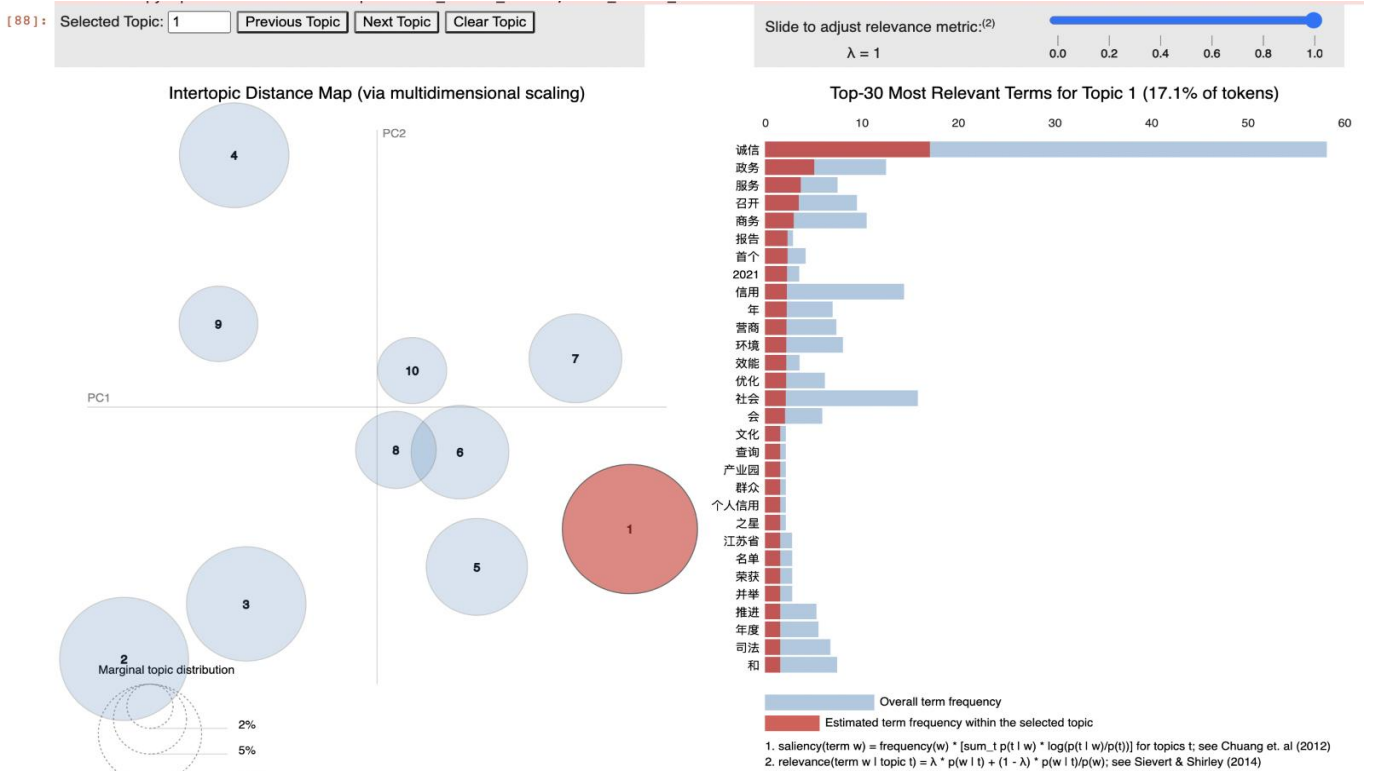


Figure 3. Topic Modeling Visualization for Danyang

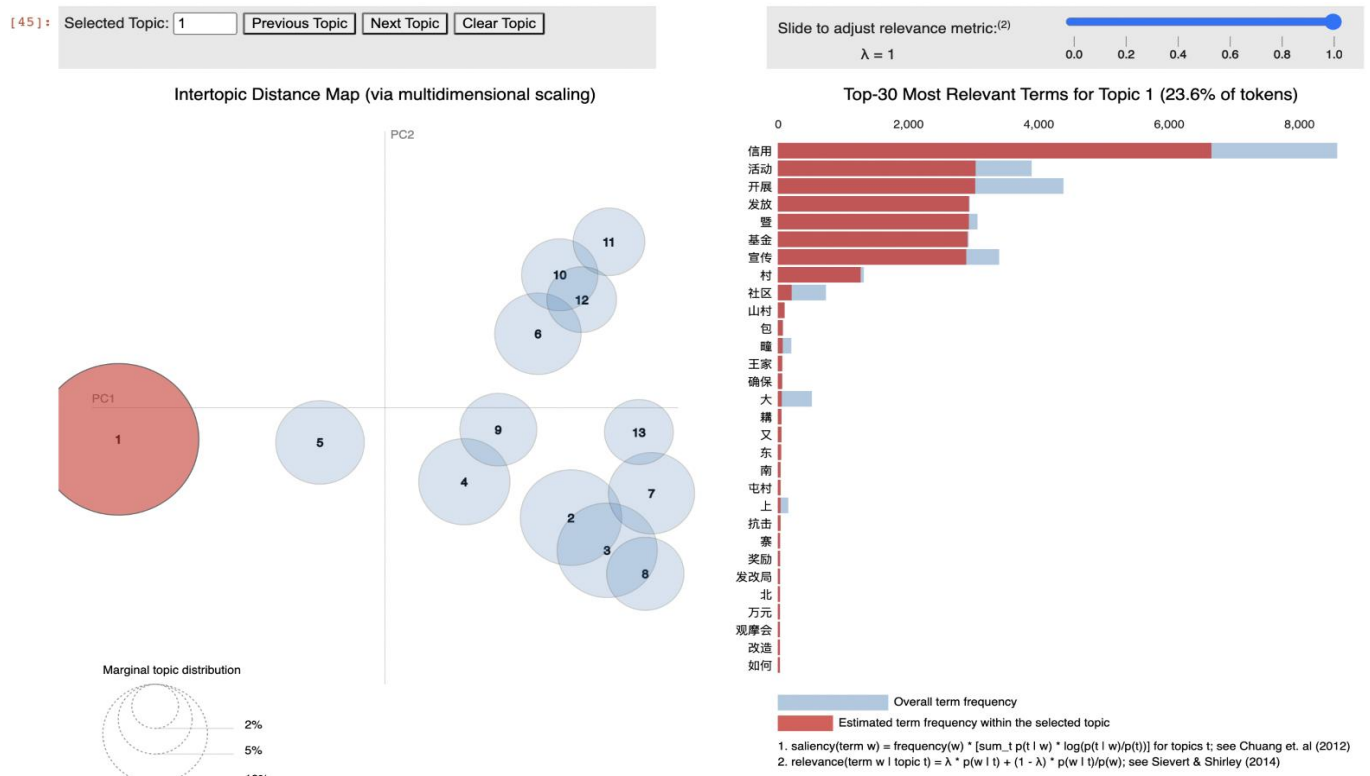


Figure 4. Topic Modeling Visualization for Danyang