# Equalization of Basic Public Services and Social Trust
## —*Analysis of Multiple Intermediary Effects*

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**ABSTRACT**

Promoting the equalization of basic public services is an important way to increase social security and improve people's livelihood for China. Based of measuring the level of equalization of basic public services in China, this paper conducts the empirical validation to test the impact of equalization of basic public services on social trust. It also analyzes the mediation effect by using multiple mediation models. The result shows that the equalization of basic public services in China needs to be improved, and there are large differences among provinces. The improvement of the equalization of basic public services can significantly promote social trust. The estimation for the mediating effect shows that the equalization of basic public services improves social trust mainly through narrowing the social income gap.

*Keywords: Equalization of Basic Public Services, Social Trust, Social Justice, Income Gap*

## 1. INTRODUCTION

Accelerating the equalization of basic public services and narrowing the income distribution gap are important measures for China to improve social security and people's livelihood. Although expenditure of various public services has increased a lot in recent years, there are significant differences among regions or provinces in China (Zeng Hongying, 2012; Li Linjun et al., 2018)[1,2]. National Bureau of Statistics of China reports that the total public services spending rose from 7.5 trillion to 13.9 trillion from 2012 to 2018. The average annual growth rate was 14.12%, which is much higher than GDP growth rate. But the expenditures vary among different regions. Take the year 2018 as an example, the average expenditure of provinces in eastern region is 0.5 trillion, and it is 0.44 trillion in central region. The western region is much lower, the value is 0.33 trillion. The level of regional public service expenditure will affect the local level of basic public service provision. Therefore, the different level of public expenditure means that there are significant differences in the level of public service provision in different regions, resulting in non-equalization of basic public services among regions.

The equalization of basic public services imposed various effects on social and economic development. At the macro level, it will affect the financial system reform, regional urbanization level and economic development in the county (Li Bin et al., 2015; Gan Xingqiong and Liu Dashuai, 2015; Xiong Xiaolin and Li Tuo, 2018) [3-5]. At the micro level, it will affect residents' subjective perception of inequality of public services, thereby affecting the level of social trust (Lv Wei and Zhang Yanyan, 2019) [6]. A higher level of social trust is not only conducive to reducing social transaction costs and promoting long-term economic development (Lv Chaofeng et al., 2019) [7], but also conducive to raising residents' awareness of environmental protection and promoting the implementation of public environmental protection actions (Zhang Hongzhen and Zhao Yang, 2019)[8].

This paper aims to measure the levels of regional equalization of basic public service and study the influence of equalization on social trust with China Family Panel Studies (CFPS) and 25 provinces' data in China from 2012 to 2017. We found that both the level of basic public services and social trust are different among provinces. The level of social trust among residents needs to be improved. The increase in the

level of equalization of basic public services can significantly and positively increase the level of social trust among residents. Mechanism analysis shows that the higher perception of social justice and the smaller income gap, can increase the level of social trust more. Compared with the existing literature, we'd like to address some crucial questions. Firstly, we measured the supply level of basic public services and the level of inequality of basic public service in China, and provided a reference for promoting the equalization of regional basic public services and narrowing the income gap between regions. Secondly, we combined the micro-data with the study of basic public services, and studied the impact of equalization of basic public services from a micro perspective. Thirdly, we analyzed the influence from the perspective of fairness and income gap to test the micro-influence mechanism.

## 2. LITERATURE REVIEW AND HYPOTHESIS

The equalization of public services has aroused widespread concern in recent years. Foreign scholars paid attention to basic public services much earlier and they mainly focused more on subdivided areas, such as medical services, public transportation services, ecological environment services, government street and window services, etc. (Monier B et al, 2019; Simon C et al, 2018; Walker F.et al, 2016; Halkons E and Tzeremes G, 2011; Kong G, 2018; Wang M et al, 2018; Liou H et al, 2014) [9-15]. Although the research of domestic scholars started relatively late, the research scope is broader, covering three dimensions. First, measuring the levels of basic public services supply. The polarization in the public service provision has caused a lot of problems in China (Xin Chongchong and Chen Zhiyong, 2019; Hu Hongshu and Wu Siqi, 2019) [16-17], but the inequality is gradually reduced, and transfer payments can improve the supply inequality of basic public services. Second, measuring the basic public services performance and analyzing factors influencing supply. Xie Xingquan (2018) [18] believed that the measurement should be more diversified, and the term of public value should be added, such as satisfaction of basic public services. The general budget expenditures, general transfer payments, transfer payments to professionals, the size of the primate city and other factors that affected public services should be included in the evaluation system (Qiao Junfeng et al., 2019; Wang Yuxin et al., 2018) [19-20]. Third, the impact analysis of equalization of basic public services, including regional urbanization and county economic development (Lv Wei and Zhang Yanyan, 2019) [6].

This paper focuses on the impact of equalization of basic public services on social trust. On the one hand, with economic development, basic public services have increased people's happiness and satisfaction in life,

especially in education and health. The government's investment in education has improved the education level, health level and intergenerational mobility of residents, and reduced the injustice. In addition, the equalization of basic public services has improved the welfare and interests of vulnerable groups and low-income groups, narrowed the income gap, and thus has a positive impact on social trust. On the other hand, residents who live in the same area can easily perceive the difference of the public service among each other. The government's public service cannot be perfectly meet each resident's demand. It is prone to have subjective feelings of inequality in public services, which in turn has a negative impact on social trust. Based on the above analysis, the first research hypothesis is:

H1: The changes in equalization of basic public services has a significant impact on the level of social trust of residents.

Usually the equalization of basic public services is closely related to residents' perception of fairness and income gap. With the social development, the uneven distribution of economic development dividends and the disadvantaged position of some residents have caused social injustice and social instability, which are negative for social trust. Residents' perception of unfairness restricted the promotion of social trust. The equalization of basic public services is one of the government's methods to reduce the negative impact of social injustice. It provides equal and high-quality public services to meet residents' needs for children's education, medical care, and employment security. Based on these, the equalization of basic public services can reduce social injustice and increase social trust. The second research hypothesis is:

H2: The equalization of basic public services affects social trust of residents by increasing or decreasing the residents' perception of social justice.

The equalization of basic public services is one of the main measures to narrow the income gap for the government. And the income gap has a significant effect on social trust. Increasing income gap means a decline in social mobility. According to the principle of homogeneity preference, people with similar social status interact more frequently. Unequal social status will not only result in unequal rights and reduce opportunities for upward mobility, but also disrupt the common sense of destiny and destroy the trust of residents in society. If the income gap tends to be widen, it will strengthen the difference in social status, thereby undermining social trust. Based on the above analysis, the third research hypothesis is:

H3: The equalization of basic public services affects social trust of residents by changing the income gap.

# 3. EMPIRICAL RESULTS

## 3.1. Data and Sample

This paper primarily uses data obtained from the CFPS as well as 31 provinces' data of China from 2012 to 2017. Due to the lack of data in Xinjiang, Tibet, Qinghai, Inner Mongolia, Ningxia, and Hainan in the CFPS database, we finally select the remaining 25 provinces in the sample. The sample number is nearly 111 thousand.

According to theoretical analysis and references, we establish the following empirical model to test the hypothesis H1:

$$T_{ipt} = \beta_0 + \beta_1 UMIN_{pt} + \beta_2 X_{ipt} + \lambda_{it} + \mu_{ip} + \varepsilon_{ipt} \tag{1}$$

$T_{ipt}$ represents the social trust of resident $i$ in province $p$, year $t$. $UMIN_{pt}$ represents the level of inequality of basic public services in year $t$ in province $p$. $UMIN_{pt}$ is explained in 3.2. $X_{ipt}$ is a control variable group, including four types of indicators: (1) Personal characteristics, such as gender, age, ethnicity, health status, education level, income level, household registration status, work status, marital status, religious belief, social status; (2) Family characteristics that have an important influence on the potential characteristics of individuals. We choose the education levels of fathers and mothers at the age of 14 as proxy variable; (3) The status of the respondent when answering the question. It is a measure of the degree of eagerness to end the survey; (4) Urban characteristic variables, including population size, proportion of tertiary industry, local fiscal expenditure, degree of urbanization, and logarithm of per capita GDP. $\lambda_{it}$ is the time fixed effect, $\mu_{ip}$ is the regional fixed effect, $\varepsilon_{ipt}$ represents the random term.

We establish the following empirical models to test the hypothesis H2 and H3:

$$W_{ipt} = \alpha_0 + \alpha_1 UMIN_{pt} + \alpha_2 X_{ipt} + \lambda_{it} + \mu_{ip} + \varepsilon_{ipt} \tag{2}$$

$$T_{ipt} = \rho_0 + \rho_1 UMIN_{pt} + \rho_2 W_{ipt} + \rho_3 X_{ipt} + \lambda_{it} + \mu_{ip} + \varepsilon_{ipt} \tag{3}$$

$W_{ipt}$ represents mediating variables, namely perception of social equity/income gap. The perception of social justice is measured through residents' satisfaction of the environment, employment, education, medical care, housing, and social security. The standard deviation of the logarithm of the total annual income of each province is used as a proxy variable of the income gap. The larger the standard deviation is, the higher the degree of income gap is.

## 3.2. Measurement of the Inequality of Basic Public Services

This paper measures the level of inequality of basic public services according to the following steps.

First, constructing index system of public service provision. Refer to the literatures, we select 8 first-level indicators and 33 second-level indicators. First-level indicators include infrastructure, environmental protection, communication technology, culture, public education, medical care, social security, welfare and safety.

Second, calculating the average value of the national basic public service supply level from 2012 to 2017.

Third, subtracting the national average value from the level of each province (autonomous regions and municipalities). The obtained differences are the deviations from the average value and represent the level of inequality. That is also the level of equalization. The higher inequality is, the lower equalization is. Whether the difference is positive or negative, it represents a deviation from the average value, so the difference is taken as absolute value, and logarithm of treatment indicates the degree of equalization of basic public services.

The result shows that, as China accelerates the implementation of the equalization of basic public services, the equalization of basic public services shows a trend of fluctuations. The levels of inequality of basic public services are much lower in 2012 and 2015. During the period, the inequality of basic public services in China has decreased firstly and then increased. From the perspective of provinces, there are differences among them. Compared to the national average value, the levels of inequality in Guangdong, Liaoning, Hubei, Shanxi are much lower, while the levels of inequality in Shandong, Jiangsu, Zhejiang are much higher.

## 3.3. Summary Statistics

Table 1 presents summary statistics for the data used in this paper. The mean social trust is 2.54. The standard deviation of social trust is 1.95. The provinces with higher social trust are Heilongjiang, Anhui, and Tianjin, with an average value above 4.5. the lower provinces include Guangxi and Jiangxi, with an average value below 1.5. The statistics indicate the differences among provinces' social trust in China are significant. The mean inequality of public service is 8.86 and the standard deviation is 0.93.

**Table 1.** Summary Statistics

| Variable Name | Mean | Standard deviation | Minimum | Max | Sample size |
|---|---|---|---|---|---|
| Social trust | 2.54 | 1.95 | 1 | 5 | 111011 |
| Equalization of basic public services | 8.86 | 0.93 | 6.40 | 11.05 | 150 |
| Perception of social justice | 3.710 | 1.865 | 0 | 10 | 111011 |

| Income Gap | | 0.566 | 0.518 | 0 | 2.726 | 110077 |
|---|---|---|---|---|---|---|
| Personal characteristics | Place of residence | 0.459 | 0.498 | 0 | 1 | 111011 |
| | gender | 0.537 | 0.499 | 0 | 1 | 111011 |
| | nationality | 0.714 | 0.452 | 0 | 1 | 111011 |
| | Party member | 1.234 | 0.938 | 1 | 5 | 111011 |
| | age | 41.39 | 18.93 | 16 | 85 | 111011 |
| | Hukou | 1.443 | 0.83 | 1 | 3 | 111011 |
| | Is there a job | 1.751 | 1.406 | 1 | 5 | 111011 |
| | Logarithm of income | 10.17 | 0.938 | 0 | 11.34 | 75901 |
| | religion | 0.119 | 0.324 | 0 | 1 | 111011 |
| | healthy | 5.302 | 1.288 | 1 | 7 | 111011 |
| | education level | 8.084 | 4.641 | 0 | 16 | 111011 |
| | marriage | 1.753 | 0.431 | 1 | 2 | 111011 |
| | Income level | 2.304 | 1.073 | 1 | 5 | 111011 |
| | Social status | 2.652 | 0.958 | 1 | 5 | 111011 |
| Family characteristics | Father's years of education | 7.775 | 4.314 | 3 | 79 | 111011 |
| | Mother's years of education | 6.544 | 5.142 | 3 | 79 | 111011 |
| Investigator observation variable | Status when answering the questionnaire | 1.858 | 1.464 | 1 | 7 | 111011 |
| City characteristics | Local fiscal expenditure | 0.555 | 0.180 | 0.272 | 0.931 | 110453 |
| | Degree of urbanization | 0.049 | 0.02 0 | 0.007 | 0.080 | 110453 |
| | Proportion of tertiary industry | 46.470 | 8.506 | 33.800 | 81.000 | 110453 |
| | Per capita GDP logarithm | 10.820 | 0.358 | 9.889 | 11.94 | 110453 |
| | Population size | 8.280 | 0.840 | 6.385 | 9.280 | 110453 |

## 3.4. Empirical Results

### 3.4.1. Benchmark model results

Table 2 is the empirical results of Hypothesis H1. Since social trust ranges (0,1), the ordered Probit model is used for regression. Column (1) controls personal characteristics and city characteristics, Column (2) adds family characteristics, column (3) controls four types of variables at the same time. The regression coefficients in all the columns are significantly negative and significant at the 5% level., indicating that the change in inequality of basic public services has a significant impact on the level of social trust of residents. The coefficient of Column (3) is -0.068, implying that if inequality of basic public services increases 1 unit, social trust of residents decreases by roughly 0.068. The hypothesis H1 is verified.

**Table 2.** The effect of inequality of basic public services on social trust

| Variable | (1) | (2) | (3) |
|---|---|---|---|
| Equalization of basic public services | -0.078*** | -0.068** | -0.068** |
| | (-2.75) | (-2.36) | (-2.39) |
| Personal characteristics | Y | Y | Y |
| Family characteristics | | Y | Y |
| Investigator observation variable | | | Y |
| City characteristics | Y | Y | Y |
| Time fixed effect | Y | Y | Y |
| Regional fixed effect | Y | Y | Y |
| Sample size | 45453 | 45453 | 45453 |

Notes: ***$p < 0.001$, **$p < 0.01$, *$p < 0.05$.

### 3.4.2. Further study

Table 3 is the empirical results of Hypothesis H2 and H3. When using social justice perception as mediating variable, the coefficient is not significant in model (2), indicating that basic public services have no significant effect on perceptions of fairness. The coefficient is significant in model (3), indicating that after controlling the perception of social justice, the equalization of basic public services still has a significant positive impact on social trust. The hypothesis H2 is verified. The empirical results show that the improvement of the equalization of basic public services can effectively promote the improvement of social trust. On the one hand, it directly affects social trust, and on the other hand, it promotes social trust by reducing the social income gap. The hypothesis H3 was verified.

**Table 3.** The mediating effect of perception of social justice and income gap

| Variable | Perception of social justice | | Income Gap | |
|---|---|---|---|---|
| | Model (2) | Model (3) | Model (2) | Model (3) |
| Equalization of basic public services | -0.003 (-0.17) | -0.062** (-2.17) | 0.273** (-8.23) | -0.083*** (-2.88) |
| Perception of social justice | | 0.042*** (-5.2) | | |
| Income Gap | | | | -0.259*** (-3.38) |
| Four types of control variables | Y | Y | Y | Y |
| Sample size | 45453 | 45453 | 45453 | 45452 |

Notes: ***$p < 0.001$, **$p < 0.01$, *$p < 0.05$.

## 4. CONCLUSIONS

The result shows that the equalization of basic public services in China needs to be improved. The equalization of basic public services in the western region is slightly higher than that in eastern and central regions, and there are large differences among provinces. Empirical result shows that equalization of basic public services has a significant positive impact on the social trust of residents by reducing income gaps.

## AUTHORS' CONTRIBUTIONS

Lina Wang contributed to the conception of the study and the revision of the manuscript;

Xuanyu Hu contributed to data curation;

Hengyuan Zhao performed the data analyses and wrote the manuscript.

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## REFERENCES

[1] Zeng Hongying. China's basic public service equalization standard system and transfer payment effect evaluation[J]. Economic Research,2012,47(06): 20-32+45.

[2] Li LinJun, Wang Lina, Wang Hainan. Integration of Beijing, Tianjin public service of cumulative inequality:1994-2015-adjust based on incremental supply and stock perspective[J].Economic and Management Research,2018,39 (10):93-110.

[3] Li Bin, Li Tuo, Zhu Ye. Equalization of public services, public finance expenditure for people's livelihood and urbanization - a dynamic spatial econometric test based on panel data of 286 Chinese cities[J]. China Soft Science,2015(06):79 -90.

[4] Gan Xingqiong, Liu Dashuai. On the household registration system, the equalization of public services and the reform of the financial syste[J].Financial Research,2015(03): 91-96.

[5] Xiong Xiaolin, Li Tuo.Basic public services, fiscal decentralization and county economic development[J].Statistical Researc,2018,35(02):66-74.

[6] Lv Wei, Zhang Yanyan.Empirical measurement of equalization and micro-impact of public services in cities[J].Quantitative Economics and Technical Economics,2019,36(11):101-120.

[7] Lvchao Feng, Chen Hanpeng, Santos LÓPez. - Leyva. Social trust, incomplete contracts and long-term economic growth[J].Economic Research,2019,54 (03): 4-20.

[8] Zhanghong Zhen,Zhao Yang.Social trust is beneficial to enhance public participation in environmental protection do? - based Chinese General Social Survey(CGSS) empirical research data[J].Economic and Management Research,2019,40 (05): 102-112.

[9] Monier B, Araújo V, Oliveira F, et al. Student evaluation of distance learning for health care professionals[J].Telemedicine and e-Health, 2019, 25(6):485-491.

[10] Simon G, Jonathan S, Mihajlo J, et al. High Out-of-Pocket health spending in countries with a mediterranean connection[J]. Frontiers in Public Health, 2018 (6):145.

[11] Walker F, Leigh N, Lee K. Redesign and commissioning of sexual health services in England-A qualitative study[J]. Public health, 2016, (139):134-140.

[12] Halkos E, Tzeremes G. A conditional nonparametric analysis for measuring the efficiency of regional public health - care delivery: an application to Greek prefectures[J]. Health Policy, 2011, 103(1):73-82.

[13] Kong G, Jiang L, Yin X, et al. Combining principal component analysis and the evidential reasoning approach for healthcare quality assessment[J]. Annals of Operations Research, 2018, 271(2):679-699.

[14] Wang M, Jayaraman P, Solaiman E, et al. A multi-layered performance analysis for cloud - based topic detection and tracking in big data applications[J]. Future Generation Computer Systems, 2018, (87):580-590.

[15] Liou H, Hsu C, Chen S. Improving transportation service quality based on information fusion[J]. Transportation Research Part A: Policy and Practice, 2014, (67):225-239.

[16] Xin Chongchong, Chen Zhiyong. China's basic public service supply level distribution dynamics, regional differences and convergence[J].Quantitative Economics and Technical Economics Research,2019,36(08): 52-71.

[17] Huhong Shu, Wu strontium Qi. Transfer payments, finance research efforts on the supply of basic public services affected - a threshold effect analysis based on provincial panel data[J].Huazhong Normal University: Humanities and Social Sciences,2019(6):95-105.

[18] Xie Xingquan. Research on quality evaluation of basic public services - Taking basic medical and health services as an example [J]. Macro Quality Research,2018,6(01):44-54.

[19] Qiao Junfeng, Chen Rongfen. The impact of transfer payment structure on the equalization of basic public services: a breakpoint analysis based on the classification of poor counties at the national level[J].Economist,2019(10):84-92.

[20] Wang Yuxin, Yu Xinghou, Xiong Xing. Does the first city's oversize inhibit the level of equalization of basic public services? an empirical study based on national provincial panel data[J].Ningxia Social Sciences,2019(04):92-100.