

**CONFERENCE
ON
RESOURCE MOBILISATION AND
EXPENDITURE PLANNING**

RESULTS OF POLICY SIMULATIONS

by

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GOVERNMENT OF THE PUNJAB**

**March 11-13, 1995
Avari Hotel, Lahore**

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INTRODUCTION

The model described by Drs. Hafiz Pasha and Aynul Hasan in the last evening and this morning's sessions has been used to forecast key economic and social magnitudes for the next nine years or so till the year 2002-03, which is the last year of the perspective plan. The model has 200 old variables. This presentation will discuss some of key results only. The model, as has already been highlighted, is a powerful tool and can not only be used to project what will be the shape of the economy in the next decade but also what will be the impacts of different economic policy changes if they are implemented by the government. For example, if the federal government decides to pursue a policy of higher tax mobilisation and goes for rigorous fiscal effort, the model can forecast its dynamic impacts on not only federal finances but also on the fiscal status of provincial governments in the country and on the key macro economy magnitudes like growth in the national income or the gross domestic product, the price level or the inflation rate etc.

KEY ECONOMIC AND SOCIAL INDICATORS IN THE BASE SIMULATION

We present first the results of key magnitudes in the Base Simulation, i.e, if there is no major change in any government policy and the economic parameters move on their historical trend, what is likely to be magnitude of some of the key economic and social indicators in the years to come? Table 1 presents these indicators for the years 1995-96, 1997-98 and 2002-03. The historical value of the indicator for 1992-93 is given for comparison. The table shows that the long-run natural growth rate of GDP (at constant prices) is around 5½ to 6 percent per

TABLE 1
PROJECTED MAGNITUDES OF KEY ECONOMIC AND SOCIAL
INDICATORS IN BASE SIMULATION OF THE MODEL
UPTO YEAR 2002-03

Indicator	(Percent)			
	1992-93	1995-96	1997-98	2002-03
1. Growth Rate of GDP (at constant prices)	3.6	5.6	5.7	5.9
2. Rate of Inflation	9.2	6.9	6.1	5.4
3. Budget Deficit to GDP Ratio	7.1	6.5	6.2	5.7
4. Federal Tax to GDP Ratio	13.4	14.8	15.1	15.4
5. Provincial Tax to GDP Ratio	0.6	0.5	0.5	0.4
6. Provincial Revenue to GDP Ratio	6.9	7.5	7.8	8.0
7. Total Public Expenditure to GDP Ratio	29.7	30.1	30.3	30.4
8. Total Provincial Expenditure to GDP Ratio	8.9	9.1	9.4	9.9
9. Total Social Sector Expenditure to GDP Ratio	4.8	4.8	5.1	5.3
10. Provincial Use of Cash Balances to GDP Ratio	0.3	0.2	0.2	0.3
11. Literacy Rate				
Make	46.0	49.3	52.9	62.8
Female	19.0	20.7	22.3	26.7
12. Primary Enrollment Ratio				
Male	99.4	99.0	119.1	134.5
Female	45.2	48.0	57.3	67.7
13. Human Capital Index - Growth Rate	2.3	2.9	, 3.6	4.3
14. Public Health Index - Growth Rate	1.0	1.2	1.5	1.8

annum. The low growth in 1992-93, of 3.6 percent, was due to extraordinary factors like the cotton crop failure due to pest attacks, etc. At this stage it appears that the economy will recover from this temporary aberration and come back to its natural path of moderate growth. Another interesting macro indicator is the inflation rate which stood at over 9 percent in 1992-93 and has increased substantially this year. It appears that there will be some moderation in the inflation rate in the economy and it will go down over the years to between 5 1/2 to 7 percent.

On the fiscal side, the overall budget deficit-to-GDP ratio of the federal and provincial governments combined will also decline somewhat but is likely to remain between 6 to 6 1/2 percent of the GDP. Therefore, it appears that the budget deficit targets agreed upon by the government and the IMF, as part of the EASF conditionalities, are unlikely to be met until dramatic policy changes are introduced in the public finance structure both on the taxation and expenditure side. It also appears that the budgeted deficit for 1994-95 announced by the government at the beginning of the current fiscal year of about 4 percent of the GDP is unrealistic and indications are that the targeted borrowing will overshoot again this year.

The federal tax-to-GDP ratio will show a slight increase, from 14 1/2 percent to almost 15 1/2 percent by the year 2002-03 while the provincial tax to GDP ratio will show no improvement and will continue to remain very low at less than a V_i percent of the GDP. The provincial revenue to GDP ratio will, however, increase to 8 percent largely due to the increase in divisible pool transfers resulting from exploitation of divisible pool taxes by the federal government. We assume that these will continue to be transferred according to the 1991 NFC

award. The overall size of the public sector will remain more or less at its present level at about 30 percent of the GDP.

Higher Divisible pool transfers will lead to an increase in the role of provincial governments. Total provincial expenditures (which include both recurring and development) will increase from the present level of under 9 percent to about 10 percent of the GDP. This automatically implies an increase in expenditures on social sectors since the prime responsibility of social service provision rests with the provincial governments while the federal government is largely involved in economic infrastructure provision. The overall fiscal position of the provincial governments, as revealed by the use of cash balances (which gives the extent of overdraft taken from the State Bank of Pakistan), will remain, more or less, at its current level.

Higher expenditures on social sectors will translate into higher social sector output as can be seen from the table 1. The literacy rate (both male and female) is likely to increase from the current level of about 46 percent in the case of males and 19 percent in the case of females to about 63 percent and 28 percent respectively. Primary enrollment ratios will increase and we may achieve a female enrollment rate of about 68 percent while male enrollment ratio could cross 100 percent. In the case of females the enrollments rate is much lower than the targeted enrollment rate of the perspective plan which is 100 percent enrollment for both males and females.

The increase in school output and expenditures on social sectors like health etc. over the years will, however, increase the growth rate of the social sector indices, i.e. the human capital

index and the public health index. It may be noticed from the table that the growth rate in both these indices increases with the passage of time.

Altogether in the absence of any major shocks, either external or internal, we do not see any major changes in coming years in the macro economic environment. Development of social sectors will continue at the traditional, relatively slow pace. Pakistan could enter the next century with an overall literacy rate of about 45 percent only, a level already attained by some countries which are even less developed than Pakistan.

IMPACT OF POLICY SIMULATIONS

We turn now to policy simulations, which analyse the impact of a policy change by different levels of government. The model is capable of tracing through the impacts of a wide variety of macro and other policy shocks but we will concentrate only on some key fiscal and social policy changes, especially by provincial governments. We discuss the impact of eight different policy changes - half of which are on resource mobilisation side and half on expenditure planning side. Finally, we highlight the impact of a program like SAP which envisages additional, earmarked funds for social sector development supported by donor assistance.

As highlighted by Dr. Hafiz A. Pasha in his presentation yesterday, there are well defined linkages both between the macro, fiscal and social sector modules and within these modules. Therefore, a policy change in one component of a module not only effects the other components of that module but also spills over to other modules. These spillover affects are multiple, complex and in some cases not immediately visible or comprehensible. The results

will focus largely on the primary affects and ignore the indirect effects, which are not very substantial.

1. Enhanced Federal Tax Effort [in Divisible Pool Taxes]

As can be seen from Chart 1, enhanced federal fiscal effort which implies an increase in federal revenues leads to both an increase in federal expenditures and revenue transfers to the provinces through an increase in federal tax assignments. Enhancement in provincial revenues on one hand increases provincial expenditures and on the other hand affects the provincial deficit and the overall (federal and provincial combined) budgetary position. Increased provincial expenditures implies higher expenditures on social sectors, higher inputs in social sectors, higher social sector output and improvement in the human capital index and public health index which in turn has a stimulatory impact on the GDP. Finally, higher GDP mean higher tax bases and therefore higher federal and provincial revenues.

In terms of magnitudes, table 2 shows the key fiscal impact of a Rs 100 additional revenue generation by the federal government in 1993-94. As can be seen from the table an additional revenue generation of Rs 100 in divisible pool taxes leads to first, an increase in federal receipts of Rs 22, the remaining Rs 78 are transferred to the provincial government and, second, to a decline in federal budget deficit of Rs 14. Increase in provincial revenues in turn leads to an increase of Rs 30 in provincial expenditures, Rs 18 of which will go to social sectors and the other Rs 12 to the economic sectors. The provincial revenue deficit declines by Rs 56 and the overall public sector deficit declines by 70 Rs in the short run. The long run impact is stronger and there is a decline of 162 Rs in overall budgetary deficit by 2002-03. Therefore, on the whole, in the long run higher mobilisation by federal governments, by

FLOW CHART 1
FISCAL POLICY SIMULATIONS
{Dynamic Impact of higher Federal Fiscal Efforts}

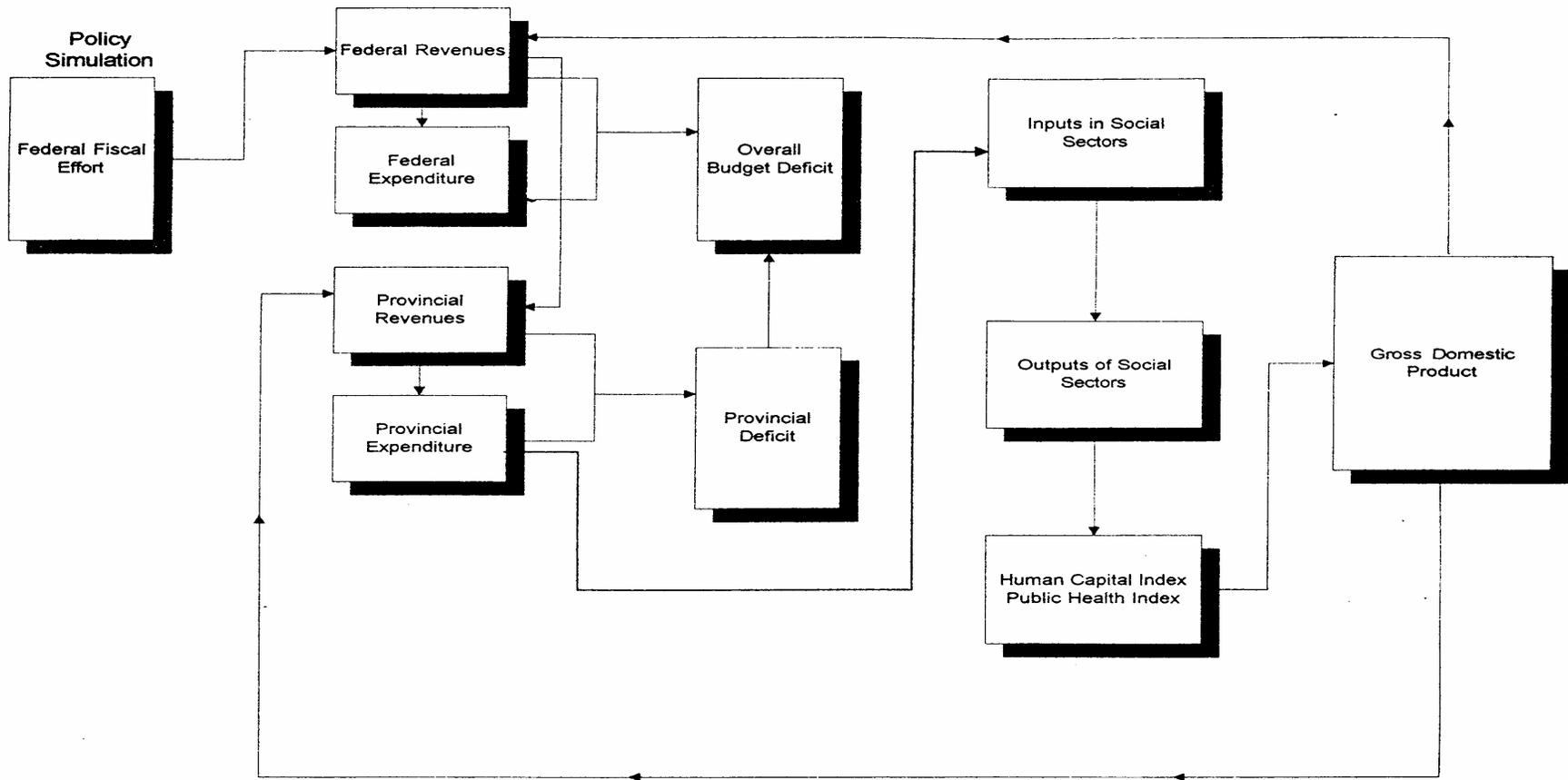


TABLE 2
KEY IMPACTS OF ENHANCED FEDERAL TAX EFFORTS

[per 100 Rs of Additional Revenue]

	(Rupees)	
	Short-run 1994-95	Long-run 2002-03
FEDERAL FINANCES:		
<i>Change in:</i>		
Revenue Receipts (Net)	+22	+17
Federal Expenditures	+8	-108
Budget Deficit	-14	-125
PROVINCIAL FINANCES:		
<i>Change in:</i>		
Provincial Own Revenues	+2	+5
Federal Tax Assignments	+78	+77
Provincial Recurring Expenditures	+24	+46
Provincial Development Expenditures	+6	+12
Expenditures on Social Sectors	+18	+30
Expenditures on Economic Sectors	+12	+28
Provincial Revenue Deficit	-56	-36
<u>Change in Overall Budget Deficit</u>	<u>-70</u>	<u>-162</u>
LOCAL FINANCES:		
<i>Change in:</i>		
Total Revenue Receipts	n	n
Total Expenditures	n	n
Local Budget Deficit	n	n
<u>Change in Gross Domestic Product</u>	<u>n</u>	<u>+1</u>

n = Negligible.

TABLE 2

KEY IMPACTS OF ENHANCED FEDERAL TAX EFFORTS

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<u>Change in Overall Budget Deficit</u>	<u>-70</u>	<u>-162</u>
LOCAL FINANCES:		
<i>Change in:</i>		
Total Revenue Receipts	n	n
Total Expenditures	n	n
Local Budget Deficit	n	n
<u>Change in Gross Domestic Product</u>	<u>n</u>	<u>+1</u>

n = Negligible.

Rs 100 in 1993-94, leads to a reduction in provincial deficit by Rs 36 and in the overall budget deficit by as much as a Rs 162. The impact on GDP growth rate is however relatively small.

2. Higher Provincial Fiscal Effort (both in Taxes and Non-Taxes]

The dynamic impacts of higher provincial efforts on provincial finances are likely to be similar to those of a higher fiscal effort by federal government in divisible pool taxes as can be seen from Chart 2. That is, it simulates expenditures, improves provincial deficit and, therefore, the overall budget deficit, leads to higher expenditures on social sectors, higher social sector output and therefore improves the social sector indices.

Table 3 shows the consequences of Rs 100 additional revenue mobilisation by the provincial governments in 1993-94. The immediate impact is that it increases provincial expenditures by Rs 37 and improves provincial fiscal position by reducing revenue deficit by Rs 80. The overall fiscal position of federal and provincial governments combined is vastly better as the overall budget deficit is lower by Rs 76. The long-run impact is even higher as the overall budgetary deficit in 2002-03 is lower by Rs 126. Therefore, irrespective of whether resources are mobilised by the federal or provincial governments, a hundred rupee additional generation leads to a more than a hundred rupees improvement in the fiscal position of the public sector in the long-run while simultaneously permitting a significant increase in expenditures.

3. Decentralisation to Local Governments

Our third simulation involves decentralisation of primary education to local governments in the country with grant transfers from the federal ADP routed through the provincial

FLOW CHART 2
FISCAL POLICY SIMULATIONS
[Dynamic Impact of Provincial Fiscal Effort]

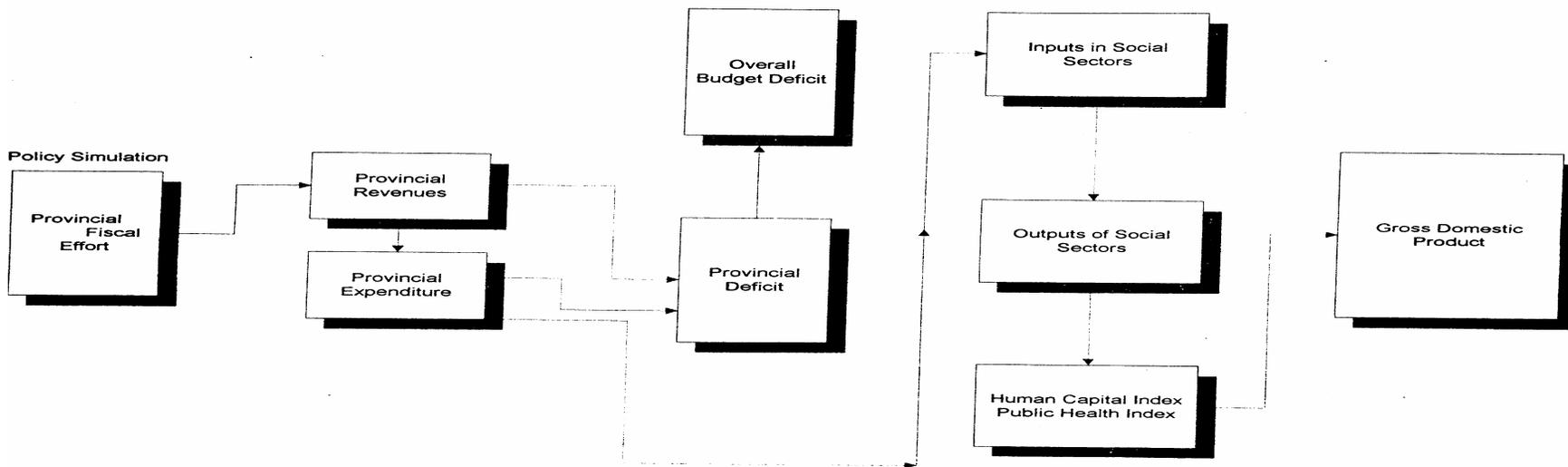


TABLE 3
KEY IMPACTS OF ENHANCED PROVINCIAL FISCAL
[per 100 Rs of Additional Revenues]

	Short-run 1993-94	Long -run 2002-03
(Rupees)		
FEDERAL FINANCES:		
<i>Change in:</i>		
Revenue Receipts (Net)	+8	+1
Federal Expenditures	+12	-75
Budget Deficit	+4	-74
 PROVINCIAL FINANCES:		
<i>Change in:</i>		
Provincial Own Revenues	+100	+100
Federal Tax Assignments	+9	+6
Provincial Recurring Expenditures	+29	+54
Provincial Development Expenditures	+8	+13
Expenditures on Social Sectors	+23	+37
Expenditures on Economic Sectors	+14	+30
Provincial Revenue Deficit	-80	-52
 <u>Change in Overall Budget Deficit</u>	 <u>-76</u>	 <u>-126</u>
 LOCAL FINANCES:		
<i>Change in:</i>		
Total Revenue Receipts	n	n
Total Expenditures	n	n
Local Budget Deficit	n	n

n = Negligible.

governments. Chart 3 shows that this involves an increase in local expenditures; transfers of revenues from the federal to provincial governments to be passed on the local governments; increased local expenditures on social sectors (specifically education) and an improvement in the output of education with a subsequent impact on human capital index. Concurrently, since primary education has become a local responsibility, there will be savings in provincial expenditures which will improve the provincial and overall consolidated budgetary position by reducing deficits.

In terms of the magnitude of the impacts a Rs 100 grant in aid to the local government will increase local expenditures by Rs 36, lower provincial expenditures by Rs 15, thereby reducing provincial revenue deficit by Rs 6 (see Table 4). In the long run, federal budget deficit increases by Rs 29 (due to servicing of debt incurred to give grant in aid to local governments); provincial revenue deficit declines by Rs 81; and therefore there is a substantial improvement in the overall budgetary position of the public sector. The overall budget deficit is lower by Rs 52. Notice that while the combined provincial and federal budget deficit has declined by 52 Rs, local budget deficit has increased by only Rs 8 indicating that on the whole the fiscal status of the three tiers of governments in the country has improved following decentralisation. This is because, unlike provincial governments, local government are largely self-financing entities and are not dependent on transfer from higher tiers of government to finance recurring liabilities. As opposed to this, provincial governments depend on federal transfers to finance 80 percent of their current liabilities. A process of decentralisation of primary education is likely, therefore, to improve the overall budgetary position because higher recurring expenditures of local governments are financial by own resources and not by incremental borrowing.

FLOW CHART 3
FISCAL POLICY SIMULATIONS
[Dynamic Impact of Decentralisation to Local Governments]

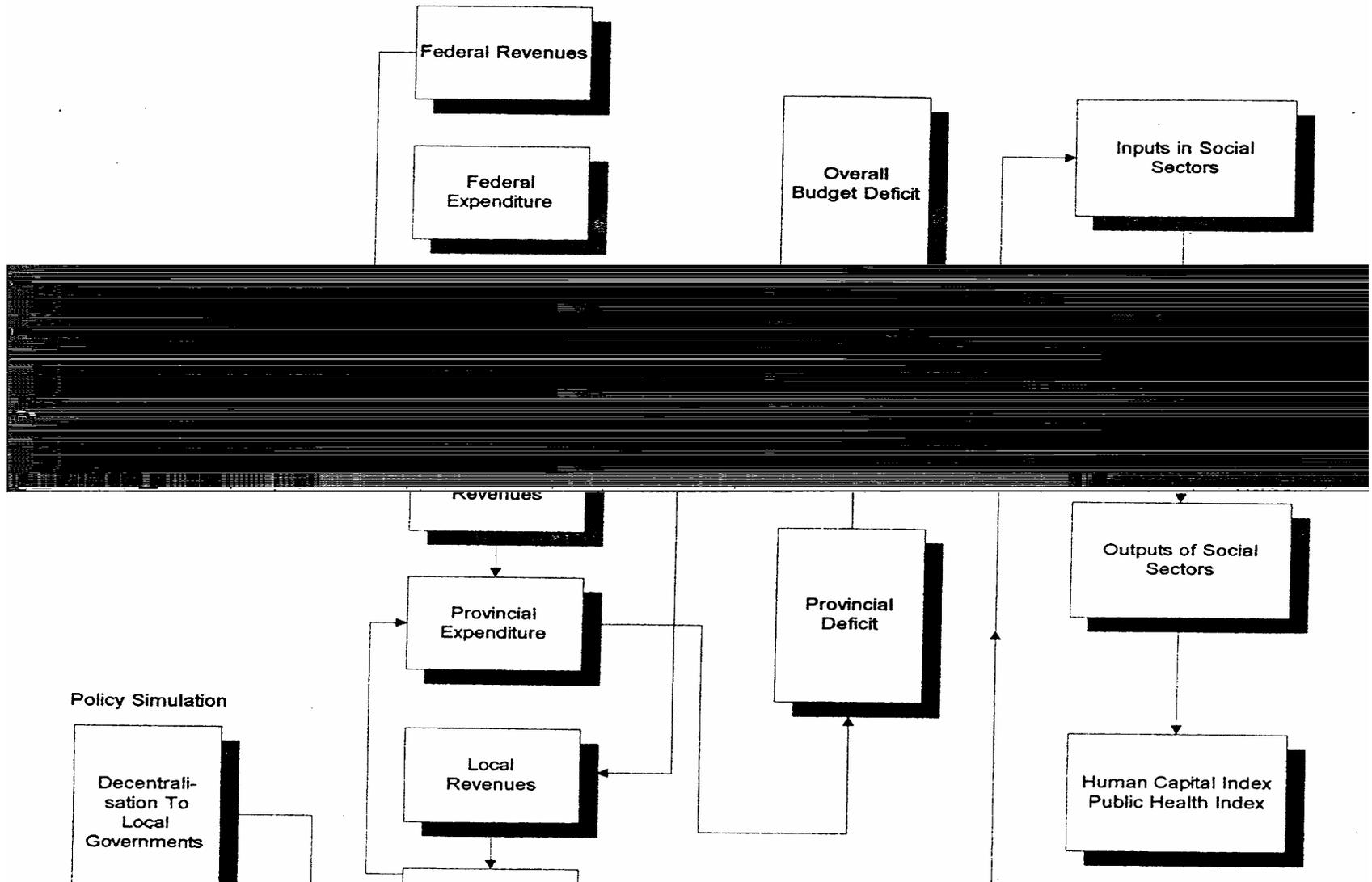


TABLE 4
KEY IMPACTS OF DECENTRALISATION TO LOCAL GOVERNMENTS
[Per 100 Rs grant-in-aid from Federal Government]

	(Rupees)	
	Short - run 1993 -94	Long - run 2002-03
FEDERAL FINANCES:		
<i>Change in:</i>		
Revenue Receipts (Net)	-6	-79
Federal Expenditures	-1	-50
Budget Deficit	+5	+29
PROVINCIAL FINANCES:		
<i>Change in:</i>		
Provincial Own Revenues	-1	-6
Federal Tax Assignments	-2	-16
Provincial Recurring Expenditures	-9	-103
Provincial Development Expenditures	-6	-31
Expenditures on Social Sectors	-11	-100
Expenditures on Economic Sectors	-4	-34
Provincial Revenue Deficit	-6	-81
<u>Change in Overall Budget Deficit</u>	<u>-1</u>	<u>-52</u>
LOCAL FINANCES:		
<i>Change in:</i>		
Total Revenue Receipts	+107	+125
Total Expenditures	+36	+133
Local Budget Deficit	-713	+8

^a Increase in Local Surplus.

4. Social Action Program (SAP)

Now we turn to one of the most important policy simulations that we have undertaken using our model. That is the impact of SAP. SAP has a direct impact on federal resources since it receives foreign aid to finance part (50 percent) of the earmarked allocations for social development; these funds are transferred to the provincial governments as loans and therefore there is a direct impact on provincial resources; provincial expenditures are affected and therefore, provincial deficit and overall budget deficit is affected (see Chart 4). Concurrently, the federal government now has to service more foreign debt and therefore, the overall budget deficit is again affected. Earmarking of funds leads to higher expenditures on social sectors, higher inputs and higher output of social sectors and thereby in social sector indices which in turn have a positive impact on the GDP and subsequently on the federal and provincial tax bases.

We have estimated the impact of a Rs 100 SAP transfer to the provincial governments, the results of which are presented in Table 5. The table shows that both the federal and provincial budget deficits increase due to the SAP both in the short and the long-run. In the long run, there is Rs 154 increase in federal expenditure (largely due to the increased debt servicing burden) and a Rs 34 increase in provincial expenditures, bulk of which are recurring in nature. Rs 27 of these additional expenditures are incurred on social sectors. There is an overall increase of Rs 128 in the combined federal and provincial budget deficit. Therefore, it appears that SAP is not financially sustainable and will significantly deteriorate the fiscal position of both the federal and provincial governments in the absence of efforts by both levels of government to mobilise resources or economize on expenditures in other sectors.

FLOW CHART 4
SOCIAL SECTOR POLICY SIMULATIONS
[Dynamic Impact of Social Action Program]

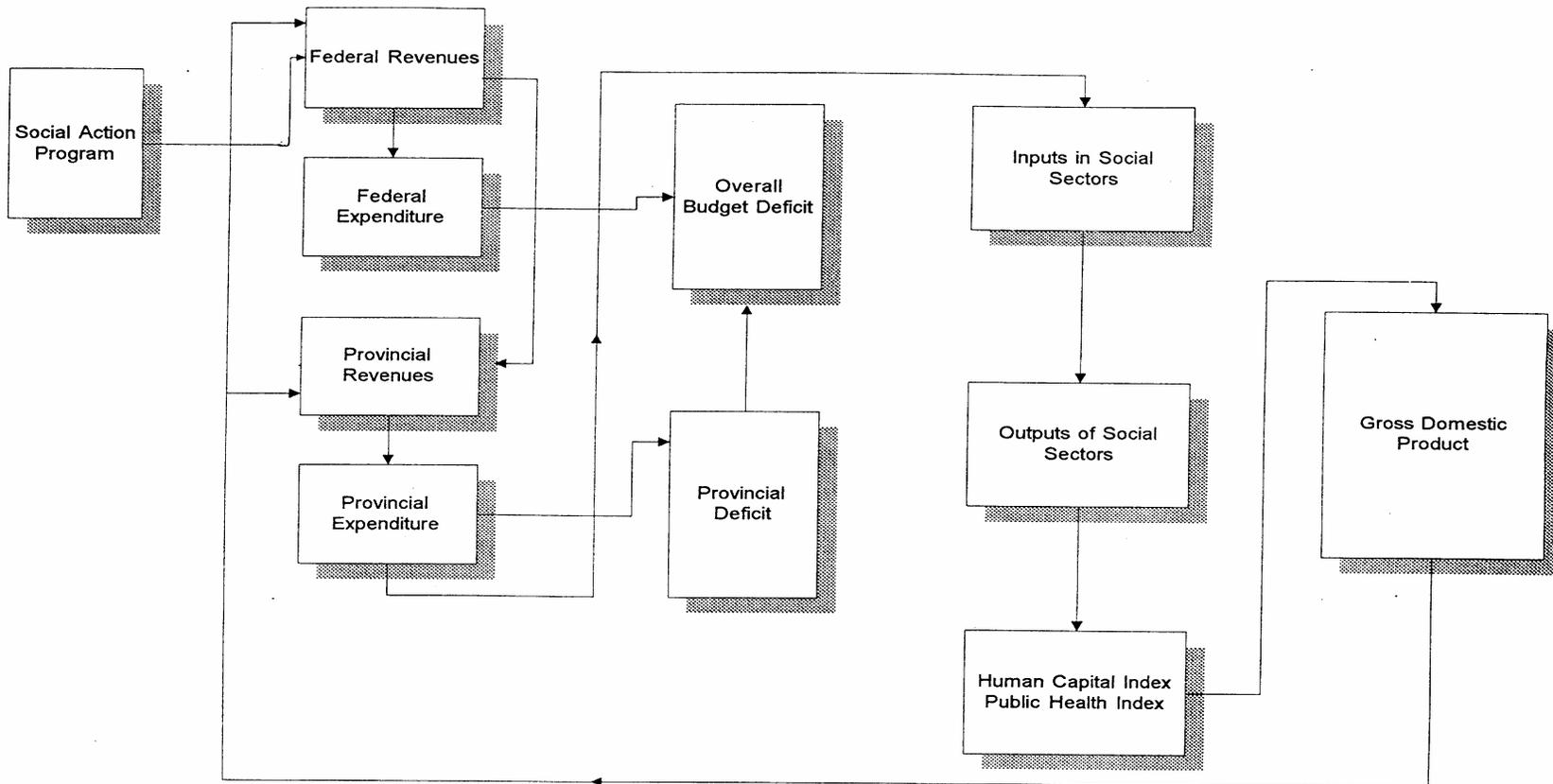


TABLE 5
KEY IMPACTS OF THE SOCIAL ACTION PROGRAM
[Per 100 Rs each year for first 3 years]

	Short-run 1993-94	Long-run 2002-03
(Rupees)		
FEDERAL FINANCES:		
<i>Change in:</i>		
Revenue Receipts (Net)	+10	+36
Federal Expenditures ³	+101	+154
Budget Deficit	+91	+118
PROVINCIAL FINANCES:		
<i>Change in:</i>		
Provincial Own Revenues	n	+3
Federal Tax Assignments	n	+17
Provincial Recurring Expenditures	+10	+29
Provincial Development Expenditures	+100	+5
Expenditures on Social Sectors	+110	+27
Expenditures on Economic Sectors	0	+8
Provincial Revenue Deficit	+10	+10
<u>Change in Overall Budget Deficit</u>	<u>+101</u>	<u>+128</u>
LOCAL FINANCES:		
<i>Change in:</i>		
Total Revenue Receipts	n	+2
Total Expenditures	n	+2
Local Budget Deficit	n	0
<u>Gross Domestic Product</u>	<u>+2</u>	<u>+246</u>

^a Excludes changes in repayment of debt.
n == Negligible.

The deterioration in the fiscal status of the provincial governments will adversely affect the quality of service provision in the years to come. Schools/hospitals built by the SAP funds will not produce commensurate output simply because of inadequate recurring inputs of teachers and doctor. For example, teachers to school ratio declines by 6.5 percent over the period of analysis. Similarly, doctors to hospital ratio declines by over 13 percent. It is therefore, clear that launching of SAP type programmes, involving higher development outlays in the social sectors, cannot be effective unless the subsequent requirement of recurring expenditure are provided for. Notice, however, that even though it adversely affects the public finances in the country, SAP eventually stimulates growth and leads to higher GDP in the long run (see Table 5).

An alternative strategy which is currently being proposed is for funding under the SAP to simultaneously include a recurring expenditure component. However, the model very convincingly demonstrates that this strategy may also fail. It appears, on the basis of past behaviour that when SAP comes to an end (after three to five years) there is a sharp decline in the rate of growth of recurring expenditures in the social sector due to the end of earmarked funding. Consequently, we are likely to observe the same imbalance in inputs into the social sectors, with steep declines in teachers to schools ratio and in the doctors to hospital ratio.

The question then arises what is the sustainable strategy for social sector development? The answer lies in launching of SAP type programmes concurrently with a drive for higher resource mobilisation. We have analysed the impact of implementation of SAP alongwith the provincial resource mobilisation package from our previous simulation. The results are

presented in table 6. The table shows that even though the overall budget deficit increases in the short run, it declines by Rs 92 in the long run. As far as the provincial governments are concerned, there is a decline in provincial revenue deficit both in the short and in the long-run. Also, notice the significant increase in growth in the economy reflected by the increase in GDP. The bottom line is that programs like the SAP which not only have social benefits but long term economic benefits in terms of GDP growth will only be successful if an effort is made by the provincial governments to concurrently enhance their own revenues otherwise such programs adversely affect the public finances of the country.

5. Change in Provincial Investment Priorities

Perhaps another way of developing social sectors in the country is to partly divert existing funds from economic to social sectors. We have analysed the impact of such a change in public sector investment priorities. Chart 5 traces the key impacts. Changed priorities will imply higher expenditures to social sectors, higher inputs and higher outputs from the social sector; these will lead to an improvement in social sector indices and have an expansionary effect on GDP. Simultaneously, there will be lower investment in economic sectors which will have a contractionary affect on GDP. Therefore, it is not readily clear what the net impact on growth will be of a change in public sector investment priorities. There will, however, be clear social gains due to improvements in the quality of life.

Perhaps the most important conclusion of our model simulation which is being highlighted for the first time is that in the long run, investment in social sectors stimulates higher growth in the economy than the same amount of investment in economic infrastructure. Table 7 shows that per 100 Rs of diversion from economic to social sectors, in the year 2002-03 the

TABLE 6
KEY IMPACTS OF SOCIAL ACTION PROGRAM WITH
HIGHER PROVINCIAL FISCAL EFFORT
[Per 100 Rs of Additional Expenditures for 3 years;
High buoyancy of Provincial Taxes]

	Short-run 1993-94	Long-run 2002-03
FEDERAL FINANCES:		
<i>Change in:</i>		
Revenue Receipts (Net)	+12	+27
Federal Expenditures ³	+114	+30
Budget Deficit	+98	+1
PROVINCIAL FINANCES:		
<i>Change in:</i>		
Provincial Own Revenues	+87	+207
Federal Tax Assignments	n	+20
Provincial Recurring Expenditures	+34	+135
Provincial Development Expenditures	+106	+31
Expenditures on Social Sectors	+129	+96
Expenditures on Economic Sectors	+12	+70
Provincial Revenue Deficit	-55	-92
<u>Change in Overall Budget Deficit</u>	<u>+43</u>	<u>-92</u>
LOCAL FINANCES:		
<i>Change in:</i>		
Total Revenue Receipts	n	+2
Total Expenditures	n	+2
Local Budget Deficit	n	0
<u>Change in Gross Domestic Product</u>	<u>+73</u>	<u>+424</u>

^a Excluding increase in repayment of debt.
n = Negligible.

FLOW CHART 5
SOCIAL SECTOR POLICY
SIMULATION
[Dynamic Impact of Changes in
Investment Priorities From Economic to Social Sector]

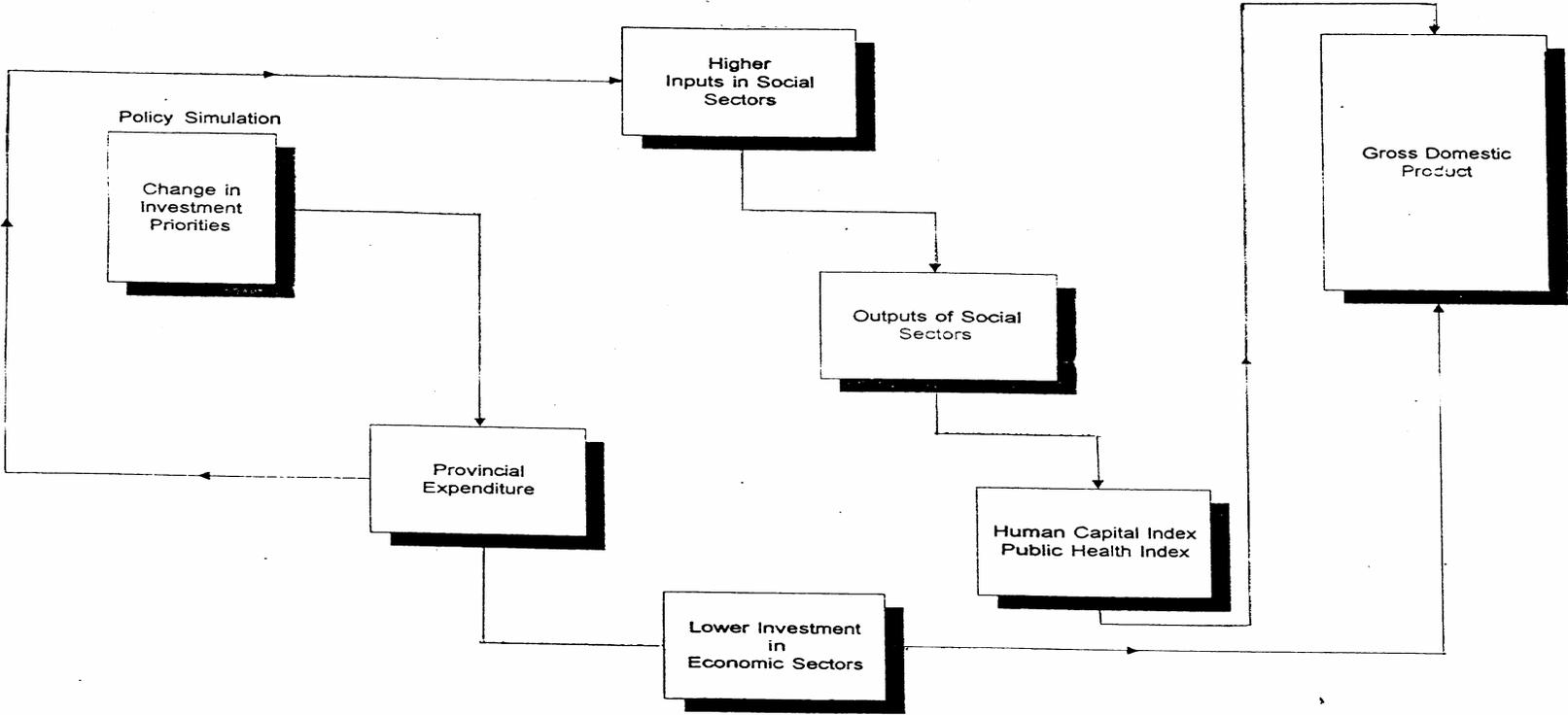


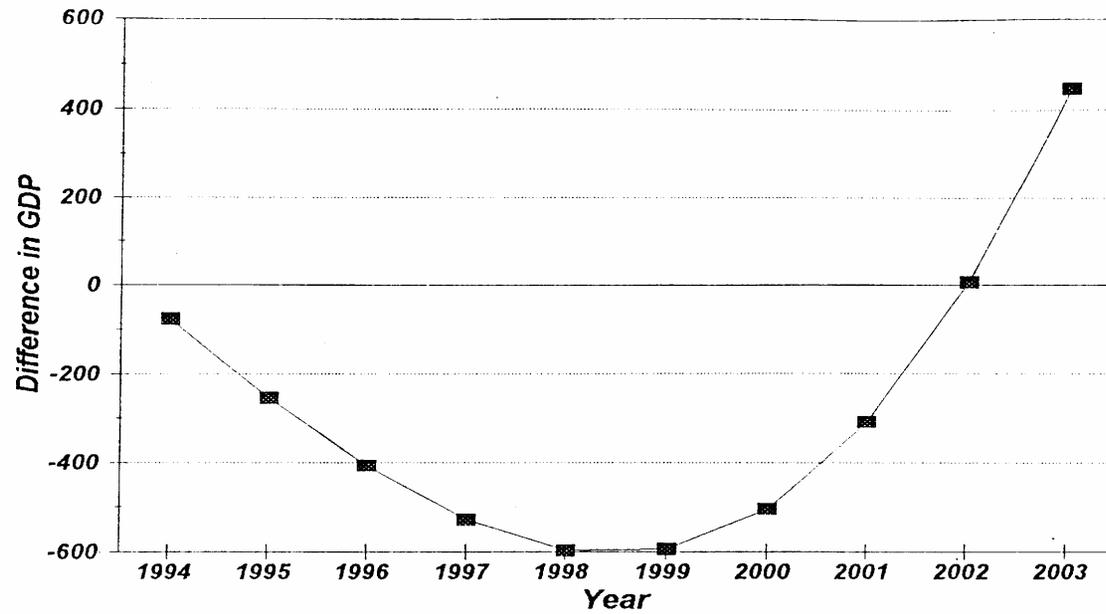
TABLE 7**KEY IMPACTS OF CHANGE IN PROVINCIAL INVESTMENT PRIORITIES***[Per 100 Rs diversion from Economic to Social Sectors]*

	(Rupees)	
	Short-run 1993-94	Long-run 2002-03
FEDERAL FINANCES:		
<i>Change in:</i>		
Revenue Receipts (Net)	+7	+91
Federal Expenditures	+1	+394
Budget Deficit	-6	+302
PROVINCIAL FINANCES:		
<i>Change in:</i>		
Provincial Own Revenues	+1	+2
Federal Tax Assignments	-2	-28
Provincial Recurring Expenditures	+19	+132
Provincial Development Expenditures	+100	+104
Expenditures on Social Sectors	+111	+206
Expenditures on Economic Sectors	+100	+30
Provincial Revenue Deficit	+21	+158
<u>Change in Overall Budget Deficit</u>	<u>+14</u>	<u>+461</u>
LOCAL FINANCES:		
<i>Change in:</i>		
Total Revenue Receipts	n	-7
Total Expenditures	n	-7
Local Budget Deficit	0	n
<u>Change in Gross Domestic Product</u>	<u>-53</u>	<u>+167</u>

n = Negligible.

GDP would be higher by Rs 167. This is a very important conclusion because the common perception of policy maker is generally that investment in social infrastructure is nonproductive and only has social gains while investment in economic sectors are relatively more productive and lead to higher growth. This perception which may be true is the short run but is not valid in the long run framework. There is in fact a U-shaped curve in existence as shown in Chart 6. In the initial years diversion of funds lead to a decline in GDP. However, after the eighth year there is a change in the trend and the GDP shoots up and there are substantial gains to be had from diversion of funds in terms of GDP growth.

CHART 6
GDP* CONSEQUENCES
SAP OF RS. 1000 MILLION (FOR 3 YEARS)



* Difference in the projected GDP under the policy and base simulations.

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