Redistribution and government tactical behaviour: An analysis of local public expenditure in China after 1994 tax reform

Gabriele Guggiola *

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Abstract

During the last few decades significant changes has affected Chinese public finance. Redistribution has become an increasing concern for the Chinese government and, in 1994, a major tax reform has been undertaken. From a political economy point of view, redistribution might entail tactical purposes and could represent an important goal in order to reduce dissatisfaction in poorer regions, avoiding the emergence of social unrest. I will consider a set of structural, political and socioeconomic variables in order to analyze the determinants of local public expenditure in thirty Chinese regions over the period 1995-2007. The results of the econometric regressions reveal that redistribution seems not to be a priority for the Chinese leaders and that there is little evidence of some kind of political cycle influencing public expenditure.

JEL Classification: D72; E62; H72
Keywords: Political Process; Fiscal Policy; Public Expenditure; China

1 Introduction

During the last few decades significant changes has affected Chinese public finance.

First, redistribution has become an increasing concern for the Chinese government. China is now one of the major players in the world economic scene but, notwithstanding the exceptional performance experienced in the last years, not all the Chinese regions were equally involved in the development process. As a result, some regions are still characterized by extreme poorness and income inequality among regions (Chang, 2002; Fan et al., 2002; Lee, 2000) and among

*Department of Economics, University of Insubria, via Monte Generoso 71, 21100 Varese, Italy; e_mail: gabriele.guggiola@uninsubria.it.

social classes (Lu, 2002; Xu and Zou, 2000) has raised during the last decades. An analysis of the dynamics of local public expenditure allows to understand whether the Chinese government is favoring redistribution and trying to contrast this trend, or whether the strategy of developing first some selected areas prevails also in the local public expenditure allocation mechanisms.

The issue deserves attention since redistribution, from a political economy point of view, might entail tactical purposes and could be important in order to reduce dissatisfaction in poorer regions, avoiding the emergence of social unrest. The analysis of governments tactical behavior in democracies is widespread in the literature, while there is little contribution investigating whether evidence of tactical behavior can be found in a non democratic institutional environment. In the paper I will therefore analyze the behavior of the Chinese government also under this perspective, in order to find possible evidence of tactical transfers aiming at maintaining political consensus. Notice that no political opening has taken place side by side to economic opening and the political scenario does not suggest that any significant change is behind the corner. How has the Chinese government managed to reach high growth rates, to increase average education of Chinese citizens and to open its economy to foreign firms and capitals without leaving room for any kind of democratization process?

Secondly, the last two decades deserve attention since in 1994 a major tax reform has been undertaken by the Chinese government. As a consequence of this reform the central government currently claims over 50% of overall budgetary revenues while spending a much lower share of funds. Therefore allocation mechanisms between central and local governments have been established, leaving some room for conditioning regional expenditure on behalf of central government.

I will analyze the structural, political and economic determinants of public expenditure at a local government level in the different Chinese regions. The analysis adds on the literature in two ways. On one hand, it offers an additional, and innovative, interpretation of the Chinese government behavior and of its efforts in facing the growing disparities observed within and among different regions. On the other hand, it offers some insights on possible future evolutions of the Chinese political scene that, up to now, have shown a very low degree of political reforms.

The paper proceeds as follows. Section 2 surveys the related literature while section 3 describes some peculiarities of the Chinese local public expenditure and of the 1994 tax reform. The econometric model and its results are described in section 4 while section 5 concludes.

2 Related literature

The issue of rising income inequality in China is discussed, among others, in Chang (2002), Fan et al. (2002), Lee (2000), Lu (2002), Yang (1999) and Yang and Zhou (1999).

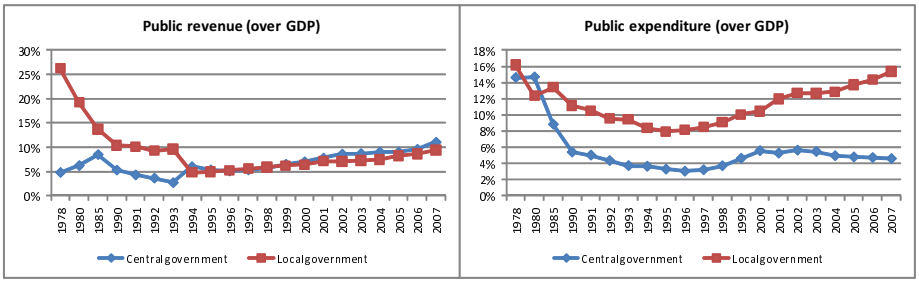
According to Chang (2002) rural-urban income gap is the main source of

the high Chinese disparities. The causes may be traced back to differences in marginal productivity, to restrictions to inter regional mobility (Yang and Zhou, 1999) or to increased urban subsidies (Yang, 1999). Moreover, always according to Chang (2002), although the disparity may not further grow, it is likely to remain at a high level and there is no effective way to reduce it, a part from accelerating urbanization in the short-run and to promote the growth of the modern urban sector in the long run. Lee (2000) perform a decomposition analysis showing that the dominant sources of overall regional inequality in output have shifted from intra-provincial to inter-provincial inequality and from disparity within the coast to between the coast and the interior. Lu (2002) finds several interesting results: urban-rural consumption ratio increased in the 1990s and provinces with higher per capita income used to have more equal urban–rural consumption levels. Fan et al. (2002) investigate poverty and inequality in the cities during the period of rapid urban reforms showing that, while the incidence of urban poverty declined from 1992 to 1995, this trend was reverted 1996 to 1998, when major urban reforms were launched. Moreover, the western regions have the highest concentration of urban poverty, and the income gap between these regions and rest of China has been widening over time.

Tactical aspects of redistribution in a democratic context have been widely studied. Candidates propose transfer schedules (or "pork barrel" projects) in order to maximize the expected share of votes or the probability of winning the election favoring either their supporters (Dixit and Londregan, 1996) or the swing voters (Cox and McCubbins, 1986). Tough autocratic governments do not need to gain day by day support, they still need to rely on a basis of consensus to maintain the power and not to incur in serious revolutionary threats; the mechanisms to gain this support may well be similar, or at least comparable, to those known in modern democracies. As Wintrobe (1990) noticed, "a dictator provides individuals or interest groups with public services or patronage in exchange for support", and it appears that regime supporters generally receive a good treatment (for an empirical analysis of Chinese case see Dickson and Rost Rublee, 2000, and Li et al., 2007). According to Acemoglu and Robinson (2000, 2001 and 2006) significant threats of revolution can contribute to political reforms inducing the elite in power to increase redistribution or, in extreme cases, to opt for democratization. If income inequality is too high, redistribution may not be sufficient, since the elite lacks of commitment technology for future periods and the disenfranchised may prefer a revolution to a "one shot redistribution". According to their model, income inequality usually reaches its top in the years before the beginning of a democratization process. This is probably not the case in China, but income inequality has risen in the last decade, instead of decreasing along with economic growth, and a certain degree of redistribution might be necessary in order to avoid dissatisfaction among poor citizens.

Chinese public finance and the effects of the 1994 tax reform have been analyzed in several papers. Among them,Zhang and Zou (1998) deal with the issue of decentralization and central-local relationships while Zhang and Zou (2001) investigate the relationship between fiscal decentralization and growth and provide an application to China and India. The structure of local public

Figure 1: Public revenue and expenditure in China (as a % of GDP)



expenditure in China is studied in Zhang and Chen (2007).

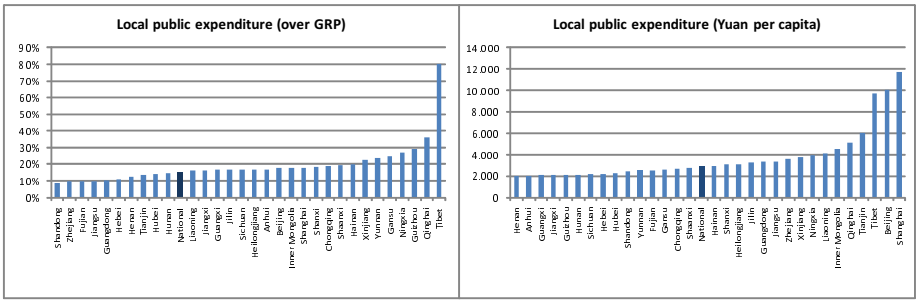
3 Local public expenditure in China and the 1994 tax reform

As it can be seen in Figure 1, central government revenue has been constantly decreasing in the period 1978-1994, and this trend was not compensated by an increase in local government revenue, lacking appropriate incentives to promote tax collection at a local level. In 1994 a comprehensive package of fiscal measures has been undertaken in order to provide adequate resources to the different levels of government, eliminate distortionary elements of the tax structure and revamp central-local sharing arrangements. After the 1994 tax reform, both local and central revenue have begun to increase.

Under the Tax Sharing System (TSS) introduced by the reform, taxes has been reassigned to the different levels of government, distinguishing between central, local and shared taxes. In principle the new TSS represent an automatic and objective mechanisms to allocate resources. In practice, regional revenue has been reduced while local government are supposed to shoulder an increasing burden in the provision of public services. As a consequence, local public expenditure has increased since the mid of the Nineties. In 2007, it accounted for the 77% of total public expenditure while local revenue accounted for only the 45% of total revenues. Given the clear mismatch between revenue and expenditure at the regional level, a central-local transfer mechanism needed to be enacted, and three main categories of fiscal transfers have been implemented: tax returns, financial capacity subsidies and special (targeted) subsidies. These transfer schemes leave some room for the central government to influence geographical and sectoral allocation of resources.

Regional expenditure exhibits a high degree of variability within regions, both as a share of GRP and in per-capita terms. As a share of GRP local public expenditure oscillates between an 8,6% in Shandong to an 80% in Tibet (or 36% in Qinghai). In per-capita terms, it oscillates between values below 200 Yuan to the higher values (around 11.000 Yuan) observed in the metropolitan

Figure 2: Local public expenditure across Chinese regions (2007)



areas of Beijing and Shanghai (again a high value is observed also in Tibet). Also the variability among the different items is remarkable, as pointed out in Zhang and Chen (2007).

Therefore the criteria that drive the allocation of resources among different regions and, within each region, among different expenditure items, are worthy to be analyzed.

4 The econometric analysis

In this section I will illustrate and discuss the results of the econometric analysis performed in order to explain the main determinants of public expenditure at a regional level. Section 4.1 discusses the econometric model, section 4.2 analyzes overall local expenditure while section 4.3 analyzes some selected items of local expenditure.

4.1 Determinants of expenditure allocation

I will consider a set of structural, political and socioeconomic variables in order to analyze the determinants of local governments' expenditure in thirty Chinese regions over the period 1995-2007. The aim of the econometric model is to analyze the allocation of public funds across the different regions so to find out whether there have been tactical or redistribution purposes on behalf of the Chinese government.

The independent variables considered will be (log) per capita GRP[1], (log) regional population, share of import and export over GRP, value of imports and exports of foreign-funded enterprises over GRP, urban-rural consumption ratio, share of primary industry over GRP, dependency ratio, illiteracy rate and a set of dummy variables accounting for congress cycles and the Asian crisis of 1997.

GRP per capita entails both a structural and a political component. On one hand, public expenditure should be higher in poorer regions, for redistribution

[1]Gross regional product.

purposes; on the other hand, demand for public services is structurally higher in high income regions.

If the government follows a redistribution purpose, dependency ratio and illiteracy rate should be a positive determinant of local public expenditure. For what concerns dependency ratio, it should be considered that expenditure on health service is higher for the younger and the elder and expenditure on schooling is consistently determined by the ratio of young people with respect to the total population. Considering illiteracy ratio, we should observe a higher expenditure in education where illiteracy rate are higher, in order to offset this phenomenon.

The total value of import-exports by location of importers/exporters over GRP will be considered in order to test whether the Chinese government is favoring, in the redistribution game, more open and developed regions with the aim of pushing the growth rates in some clearly identified areas (the special economic zones), leaving for the future the task of promoting nationwide growth. We also want to check for possible second order effects due to the relevance of foreign-funded enterprises regarding total trade, by allowing for an interaction term between imports and exports of foreign-funded enterprises and overall imports and exports.

Since urban-rural disparity is among the leading sources of income inequality, we want to test whether the government is trying to counterbalance this trend by increasing local public expenditure in the region where such disparity is more manifest. The variable urban-rural consumption ratio will therefore be added to the regression.

Following Mulligan et al. (2004), I will allow for possible pool effects in public policies[2] by considering total population within the set of independent variables. I will also consider the total share of primary industry[3] over GRP as a proxy for the level of development and as a sign of the fraction of population that has less easy access to different public programs.

A set of dummy variables will then be considered to account for congressional cycles and Asian crisis of 1997.

China is not a democracy and so there is no place for classical electoral cycles (with governments usually spending more in correspondence of an electoral race). In any case, Chinese political and economic life is organized in five year plans, approved during the periodical congresses of the Chinese Communist Party. Is there any link between the timing of the plans and the expenditure when congress is forthcoming? Could it be the case that expenditure increases shortly before each congress, when it is necessary to reach the planned results and to gain political visibility in view of the imminent political meeting? A specific dummy identifying the year preceding each congress and congress year and a second dummy for the year immediately following each congress are inserted to allow intercepting these possible effects.

Concerning the Asian crisis, I will set up a dummy equal to one for years

[2]Public sector may exhibit economies of scale.

[3]Agriculture, forestry, animal husbandry, fishery and services in support of these industries.

1997, the year in which the crisis in far-east Asian countries exploded, and for 1998-1999, the only two years over the whole considered period in which Chines GDP grew at a rate lower than 8%. The dummy aims at intercepting possible consequences of the crisis on the Chinese government budget policies.

4.2 Overall regional public expenditure

Table 1 displays the results of the regression considering regional government expenditure.

A pooled least square technique with fixed effects (accounting for regional unobserved variables) is used in the regression and the results are shown in the first four columns. Both a model with contemporaneous effects (columns 1,2,5 and 6) and a model with lagged independent variables[4] (columns 3,4,7 and 8) are considered. A time trend is accounted for in even columns. In order to test for the robustness of the estimates feasible GLS assuming cross-section heteroskedasticity are also determined (column 5 to 8). Data is mainly from China Statistical Yearbook (various issues)[5], provided by the National Bureau of Statistics of China.

The estimated model is:

$y_{it} = \beta_0 + \beta_1 log(GRP\,per\,capita_{it}) + \beta_2 log(POP_{it}) + \beta_3 IMPEXP_{it} + \beta_4 IMPEXP_{it} \times FFE_{it} + \beta_5 URCONS_{it} + \beta_6 ISECT_{it} + \beta_7 PRECONG_t + \beta_8 POSTCONG_t + \beta_9 ILL_{it} + \beta_{10} DEP_{it} + \beta_{11} ASCRIS_t + \phi_i + \epsilon_{it}$

where y_{it} represents (log) local per capita public expenditure in region i at time t while ϕ_i represent region i specific fixed effects[6].

Local government expenditure is positively correlated with GRP per capita, import and export share over GRP and urban-rural consumption ratio. The coefficients are significant over almost all the econometric specifications, denoting the robustness of the estimate. GRP per capita positively influences public expenditure, showing that the demand effect (higher income citizens demand more public services) prevails over the redistribution purposes. More economically open regions are favored in the redistribution game while, on the other side, positive coefficients on urban-rural consumption ratio reveal some kind of redistribution purpose aiming at solving the disparity that, according to Chang (2002), is becoming the most relevant in determining inequality rise in China and risks to threaten political stability.

Local expenditure is lower the higher the share of primary industry and illiteracy rate, denoting a low interest towards less developed and rural regions. Specially the former relation is very strong: rural zones receive inadequate public services and this confirm a scarce interest in pursuing redistribution policies.

Spending, as noticed, is higher in internationally more open regions, but there is a non linear relation: government "invest" more political resources on more economically open regions but then, holding this variable fixed, more resources are allocated where domestic (perhaps state owned) firms are leading.

[4] With exclusion of year specific dummies.

[5] A detailed description of the data used in the regression is provided in Appendix I.

[6] All monetary values used are in 2000 constant values.

Table 1: Government expenditure by region (per capita)

Variables	Pooled LS (1)				Pooled EGLS (1) (2) (3)			
GRP per capita (log)	1,146*** (0,067)	0,519*** (0,101)	1,165*** (0,096)	0,474*** (0,132)	1,123*** (0,050)	0,384*** (0,063)	1,156*** (0,049)	0,289*** (0,061)
Population (log)	-0,265 (0,212)	-0,509*** (0,192)	-0,089 (0,181)	-0,349* (0,206)	-0,184 (0,186)	-0,585*** (0,199)	0,011 (0,248)	-0,305** (0,155)
Imp+Exp (over GRP)	0,524*** (0,098)	0,380*** (0,064)	0,591*** (0,125)	0,467*** (0,069)	0,442*** (0,064)	0,434*** (0,062)	0,479*** (0,095)	0,476*** (0,044)
FFE*(Imp+Exp) (over GRP)	-0,268*** (0,071)	-0,202*** (0,051)	-0,352*** (0,084)	-0,289*** (0,048)	-0,226*** (0,047)	-0,207*** (0,043)	-0,291*** (0,067)	-0,280*** (0,023)
Urban-rural consumption ratio	0,053*** (0,017)	0,044*** (0,016)	0,023 (0,018)	0,025 (0,015)	0,055*** (0,015)	0,043*** (0,012)	0,030*** (0,009)	0,031*** (0,008)
Primary industry (share of GRP)	-1,455*** (0,527)	-0,976*** (0,234)	-1,471*** (0,576)	-0,965** (0,373)	-2,173*** (0,334)	-1,298*** (0,165)	-2,223*** (0,323)	-1,204*** (0,192)
Pre-congress	0,034 (0,037)	0,034 (0,022)	-0,024 (0,025)	0,015 (0,017)	0,021 (0,027)	0,021 (0,015)	-0,016 (0,016)	0,021** (0,010)
Post-congress	0,038 (0,035)	0,018 (0,022)	-0,021 (0,027)	-0,005 (0,017)	0,022 (0,025)	3,37E-05 (0,015)	-0,025 (0,019)	-0,014 (0,010)
Illiteracy rate	-0,881** (0,383)	-0,236 (0,257)	-1,678*** (0,389)	-1,011*** (0,181)	-0,931*** (0,315)	-0,073 (0,210)	-1,478*** (0,233)	-0,765*** (0,100)
Dependency ratio	-0,252 (0,171)	0,142 (0,209)	0,122 (0,181)	0,459** (0,207)	-0,210 (0,163)	0,210 (0,182)	0,116 (0,103)	0,399 (0,071)
Dummy Asian crisis	-0,049 (0,058)	-0,056 (0,035)	-0,069* (0,041)	-0,033* (0,019)	-0,030 (0,039)	-0,037 (0,022)	-0,044* (0,026)	-0,003 (0,009)
Time trend	No	Yes	No	Yes	No	Yes	No	Yes
Lagged dependent variables	No	No	Yes	Yes	No	No	Yes	Yes
N° observations	390	390	360	360	390	390	360	360
Adj. R sq.	0,975	0,982	0,973	0,981	---	---	---	---
Log likelihood	285,680	353,994	263,847	330,921	---	---	---	---
F-Statistic	378,21***	525,85***	324,78***	462,00***	---	---	---	---

(1) White cross-section standard errors (d.f. corrected)
(2) Bold type estimates are significant also under cross-section random effects hypothesis at a minimum level of significance of 10%
(3) Cross-section weights
Lev. Of sign.: (***)=1%, (**)=5%, (*)=1%
Regional fixed effects always included in the estimations.

Spending is, in fact, negatively correlated with the share of import and exports of foreign-funded enterprises over GRP.

Total population has a negative impact on per capita public expenditure, denoting a pool and a scale effect in the management of public services. Negative, but generally not significant, is also the effect related to Asian crisis dummy. Though *a priori* we expected a negative sign, Chinese public debt, foreign liabilities and debt ratio were always under control and the economic downturn in the area did not cause major public policy changes.

The increase in public expenditure before a congress is positive (but not significant) while the effect of post congress dummy is ambiguous and not significant.

Is there evidence, by observing these first results, of some redistribution purpose in the allocation policies of the Chinese government?

The answer is basically no. Considering the relevant and growing intra-regional and inter-regional disparities, there is no clear evidence that the Chinese government is pursuing some kind of serious redistribution policy. Government expenditure is higher, in per capita term, in richer and more internationally open regions and in regions with a more developed industrial and service sector. Some kind of redistribution intention is detectable from the positive coefficient associated with urban-rural consumption ratio for what concerns the expenditure function, and this is sensible since urban-rural disparities are among the main sources of growing inequality (Chang, 2002; Lee, 2000; Lu, 2002) and since almost all the post-Tienanmen political disorders have had, as an origin, the rural areas of the interior regions.

In order to get some more in-depth insights on the determinants of local expenditure policies I will analyze, in the following section, some specific items of local government expenditure: social and structural expenditure.

4.3 Social and structural expenditure

Some kinds of expenditure may be more suited to obtain a more immediate redistribution effect; I will call these "social" expenditure. I will analyze, as a representative sample of social expenditure, spending on education, public health, welfare and social security. These categories of expenditure are more directly observable by citizens and acquire a special importance in a country like China, where great part of the population has still a low level of income and the demand for these basic services is high.

Interventions aiming at obtaining higher growth rates, which I will refer to as "structural", can benefit, in the long run, the whole citizenship. Therefore, spending on these items in less developed regions may enhance long term convergence. I will analyze, as representative sample of structural expenditure, spending on capital constructions, innovation of enterprises and legal system. In the short run, nevertheless, structural interventions may be less effective for redistribution and tactical purposes.

The following section analyzes the selected social and structural expenditure on the same set of independent variables used in the previous sections.

4.3.1 Social expenditure

The reason of studying social expenditure separately is twofold. On one side, these category of expenditure more directly contribute to reducing social inequalities and it is therefore useful to understand how the government has managed them, so to verify if there has been a scope for redistribution in the government behavior. Second, they are more targetable and low income classes are quite sensitive to their changes. Hence, if the government wants to pursue some kind of tactical behavior, it will likely act on these items within its budget.

The econometric analysis provides with some useful insight on the behavior of the Chinese government.

Expenditure on education and public health is positively related to income per capita, while welfare and social expenditure is negatively related to GRP. For the first ones, the demand effect prevails and poor citizens, also if politically more sensitive, receive less than high demanding middle and high income classes.

Considering education and public health, coefficients associated with international opening have the same sign as in the regression on total expenditure: positive with respect to import-export variables and negative with respect to the presence of foreign funded enterprises.

Urban-rural consumption ratio is not positively correlated with most of the expenditure item considered. Reducing inequality should be one of the main goals of these kinds of expenditure, but the government is providing an higher level of public services in growing urban conglomerate than in the countryside. Education, specially, is clearly unevenly distributed between urban and rural zones since the sign on the primary industry regressor is always negative and significant.

Asian crisis dummy is significant and negatively correlated with welfare and social security expenditure. While democracies usually expand welfare expenditure when economic growth slows, the Chinese government, that does not respond to a continuous political process control, can vice versa increase productive expenditure instead of redistribution items.

An important result of the section is, finally, the positive, and significant sign (except for what concerns welfare and social security expenditure) associated with the pre-congress variable, pointing out some sort of political cycle in this context.

4.3.2 Structural expenditure

I will consider, as "structural" expenditure, three examples of spending items that may enhance productivity: capital expenditure, expenditure for enterprises innovation and technical updating and expenditure for rule of law issues[7].

Most of the independent variables considered in the model are far less significant in explaining these spending items. The econometric model, realized with the aim of capturing tactical behavior, does not fit as well when trying to explain structural expenditure.

[7]Public security agency, procuratorial agency, court and judicial agency.

Table 2: Social expenditure by region (per capita)

	Education				Public Health				Welfare and Social Security			
Variables	**Pooled LS (1)**		**Pooled EGLS (1) (2)**		**Pooled LS (1)**		**Pooled EGLS (1) (2)**		**Pooled LS (1)**			
GRP per cap. (log)	0,311*** (0,050)	0,201*** (0,563)	0,278** (0,059)	0,140*** (0,043)	0,577*** (0,053)	0,469*** (0,071)	0,602*** (0,049)	0,502*** (0,055)	-0,274* (0,163)	-0,545** (0,219)	-0,357** (0,158)	-0,570*** (0,212)
Population (log)	-0,534*** (0,064)	-0,079*** (0,112)	-0,632*** (0,058)	-0,095 (0,103)	-0,390 (0,240)	0,027 (0,282)	-0,332 (0,208)	0,054 (0,284)	-1,916*** (0,355)	-0,976 (0,640)	-1,214*** (0,220)	-0,596 (0,506)
Imp+Exp (over GRP)	0,235** (0,097)	0,344*** (0,106)	0,098 (0,092)	0,226** (0,112)	0,307*** (0,099)	0,376*** (0,111)	0,357*** (0,033)	0,349*** (0,064)	-0,585* (0,351)	-0,399 (0,338)	-0,726** (0,293)	-0,666* (0,359)
FFE*(Imp+Exp) (over GRP)	-0,202*** (0,056)	-0,352*** (0,072)	-0,116** (0,056)	-0,276*** (0,076)	-0,359*** (0,079)	-0,492*** (0,078)	-0,384*** (0,046)	-0,454*** (0,057)	0,642*** (0,169)	0,506*** (0,164)	0,773*** (0,164)	0,737*** (0,240)
Urban-rural cons. ratio	0,008 (0,006)	0,008 (0,007)	0,006 (0,007)	0,018** (0,008)	0,023*** (0,007)	-0,006 (0,006)	0,026*** (0,004)	-0,009* (0,005)	0,025 (0,034)	0,046** (0,022)	0,022 (0,021)	0,049*** (0,016)
Prim. industry (% of GRP)	-1,151*** (0,231)	-0,834*** (0,169)	-1,179*** (0,197)	-0,610 (0,190)	0,011 (0,258)	-0,110 (0,283)	0,083 (0,271)	0,015 (0,223)	-0,863* (0,492)	-0,184 (0,657)	-0,818* (0,488)	0,048 (0,662)
Pre-congress	0,081*** (0,021)	0,091*** (0,027)	0,080*** (0,016)	0,089*** (0,022)	0,066*** (0,014)	0,067*** (0,018)	0,063*** (0,008)	0,070*** (0,011)	0,005 (0,050)	0,001 (0,053)	0,009 (0,031)	0,021 (0,039)
Post-congress	0,000 (0,027)	-0,008 (0,033)	-0,005 (0,024)	-0,012 (0,027)	0,053*** (0,016)	0,045** (0,018)	0,045*** (0,015)	0,050*** (0,018)	-0,044 (0,105)	-0,041 (0,103)	-0,033 (0,073)	-0,031 (0,073)
Illiteracy rate	0,265 (0,176)	-0,015 (0,252)	0,339** (0,171)	0,013 (0,212)	-0,493*** (0,151)	-0,002 (0,177)	-0,477*** (0,100)	0,174** (0,073)	0,554 (0,360)	-0,572 (0,506)	0,940*** (0,217)	-0,496 (0,351)
Dependency ratio	0,205** (0,090)	0,146*** (0,046)	0,061 (0,059)	0,057 (0,049)	0,282 (0,180)	0,079 (0,167)	0,502*** (0,144)	0,104 (0,157)	-0,157 (0,239)	0,240 (0,308)	-0,293 (0,246)	0,114 (0,296)
Dummy Asian crisis	-0,033 (0,039)	0,013 (0,036)	-0,036 (0,033)	0,019 (0,026)	0,104*** (0,025)	0,095*** (0,039)	0,084*** (0,012)	0,062*** (0,017)	-0,458*** (0,136)	-0,354*** (0,117)	-0,403*** (0,096)	-0,310*** (0,086)
Time trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lag. ind. var.	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
N° obs.	300	300	300	300	300	300	300	300	270	270	270	270
Adj. R sq.	0,989	0,987	---	---	0,988	0,986	---	---	0,942	0,941	---	---
Log likelihood	425,695	399,953	---	---	374,301	346,751	---	---	67,724	65,669	---	---
F-Statistic	669,35***	562,80***	---	---	608,31***	505,19***	---	---	107,23***	105,53***	---	---

(1) White cross-section standard errors (d.f. corrected)
(2) Cross-section weights
Lev. Of sign.: (***)=1%, (**)=5%, (*)=1%
Regional fixed effects always included in the estimations.

Table 3: Structural expenditure by region (per capita)

	Capital Construction				Innovation enterprises				Rule of Law			
Variables	**Pooled LS (1)**		**Pooled EGLS (1) (2)**		**Pooled LS (1)**		**Pooled EGLS (1) (2)**		**Pooled LS (1)**			
GRP per cap. (log)	-0,077 (0,314)	-0,080 (0,359)	-0,026- (0,232)	-0,109 (0,238)	0.480** (0,208)	0,178 (0,208)	'0,452*** (0,130)	0,033 (0,146)	0,084 (0,067)	0,082 (0,073)	0,073 (0,057)	0,124* (0,068)
Population (log)	-0,765** (0,345)	-0,312 (0,333)	0,681** (0,313)	-0,443* (0,263)	-0,845** (0,424)	-0,970* (0,550)	-0,402 (0,292)	-0,366 (0,446)	-0,340** (0,144)	-0,192* (0,103)	-0,353** (0,137)	-0,290*** (0,085)
Imp+Exp (over GRP)	0,532*** (0,186)	0,498** (0,251)	0,426** (0,186)	0,485*** (0,186)	0,652*** (0,140)	0,507 (0,364)	0,634*** (0,113)	0,444 (0,275)	0,576*** (0,101)	0,598*** (0,060)	0,473*** (0,116)	0,486*** (0,085)
FFE*(Imp+Exp) (over GRP)	-0,225 (0,120)	-0,137 (0,194)	-0,099 (0,115)	-0,067 (0,138)	0,129 (0,150)	0,146 (0,314)	0,054 (0,065)	0,046 (0,235)	-0,287*** (0,064)	-0,327*** (0,041)	-0,228*** (0,067)	-0,238*** (0,053)
Urban rural cons. ratio	0,140** (0,060)	0,072 (0,050)	0,177*** (0,057)	0,082** (0,039)	0,032 (0,043)	0,041 (0,038)	-0,009 (0,041)	0,000 (0,029)	0,006 (0,017)	-0,029** (0,015)	0,017 (0,014)	-0,017** (0,008)
Prim. industry (% of GRP)	-5,840*** (1,182)	-5,984*** (1,500)	-6,004*** (0,853)	-5,410*** (1,252)	-0,008 (0,898)	1,364* (0,707)	0,950 (0,744)	2,565*** (0,566)	-0,527 (0,324)	-0,648* (0,373)	-0,696*** (0,234)	-0,886*** (0,177)
Pre-congress	0,011 (0,092)	-0,103 (0,077)	0,001 (0,056)	-0,087** 0,037)	0,008 (0,035)	-0,046 (0,044)	0,049 (0,036)	9,64E-05 (0,031)	0,007 (0,028)	-0,031 (0,024)	0,008 (0,020)	-0,031* (0,017)
Post-congress	0,037 (0,080)	-0,111 (0,071)	0,000 (0,049)	-0,065** (0,032)	-0,005 (0,021)	-0,041 (0,029)	0,009 (0,017)	-0,002 (0,016)	0,039 (0,028)	0,020 (0,020)	0,042* (0,022)	0,020 (0,015)
Illiteracy rate	-2,303*** (0,708)	-4,491*** (0,613)	-1,999*** (0,615)	-4,639*** (0,505)	-1,563*** (0,540)	-0,676 (0,812)	-1,368** (0,533)	-0,306 (0,866)	-0,147 (0,178)	-0,376** (0,164)	-0,329** (0,137)	-0,433*** (0,116)
Dependency ratio	-0,439 (0,770)	0,770 (0,545)	-0,103 (0,739)	0,989** (0,462)	1,744*** (0,379)	0,469 (0,383)	1,246** (0,505)	0,169 (0,342)	0,445*** (0,146)	0,565*** (0,101)	0,568*** (0,133)	0,559*** (0,132)
Dummy Asian crisis	0,003 (0,122)	0,036 (0,097)	0,025 (0,073)	0,032 (0,047)	-0,013 (0,018)	-0,045 (0,041)	-0,010 (0,020)	-0,048 (0,031)	-0,012 (0,044)	-0,030 (0,029)	-0,005 (0,032)	-0,019 (0,019)
Time trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lag. ind. var.	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
N° obs.	360	330	360	330	360	330	360	330	360	330	360	330
Adj. R sq.	0,925	0931	---	---	30	0,912	---	---	0,983	0,983	---	---
Log likelihood	-53,775	-22,584	---	---	-95,895	-74,193	---	---	335,890	331,764	---	---
F-Statistic	109,69***	108,96***	---	---	82,36***	83,87***	---	---	493,85***	470,70***	---	---

(1) White cross-section standard errors (d.f. corrected)
(2) Cross-section weights
Lev. Of sign.: (***)=1%, (**)=5%, (*)=1%
Regional fixed effects always included in the estimations.

The effects of congress cycles are ambiguous and not generally significant: electoral cyclical spending, also in democracies, is often oriented towards more directly redistributive, and targetable, categories of expenditure (instead of towards structural ones).

The coefficients related to dependency ratio, illiteracy rate and, surprisingly, GRP per capita are generally non significant. As noticed in the analysis on the general expenditure function, more internationally open regions attract more public spending: another confirmation that the government is aiming at investing in the creation of highly competitive zones. The fact that the second order decrease in spending in regions where foreign trade is linked to foreign funded firms does not hold for capital construction and enterprise innovation spending further supports this view.

Expenditure on capital constructions is amazingly lower in rural regions (negative coefficient associated with primary industry variables) again confirming the aim of the government at investing in infrastructures in the urbanized coastal regions.

5 Concluding remarks

I analyzed the determinants of public expenditure and revenue at a local government level in the different Chinese regions between 1995 and 2007.

The issue is relevant for three reasons. Firstly, after the 1994 tax reform the allocation of resources between central and local governments has been reorganized, and the evolutions of this reform deserve to be investigated. Second, income inequality is raising and it's becoming a relevant issue of modern China: it's important to understand whether the Chinese government is pursuing some redistribution policy. Finally, in spite of the economic opening experienced in the last decades, there has been no political opening during the same period. The analysis of the Chinese government policies might reveal whether there has been some kind of tactical behavior in order to prevent social unrest.

The results of the econometric regressions reveal that redistribution seems not to be a priority for Chinese leaders: government expenditure is greater in higher income and more internationally open regions. This contrasts with the political economy tenet according to which lower income classes are favored in the redistribution game. Nevertheless, this behavior can be easily interpreted: in fast growing urban cities the demand for public services is higher. Moreover, the provision of public services in developing cities is a priority in order to avoid possible social unrest. The only redistribution evidence that emerges is related to the urban-rural consumption ratio variable. This is not surprising, since urban-rural disparities are increasing and are one of the main cause of the rising inequality in modern China.

There is little evidence of some kind of political cycle influencing public expenditure. Only some kind of social expenditure (education and public health) were significantly higher in the years preceding the Chinese Communist Party congresses.

The next years will be relevant for Chinese public finance. The creation of a pension system and of a more developed social security system will probably entail some degree of redistribution. This could be necessary also to avoid social unrest and to boost internal demand. The analysis of the evolution of the Chinese government transfers will therefore represent a fundamental issue for future research.

References

Acemoglu, D. and Robinson, J. (2000). Why Did the West Extend the Franchise? Democracy, Inequality, and Growth in Historical Perspective. *Quarterly Journal of Economics*, 11:1167–1199.

Acemoglu, D. and Robinson, J. (2001). A Theory of Political Transition. *American Economic Review*, 91(4):938–963.

Acemoglu, D. and Robinson, J. (2006). *Economic Origins of Dictatorship and Democracy*. Cambridge University Press, New York.

Chang, G. (2002). The cause and cure of China's widening income disparity. *China Economic Review*, 13:335–340.

Cox, G. and McCubbins, M. (1986). Electoral Politics as a Redistributive Game. *Journal of Politics*, 48:370–389.

Dickson, B. and Rost Rublee, M. (2000). Membership Has Its Privileges: the Socioeconomics Characteristics of Communist Party Members in Urban China. *Comparative Political Studies*, 33:87–112.

Dixit, A. and Londregan, J. (1996). The Determinants of Success of Special Interests in Redistributive Politics. *Journal of Politics*, 58:1132–1155.

Fan, S., Fang, C., and Zhang, X. (2002). Emergence of Urban Poverty and Inequality in China: Evidence from Household Survey. *China Economic Review*, 13:430–443.

Lee, J. (2000). Changes in the source of China's regional inequality. *China Economic Review*, 11:232–245.

Li, H., Liu, P., Zhang, J., and Ma, N. (2007). Economic Returns to Communist Party Membership: Evidence from Urban Chinese Twins. *Economic Journal*, 117:1504–1520.

Lu, D. (2002). Rural-urban income disparity: impact of growth, allocative efficiency, and local growth welfare. *China Economic Review*, 13:419–429.

Mulligan, C., Gil, R., and i Martin X., S. (2004). Do Democracies Have Different Public Policies than Nondemocracies. *Journal of Economic Perspectives*, 18(1):51–74.

Wintrobe, R. (1990). The Tinpot and the Totalitarian: An Economic Theory of Dictatorship. *American Political Science Review*, 84(3):849–872.

Xu, L. and Zou, H.-f. (2000). Explaining the changes of income distribution in China. *China Economic Review*, 11:149–170.

Yang, D. (1999). Urban-Biased Policies and Rising Income Inequality in China. *American Economic Review*, 2(2):306–310.

Yang, D. and Zhou, H. (1999). Rural-urban disparity and sectoral labour allocation in china. *Journal of Development Studies*, 35(3):105–133.

Zhang, H. and Chen, X. (2007). Fiscal competition and the structure of local public expenditure in china. *Frontiers of Economics in China*, 2(2):237–249.

Zhang, T. and Zou, H.-F. (1998). Fiscal ddecentralization, public spending, and economic growth in china. *Journal of Public Economics*, 67:221–240.

Zhang, T. and Zou, H.-F. (2001). The growth impact of intersectoral and intergovernmental allocation of public expenditure: With applications to china and india. *China Economic Review*, 12:58–81.

Appendix I - Variables definition

Figure 3: Database structure

Variable	Description
Dependent variables (general model)	
GTEPC	Government total expenditures (per capita) [1]
GTRPC	Government total revenues (per capita) [1]
Dependent variables (social expenditure)	
EDUC	Expenditures in education (per capita) [1]
PUBHEALTH	Expenditures in public health (per capita) [1]
WELSOC	Social welfare & social security programs (per capita) [1]
Dependent variables (structural expenditure)	
CAP	Expenditures for capital construction (per capita) [1]
INN	Expenditures for innovation enterprises (per capita) [1]
JUST	Expenditure for public security agency, procuratorial agency and court of justice (per capita) [1]
Independent variables	
GRP per capita	Gross regional product (per capita) [1]
Population	Total regional population
Imp+Exp	Import value of commodities by place of destination and export value of commodities by place of origin in China
FFE	Value of Imports and exports of foreign-funded enterprises by region/GRP
Urban rural consumption ratio	Urban/rural consumption ratio
Primary industry	Gross regional product, primary sector (% of GRP)
Pre-congress	Dummy equal to 1 in the year of each congress and in the previous year
Post-congress	Dummy equal to 1 in the year following each congress
Illiteracy rate	Illiterate population aged 15 and Over
Dependency ratio	People aged 0-14 plus population aged 65 and over
Dummy Asian crisis	Dummy equal to 1 for the years 1997-1999

(1) 2000 constant value Yuan