

Financial Consequences of the Chinese VAT Reform¹

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1. INTRODUCTION

China has an unusual form of VAT. Generally, it only applies to the supply and importation of movable goods and to specific services directly relating to those goods, such as processing and repairs. The standard rate is 17%. A reduced rate of 13% applies to, inter alia, food grains, edible oils, water, heating, gas and coal, books, magazines, newspapers, animal feed, and fertilizers. Small businesses pay VAT at a special rate of 6% or, where they are retailers, 4%. Unless provided otherwise, exports are zero rated.

Generally, taxpayers whose outputs are subject to VAT are entitled to deduct input tax; however, VAT on fixed assets is non-deductible. By way of experiment, general taxpayers established in north-eastern China and engaged in designated activities in eight industries are entitled to deduct input tax in respect of designated assets.³ In view of the limited rights for taxpayers to deduct input tax, the Chinese VAT is commonly referred to as a *production* type of VAT.

Services that are not subject to VAT and supplies of immovable property, including construction, are subject to business tax (BT), which is generally levied at the rate of 5%.⁴ Just like VAT on fixed assets, BT is non-deductible.

The limited right to deductions leads to several forms of cascading, resulting in a distortion of the allocation of inputs and an unknown level of effective tax rates on items of consumption. From the perspective of economic efficiency, those distortions should be eliminated. Furthermore, China's accession to the World Trade Organization (WTO) has increased the urgency for reform of the country's system of indirect taxation. On the one hand, membership of the WTO has the effect that China must dismantle its tariff and non-tariff barriers for imported goods, which will make the country more accessible for non-resident competitors. On the other hand, the liberalization of trade puts Chinese manufacturers, traders and service providers at a competitive disadvantage since, under the present system of indirect taxation, it is impossible to determine the effective burden of indirect taxes on Chinese goods and services supplied on the domestic and international market. Consequently, even though they are zero rated, exports cannot be fully relieved from non-deductible VAT and BT absorbed in the selling prices at previous stages of the production and distribution process. In view of the harmful effects of the present system of indirect taxation for Chinese businesses, the government

is considering a reform to the effect that the scope of VAT will be extended to services and that input tax will be fully deductible. Extension of the scope of VAT to services implies that BT on those services will be abolished.

The transition from the production type of VAT to the internationally generally accepted and applied consumption type of VAT not only requires a fundamental revision of the basic features of the system of indirect taxes, it also affects the financial relationship between the central and provincial governments.

In 1994, China drastically reformed the financial relationship between the central government and the 31 provinces. Under the new arrangements, the revenues of certain taxes were entirely or partly assigned to the central or provincial governments. For example, the revenues derived from BT entirely accrue to the provinces. In respect of VAT, the revenues are shared, i.e. 75% of the revenue is assigned to the central government and 25% remains at the disposal of the province in which it originated.⁵

At the same time, the system of transfers from the central to the provincial governments was redesigned to include an equalization component based on the financial needs of each province and their capacity to raise tax revenues. In order to persuade the richer provinces to accept the new arrangements, a "revenue adjustment mechanism" was introduced. Under that mechanism, 30% of the increase in VAT and consumption tax (CT)⁶ revenue since the base year, 1994, is reallocated to the originating province.

It is clear that the transition to a consumption type of VAT and, in particular, the extension of the right to deductions, will have an initial negative impact on total revenue derived from VAT. Extension of VAT to all services accompanied by the abolition of BT on those services

1. This paper draws on a more extensive analysis described in E. Ahmad, R. Singh, and B. Lockwood, *Taxation Reforms and Changes in Revenue Assignments in China*, IMF Working Paper 04/125. © 2005 E. Ahmad, R. Singh and B. Lockwood.

2. Ehtisham Ahmad, IMF; Ben Lockwood, University of Warwick and CEPR; and Raju Singh, IMF.

3. See *International VAT Monitor* 6 (2004), pp. 427-428.

4. A reduced rate of 3% applies to transport, construction, and culture and sports, whilst the whole entertainment industry is subject to an increased rate of 20%.

5. See Ehtisham Ahmad, Gao Qiang and Vito Tanzi, *Reforming China's Public Finances*, (Washington: International Monetary Fund, 1995).

6. Consumption tax is a specific tax levied at a rate between 3% and 50% on certain luxury goods, such as tobacco products, alcoholic beverages, skin and hair care products, jewellery, fireworks, motor vehicles and motorcycles, including fuel and tyres.

implies an initial revenue loss for the provincial governments, which would be offset by a revenue gain for the central government.

This article analyses the financial consequences, both absolutely and relatively, of the modernization of the Chinese system of indirect taxation for the provinces. Those financial consequences and, in particular, their uneven distribution over the provinces, may form an obstacle to a rapid and smooth transition. We will also discuss the consequences of several options to remedy the negative impact of the proposed amendments to China's VAT system. In order to make the reform of China's system of indirect taxation a viable option, the system of intergovernmental transfers must simultaneously be reformed.⁷

2. EXTENSION OF DEDUCTIONS TO FIXED ASSETS

This section examines the revenue implications of the transition from the current production to a consumption type of VAT, i.e. extension of the right to deduction of VAT on fixed assets, for the central and provincial governments on the basis of data for 2001.⁸ The possible effect of the tax reform on the behaviour of households and firms, and thus on the growth of the economy, the so-called "behavioural response", has been excluded. So, only the initial, i.e. so-called "first-round", effects of deduction of VAT on fixed assets are considered. At this stage, the implications of the "revenue adjustment mechanism" are not addressed.

The revenue derived from VAT is defined as:

tax base x tax rate x collection efficiency

The calculations are based on the assumption that changes of the tax base are subject to the standard VAT rate of 17%. Under ideal circumstances, i.e. in the absence of fraud and tax avoidance, and under the condition of an efficiently operating tax administration, the collection efficiency is, obviously, 100%. However, under the circumstances prevailing in China, a rate of collection efficiency of 50% is more realistic. That lower rate also takes into account that a limited number of goods are subject to the reduced VAT rate of 13% or are exempt from VAT, and that a special scheme applies to small businesses.

2.1. Basic scenario

Since, under the proposed consumption type of VAT input tax on business expenses, including investments in fixed assets, is fully deductible, the first step is to make an estimate of the purchases of fixed assets by taxable enterprises. Fixed assets include immovable property, which is currently subject to BT. This means that VAT paid on building materials is non-deductible. For practical reasons, the calculations presented in this section only focus on the impact of the new entitlement to deduct VAT on machin-

ery and equipment. The restriction to machinery and equipment underestimates the *actual* revenue losses for the provinces, but approximates the *relative* magnitude of the financial consequences for the provinces.

The calculations are based on the value of the output of the sectors of the provincial economies liable for VAT, based on China's national income accounts classification. These sectors comprise secondary industry, excluding construction, and commerce (wholesale, retail, and catering industries).⁹

Purchases of machinery and equipment by taxable sectors in each province are estimated on the basis of the most recent input-output table.¹⁰

The revenue losses for the provinces are calculated on the basis of the above data. The results are presented in the Table.

In the Table, column 1 shows the amount of revenue derived from VAT in 2001. The financial losses for the provinces from the new deduction entitlements are presented in column 2 (in milliards of yuan) and, in column 3, as a percentage of their current VAT revenue, making the following assumptions:

- the collection efficiency is 50%;
- machinery and equipment are subject to 17% VAT; and
- the existing revenue sharing ratio of 25% continues to apply,

and ignoring the effects of the revenue adjustment mechanism.

The coefficient of variation of the percentage losses is approximately 0.31, which indicates that the financial impact of the extension of the right to deductions on the provinces varies considerably. Those differences are caused by differences in the importance of secondary industry; the more important this industry is for a province, the more it stands to lose from this reform. Although the average is 15.5%, the losses for Hebei, Henan, Hubei and Hunan are considerably higher. In Beijing, Shanghai, and Tibet, where manufacturing is relatively unimportant, the losses are less than 10%.

7. Ehtisham Ahmad, Raju Singh and Mario Fortuna, *Toward More Effective Redistribution: Reform Options for Intergovernmental Transfers in China*, IMF Working Paper, WP/04/98 (Washington: International Monetary Fund, 2004).

8. The data have been derived from the China Statistical Yearbook.

9. This is based on the fact that the exempt sectors comprise the primary sector (agriculture), the construction sector, and all services and government sectors, with the exception of commerce.

10. The most recent input-output table is that for 1997. In that table, input-output coefficients are reported for all the components of secondary industry separately (mining and quarrying, foodstuffs, textiles, other manufacturing, electric power, steam and hot water, gas and petroleum, chemicals, building materials and non-metal products, metal products, and machinery and equipment). For the purpose of the calculations, the unweighted average of these coefficients was applied to the figure for secondary industry minus construction. Note that provincial input-output tables were not available and there may be differences in the coefficients across provinces. Thus, the estimates above should be seen as rough approximations or illustrations of a trend.

Since the central government's share in the VAT revenue is three times as large as that of the provinces, its loss on account of the extension of the right to deductions is also three times as large, i.e. CNY 62.8 milliard. For comparison, in 2001, total VAT revenue was approximately CNY 536 milliard, of which the central government's share was CNY 402 milliard.

2.2. Revised sharing rate scenario

One of the possible options to compensate provinces for their revenue loss would be to increase their share of the VAT revenue. In this case, that share should be increased from the current 25% up to the point where the overall reform is budget neutral for the totality of provinces. That goal will be reached as the provinces' share is increased to 29.6%.¹¹

However, the budgetary consequences of this option for the central government are quite severe, because it must share a larger portion of a smaller pool of VAT revenue with provincial governments. Consequently, if it fully compensated the provinces for their loss, the central government would lose about one third of its current VAT revenue.¹²

On the basis of the revised sharing rate, the financial consequences of the extension of the right to deduct input tax on fixed assets can be recalculated for the provinces. The results are shown in columns 4 and 5 of the Table. As might be expected, the less industrialized provinces, i.e. those which predominantly rely on agriculture or services, gain, whereas those in which secondary industry is important lose.

Specifically, some poorer provinces, such as Tibet and Guizhou, gain because of their reliance on agriculture. On the other hand, cities, such as Beijing and Shanghai, also gain. Overall, the correlation between provincial GDP per capita and gains from the reform is strongly positive (the correlation coefficient is 0.623). Hence, a higher VAT sharing rate would not be appropriate from a social perspective, since it favours the richer provinces.

2.3. Increase of the standard VAT rate

An alternative solution would be to compensate provinces by increasing the standard VAT rate of 17% in order to make the reform budget neutral. The advantage of this option is that it increases the revenue of the central and provincial government alike. However, the problem is that the increase would have to be quite large, to 20.1%, which could have undesirable macroeconomic effects. Increased prices have a negative impact on demand. The fact that those "secondary" effects are not taken into account for the purposes of the calculations does not mean that they can totally be ignored.

3. EXTENSION OF VAT TO SERVICES

Extension of VAT to services is an important element of the tax reform and should largely offset the losses caused by the extension of the right to deductions. However, since services are already subject to BT, the latter would be replaced as part of the reform. The difficulty for regional governments is that BT accrues entirely to the provincial governments, whereas VAT would presumably continue to be shared.

3.1. Basic scenario

For the purpose of calculating the financial effects of the extension of VAT to services, it is assumed that all services presently subject to BT will become subject to VAT, with the exception of financial services and insurance transactions.¹³ It is generally accepted that those transactions are hard to tax under VAT because it is difficult to determine the service provider's value added.¹⁴ We assume that BT at the current rate will continue to apply to the financial and insurance sectors.

The first step is calculation of the value added in the sectors in which VAT will be introduced.¹⁵ Since, in those sectors, input VAT is fully deductible, the value added is approximated by calculating the value of the purchases, from sectors in which VAT already applies (in terms of the Chinese classification of national income, these are the secondary industries and commerce), by sectors in which VAT will be introduced. The difference between outputs and inputs is the value added. On the basis of that value added, and on the assumptions that the sectors are subject to the standard rate of VAT, that the collection efficiency is 50% and that 25% of the revenue accrues to the province, the increase of VAT revenue is calculated. Those revenues are presented in column 8 of the Table.

The final step is comparison of the increase in VAT revenue with the revenue lost by the abolition of the BT, assuming that the BT would continue to apply in the financial and insurance sectors. However, the relative size of these sectors varies widely throughout the country. In

11. Generally, the formula is that the new rate (as a fraction), is equal to $0.25 \times 134.17 / (134.17 - 20.94)$. The amount of 134.17 is the revenue derived from VAT by all provinces together (see column 1 of the Table) and 20.94 is their total revenue loss (see column 2).

12. For the derivation of this figure, and all other figures cited below that do not directly follow from the Table, please refer to E. Ahmad, R. Singh and B. Lockwood, *Taxation Reforms and Changes in Revenue Assignments in China*, IMF Working Paper 04/125.

13. In 2001, the financial and insurance sectors accounted for 28% of the BT proceeds.

14. Liam Ebrill, M. Keen, J.P. Bodin and V. Summers, *The Modern VAT* (Washington: International Monetary Fund, 2001).

15. In terms of the Chinese classification of national income, the service sectors added to the VAT base are: services to farming, forestry and fishery, geological prospecting and water conservancy, transport, storage, post and telecommunications services, real estate, other; and one third of: social services, health care, sports and social welfare; education, culture, arts, radio, film and television; scientific research and polytechnic services.

Table

Province/City	1	2	3	4	5	6	7
	VAT 2001	Deduction of input tax on fixed assets					
		Section 2.1 Original sharing		Section 2.2 Revised sharing		Section 4.2 Including RA	
		Δ VAT		Δ VAT		Δ Revenue	
CNY	CNY	%	CNY	%	CNY	%	
Anhui	2.83	-0.59	-20.84	-0.18	-6.20	-0.93	-32.91
Beijing	5.90	-0.40	-6.85	0.61	10.37	-0.59	-10.10
Chongqing	1.78	-0.29	-16.08	-0.01	-0.57	-0.46	-26.11
Fujian	4.08	-0.80	-19.70	-0.20	-4.85	-1.16	-28.56
Gansu	1.34	-0.18	-13.46	0.03	2.54	-0.34	-25.60
Guangdong	17.25	-2.29	-13.25	0.48	2.79	-3.16	-18.34
Guangxi	2.39	-0.34	-14.24	0.04	1.62	-0.57	-23.95
Guizhou	1.43	-0.16	-11.47	0.07	4.90	-0.30	-20.99
Hainan	0.35	-0.04	-12.67	0.01	3.47	-0.07	-20.46
Hebei	4.88	-1.17	-23.99	-0.49	-9.94	-1.78	-36.54
Heilongjiang	5.26	-0.85	-16.11	-0.03	-0.60	-1.14	-21.72
Henan	4.44	-1.09	-24.50	-0.47	-10.55	-1.71	-38.51
Hubei	3.71	-1.00	-26.96	-0.50	-13.46	-1.61	-43.34
Hunan	2.94	-0.65	-22.09	-0.23	-7.68	-1.18	-40.23
Inner Mongolia	1.48	-0.25	-16.92	-0.02	-1.56	-0.41	-27.87
Jiangsu	13.20	-2.07	-15.64	-0.01	-0.05	-2.89	-21.88
Jiangxi	1.72	-0.30	-17.31	-0.03	-2.02	-0.48	-27.99
Jilin	2.42	-0.37	-15.24	0.01	0.43	-0.60	-24.95
Liaoning	6.65	-1.10	-16.47	-0.07	-1.02	-1.74	-26.12
Ningxia	0.39	-0.05	-12.85	0.01	3.26	-0.07	-19.42
Qinghai	0.39	-0.04	-11.34	0.02	5.05	-0.07	-18.14
Shaanxi	2.33	-0.29	-12.48	0.09	3.70	-0.46	-19.60
Shandong	10.03	-1.97	-19.68	-0.49	-4.84	-2.71	-26.99
Shanghai	11.20	-1.04	-9.28	0.84	7.49	-1.56	-13.91
Shanxi	3.09	-0.37	-12.05	0.13	4.21	-0.55	-17.68
Sichuan	3.80	-0.71	-18.65	-0.14	-3.61	-1.15	-30.17
Tianjin	3.49	-0.40	-11.35	0.18	5.03	-0.59	-17.03
Tibet	0.08	-0.01	-9.11	0.01	7.69	-0.01	-14.74
Xinjiang	1.74	-0.22	-12.79	0.06	3.33	-0.31	-17.64
Yunnan	3.36	-0.36	-10.62	0.20	5.90	-0.76	-22.74
Zhejiang	10.24	-1.54	-15.03	0.07	0.68	-2.10	-20.49
Total	134.17	-20.94	-	0.00	-	-31.48	-
Average	-	-	-15.45	-	0.18	-	-24.35

CNY = Billiards of Chinese yuan.

Δ VAT = Change of revenue derived from VAT.

Δ BT = Change of revenue derived from business tax.

Δ (VAT + BT) = Change of revenue derived from VAT and BT.

Δ Revenue = Change of revenue derived from VAT and BT, including transfers under the RA mechanism.

2001, these sectors contributed approximately 15% to the provincial GDP in Beijing, but only 0.9% in Heilongjiang. For the purpose of calculating how much each province would lose from the partial abolition of the BT, it is assumed that:

- the average share of 28% of the financial services and insurance transactions in the BT revenues applies in all provinces; and
- the amount of BT which is retained after the extension of VAT to services is proportional to the share of the financial and insurance sectors in the provincial GDP.

The amount of BT lost as a result of extension of VAT to services is presented in column 9 of the Table. The balance of the increase in VAT revenue and the decrease of revenue derived from BT are shown in column 10 of the Table.

The pattern of gains and losses across the provinces is complex, as several factors are involved. First, other things kept equal, provinces that have a large service sector, but relatively small financial and insurance sectors, will tend to lose most, as they lose practically all revenue from BT on these activities. By the same token, provinces

8	9	10	11	12
Extension of VAT to all services				
Section 3.1 Original sharing			Section 3.2 Revised sharing	
Δ VAT	Δ BT	Δ (VAT+BT)	Δ (VAT+BT)	
CNY	CNY	CNY	CNY	%
1.24	-2.74	-1.50	0.51	8.42
1.53	-4.09	-2.56	1.12	4.65
0.79	-2.20	-1.41	-0.14	-3.05
1.91	-4.69	-2.78	0.18	1.79
0.50	-1.27	-0.78	0.14	4.36
5.06	-26.31	-21.25	-10.19	-20.76
0.92	-3.10	-2.17	-0.53	-9.40
0.47	-1.86	-1.39	-0.45	-12.43
0.24	-0.88	-0.64	-0.35	-21.21
2.12	-4.23	-2.11	1.36	13.73
1.32	-3.46	-2.14	1.12	12.60
2.20	-4.69	-2.49	0.80	8.24
1.41	-3.35	-1.94	0.60	7.31
1.60	-2.99	-1.39	0.86	13.02
0.72	-1.80	-1.08	0.01	0.29
3.75	-8.36	-4.60	3.80	15.73
1.19	-2.01	-0.91	0.54	12.25
0.79	-2.64	-1.85	-0.26	-5.03
1.77	-7.64	-5.87	-1.69	-10.96
0.16	-0.57	-0.41	-0.14	-12.28
0.18	-0.36	-0.19	0.09	10.32
1.16	-3.07	-1.91	-0.18	-3.10
3.54	-6.99	-3.45	3.28	16.97
2.08	-7.16	-5.08	1.51	4.97
0.75	-1.81	-1.06	0.84	14.78
1.86	-4.96	-3.10	-0.30	-2.96
0.91	-3.56	-2.65	-0.48	-6.10
0.08	-0.20	-0.12	-0.04	-12.09
0.78	-2.11	-1.34	-0.09	-2.09
0.87	-3.03	-2.16	-0.06	-0.82
2.21	-10.23	-8.03	-1.86	-8.16
44.07	-132.42	-88.35	0.00	-
-	-	-	-	0.61

where the financial and insurance sectors are important will tend to lose less because they retain the BT revenue from these activities.

By contrast, the central government gains considerably from the reform. Given that central government receives 75% of VAT, it receives three times the additional revenue from the VAT of CNY 44 milliard on services accruing to the provinces, i.e. CNY 132 milliard. Thus, the central government has the capacity of redistributing additional sums to the provinces for equalization, or even increasing

the revenue share in favour of the provincial governments. The latter option is discussed next.

3.2. Revised sharing rule scenario

As was previously done in the framework of the assessment of the financial consequences of the extension of the right to deductions to fixed assets (see Section 2.2.), the VAT sharing rate could again be increased from the current 25% up to the point where the total operation is budget neutral for the totality of provinces. That goal will be achieved where the provinces' shares are increased to approximately 37%. At that rate, the national tax revenue derived from VAT and BT after the reform equals that in 2001. On the basis of the new sharing rules, the gains and losses from this revenue-neutral reform can be calculated for the individual provinces. This is done in columns 11 and 12 of the Table. As is the case with the adjustment of the revenue sharing rules in the context of the extension of the right to deductions, that adjustment in the context of the extension of VAT to services does not show a clear correlation between the gains and losses for the provinces and their prosperity.

4. REVENUE ADJUSTMENT MECHANISM

In addition to the direct sharing of VAT revenue, under the revenue adjustment (RA) mechanism, 30% of the increase in VAT and CT revenue since the base year, 1994, is re-allocated to the originating province. As part of the system of transfers between the central and provincial governments, both the direct sharing and revenue adjustment mechanisms are regressive in the sense that they both tend to favour the richer provinces. The features of the revenue adjustment formula and its interaction with the VAT reforms discussed in Sections 2. and 3. are presented in the following sections. The revenue adjustment mechanism is based on the following formula:

$$RA_{i,t} = RA_{i,t-1} + 0.3 \frac{VAT_{i,t} - VAT_{i,t-1} + CT_{i,t} - CT_{i,t-1}}{VAT_{i,t-1} + CT_{i,t-1}}$$

where

$RA_{i,t}$ = revenue reallocated to province i in year t ($t-1$ denotes the preceding year)

$VAT_{i,t}$ = VAT revenue in province i in year t

$CT_{i,t}$ = consumption tax revenue in province i in year t

In words, the amount of revenue from VAT and CT re-allocated to the province in which it was collected is equal to the amount reallocated in the previous year plus 30% of that amount multiplied by the rate of growth of VAT and CT revenues for that province. However, it should be noted that the formula does not apply strictly mathematically in that, where the rate of growth of revenues derived from VAT and CT is negative ($VAT_{i,t} - VAT_{i,t-1} + CT_{i,t} - CT_{i,t-1}$ or $\Delta VAT + \Delta CT < 0$), the amount reallocated to the province is not decreased.

4.1. Dynamics of RA

From the above formula, it is clear that the increase of the amount of VAT and CT reallocated to the province in which it was collected (ΔRA) is equal to 30% of the increase of the revenue derived from those taxes in the province in question (ΔVAT and ΔCT), or

$$\Delta RA_t = 30\% \times \frac{\Delta VAT_t + \Delta CT_t}{VAT_{t-1} + CT_{t-1}}$$

Consequently, where two provinces manage to increase the revenue derived from VAT and CT by CNY 1 million ($\Delta VAT_t + \Delta CT_t = \text{CNY 1 million}$), their financial benefit from that achievement under the revenue adjustment mechanism will not be the same because it depends on the rate of growth of VAT and CT revenues in the preceding year. In particular, the growth of a province's benefit will be higher:

- the higher the amount, which was reallocated to it in the preceding year; and
- the lower the amount of VAT and CT, which was collected in the preceding year.

Generally, the revenue adjustment mechanism tends to favour the richer provinces and, from the perspective that economically less developed provinces should receive more financial support from the central government, it does not produce fair results. In practice, the increments of the reallocation of funds under the revenue adjustment mechanism (ΔRA_t) vary considerably. For 2001, they ranged from approximately 8% for Heilongjiang to 28% in Yunnan.

We now turn to consider how the presence of the revenue adjustment mechanism will affect our calculations of the effect of a switch to a consumption-based VAT.

4.2. Extension of deductions under RA

The financial consequences of the extension of the right to deduction of VAT on fixed assets presented in Section 2. ignored the effects of the revenue adjustment mechanism. Actually, it is quite difficult to incorporate the asymmetrical effects of the revenue adjustment mechanism into the calculations because the formula generally only applies where tax revenues increase, not decrease, as compared to the preceding year. Since the extension of the right to deductions would clearly reduce VAT revenue, two possible scenarios could be considered:

- (1) the revenue adjustment mechanism has no effect because the introduction of the right to deduct input tax on fixed assets takes place in a period of weaker economic growth and, consequently, decreasing total tax revenues in every province; or
- (2) the revenue adjustment mechanism has a full effect because introduction of the right to deduct input tax on

fixed assets takes place in a period of strong economic growth and, despite the negative impact of that introduction on VAT revenue, the revenues derived from VAT and CT show a positive growth in every province.

In the first scenario, the results presented in columns 2 and 3 of the Table do not have to be adjusted. In the second scenario, the effects of the revenue adjustment mechanism must also be taken into account.

For the purpose of calculating the effect of the revenue adjustment mechanism, the 25% sharing rule is applied to the total of the loss of revenue as a result of extension of the right to deductions, and the historic annual rate of growth of VAT revenues. The results are presented in columns 6 and 7 of the Table. On average, in terms of percentage, the losses for the provinces increase from 15.5% (column 3 of the Table) to 24.4% (column 7 of the Table).

5. CONCLUSIONS

This article illustrates that the reform of China's system of indirect taxes will create considerable revenue losses for the provincial governments. Extension of the right to deduction of VAT on fixed assets creates a considerable loss of VAT revenue for the central government as well. Extension of the scope of VAT to services increases VAT revenues for both the central and provincial governments but dramatically decreases the BT revenue for the provincial governments. In the absence of additional compensatory measures, the financial implications of the reform for the provinces constitute a serious obstacle to its implementation.

The options for compensation of the provinces for the financial consequences of the VAT reform, such as amendment of the VAT sharing rate and an increase of the standard VAT rate, have a different impact on the provinces. Extension of the right to deduct VAT on fixed assets particularly affects provinces where the industrial activity represents a large part of their economic activity. Poorer provinces, where agriculture is still predominant, and richer provinces, where services play a major role, would be less affected.

Compensating the provinces for their revenue losses by changing the parameters of the current system would thus not be effective. Those changes would not adequately benefit the provinces facing a revenue loss and they would add to the regressiveness of the current system: wealthier provinces generate more VAT revenue per capita and would benefit most from the compensation. The effects of the revenue adjustment mechanism do not alter that conclusion.