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Research on the Development of County Finance in Guizhou Province in the Promotion of Precise Poverty Alleviation

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Abstract

This paper selects the 50 state-level poverty-stricken counties in Guizhou province as the research object, and uses financial scale, financial efficiency and financial structure to represent the level of financial development in each county, using economic growth and income distribution as controlled variable. The poverty of every county is expressed by poor slow index. Applying the panel data model, the promotion of local financial development to the targeted poverty alleviation is studied. The empirical evidence shows that the financial scale, financial efficiency, financial structure, economic growth and poverty reduction of 50 national poverty-stricken counties in Guizhou province are positively correlated. However the financial scale is more significant to reduce the incidence of poverty than that of financial efficiency.

Keywords: Financial development, Precision for poverty alleviation, Panel data model.

1. Introduction

As research object, Guizhou is the largest and most impoverished province in China with the largest and the deepest poverty. For years, it follows policy steps. According to the latest statistics from Guizhou Statistics Bureau, there are still as many as 50 poverty-stricken counties in Guizhou province. So there is still a long way to go. In 2014, President Xi Jinping put forward the concept of "Precision for poverty alleviation". This concept has become the basic strategy of the national poverty alleviation work. Finance is a resource which can configuring other resources. Its total allocation and allocation efficiency directly determine the level of economic development. Under the current situation of poverty in Guizhou and the policy of "Precision for poverty alleviation", how to combine financial development to promote poverty alleviation is worth discussing.

2. Literature review

Set up fixed effects vector decomposition model with 23 provinces 2011-2008 data. It has shown that the rural financial development can significantly alleviate poverty, directly and indirectly. Instability in the process of the rural financial development has no significant impact on poverty (Tan, 2011) [1]. Select the financial development scale and the financial development efficiency as financial development indicators. Through empirical test for Chinese provincial panel data: financial development can through economic growth, income distribution channels to raise the income level of the poor. But the financial wobbles will offset the effect of financial development of poverty reduction (Cui and Sun, 2012)[2]. 2001 to 2010, China's rural financial development is negatively related to the incidence of poverty (Wu, 2012)[3]. The plight of the rural financial poverty alleviation include: poor credit environment, poor farmers lack of mortgage and financial institutions development is difficult to meet the demand of expanding capital , and regulatory standards hinder financial institutions (Guo, 2013)[4]. Using the credit risk model analyze the problems of rural credit. Credit risk uncertainty even more difficult for the rural registered permanent residence for credit funds, to improve the credit rationing, intensify

financial poverty alleviation and put forward reasonable Suggestions(Song, Li and Xiao, 2017)[5] . Analyze Sichuan Bazhong 3 counties 1 district nearly four years of panel data. The increase of agricultural loans accounted does not improve the farmers' income. In addition, from the perspective of the financial poverty alleviation efficiency index of building, the rural enterprise loan poverty alleviation efficiency during the sample period is on the rise (Deng, 2015) [6]. Financial development on poverty alleviation role of literature research accurately, but as a serious poverty situation of Guizhou province, the current study is seldom the county financial development in Guizhou of precise role in promoting research for poverty alleviation. For this reason, this paper uses panel data model for 2013 to 2015, 50 state-level poverty-stricken counties in Guizhou financial development study of precise role for poverty alleviation.

3. Linear regression model of panel data

3.1. *Panel data*

Panel data refers to the fixed a group of subjects in the interval of time such as continuous observation data, with cross section and time are the two characteristics of the data. Under the panel data in double scalar said, for example

$$Y_{it}, i = 1, 2, \cdots, N; t = 1, 2, \cdots, T$$

where i corresponding to the panel data in different individuals, N said panel data of individual number. t for panel data in different time, T says the maximum length of time sequence. If the fixed t unchanged, $Y_{i\cdot}$, i=1, 2, ⋯, N, is in the cross section of N random variables; If i fixed constant, $Y_{\cdot t}$, t = 1, 2, . . . , T, is the profile of a time series. Panel data is divided into two kinds of characteristics. Is a section on individual number is little, and each individual time span is long. Secondly, the cross section on individual number, and each individual short time span.

3.2. *Panel data model*

Based on panel data regression model is called the panel data model, usually distinguish between linear and nonlinear etc. For convenience, in this paper, the linear panel data regression model is written as:

$$\mathrm{Y}_{it} = \alpha_{it}^{*} + \sum_{h=1}^{K} \beta_{hit} x_{hit} + u_{it}, i = 1,2,\ldots,\mathrm{N}; \mathrm{t} = 1,2,\ldots,\mathrm{T}$$

where Y_{it} is interpreted variable for individual values that i at time t, x_{hit} for the hth explained variable for individual values that I at time t; β_{hit} for the h_{th} explained variable be estimated parameters; u_{it} is random error term. Panel model is usually divided into three categories, namely the hybrid model, the fixed effect model and random effect model. Panel model is usually divided into three categories, namely, hybrid model, fixed effect model and random effect model. In one of the fixed effects model parameters α_{it}^{*} are fixed, the random error term said ignored or changes in the individual, at any time and in a given the observation effect and explanatory variables under the condition of the expectation of a random error term is equal to zero, u_{it} homoscedasticity, different individuals and different point corresponding u_{it} are independent of each other. The model forms as follows:

There is only individual effect in the simulation, the model in the form of:

$$\mathrm{Y}_{it} = \alpha_{\mathrm{t}} + \sum_{h=1}^{K} \beta_h x_{hit} + u_{it}$$

α_i as a stochastic variable to describe the differences

$$\mathrm{Y}_{it} = \alpha_i + \sum_{h=1}^{K} \beta_h x_{hit} + u_{it}$$

between different individuals establish regression function. Because α_i is invisible, and with the change of the interpretation of the observed variables $\mathrm{X_{hit}}$ associated, so called individual fixed effects model.

If time effect exists only in the model, the model in the form of:

$$\mathrm{Y}_{it} = \alpha_{\mathrm{t}} + \gamma_{\mathrm{t}} + \sum_{h=1}^{K} \beta_h x_{hit} + u_{it}$$

α_i is a random variable, said for N individual item has N different intercept, and its change with X_{it}, γ_t is a random variable, said to T section (time) of T different intercept, and its change associated with X_{it}, says this model for individual point double fixed effects model.

4. Empirical analysis

4.1. *Model, index and data*

4. 1. 1. *Model setting*

The purpose of this paper is to study the financial development on precision of poverty alleviation, choose

some representative index to indicate the level of financial development in Guizhou, and poverty slow index is used to represent each county poverty. Based on the assumptions about financial development has a positive promoting effect on economic growth, mainly through economic growth and income distribution influence the slow down of poverty. Therefore, this article selects three factors as the empirical equation of the independent variable, the level of financial development, economic rights respectively, the income distribution. Among them, we will measure the financial development level from the financial scale, financial efficiency and financial structure. In addition, there are many factors to reduce poverty, such as government investment, residents' level of education, etc., these factors we unified with the random error term. Get the following basic model:

$$POV_{it} = C_i + \alpha FS_{it} + \beta FE_{it} + \eta FSR_{it} + \gamma RGP_{it} + \delta IG_{it} + \mu_{it}$$

POV said poverty. FS said financial scale. FE said financial efficiency and FSR said financial structure. RGP said the rise of the economy. IG said income distribution. μ said the other factors that affect poverty to slow, i = 1, 2, 3. . . 50, said 50 key poverty alleviation and development counties in Guizhou; t = 1, 2, 3, according to different years.

4. 1. 2 Selection of indicators

Slow poverty indicators (POV): in this paper, the poverty rate is used to measure the degree of poverty. The greater value of the index, the more serious the poverty situation.

Scale of financial indicators (FS): the total amount of lending and deposit/GDP as the index of financial scale. The greater the value of the index, it shows that the bigger financial system development and the higher the level of financial development.

Financial structure index (FSR): the existence of economies industry capital structure, is one of the important indicators to measure the financial structure, it is equal to direct financing than indirect financing. According to the situation of county of Guizhou province directly, equity financing is the main way of the enterprise financing, bond and other financing way development is not perfect, once again ignored. And since the province a total of 26 listed companies in Guizhou, of which only two located in the state-level counties list, so this article uses the 0-1 programming to deal with variable, with the county value of listed companies to "1", the rest of the values for "zero".

Financial efficiency index (FE): use of the whole society fixed assets investment and the banking financial institutions balance to calculate. The greater value of the index, the higher the efficiency of financial institutions to invest in, and the higher the financial efficiency.

Economic rights long index (RGP): there are many indicators to measure economic growth. Based on the GDP per capita to measure economic growth, if the indicator into a rising trend, it means economic grow and development well.

Income distribution index (IG): considering the comparability and data item, the urban per capita disposable income and rural per capita net income of is adopted to measure the equality of income distribution. The index's rise in value, the income gap of urban and rural residents is bigger and bigger, the income distribution is unfair. The modeling of variable table is shown in Table 1.

Table 1. the modeling of variable table

types of variables	variable name	variable definition
explained variable	POV	Slow poverty indicators
explanatory variable	FS	Scale of financial indicators
	FSR	Financial structure index
	FE	Financial efficiency index
control variable	RGP	Economic rights long index
	IG	Income distribution index

4. 1. 3. *Data source and description*

According to the latest statistics yearbook, there are 50 state-level poverty-stricken counties in Guizhou. This paper collected data from 2013 to 2015, 50 state-level counties. It has the same statistical caliber. And it selected data with high reliability. Data mainly comes from <Guizhou Statistical Yearbook> from 2013 to 2013. It used excel deal with some simple data. The original data are shown in Table 2.

Table 2. 50 state-level poverty-stricken counties in Guizhou in almost three years of relevant indicators data tables.

Area	Year	POV	FS	FE	FSR	RGP	IG
Liuzhi	2013	0. 199712454	1. 561988906	1. 261935037	0	2. 037062147	3. 271872998
	2014	0. 1698	1. 360806148	1. 300309598	0	2. 5648	3. 012648345
	2015	0. 139	1. 323821759	1. 50255144	0	2. 9673	2. 996302616
Shuicheng	2013	0. 28859804	4. 74945391	0. 514804652	0	1. 861926518	3. 320603539
	2014	0. 2481	5. 284909723	2. 036130484	0	2. 4496	3. 06296875
	2015	0. 21	5. 232148917	2. 249188423	0	2. 7828	3. 019953808
Pan	2013	0. 2349	0. 984489981	1. 184473418	0	3. 504879738	3. 150674731
	2014	0. 1879	0. 909242318	1. 267221972	0	4. 0896	2. 90451464
	2015	0. 143	1. 015130525	1. 377510969	0	4. 5397	2. 886136861
Zhengan	2013	0. 21617053	2. 302466037	0. 568922751	0	1. 135984523	3. 457081445
	2014	0. 1638	2. 04698211	0. 673866091	0	1. 5592	2. 943560271
	2015	0. 151	2. 339418396	1. 056572026	0	1. 847450404	2. 922222222
Daozhen	2013	0. 196069861	2. 469862757	0. 537605587	0	1. 318392271	3. 611835045
	2014	0. 1636	2. 370314465	0. 569141755	0	1. 6275	2. 939867354
	2015	0. 116	2. 37884185	0. 630391482	0	1. 970250348	2. 921421025
Wuchuan	2013	0. 235257552	2. 573050159	0. 675316875	0	1. 085231143	3. 675471298
	2014	0. 1874	2. 461270063	0. 777029961	0	1. 3473	2. 944797987
	2015	0. 137	2. 78176	1. 033144446	0	1. 609810851	2. 931643217
Xishui	2013	0. 228370636	1. 597287111	0. 7804341	0	1. 758006561	3. 549972459
	2014	0. 1778	0. 905375389	0. 650641026	0	2. 1734	2. 93010449
	2015	0. 132	1. 692529881	1. 205118422	0	2. 466186335	2. 914234739
Puding	2013	0. 254689753	1. 55787234	1. 815910393	0	1. 5692	3. 323174482
	2014	0. 2077	1. 479775281	1. 932032301	0	1. 876	3. 280739045
	2015	0. 151	1. 68896147	2. 166130624	0	2. 1876	3. 207245787
Zhenning	2013	0. 25737951	2. 154028555	2. 12146189	1	1. 8314	3. 371488108
	2014	0. 2176	1. 877455566	2. 205821206	1	2. 2544	3. 317306081
	2015	0. 187	1. 971832866	2. 514094518	1	2. 631	3. 287148753
Guanling	2013	0. 286480071	1. 595727092	1. 00096707	0	1. 6678	3. 340072553
	2014	0. 2416	1. 36863711	1. 073092882	0	2. 0134	3. 275810224
	2015	0. 18	1. 52686863	1. 337890201	0	2. 4092	3. 234344272
Ziyun	2013	0. 286838134	1. 802484402	1. 116674748	0	1. 3071	3. 308348413
	2014	0. 2427	1. 640382052	1. 24827883	0	1. 6589	3. 2834015
	2015	0. 193	1. 809332557	1. 449481813	0	1. 8985	3. 180335085
Dafang	2013	0. 277637848	1. 084636195	0. 800785621	0	1. 667343057	3. 318108889
	2014	0. 2351	0. 971021797	0. 801148796	0	2. 0372	3. 274121406
	2015	0. 191	1. 079245957	0. 949919431	0	2. 289736958	3. 20050014
Zhijin	2013	0. 319547534	1. 536880811	1. 072905871	0	1. 371192555	3. 459868635
	2014	0. 2732	1. 432636597	1. 310437236	0	1. 7361	3. 314683053
	2015	0. 225	1. 786448195	1. 679557145	0	1. 957270049	3. 24609209
Nayong	2013	0. 268517252	0. 943353851	0. 991139212	0	1. 837045083	3. 513125884
	2014	0. 2239	0. 902212657	1. 141195031	0	2. 2095	3. 472671548
	2015	0. 181	0. 997070185	1. 412794795	0	2. 535364984	3. 397934332
Weining	2013	0. 240462341	0. 911448326	0. 939779449	0	0. 976738675	3. 315709469
	2014	0. 1863	0. 896862461	1. 021591949	0	1. 1992	3. 277275662
	2015	0. 145	0. 965618926	1. 062023815	0	1. 488182555	3. 18981333

Continued Table 2.

Area	Year	POV	FS	FE	FSR	RGP	IG
Hezhang	2013	0. 260545803	1. 28043682	0. 599641977	0	1. 01379099	3. 501040012
	2014	0. 2177	1. 091468101	0. 737974962	0	1. 3937	3. 460645382
	2015	0. 179	1. 153913071	0. 85954823	0	1. 711211481	3. 367844364
Jiangkou	2013	0. 235026029	2. 601040087	1. 148558961	0	1. 6017	3. 382943551
	2014	0. 1878	2. 463494913	1. 429294756	0	1. 9289	3. 26176566
	2015	0. 138	2. 377842143	1. 579488811	0	2. 385833573	3. 285654703
Shiqian	2013	0. 258555943	2. 046813905	0. 888954707	0	1. 2592	3. 352767933
	2014	0. 212	1. 942521502	1. 046206353	0	1. 5657	3. 190305791
	2015	0. 165	2. 116778523	1. 303385894	0	1. 954739259	3. 184238685
Sinan	2013	0. 254316479	2. 028960087	1. 158156172	0	1. 4778	3. 535193549
	2014	0. 2132	1. 93537415	1. 168472614	0	1. 7667	3. 279853235
	2015	0. 164	2. 042595442	1. 307985486	0	2. 028211285	3. 269407744
Yingjiang	2013	0. 236392835	2. 09458126	1. 074512282	0	1. 7001	3. 448269353
	2014	0. 1913	1. 926498048	1. 223401746	0	2. 0722	3. 235050522
	2015	0. 143	1. 9746699	1. 521337161	0	2. 606954689	3. 272047349
Dejiang	2013	0. 28802056	1. 438414918	1. 078973324	0	1. 6341	3. 694211828
	2014	0. 2579	1. 407503411	1. 255995961	0	1. 9852	3. 329270357
	2015	0. 202	1. 507307556	1. 422050628	0	2. 280744337	3. 312446219
Yanhe	2013	0. 271253484	1. 646139756	0. 786537841	0	1. 3106	3. 544692896
	2014	0. 2295	1. 50261708	0. 806675939	0	1. 6125	3. 321644295
	2015	0. 17	1. 61867534	0. 888931775	0	1. 876595272	3. 276332715
Songtao	2013	0. 233279424	1. 756375498	0. 948684227	0	1. 4971	3. 524577178
	2014	0. 1889	1. 529517598	0. 958264326	0	1. 8223	3. 293322063
	2015	0. 142	1. 667713871	1. 150993333	0	2. 113165152	3. 299930293
Xingren	2013	0. 207	1. 46647455	1. 57416672	0	1. 8413	3. 352642451
	2014	0. 1612	1. 405961057	1. 807336957	0	2. 1951	3. 280693459
	2015	0. 106	1. 484808227	2. 164888052	0	2. 700672571	3. 239052745
Puan	2013	0. 196259181	1. 568819818	1. 17560454	0	1. 6741	3. 671681958
	2014	0. 1517	1. 499900892	1. 381349206	0	1. 9705	3. 486646884
	2015	0. 105	1. 551480865	1. 519460678	0	2. 338521401	3. 4370149
Qinglong	2013	0. 374083742	1. 402714016	0. 889113754	0	1. 4956	3. 80012454
	2014	0. 3277	1. 334983127	0. 948440208	0	1. 7919	3. 636463482
	2015	0. 257	1. 373372342	1. 225945898	0	2. 223100806	3. 521828906
Zhenfeng	2013	0. 25616614	1. 420402749	0. 83911166	0	2. 0521	3. 416154374
	2014	0. 2065	1. 397700549	0. 990508832	0	2. 5059	3. 278937072
	2015	0. 161	1. 331254098	1. 184476412	0	2. 981321802	3. 278937072
Wangmo	2013	0. 3302	2. 19442433	1. 196548483	0	1. 0232	4. 049446524
	2014	0. 2782	1. 955752212	1. 293567894	0	1. 4544	3. 718786016
	2015	0. 212	1. 842509468	1. 4710172	0	1. 90233347	3. 659548717
Ceheng	2013	0. 327299562	2. 392394123	1. 43018208	0	1. 2101	3. 864543206
	2014	0. 2917	2. 218577348	1. 276337562	0	1. 5128	3. 677299011
	2015	0. 209	1. 92618653	1. 38313203	0	1. 922140992	3. 628398759
Anlong	2013	0. 18765398	1. 399533825	0. 671555203	0	1. 7737	3. 439123678
	2014	0. 144	1. 383162218	0. 720708447	0	2. 0314	3. 289023989
	2015	0. 094	1. 762609547	1. 121522008	0	2. 450489025	3. 297945393

Continued Table 2.

Area	Year	POV	FS	FE	FSR	RGP	IG
Huangping	2013	0. 300400356	1. 986044487	0. 551266679	0	1. 18148924	3. 757235792
	2014	0. 279	1. 881645739	0. 686358447	0	1. 4245	3. 543672627
	2015	0. 23	2. 060513209	0. 80948955	0	1. 6621	3. 496015936
Shibing	2013	0. 315	1. 623027167	0. 901999773	0	1. 776330908	3. 314560106
	2014	0. 2681	2. 065495792	0. 571290634	0	2. 091	3. 139756811
	2015	0. 219	2. 076375092	0. 755611408	0	2. 3598	3. 12852186
Sansui	2013	0. 337912808	1. 770186807	0. 721300959	0	1. 607073955	3. 540659015
	2014	0. 2909	1. 628367413	0. 851790175	0	1. 9833	3. 352302205
	2015	0. 238	1. 855583911	0. 958632101	0	2. 2779	3. 307514784
Chenggong	2013	0. 263671106	1. 911758775	0. 901263781	0	1. 661290323	3. 541658895
	2014	0. 2539	1. 759073842	0. 946095918	0	1. 9863	3. 347981771
	2015	0. 199	2. 246878817	1. 348102786	0	2. 2779	3. 297069916
Tianzhu	2013	0. 317560422	1. 73507733	0. 54547008	0	1. 887096774	3. 398569493
	2014	0. 2765	1. 647038917	0. 588824354	0	2. 2678	3. 219562136
	2015	0. 225	1. 680926742	0. 697734382	0	2. 5857	3. 18216399
Jinping	2013	0. 327482746	2. 048268621	0. 538821123	0	1. 643229167	3. 826978339
	2014	0. 2854	1. 954845089	0. 579051383	0	1. 9746	3. 58334794
	2015	0. 237	2. 128669998	0. 670673218	0	2. 2632	3. 531924883
Jianhe	2013	0. 324845698	1. 77445503	0. 69124272	0	1. 452532521	3. 734608888
	2014	0. 2829	1. 718729955	0. 728682171	0	1. 725	3. 52583691
	2015	0. 237	1. 858789305	0. 845340886	0	1. 9953	3. 488044145
Taijiang	2013	0. 320123134	2. 614989224	1. 688534946	0	1. 671319226	3. 90386029
	2014	0. 2878	2. 337837838	1. 781118461	0	1. 9982	3. 641577061
	2015	0. 199	3. 097484388	2. 298387097	0	2. 2931	3. 602333495
Liping	2013	0. 273840105	2. 167047478	0. 798506466	0	1. 213165338	3. 651010754
	2014	0. 2448	1. 984454148	0. 896921017	0	1. 4719	3. 445584525
	2015	0. 225	2. 084132192	1. 054982636	0	1. 73	3. 442538333
Rongjiang	2013	0. 362219501	2. 158622636	1. 073681581	0	1. 236649215	3. 765490043
	2014	0. 3373	1. 974154589	1. 063465319	0	1. 446	3. 53069719
	2015	0. 276	2. 153062949	1. 326029216	0	1. 6868	3. 48019802
Congjiang	2013	0. 316824119	1. 409779646	0. 963978359	0	1. 185019756	3. 532828416
	2014	0. 2901	1. 343803263	0. 922477441	0	1. 4128	3. 345739471
	2015	0. 239	1. 439978029	0. 993257164	0	1. 6614	3. 307121014
Leishan	2013	0. 279830763	2. 037258157	0. 940628209	0	1. 495079161	3. 563792528
	2014	0. 2648	2. 126787417	1. 006111111	0	1. 7947	3. 361312665
	2015	0. 208	2. 337487647	1. 121662182	0	2. 0324	3. 313362702
Majiang	2013	0. 376823379	1. 933068536	0. 921480557	0	1. 545126354	3. 713156697
	2014	0. 3276	2. 3109319	0. 931235955	0	1. 828	3. 510221465
	2015	0. 206	2. 828893229	1. 343370672	0	2. 1728	3. 447252245
Danzhai	2013	0. 337322041	2. 374553522	0. 75112077	0	1. 474846626	3. 728992743
	2014	0. 2924	2. 284910965	0. 835390947	0	1. 7435	3. 506482429
	2015	0. 2381	2. 410324531	1. 003325346	0	1. 9967	3. 456406368
Libo	2013	0. 309227981	1. 876319487	1. 005916103	0	2. 404984314	3. 238336279
	2014	0. 2556	1. 793926247	1. 204545455	0	3. 2619	3. 044679005
	2015	0. 2109	1. 970218543	1. 403795148	0	3. 562	3. 030951868

Continued Table 2.

Area	Year	POV	FS	FE	FSR	RGP	IG
Dushan	2013	0. 273012006	1. 97870742	0. 790070241	0	1. 621393159	3. 201440771
	2014	0. 2273	1. 766224323	0. 826587038	0	2. 0422	2. 997296913
	2015	0. 1759	2. 087012568	1. 127719347	0	2. 3035	2. 962288054
Pingtang	2013	0. 315138198	1. 642500785	0. 996803011	0	1. 357098566	3. 260047272
	2014	0. 2598	1. 514265503	0. 988072336	0	1. 776	3. 049054905
	2015	0. 1955	2. 024569926	1. 483892488	0	1. 9885	3. 02705992
Luodian	2013	0. 3551	1. 673145121	1. 121704211	1	1. 594785095	3. 051587356
	2014	0. 3027	1. 508854782	1. 214974913	1	1. 9817	2. 863407821
	2015	0. 2416	1. 675535871	1. 4811593	1	2. 2175	2. 847902003
changshun	2013	0. 318250439	1. 460728353	0. 976326357	0	1. 716578884	3. 180008698
	2014	0. 2656	1. 303118202	1. 270614278	0	2. 2211	2. 979166667
	2015	0. 2052	1. 736274723	1. 513155201	0	2. 4685	2. 930855856
Sandu	2013	0. 356204934	1. 881020408	1. 053421689	0	1. 199058579	3. 203770577
	2014	0. 323	1. 64083219	1. 074776386	0	1. 6361	2. 984166913
	2015	0. 2526	1. 923600327	1. 260590897	0	1. 8281	2. 959970965

The basic statistical characteristics of the sample are shown in Table 3.

Table 3. The basic statistical characteristics of the sample

Variable	Mean Value	Standard deviation	Minimum Value	Maximum Value
pov	0. 2364972	0. 0614049	0. 094	0. 3768234
fs	1. 840429	0. 6395251	0. 8968624	5. 28491
fe	1. 120168	0. 3989469	0. 5148047	2. 514095
fsr	0. 04	0. 1966157	0	1
rgp	1. 915396	0. 545185	0. 9767387	4. 5397
ig	3. 338166	0. 2438435	2. 847902	4. 049447

4.2. *Empirical test process*

4. 2. 1. *Fixed effect model test*

Poverty rate as the dependent variable is influenced by independent variables in the model: financial scale, financial efficiency and financial structure, the influence of the economic growth and income distribution, also will be affected by other factors associated with particular observation object or period. Fixed effects model, the comprehensive effects of other factors as fixed, to a certain extent, improved the fitting degree of practical data. Key county of Guizhou province 50 poverty alleviation and development, is the main part of the relatively independent and unified individuals. In order to reflect the differences of the individuals in the whole, this paper first uses the fixed effect variable intercept model, and regression results are shown in Table 4.

Table 4. Fixed effect model regression results

POV	estimate of parameter	standard error	P>t
FS	-0. 05774	0. 0110099	0
FE	-0. 01377	0. 0074121	0. 06
FSR	omitted		
RGP	-0. 11729	0. 0063662	0
IG	0. 02139	0. 0139213	0. 12
C	0. 51337	0. 0616472	0

The result is visible in Table 4 that financial structure is omitted. It means the variables are multicollinearity. Therefore, remove the variable from the model. The main reason for the financial structure appeared multicollinearity is due to the financial structure in calculating the index of listed companies, and listed companies in 50 state-level poverty-stricken counties in Guizhou was small. So data is not ideal, and finally this paper had no way but to remove the index of financial structure.

4. 2. 2. *Delete the common linear variables*

(1) Hausman test

Remove the financial structure variables from original data. Use Stata11. 0 software to do Hausman test . The results are shown in Table 5.

Table 5. Hausman test result

Hausman test	
Chi(0)=0. 00	Prob>chi2=0. 00

Due to the P value is 0. 00, so strongly rejected the null hypothesis, it should use a fixed effect model to estimate more appropriate.

(2) Fixed effect model regression results

Deleted the financial structure from the original data , parameter estimation using Stata11. 0 software, the results as shown in Table 6.

Table 6. The regression results of the fixed effect model after the total linear variables were deleted

POV	estimate of parameter	standard error	P>t
FS	-0. 05830	0. 01101	0
FE	-0. 01388	0. 00742	0. 064
FSR	-0. 11753	0. 00637	0
RGP	0. 02141	0. 01394	0. 128
C	0. 51502	0. 06168	0

From Table 6 shows that financial scale, financial efficiency and economic growth indicators of poverty-stricken counties in Guizhou's poverty rate is negatively related. It illustrate the three indicators can slow the poor development of state-level poverty-stricken counties in Guizhou. It accords with the real economic significance. The greater the income distribution gap, the higher the poverty rate in poverty-stricken counties in Guizhou. Both of them were positively correlated. Financial scale, financial efficiency and economic growth indicators of P values are less than 0. 05, which is under the 95% confidence level were significantly. P value of income distribution was 0.128, and it shown that in 12. 8% of cases of income distribution have no effect on state-level poverty-stricken counties in Guizhou's slow. It failed to pass the test of significance. So, not significant items will be deleted from the model. Income distribution is too poor to slow. The reason mainly is income distribution index using urban per capita disposable income/income. Per capita net income of rural income distribution should not only consider between urban income and rural income distribution, industrial management should also be considered.

4. 2. 3. *Delete distinctive item*

(1) Hausman test

Remove the income distribution (IG) from the original data. Using Stata11. 0 software to do Hausman test , the results are shown in Table 7.

Table 7. The Hausman test results were deleted without significant items

Hausman test	
Chi(0)=0. 00	Prob>chi2=0. 00

(2) Fixed effect model regression results

According to 2013-2015, 50 state-level poverty-stricken counties in Guizhou raw data, to delete the income distribution, parameter estimation using Stata11. 0 software, as shown in Table 8 results are obtained.

Table 8. The regression results of the fixed effect model after the total linear variables were deleted

POV	estimate of parameter	standard error	P>t
FS	-0. 05769	0. 011084	0
FE	-0. 01582	0. 007365	0. 03
RGP	-0. 12475	0. 004328	0
C	0. 60159	0. 025240	0

From Table 8, the regression results are significant, and the scale of financial development most important state-level poverty-stricken counties in guizhou's slow, and the regression equation is obtained:

$$POV_{it} = 0.60159 - 0.05769FS_{it} - 0.01582FE_{it} - 0.12475RGP_{it} + \mu_{it}$$

4.3. *The empirical result analysis*

From the point of empirical results, state-level poverty-stricken counties in Guizhou about financial scale, financial efficiency and economic growth slow positively to poverty. Expand the scale of financial and improve financial efficiency, promote economic growth will reduce the incidence of poverty, and it also can alleviate poverty effectively.

From the regression equation of financial scale and financial efficiency of regression coefficient : financial scale relative to financial efficiency, it plays a more important role in slowing poverty. Improving Financial efficiency can give residents more store credit support services. And the expansion of financial development means that the expanding of the total number of financial institutions and financial, thus it is effective to relief poverty.

State-level poverty-stricken counties in Guizhou financial development on poverty relief play a positive and effective role. Financial development in addition to the direct action slow poverty, And also alleviate poverty through economic growth.

5. Conclusions

Although many literature research in the current financial relationship with poverty alleviation, but study of Guizhou county to originality in this paper. In this paper, the results show that 50 state-level poverty-stricken counties in Guizhou about financial scale, financial efficiency and economic growth slow positively to poverty. Financial scale relative to financial efficiency, it plays a more important role in slowing poverty. . In addition, economic development is an important role in poverty reduction. The local government should develop the local economy, and poverty reduction effect will increase greatly. In this paper, the original selection of the income distribution is urban per capita disposable income/income and rural per capita net income. Eventually the result was not significant. If this paper can use Gini coefficient to show income distribution index of each county may be better. But with data is not available, so this paper cannot calculate the Gini coefficient. It is a big regret. Hope that in later research we can continue to improve and perfect the defects.

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