Chinese decentralization and income inequality between urban and rural residents

——An empirical study based on the dual dimensions of internal and external budget

Chu Deyin, Han Yiduo, Zhang Jinghua*

The paper firstly explains the mechanism of decentralization on income inequality from two theoretical dimensions of internal and external budget. Based on the re-measurement of income Gini coefficient and Chinese decentralization level, this paper establishes panel data model from national and regional perspective to empirically investigate the impact of Chinese decentralization on income inequality between urban and rural residents. Firstly, the promotion of budgetary income decentralization is conductive to reduce income inequality of urban and rural residents whether it is from the national or sub regional. Second, although the promotion of budgetary expenditure decentralization exacerbates the urban-rural income inequality in the national level, it could obviously reduce the urban-rural income inequality in the midwest with relatively low level of budgetary expenditure decentralization. Thirdly, the impact of extra-budgetary decentralization on income inequality is consistent, no matter in the whole country, in eastern or in western regions. This means that the extra-budgetary income decentralization makes the income inequality between urban and rural residents worse while the extra-budgetary expenditure decentralization reduces the income inequality between urban and rural residents with different degrees. Fourthly, the transfer payment, years of schooling and urban unemployment rate are conductive to narrow the income inequality between urban and rural residents while the impacts of economic development, urbanization and opening degree are obviously different in different regions. The above conclusions can not only be used for reference to further perfecting and reshaping the fair efficiency mechanism of Chinese decentralization, but also indicates the direction of the new fiscal and tax system reform.

Keywords: Chinese decentralization, budgetary and extra-budgetary, income inequality between urban and rural residents, panel data model

1. Introduction

The data of National Bureau shows that the Gini coefficient of national income in

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2015 is 0.462. Although it has continued to show a downward trend since 2009, it is still higher than the international warning line of 0.40. At the same time, the Chinese livelihood development report in 2015 indicates that Chinese income inequality and property inequality are becoming increasingly serious. The top 1% of household owns about 1/3 property of the country while the bottom 25% of household has only about 1% of total property. To this end, the national "13th Five-Year" plan proposes to adhere that the residents income growth be synchronous with economic growth, labor remuneration be synchronous with labor productivity, to continually increase income of urban and rural residents, and to narrow the whole social income gap. Theoretically, government cannot only reduce the income inequality by optimizing the structure of fiscal revenue and expenditure, but also realize the policy vision of narrowing income inequality by financial and tax mechanism. Because of this, the relationship between fiscal decentralization and income inequality always gets attention of scholars at home and abroad. Since a good decentralization can promote local government actively implement regulation of income distribution and enhance the efficiency of public policy of income distribution. The existing research has failed to reach a consensus.

Although the Proud (1995) and Peterson (1995) believe the fiscal decentralization can significantly reduce inequality, there are also some scholars considering that reducing inequality is not the direct cause of government improving fiscal decentralization (Panizza, 1999; Letelier, 2005; Bodman and Hodge, 2010). The traditional decentralization theory holds that local government is not suitable for extensive redistribution due to the limited capacity and the distribution system of local government is difficult to achieve the desired effect (Oates, 1972). However, the second generation theory of fiscal decentralization with McKinnon (1995) and Weingast & Qian (1997) as representatives consider that the area competition caused by comprehensive decentralization has a better effect on reducing income inequality than the redistribution policy unified formulated by Central Committee. That is to say, the fiscal decentralization is equivalent to a commitment mechanism and the effect of local government public policy is likely to be different from traditional decentralization theory (Bahl *et al*., 2002; Gil *et al*., 2004). The heterogeneous preference in the area residents will encourage local government to support decentralization (Oates, 1972). Moreover, the dissimilation of regional economic development would, in turn, raise the higher demand caused by regional autonomy and fiscal decentralization (Bolton and Roland, 1997). Theoretically, fiscal decentralization could affect the income inequality through direct and indirect channels. Among them, the direct channel refers to changing the progressive of tax system or the structure of public expenditure. The indirect channel refers to changing the social and economic factors that affected by decentralization, such as economic growth and stability, government's interference in economy and construction of system degree. Rodriguez *et al*. (2010) consider that in addition to the quality and means of the fiscal decentralization, the autonomy

degree of local government and the relative importance in national economy could play an important role in decentralization and income inequality (Stegarescu, 2005). If government makes the reduction of income inequality as the target of public policy, although local government that lacks of rights of tax discretionary could not impose the progressive taxation, the budgetary expenditure policy is effective on income distribution. Local governments generally have higher degree of autonomy in expenditure, such as increasing poverty alleviation and "poverty alleviation".

Although the domestic scholars have carried out a thorough study of the relationship between fiscal decentralization and income inequality, there are two different empirical conclusions. First is that fiscal decentralization reduces income inequality. Tao and Liu (2007) collected the panel data of 270 cities in China from 1994 to 2003 and found that if more power of financial autonomy is given to local government, more tax revenue could be used and transfer payment from higher level could be less dependent, which is conductive to strengthen the sense of responsibility of local government and to narrow urban-rural income gap. Gao (2014) used the provincial panel data from 2003 to 2012, empirically tested the relationship between fiscal decentralization and urban-rural income gap and found that fiscal decentralization can significantly reduce the urban-rural income gap, but the effect is difference in different regions. Based on the level of fiscal decentralization and three types of Geni coefficient, Chu and Zhang (2016) measured Chinese fiscal decentralization and income inequality, established panel threshold regression model, empirically analyzed the effect of fiscal decentralization on income inequality, and found that fiscal decentralization is negatively related with income inequality, and the negative relationship shows nonlinear characteristics in different decentralization system. The higher level of fiscal decentralization leads to lower negative relationship between fiscal decentralization and income inequality. Second is that the fiscal decentralization leads to further increase in income inequality. The reason is that local government who regards GDP and tax revenue as a vertical evaluation index would carry out the "growth tournament" to pursue the maximum personal interest, which leads to vast majority of limited public resources be used in cities where can quickly generate GDP and tax revenue growth. The tendency of the public expenditure would widen the income gap in urban and rural (Ma, 2010; Chen and He, 2016).

To sum up, in addition to the controversial in the empirical conclusion, there are certain limitations in the existing researches. The relationship between budgetary income and expenditure decentralization got more scholars' attentions, few scholars comprehensively studied the relationship from the dimensions of internal and external budget. However, the tax sharing system reform of China in 1994 has basically established Chinese separation of powers. Moreover, the mismatch between powers and financial rights in central and local government results into two sets of revenue and expenditure system. Ping and Bai (2006) pointed out that the scale of extra-

budgetary finance of Chinese government grew faster than that of budgetary finance, which indicates more public resources are paid by extra-budgetary finance. Wang and Gong (2009), Xie and Zhang (2015) consider that Chinese decentralization should not only include income and expenditure decentralization, but also be comprehensively studied from two dimensions of both internal and external budget. So far, only Chu and Zhao (2013) systematically interpreted the mechanism of income and expenditure decentralization on poverty and income inequality from these two dimensions. Based on the panel regression model, the paper empirically studied the impact of decentralization from 1995 to 2010 on rural poverty and found that although budgetary income and expenditure decentralization could reduce the rural poverty, the extra-budgetary income decentralization would contribute to the deterioration of rural poverty. Therefore, the contribution of this paper is mainly reflected in the following two aspects: first is that based on the typical facts of Chinese decentralization, the mechanism of income and expenditure decentralization is interpreted from the two dimensions of both budgetary and extra-budgetary, and empirically analyzes the relationship between Chinese decentralization and income inequality through the panel data model. Second is that based on the overall effect of Chinese decentralization on income inequality of urban and rural residents, whether the effect of Chinese decentralization in eastern, western and central regions have regional difference characteristics on income inequality of urban and rural residents.

2. The mechanism analysis of Chinese decentralization on income inequality

Although the local government in the federal system owns strong autonomy rights and has the right to formulate local laws and regulations, as well as tax policy and expenditure rules, Chinese decentralization under the premise of political centralization shows the following three characteristics: first is that, different from the "bottom-to-up" decentralization in the west, the "up-to-bottom" decentralization in China requires local government responsible for central government, not the residents. Second is that the economic decentralization and political centralization existing simultaneously. Due to the lack of constraints of public choice mechanism, such as "vote by hand" and "vote by foot", the local government with the responsibility for central government would actively complete the works that central government assigned, which leads local government to deviate from the criterion of welfare maximization and Pareto Optimality, also the decentralization efficiency is overshadowed. Third is the asymmetry of the income and expenditure decentralization, namely the lower level there is in the income decentralization, the higher level there is in the expenditure decentralization. As shown in Figure 1, the proportion of budgetary expenditure and income of local government in national budgetary expenditure and income raised from 69.71% and 44.30% in 1994 respectively to 85.13% and 54.05% in 2014. Although

the magnitude of the income increasing is greater than that of expenditure increasing, the expenditure budgetary proportion of the local government is higher than income budgetary proportion. The year with the largest gap is 2011 when the proportion of expenditure is 0.34 higher than that of income. Even the smallest gap in 1997 is for 0.17, which indicates asymmetry of Chinese decentralization is obvious.

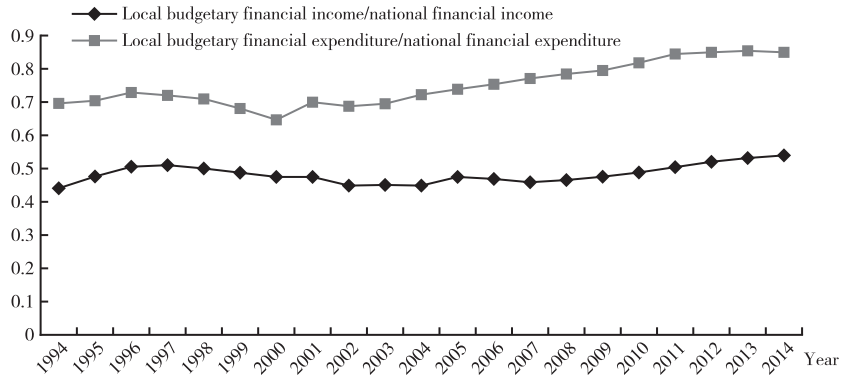

Figure 1. The proportion of budgetary income and expenditure from 1994 to 2014

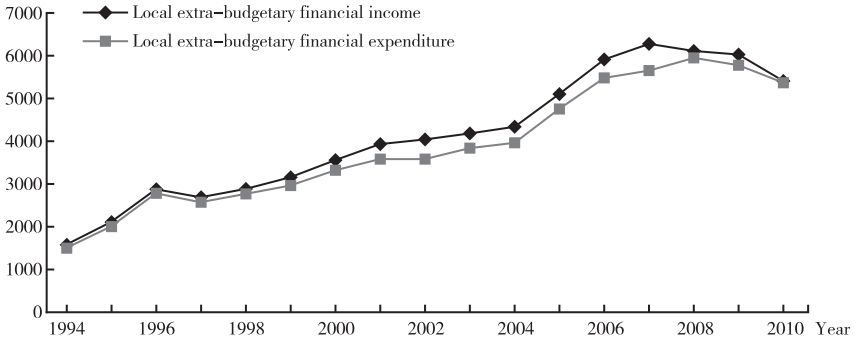

Figure 2. The proportion of extra-budgetary income and expenditure from 1994 to 2014

The above three characteristics of Chinese decentralization determine that Chinese fiscal decentralization is different from that of western countries, and there is large gap both in the decentralization level and decentralization efficiency. In limited to the asymmetry characteristics of Chinese decentralization, namely the limited budgetary revenue decentralization is in stark contrast to increasing expenditure responsibilities, the general tight finances in local government makes the competition to cost of preferential tax higher, which promotes the local government competition to further spread to expenditure. The soft constrain of extra-budgetary becomes a powerful reserve force of regional expenditure (Ping, 2007). In order to meet the needs of capital expenditure and economic development, local government continuously opens

up the extra-budgetary funds, the extra-budgetary "second finance" becomes another important feature of Chinese decentralization system and institutional incentives are provided for the extra-budgetary "second finance". It is well known that although the budgetary income and expenditure is closely related with macro-control functions, it involves many areas such as education, health care and city construction, extra-budgetary income and expenditure has the characteristic of being administrative. Strengthening the executive ability and achieving administrative target are the main goals. As shown in Figure 2, the extra-budgetary income and expenditure have increased greatly in recent years, especially obvious around the year of 2007. Extra-budgetary revenue reached a peak of 628.995 billion, which increased by nearly four times compared with 157.921 billion in 1994. The average annual growth rate is 11.22%. The extra-budgetary expenditure increased from 148.573 billion in 1994 to 536.832 billion in 2010, with an average annual growth rate of 10.39%.[1] This shows that the extra-budgetary income and expenditure is also an indispensable component of Chinese decentralization. The relationship between decentralization level and income equality is worthy of study and discussion.

2.1. Budgetary income and expenditure decentralization and income inequality

2.1.1. Budgetary income decentralization and income inequality

It is well known that government's budgetary revenues are mainly from tax revenues. Sepulveda and Martinez-Vazquez (2011) consider that the specific measures and degree of tax revenue decentralization directly affect the financial revenue share of local government and central government in the total fiscal revenue, which has an impact on the efficiency of government operation. In the tax sharing system established in 1994, based on tax jurisdiction and tax hegemony, taxes are divided into central taxes, local taxes and central share tax. Among them, the five highest proportions of taxes in the total tax revenue are value-added tax, consumption tax, corporate tax and personal income tax, which are ones of central tax or tax sharing. The sharing tax is to increase the central government financial resources as the goal, namely to increase the central government revenue. At the same time, the business tax, as the only local government tax in the five major taxes, no longer exists due to the reform of "replacing business tax with value-added tax" on May 1, 2016. In addition, no matter the central tax, local tax or sharing tax, the power of legislative and collection of the tax are attributed to the central government, and only the tax collection and few tax cuts rights belong to

[1] As the extra-budgetary revenue and expenditure have been included in the budgetary finance since 2011, the latest data this paper uses is that of 2010.

the local government. Therefore, classification of tax attributes, tax legislation and specific collection and management determine the lower level of Chinese budgetary revenue decentralization. To be sure, it is due to the coexistence of economic decentralization and political centralization as the institutional cause that formulates the typical characteristics of Chinese decentralization. Moreover, political centralization is the prerequisite or constraint for economic decentralization.

It is the limited budgetary revenue decentralization that determines that local government financial resources are insufficient to meet the obligations of expenditure responsibilities. Although through the corresponding tax policy and transfer payment, local government can get the revenue, the transfer payment mainly plays a role in the fiscal balance between governments. Therefore, how the budgetary revenue decentralization affects income inequality is determined by the tax polices of local government. If local government gets the income through the indirect tax or royalty, it would not reduce the income inequality since the two kinds of revenue are regressive. On the contrary, if the local government got the revenue through the property taxes, even the progressive degree of local government collecting the tax is smaller than that of central government, it is conductive to reduce the income inequality since the property tax is progressive.[1] However, significant differences exist in economic development in China. It is the inherent advantage and good economic foundation in eastern regions that contributes to the better tax policies while it is the geographical location and weak economic foundation that results in a disadvantageous position of the central and western regions. In turn, the tax structure, tax collection and tax categories have a reverse boosting effect on local economic development from the level of income. First is that the tax structure with transfer tax as the main form, administrative task of tax base, redistributing effect of resource tax and individual income tax make the vicious spiral that Midwest of China is poor while the Eastern of China is rich. Second is that subjecting to the fiscal revenue incentive and political promotion incentive, local governments focus on the second and third industries that could bring the economic development and tax revenue. However, there is no doubt that the second and third industries are more concentrated in cities, which makes the income inequality between urban and rural residents further intensified.

2.1.2. Budgetary expenditure decentralization and income inequality

Since the local government with the budgetary expenditure decentralization has

[1] In China, the property tax mainly includes property tax, land using tax, land value-added tax, vehicle and vessel tax and deed tax. For example, the total property tax revenue was 1.52 trillion yuan , which accounts for 12.87 and 20.07 of Chinese total tax revenue and local government's financial revenue respectively.

greater autonomy in expenditure, it could directly affect the income distribution by optimizing the public expenditure structure. Firstly, local government can increase the cash transfer payment to raise the income of low-income people. For example, government raised the standard of subsistence allowances for low-income households, as well as cash subsidies for necessities such as pork. Secondly, local government can make some expenditure plans that prioritize to the low-income residents in order to raise the quality of human capital and physical health, which can improve the market competitiveness of low-income residents and thus reduce income inequality even without the cash transfer payment. For example, local government could increase social security, employment expenditure, compulsory education expenditure and public security expenditure to the low-income people. Third is local government with the information advantages could not only formulate the public expenditure polices that close to the area residents preference and demand, but also could improve the public product and service supply though matching supply and demand to continually optimize the investment environment, to improve the economic and social operation efficiency, to attract more foreign capital inflows, and to provide more opportunities for employment and production, which is conductive to increasing the income of low-income people and to reduce the income inequality.

However, despite the fiscal expenditure decentralization is conductive for local government to formulate the public expenditure polices that in line with the residents preference and with economy Pareto Optimality (Oates, 1972), the differeme in public expenditure efficiency, expenditure structure and regional economic development level would make the effect of expenditure decentralization on income inequality alienate. On the whole, the budgetary expenditure in the local government with the decentralization incentives did not become the beneficial mechanism of promoting economic convergence, and the budgetary expenditure with different categories has different effect on economic convergence, which makes the local economic development and the convergence of goal draw further apart (Zhang, 2007). In contrast, the eastern region with strong economic development can enjoy the benefits of expenditure decentralization while the Midwest region with poorer economic development could be not. From this perspective, the budgetary expenditure decentralization further intensified the income inequality of regional resident income. At the same time, regions with different economic development levels are always faced with the dilemma of cracking down the urban-rural dual structure. On the one hand, city residents with more political representatives own more discourse power. On the other hand, with political promotion incentives and fiscal revenue incentives, the expenditure of local government inclined to cities with high economic development. How to narrow the income gap between urban and rural residents become a difficult problem that needs to be overcome in eastern and Midwest.

2.1.3. Transfer payment and income inequality

The asymmetrical feature of Chinese decentralization determines the function of longitudinal inter-government transfer payment system in the fiscal relationship between central and local. However, the function that transfer payment plays in the regional economic convergence is controversial. Theoretically, on the one hand, the economic growth school approves the diminishing law of capital marginal returns, and considers that the capital balance would promote the efficiency, which contributes to the establishment of correction mechanism of weakening inequality. On the other hand, the new economic geography school emphasizes the importance of agglomeration effect. For example, the eastern coastal cities with the good regional advantages and economic base have become the best choice for economic agglomeration (Fujitaetal, 2004; Lu and Chen, 2008). The resources is transferred from the developed eastern regions to underdeveloped western regions in the central transfer payment mechanism, which draws further apart from the agglomeration effects, which indicates the low level equilibrium would affect the whole efficiency of resource allocation and economic development.

In view of positive role of transfer payment, the traditional theory of decentralization supports that the transfer payment is conductive to balance regional financial resources and balance economic development through the national macro-control and resources integration. Abramowitz (1985) considered that transfer payment would help to narrow regional difference by improving regional infrastructure construction, as well as by the spillover of advanced technology to less developed areas. However, in practice, the negative effect of transfer payment may be more obvious in China. On the one hand, transfer payment in China has a significant “Matthew effect”, namely the transfer payment acquired by the rich eastern area is obvious than Midwest region, in which the tax return especially plays the key role, which leads to the rich getting richer while the poor getting poorer. On the other hand, transfer payment exacerbates the income gap between urban and rural residents. China’s transfer payment includes general transfer payment, special transfer payment and tax return and the general transfer payment plays a balanced role at all levels of government financial resources. But the special transfer payments have its strict regulation, and most of them require corresponding funds from local governments. Therefore, underdevelopment areas prefer to the general financial transfer payments. For example, the special transfer payments, general transfer payments and tax returns in 2013 accounted for 37.79%, 49.46% and 13.15% respectively. Although the proportion of tax refund in the whole transfer payment decreased from 73.72% in 1995 to 13.15% in 2013, the absolute scale is still as high as 196.7 billion. Moreover, the tax refund, as a transitional policy to take care of the vested interests of local government at the beginning of the tax sharing system reform, is a kind of fiscal incentives for local governments, especially for the backward

Midwest regions.[1] However, the tax refund includes value-added tax and consumption tax refund, return of tax base, the size of the return amount depends on the absolute size and growth rate of value-added tax, consumption tax and income of tax, local government would be more preference for how to expand the size and growth rate of these taxes in order to acquire more tax refund. Therefore, the cities, as well as the industries that can bring more tax revenue would become behoove of local government while rural areas where relatively backward would be ignored, which further expands the urban-rural income gap.

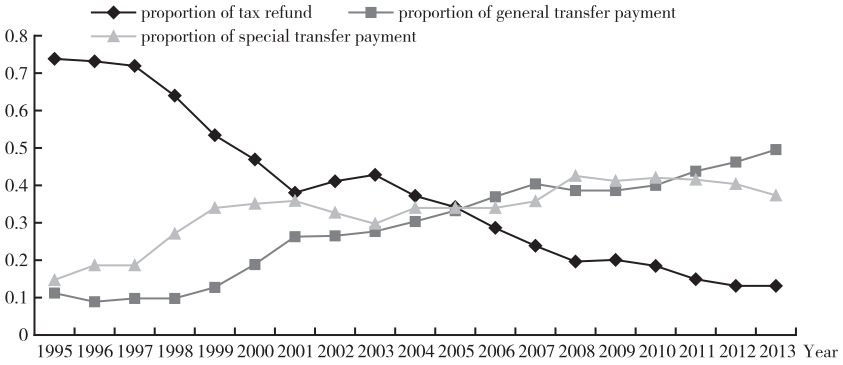

Figure 3. Changing trend of central transfer payment structure from 1995 to 2013

2.2. Extra-budgetary income and expenditure decentralization and income inequality

Extra-budgetary revenue is the fee charged by the administrative departments of the state in the administration and providing public services. Extra-budgetary income has already existed in our country since the establishment of budget management system in China, which is the difference between China's government budget system and other countries'. On the one hand, the defects of China's budget management system make the extra-budgetary capital out of the supervision of National People's Congress. On the other hand, the existence of a large amount of extra-budgetary funds has its inevitability. First, through the asymmetric reverse movement that financial power centralized and administrative power decentralized, the tax system reform in 1994, with improving the financial concentration and strengthening its macro-control ability as the goals, makes the extra-budgetary revenue and the so-called "second finance" become the choice for local governments, especially for those grass-roots governments that bear most of the powers, faced with the vertical up-down evaluation mechanism and tournament with GDP as the standard and have limited budgetary income to

[1] It is calculated with relative data from "Chinese finance yearbook 2014", as well as from the ministry of finance website.

perform expenditure responsibility due to the position that at the end of income distribution chain. Secondly, the economic development and various special projects development are inseparable from the support of extra-budgetary financial funds. The extra-budgetary income cannot only solve the problem of insufficient funds, but also, to a certain extent, urge the government departments to perform the corresponding responsibilities though making provision of the use of extra-budgetary expenditure. Thirdly, local government has the right to use the extra-budgetary financial revenue, and how to distribute the funds is directly linked to the profit of these departments themselves, which is helpful to arouse the enthusiasm of local relevant departments or units to improve the efficiency of extra-budgetary funds.

Due to the wide range of sources of extra-budgetary revenue funds and relatively weak NPC and legal supervision, the phenomenon that revenue getting more attention than expenditure is inevitable. The regularization of extra-budgetary revenue and privatization of extra-budgetary expenditure weaken the authority of government, and also aggravates the burden of local enterprises and people. First, economically developed areas with good economic foundation obtain a large number of extra-budgetary revenue relying on the political rights. People in different classes have unfair treatment when government providing corresponding public products and services. Secondly, underdeveloped areas have appropriated the development funds to the "image project" in order to meet the expenditure demand. In addition, the so-called "small treasuries" is numerous no matter in the developed areas or underdeveloped areas. Thus, the extra-budgetary revenue and expenditure in Chinese decentralization, to a certain extent, weakens the welfare of residents and aggravates the income inequality between residents and regions in the redistribution process, which is the inevitable factor of income inequality. The "New budget law" implemented since January 1, 2015 stipulates that all revenue and expenditure should be included in the budget management and no longer distinguished into the budget and extra-budget.

3. Variable definitions and data sources

3.1. Variable definition

3.1.1. Explained variable: income inequality between urban and rural residents

Tian (2012) used the Gini coefficient to calculate the income inequality of urban residents in China, of rural residents, and between rural and urban residents. The results show that China's income inequality is mainly reflected between the urban and rural residents, which is mainly due to the economic development of urban and rural areas and dual characteristics between various social welfare systems. From this perspective, this paper focuses on the actual effect of Chinese decentralization on income equality

between urban and rural. This paper refers to the method of Tian (2012), Chu and Zhang (2016) to measure the Gini coefficient of income inequality between urban and rural residents.[1] Due to the lack of data of Tianjin, inner Mongolia and Hunan, only 24 regions' Gini coefficients of urban and rural residents are calculated. The results are shown in the following Figure 4.

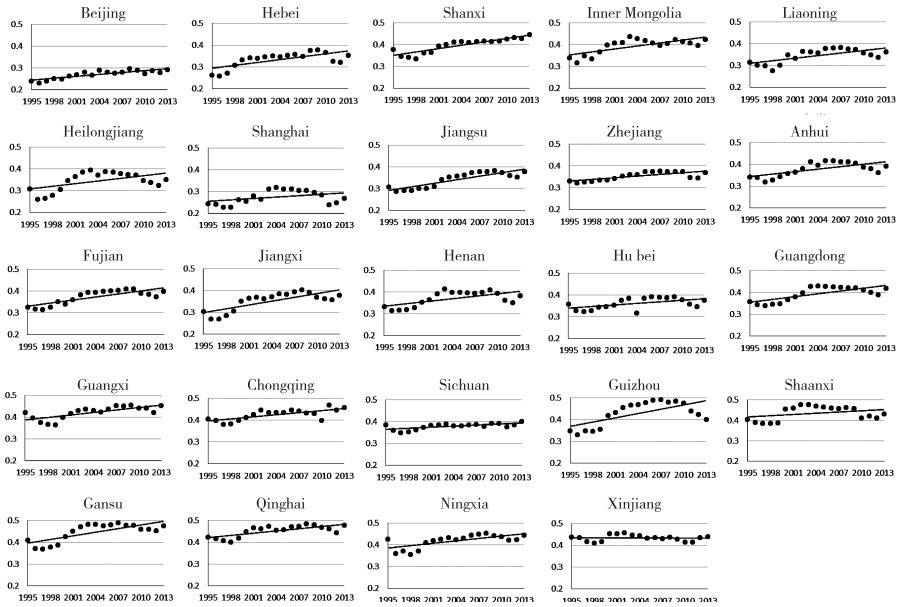

Figure 4. Gini coefficient of urban and rural residents' income in 24 provinces in China from 1995 to 2013

According to Figure 4, although the Gini coefficient of income of urban and rural residents in China in most of years is higher than the internationally recognized warning line of 0.4, a slow decline is shown overall, especially obvious around 2010. According to the traditional classification method[2] of China's three major areas, this paper further investigates the Gini coefficient of income of urban and rural residents. The regional difference in west is greater than middle, and middle is greater than eastern. For example, the Gini coefficient of urban and rural residents' income in the eastern, central and western is 0.3551, 0.3901 and 0.4407 respectively in 2013, and the average Gini coefficient western regions was 0.0856 and 0.0505 higher than that of eastern and central regions respectively.

[1] For space limitations, the specific calculation method and process refer to Tian (2012), Chu and Zhang (2016).

[2] According to the document [2000] 33 issued by the State Council, the 24 provinces are divided into three major regions: eastern, central and western region. The eastern region includes Beijing, Hebei, Liaoning, Shanghai, Jiangsu, Zhejiang, Fujian, Guangdong; The central region includes Anhui, Henan, Heilongjiang, Shanxi and Hubei; The western region includes Sichuan, Chongqing, Inner Mongolia, Guangxi, Guizhou, Shaanxi, Gansu, Qinghai, Ningxia and Xinjiang.

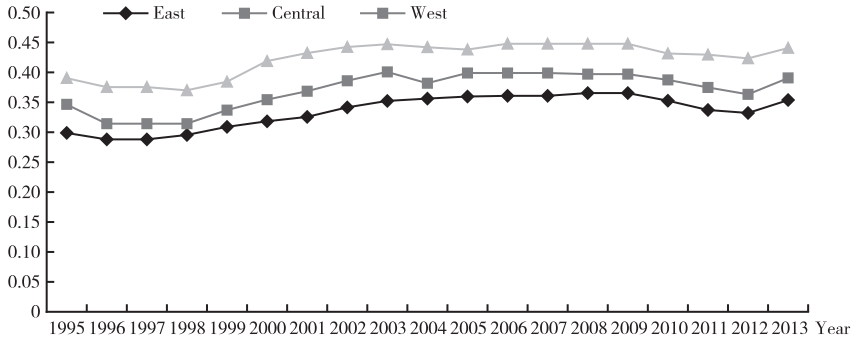

Figure 5. Changing trend of Gini coefficient of income of urban and rural residents in eastern, western and central regions of China

3.1.2. Core explanatory variable

3.1.2.1. Chinese decentralization

As mentioned above, Chinese decentralization could not only be divided into the revenue decentralization and expenditure decentralization, but also includes the budgetary and extra-budgetary decentralization. To sum up, there are four kinds of decentralization: budgetary revenue decentralization, budgetary expenditure decentralization, extra-budgetary revenue decentralization and extra-budgetary expenditure decentralization. In order to study the impact of Chinese decentralization on income inequality of urban and rural, these four variables are added in the empirical analysis, as shown in the following formulas:

$$FQre_{in,it} = \frac{per\ capita\ budgetary\ financial\ revenue\ of\ each\ province}{per\ capita\ budgetary\ finanical\ revenue\ of\ each\ province + per\ capita\ budegetary\ central\ financial\ revenue} \quad (1)$$

$$FQex_{in,it} = \frac{per\ capita\ budgetary\ financial\ expenditure\ of\ each\ province}{per\ capita\ budgetary\ finanical\ expenditure\ of\ each\ province + per\ capita\ budegetary\ central\ financial\ expenditure} \quad (2)$$

$$FQre_{out,it} = \frac{per\ capita\ extra-budgetary\ financial\ revenue\ of\ each\ province}{per\ capita\ extra-budgetary\ finanical\ revenue\ of\ each\ province + per\ capita\ extra-budegetary\ central\ financial\ revenue} \quad (3)$$

$$FQex_{out,it} = \frac{per\ capita\ extra-budgetary\ financial\ expenditure\ of\ each\ province}{per\ capita\ extra-budgetary\ finanical\ expenditure\ of\ each\ province + per\ capita\ extra-budegetary\ central\ financial\ expenditure} \quad (4)$$

According to the above formulas, first, the extra-budgetary decentralization is significantly higher than the budgetary decentralization. The average extra-budgetary revenue and expenditure decentralization from 1995 to 2010[1] is 0.915 and 0.8973 respectively while the average budgetary revenue and expenditure decentralization from 1995 to 2013 is 0.4596 and 0.7489 respectively, which shows that extra-budgetary revenue and expenditure decentralization is 0.4554 and 0.1484 higher than budgetary revenue and expenditure decentralization. Relatively, the gap between budgetary expenditure decentralization and extra-budgetary expenditure decentralization is relatively small. The reason is that extra-budgetary revenue and expenditure are the second finance. On the one hand, local governments have internal and external impulse to expand the scale of extra-budgetary revenue and to improve decentralization. On the other hand, lacking the supervision of regulation and law provides operating space for the extra-budgetary revenue and expenditure expansion. Moreover, with the continuous stimulation and demographic dividend bonus, local economic maintains a rapid growth in a long period since the reform and opening up, which in turn provides possibility for local government to open up the "second finance" of budgetary revenue and expenditure. Second, in compared with the budgetary revenue decentralization and budgetary expenditure decentralization, the latter is higher than the former. The budgetary revenue decentralization is relatively stable while the budgetary expenditure decentralization shows an upward trend. In the past from 1995 to 2013, the average budgetary revenue decentralization in the three major regions of China is 0.6135, 0.3802 and 0.3849 while the average budgetary expenditure decentralization in the three major regions of China is 0.1692, 0.3198 and 0.3612 respectively. The gap in west with relatively backward economic development is biggest while gap in eastern is smallest. Third is that results of extra-budgetary revenue and expenditure is in contrast with that of budgetary, namely the extra-budgetary revenue decentralization is higher than extra-budgetary expenditure decentralization. The whole level of decentralization is high and the extra-budgetary revenue decentralization shows a rising trend. The average financial revenue decentralization in the three major regions of eastern, central and western China is 0.9574, 0.89423 and 0.8827 respectively from 1995 to 2010 while the expenditure decentralization is 0.9493, 0.8793 and 0.8633 respectively. It is noteworthy that, whether from the perspective of budgetary or extra-budgetary, and from the perspective of financial revenue or expenditure, the decentralization in eastern regions is significantly higher than that in the west and central China, especially the financial revenue decentralization is the most significant. However, there is no significant difference in central and western regions on the whole.

[1] Since the change of official statistical caliber, the extra-budgetary revenue and expenditure in various regions have been included in the budget since 2010. So the calculation range of quota of extra-budgetary decentralization could be from 1995 to 2010.

3.1.2.2. Transfer payment

In view of transfer payment not only played the role of bridge and link between Chinese decentralization and income inequality between rural and urban residents, but also theoretically has the uncertain real effect on income inequality between rural and urban residents, the important control variable of transfer payment is introduced into the empirical model. Referring to Chu and Zhao (2013), the transfer payment is defined as follows: government transfer payment (Transfer) is equal to the ratio of central net transfer payments of each province with the sum value of budgetary financial revenue and central transfer payments. The larger is the ratio, the higher the dependence that financial revenue of each province is on the central financial transfer payment funds.

3.1.3. Control variables

Based on Wang and Fan (2005) and Gong and Lu (2013), the control variables that may influence the income inequality between rural and urban residents are introduced in the empirical model, such as economic development (*Lngdp*), degree of openness (*XM*), urbanization rate (*Urban*), years of education per capita (*Edu*) and registered urban unemployment rate (*Uem*). First is the variable of *Lngdp*. Per capita GDP in each province is processed by the GDP deflator index (1995=100) to avoid the impact of inflation or deflation. In order to enhance the stability of data, making the logarithm of per capita GDP that has eliminated the influence of price level. Second is the variable of *XM*. The China Statistical Yearbooks from 1996 to 2014 record the import and export statistics that counted with the dollar as the unit from the year of 1995 to 2013. This paper calculates the import and export statistics that counted with the RMB as the unit from 1995 to 2013, and then divided by the total provincial GDP. Third is the variable of Urban, which is the ratio of the urban resident population and the total population in each province. Fourth is the average number of schooling years (*Edu*). The variable is the average number of schooling years that people received in each province. Fifth is the variable of *Uem*. It is the ratio of the urban registered unemployment number at the end of year in each province with the sum value of total number of urban employees and unemployed people at the end of the year.

3.2. Data sources and statistical characteristics

The original data of all the variables in this paper are from the "China Compendium of Statistics 1949-2008", "Chinese Statistical Yearbook (1996-2014)", OECT and statistical yearbook in each province. Since the limitation of original data of some provinces in the calculation of urban and rural residents' income Gini coefficient, the

empirical sample only includes 24 provinces. At the same time, it is due to the changes of official statistics that the extra-budgetary revenue and expenditure in each region is included in the budget that the maximum interval year is from 1995 to 2010. The mean, standard error, maximum, minimum and observation are shown in Table 1. From the statistical characteristics of mean, standard error, maximum and minimum of all control variables, no outlier is observed.

Table 1
Statistical characteristic of the variables

Variable	N	Mean	Standard error	Maximum	Minimum
Gini coefficient of urban and rural residents' income	24*19	0.3790	0.0586	0.4907	0.2275
Budgetary revenue decentralization	24*19	0.4600	0.1478	0.8816	0.2553
Budgetary expenditure decentralization	24*19	0.7528	0.0973	0.9386	0.5188
Extra-budgetary revenue decentralization	23*16	0.9158	0.0435	0.9871	0.7257
Extra-budgetary expenditure decentralization	23*16	0.9008	0.0498	0.9837	0.6680
Transfer payment	24*19	0.4619	0.1820	0.8517	0.0491
Economic development	24*19	8.7683	0.6454	10.5944	6.0817
Opening up degree	24*19	0.3179	0.4214	2.0513	0.0320
Urbanization rate	24*19	0.4390	0.1663	0.8960	0.1632
Per schooling years	24*19	8.0601	1.1054	12.030	4.9100
Registered urban unemployment rate	24*19	0.0355	0.0079	0.0680	0.0062

4. The empirical analysis of the effect of Chinese decentralization on urban-rural income inequality

4.1. Construction of measurement model

In order to comprehensively examine the effects of Chinese decentralization on urban-rural income inequality, as well as the deferred effect of urban-rural income inequality from the theory, this paper, based on the test of panel regression model, establishes the following dynamic panel data model:

$$\begin{aligned} Gini_{it} = & \sum_{j=1}^{p} \lambda_j Gini_{it-j} + \partial_1 * Fqre_{in,it} + \partial_2 * Fqex_{in,it} + \beta_1 * Fqre_{out,it} + \beta_2 * Fqex_{out,it} \\ & + \gamma_1 * Transfer_{it} + \gamma_2 * Lngdp_{it} + \gamma_3 * XM_{it} + \gamma_4 * Urban_{it} + \gamma_5 * Edu_{it} \\ & + \gamma_6 * Uem_{it} + \varepsilon_{it} \end{aligned} \tag{5}$$

In the formula, Gini coefficient of urban-rural income is the explained variable. The core explanatory variables include budgetary revenue and expenditure decentralization

($Fqre_{in,it}$ and $Fqex_{in,it}$), and transfer payment ($Transfer_{it}$). The variables of economic development ($Lngdp_{it}$), degree of openness (XM_{it}), urbanization rate ($Urbanit$), percapita schooling years (Edu_{it}) and urban registered unemployment rate (Uem_{it}) are the control variables. In addition, ε_{it} is the random error term and it satisfies the requirement that $E(\varepsilon_{it}) = 0$, $E(u_i \varepsilon_{it}) = 0$, $E(\varepsilon_{it} \varepsilon_{is}) = 0$ ($\forall i, t, s, t \neq s$).

4.2. A full sample study of the impact of Chinese decentralization on income inequality of urban-rural income

In order to eliminate the endogenous problem that the lagged value of explained variables and other explanatory variables bring, the system GMM estimation is adopted in the paper. The instrumental variables in the model (1) to (3) are lagged value (the phase is more than two) of Gini coefficient of urban-rural income and the exogenous control variables of $Lngdp_{it}$, XM_{it} and $Urban_{it}$. The instrumental variables in the model (4) to (6) are lagged value (the phase is more than two) of Gini coefficient of urban-rural income and the exogenous control variables of $Lngdp_{it}$ and $Urban_{it}$. Due to the multi-collinearity of the budgetary revenue and expenditure decentralization with extra-budgetary revenue and expenditure decentralization, this paper distinguishes the six situations according to revenue decentralization, expenditure decentralization and revenue and expenditure decentralization and investigates the impact of Chinese decentralization on urban-rural income inequality. The regression estimates are shown in Table 2.

Table 2 shows the full sample estimation results of the impact of Chinese decentralization on urban-rural income inequality are high robustness and credibility. The symbols of the regression coefficient of the budgetary and extra-budgetary revenue and expenditure decentralization are consistent, and except the control variable of $Lngdp_{it}$, the variables are significant at the level of 10%. Moreover, Sargan test and the AR(2) test are adopted in the dynamic panel data model, which shows the selection of tool variable is valid and there is no two-order autocorrelation in the residuals.

Firstly, the budgetary revenue decentralization is negatively related to the urban-rural income inequality, which shows increasing budgetary revenue decentralization could significantly reduce the urban-rural income inequality. Although the reasonable budgetary revenue decentralization theoretically could provide positive incentives for local government to narrow the urban-rural income gap, Chinese budgetary revenue decentralization is relatively lower than the budgetary expenditure decentralization. Over the period from 1995 to 2013, the decentralization of budgetary revenue and expenditure is 0.4596 and 0.7489 respectively, which indicates that decentralization of budgetary revenue is 0.2893 lower than that of expenditure on overage. Therefore, in the premise of reasonable dividing the power of government and ensuring property

allocation to have legal protection, the budgetary revenue decentralization should be improved as much as possible. For example, giving local government certain tax legislative power, which could not only be conductive to mobilize the enthusiasm of local government to reduce the tax competition, but also achieve more financial power and resources to achieve the equalization of urban-rural public services, and thus the convergence of urban-rural economic development could be given more attention.

Table 2
A full sample estimate of the impact of Chinese decentralization on urban-rural income inequality

Explanatory variable	Explained variable ($Gini_{it}$)					
	(1)	(2)	(3)	(4)	(5)	(6)
$Gini_{it-1}$	0.3178*** (0.0643)	0.2951*** (0.1062)	0.3447*** (0.0936)	0.3501** (0.1565)	0.1668*** (0.0320)	0.3250** (0.1497)
$Fqre_{in,it}$	-0.2614*** (0.0530)	—	-0.3651* (0.1922)	-0.2935*** (0.0834)	—	-0.4373** (0.2180)
$Fqex_{in,it}$	—	0.1458** (0.0568)	0.2615*** (0.0975)	—	0.1728** (0.0686)	0.4033** (0.2070)
$Fqre_{out,it}$	—	—	—	0.1646*** (0.0929)	—	0.2809** (0.1158)
$Fqex_{out,it}$	—	—	—	—	-0.1147*** (0.0150)	-0.2020*** (0.0538)
$Transfer_{it}$	0.1561*** (0.0334)	0.1743*** (0.0529)	0.2046*** (0.0967)	0.1469** (0.0587)	0.1156* (0.0648)	0.2953** (0.1355)
$Lngdp_{it}$	-0.0040 (0.0028)	-0.0037 (0.0033)	0.0005 (0.0031)	-0.0043 (0.0027)	0.0006 (0.0036)	0.0036 (0.0079)
XM_{it}	0.0745*** (0.0164)	0.0640* (0.0342)	0.0199** (0.0049)	0.0799** (0.0393)	0.0342*** (0.0090)	0.0177*** (0.0019)
$Urban_{it}$	0.0394* (0.0214)	0.0737*** (0.0251)	0.0838** (0.0341)	0.0171*** (0.0033)	0.0719** (0.0307)	0.0901** (0.0497)
Edu_{it}	0.0135*** (0.0015)	0.0126** (0.0061)	0.0145*** (0.0051)	0.0136* (0.0072)	0.0130** (0.0052)	0.0251** (0.0118)
Uem_{it}	0.9822*** (0.2768)	0.6109** (0.2768)	0.0808** (0.0382)	0.3046* (0.1623)	0.5472** (0.2533)	0.0612** (0.0215)
Sargan test	16.5657 (P=0.4142)	12.5493 (P=0.6371)	10.0120 (P=0.7613)	9.1902 (P=0.6866)	13.8493 (P=0.3104)	9.3531 (P=0.5893)
AR(2)	-0.0795 (p=0.2025)	-0.0281 (p=0.6332)	-0.0181 (P=0.7540)	0.0092 (p=0.8878)	-0.0022 (p=0.9685)	-0.0261 (P=0.6715)
N	24*17	24*17	24*17	23*14	23*14	23*14

Notes: Value in the brackets is the standard error. *, ** and *** represent the significant level at 10%, 5% and 1% respectively.

Secondly, budgetary expenditure decentralization is positively related with urban-rural income inequality, which indicates increasing budgetary expenditure decentralization would aggravate the urban-rural income inequality. Although the expenditure theoretically produces the positive incentives for local government,

decentralization would have negative inhibition effect on public policy of local government when exceeding the optimal level of expenditure decentralization. The higher level of budgetary expenditure decentralization not only makes the local government have the great expenditure autonomy, more funds would be allocated on constructive investment rather than the livelihood investment with the incentive mechanism of economic growth, which aggregates the urban-rural income inequality.

Thirdly, extra-budgetary revenue decentralization is positively related with urban-rural income inequality while extra-budgetary expenditure decentralization is negatively related with urban-rural income inequality. On the one hand, the drawback of extra-budgetary revenue decentralization is self-evident. The asymmetric motion with power property concentration and responsibility decentralization in the reformed tax system results in the lack of strong local taxes and corresponding tax legislation and levy rights, which makes local government continually strengthen the construction of "fiscal plot" in the vertical up-down evaluation mechanism, and results in the expanding extra-budgetary revenue, as well as in increasing the burden of residents, further decreasing their income and welfare. On the other hand, the increase of extra-budgetary expenditure decentralization would reduce the urban-rural income inequality. Although most of the extra-budgetary revenue may be used in the regional economic construction, part of extra-budgetary revenue would be used in livelihood and welfare of residents forced by the pressure from residents, which, to a certain extent, is conductive to reducing urban-rural income inequality. However, it is worth concerning that the positive impact of extra-budgetary decentralization would continually be relaxing with the extra-budgetary funds gradually incorporated into the budget management. How to implement the over all management of budgetary and extra-budgetary revenue and expenditure should be the focus in the next step.

In addition, the estimation results of dynamic panel data model show that the urban-rural income inequality has the significant deferred effect. Specifically, every 1% increase in Gini coefficient of urban and rural residents would leads to 0.3% increase in urban-rural income inequality, which indicates the fair income distribution would not only needs great attention, but also needs the coordination of public policies.

4.3. The sub-sample test of the effect of Chinese decentralization on urban-rural income inequality

China's economic development shows typical regional characteristics, and the results in the third part show that urban-rural income inequality and budgetary revenue decentralization also show the significant regional differences. In order to further investigate whether the effect of Chinese decentralization on urban-rural income inequality has regional differences, sub-samples are used to estimate the regional effect

of Chinese decentralization.[1] However, in view of limited number of sub-samples, only results of static panel model could be given. In addition, in order to overcome the possible cross sectional heteroscedasticity of the static panel model, the Cross-Section Weights OLS are used in the paper, the results are shown in Table 3.

Table 3
The sub-sample estimation results of the effect of Chinese decentralization on urban-rural income inequality

Explanatory variable	Explained variable ($Gini_{it}$)					
	Eastern		Central		Western	
	(1)	(2)	(1)	(2)	(1)	(2)
$Fqre_{in,it}$	-0.2392*** (0.0604)	-0.1013** (0.0449)	-0.3160*** (0.0873)	-0.2452** (0.1176)	-0.3603*** (0.0461)	-0.4880*** (0.0454)
$Fqex_{in,it}$	0.1374** (0.0546)	0.0903* (0.0468)	-0.1212* (0.0668)	-0.2570*** (0.0600)	-0.0665** (0.0331)	-0.0753* (0.0394)
$Fqre_{out,it}$	—	0.1305** (0.0565)	—	0.2004** (0.1004)	—	0.5518*** (0.0923)
$Fqex_{out,it}$	—	-0.8452** (0.3800)	—	-0.1841*** (0.0543)	—	-0.1024** (0.0505)
$Transfer_{it}$	0.0010 (0.0363)	0.1036*** (0.0361)	0.0299 (0.0571)	0.1880*** (0.0594)	0.0540* (0.0275)	0.0289 (0.0307)
$Lngdp_{it}$	-0.0069*** (0.0023)	-0.0067** (0.0032)	0.0032** (0.0016)	0.0020 (0.0023)	0.0101*** (0.0019)	0.0064** (0.0028)
XM_{it}	0.0559*** (0.0105)	0.0418*** (0.0073)	0.1352** (0.0566)	0.4526*** (0.0902)	-0.0316* (0.0186)	-0.1202*** (0.0307)
$Urban_{it}$	0.0531*** (0.0198)	0.0787*** (0.0169)	0.2851*** (0.0275)	0.1682*** (0.0315)	-0.0099** (0.0043)	-0.0189** (0.0076)
Edu_{it}	0.3156*** (0.0323)	0.0170*** (0.0056)	0.0150*** (0.0036)	0.0311*** (0.0039)	0.0235*** (0.0022)	0.0048* (0.0025)
Uem_{it}	0.0111 (0.1027)	0.1042 (0.2199)	0.5887*** (0.1736)	0.7368*** (0.1451)	0.3423** (0.1217)	0.6272*** (0.0677)
N	8*19	7*16	6*19	6*16	10*19	10*16

Note: the same as Table 2.

Firstly, there is asignificantly negative correlation between the budgetary revenue expenditure and urban-rural income inequality, which indicates that the increasing budgetary revenue decentralization would be conductive to narrowing the income inequality in the three major regions. Through the simple comparison of the estimated regression coefficients in Table 3, the policy effect of budgetary revenue decentralization in the west regions is the best. Whether from the national perspective or regional perspective, the increasing of budgetary revenue decentralization could

[1] In view of lack of data on urban and rural residents' revenue, the Gini coefficients of urban-rural income in only 24 provinces are calculated. At the same time, the data of extra-budgetary revenue and expenditure in Hebei is missing, then results of only 23 provinces are acquired: eastern regions include Beijing, Liaoning, Shanghai, Jiangsu, Zhejiang, Fujian and Guangdong; Central regions include Anhui, Jiangxi, Henan, Heilongjiang, Shanxi, Hubei; Western regions include Sichuan, Chongqing, Inner Mongolia, Guangxi, Guizhou, Shaanxi, Gansu, Qinghai, Ningxia and Xinjiang.

reduce the urban-rural income inequality. This paper argues that the tax system reform in 1994 was conducted not only in the premise of political centralization, but also for the purpose of financial power centralization. Although the budgetary revenue decentralization shows the regional difference that eastern region is higher than central region, and central region is higher than western region, the three major regions are all relatively at the lower level. For example, from 1995 to 2013 the average value of budgetary revenue decentralization in the three regions is 0.6135, 0.3803 and 0.3849 respectively. Therefore, to improve the budgetary revenue decentralization is one of the goals of the new round of taxation system in the future.

Secondly, there are great regional differences in the impact of the budgetary expenditure decentralization on urban-rural income inequality. Among them, the eastern region is positively related while the central and western regions are negatively related. This paper argues that, on the one hand, the budgetary expenditure decentralization in the central and western regions is relatively lower than that in eastern regions, and the increasing of budgetary expenditure decentralization is conductive to improving the enthusiasm of local government, which makes the supply structure and efficiency of local public goods and services get more attention. The Public product structure is more in line with the preferences of residents, and the productive public goods are more attractive to the better labor and capital quality inflows. At the same time, the non-productive public goods, such as cultural entertainment, education, health, social security, are getting more attention. The provision cost and efficiency of public goods has become another focus of government in central and western regions. In the process of constantly changing the function of government, government strives to provide more public goods and services with higher quantity and quality at lower cost. The double harvest in resource allocation and income distribution has effectively reduced urban-rural income inequality in central and western regions. On the other hand, with the superior economic resources and policies in eastern regions, the increasing of expenditure decentralization could have no positive incentive effect on local governments. Moreover, in the process of expenditure decentralization going down to local government below provincial level, institutional constraints, poor supervision and management mechanism would become the main influencing factors for distorted public expenditure structure, declining resident's welfare, and obstruction of efficient operation of market economy. Instead, the non-efficiency of budgetary expenditure decentralization, namely the behavior alienation brought by administrative incentive and financial incentive, makes the welfare of eastern regions of urban and rural residents damaged by the circulation mechanism that the rich getting richer and the poor getting poorer.

Thirdly, the increasing effect of extra-budgetary revenue decentralization on urban-rural income inequality in western region is higher than that of central and eastern regions while the decreasing effect of extra-budgetary expenditure decentralization on urban-rural income inequality in eastern region is higher than that of central and

western regions. From the perspective of different development level, the budgetary revenue gap in the developed eastern region is relatively small, which is not only because the "inherent impulse of second finance" is relatively low, but also because acquiring the extra-budgetary revenue is relatively easy with the advantage of good economic foundation. The extra-budgetary revenue has small burden on residents in eastern regions, which has smaller influence on increasing urban-rural income inequality. As discussed above, local governments in eastern and western regions prefer to invest in economic construction, and to a certain extent, the livelihood expenditure would also be added through the extra-budget. Moreover, due to the relatively abundant bunds, eastern region is relatively easier to get the extra-budgetary revenue. Policy initiative and increasing livelihood expenditure are better than the backward central and western regions. Therefore, the inhibiting effect on urban-rural income inequality in the eastern regions is higher than that in central and western regions.

Fourthly, the transfer payment, whether from the national or from regional perspectives, has exacerbated the urban-rural income inequality, which indicates Chinese government transfer payment largely balanced the financial resources, but did not promote the fair distribution of national income between urban and rural areas. On the one hand, it is due to the drawback of current transfer payment system that the tax refund and special transfer payments calculated by the base tax account for a large proportion, which maintains the vested interest and distribution status, and continually escalate the income inequality. The low transparency of transfer payment contributes to the random use of transfer payment, as well as to the reducing effort of balancing regional development. On the other hand, that the general transfer payment that has equalization effect only accounts for a small proportion in transfer payment funds and the fund structure is inclined to the economic construction.

Fifthly, in terms of the impact of control variables on urban-rural income inequality there are significant regional differences. On the one hand, the economic development has not a certain effect on income inequality and also has not passed the T test at the significance level of 10%, which needs further study in different regions. The sub-sample regression results in Table 3 show the increasing economic development can significantly reduce the urban-rural income inequality in the eastern region, but to a certain extent, aggregate the income inequality between central and western regions. This paper argues it is the one-sided pursuit of economic development and neglect of the overall fairness and strategic deployment that results in the phenomenon. On the other hand, although urbanization and opening up are not conductive to the income inequality, they are beneficial to reduce the western urban-rural income inequality, which is in contrast with the traditional sense that urbanization and opening up is conductive to balancing the development of urban and rural areas. It is due to the initial stage of China's urbanization that the increasing population migration and city infrastructure coexists, and left-behind children and elderly are also the menace form

the near in the initial stage of urbanization. Moreover, income disparity caused by the capital and labor in the urbanization results to the high Gini coefficient, which means government should take full account of regional advantages as well as economic development strategy when formulating the opening up policies.

Finally, per capita schooling year and registered urban unemployment rate, in a certain extent, exacerbate the urban-rural income inequality no matter from the perspective of national nor from the sub regions. This indicates government should not only simply improve the average schooling year, but also equalize the educational resources and level between urban and rural, which effectively rely on the public educational policies to increase the quality of human capital in rural areas. Government should not only focus on urban residents' employment, but also on broadening the channels of employment for rural residents. In addition, it needs to absorb the surplus rural labor force through the construction of new urbanization and integration of urban and rural development, and to continually reduce the urban-rural income inequality in a win-win situation.

5. Conclusions and policy recommendations

The relationship between Chinese decentralization and income inequality has attracted much attention. This paper studies the mechanism of the effect of Chinese decentralization on income inequality from both budgetary and extra-budgetary dimensions, and establishes the panel data model to empirically test the impact of Chinese decentralization on income inequality based on the Gini coefficient of residents and the level of Chinese decentralization. The estimation results show that, first, the increasing budgetary revenue decentralization could reduce the urban-rural income inequality on both national and regional levels. Second, although the increasing budgetary expenditure could exacerbate the urban-rural income inequality nationally, the relatively low budgetary expenditure decentralization in the central and western regions could reduce the urban-rural income inequality significantly. Thirdly, the impact of extra-budgetary revenue and expenditure on urban-rural income inequality in the whole nation, the eastern, the central and the western is consistent, which indicates extra-budgetary revenue decentralization makes the urban-rural income inequality worse while extra-budgetary expenditure decentralization reduces the urban-rural income inequality. Fourthly, transfer payment, schooling year and registered urban unemployment rate exacerbate the urban-rural income inequality while economic development, urbanization and opening up degree have significant regional differences on urban-rural income inequality. The above conclusions could not only be used for reference to further perfect and reshape the fair efficiency mechanism of Chinese decentralization, but also guide the new fiscal and taxation system reform.

Firstly, grasp the direction and strength of Chinese decentralization and actively

promote the establishment of modern financial system. The new round of fiscal and taxation system reform should adhere to increasing of the budgetary revenue decentralization, and set up a reasonable and efficient income sharing incentive mechanism between the central and local government. Based on the increasing of budgetary revenue expenditure, properly handle the relationship between rich taxation source and economic development in the local government. At the same time, different financial autonomy and preferential tax policies could be made in different regions according to the regions' economic development. The simple and crude method cannot be taken for the budgetary expenditure decentralization. Instead, differentiated regional policy could be implemented in the three regions, i. e., appropriately controlling the decentralization in eastern region with relatively higher level of expenditure decentralization, and further increasing the decentralization in the central and western regions. However, the rhythm and intensity of expenditure should be paid attention to.

Secondly, speed up the implementation of full caliber budget and to constantly improve governance capacity. Although the extra-budgetary expenditure decentralization could reduce the urban-rural income inequality in a certain extent, it has increased the tax burden of residents, as well as the urban-rural income inequality. Moreover, the absence of regulation leads to the rising cost of government management. Therefore, it is necessary to incorporate the extra-budgetary revenue and expenditure into the budgetary to implement the unified legal management as soon as possible, and to establish the full bore budget mechanism, which would further boost the construction of modern financial system and enhance the governance capacity.

Thirdly, firmly establish and continuously implement the performance evaluation of people's livelihood, formulate a differentiated development strategy, and narrow the urban-rural income inequality. Making full use of economic advantages, government in the eastern region should attach great importance to the fairness between urban and rural, and carry out the policies of "industry promoting agriculture" and "urban areas leading the rural areas", which enables the vast number of rural residents to share the fruits of reform and opening up. Governments in the central regions should assess the situation in the tide of "rising central China", continuously advance the urbanization and opening up to solid economic foundation, in which more rural residents benefit from Tickle-down effect of the economic growth. Governments in the western regions should make full use of "western development" to shape the new pattern of development, give full play to the advantages of resources, and pay attention to the protection of resources to improve urban-rural equalization of basic public services.

Fourthly, fully understand and pay attention to the deferred effect of income inequality, as well as the retroaction on economic development, in the three regions. Based on the rational division of powers between central and local government, Chinese decentralization system with the power and responsibilities as the goal should be established. By fully mobilizing the enthusiasm of local governments, speeding

up the construction of urbanization matching with public service, constantly breaking the shackles, carrying out a new round of high-quality opening up, achieving the convergence of urban and rural economic development, the well-being of urban and rural residents can be promoted, and fair urban-rural income distribution can be achieved ultimately.

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