

CBR Quarterly Review

Vol. 6, No. 2, October - December 2006

**A Review of Resource Mobilization Efforts of
Central Board of Revenue**



CENTRAL BOARD OF REVENUE

Government of Pakistan

**Constitution Avenue
Islamabad - Pakistan**

Contact:

Editor: Dr. Ather Maqsood Ahmed
Member, Fiscal Research and Statistics
e-mail: memberfrs@cbr.gov.pk
Phone: (051)-920-4436
Fax: (051)-921-9211
February: 2007

***Fiscal Research and Statistics Wing
Central Board of Revenue***

Research Team

1. Dr. Ather Maqsood Ahmed
Member, Fiscal Research and Statistics
2. Robina Ather Ahmed
Chief (FR&S)
3. Umar Wahid
Secretary (FR&S-I)
4. Sharfuddin Pirzada
Secretary (FR&S-II)
5. Mir Ahmad Khan
Second Secretary (FR&S-I)
6. Naeem Ahmed
Second Secretary (FR&S-II)

Contents

	<i>Pages</i>
<i>Forward</i>	<i>iv</i>
I. CBR Tax Collection: An Analysis of 2 nd Quarter Revenue Data	1
○ The Economy	1
○ CBR Revenue Target and Collection during H1: 06-07	3
○ Overall Revenue Position and Refunds/ Rebates	4
○ Detailed Analysis of Individual Taxes	6
○ Direct Taxes	6
○ Sales Tax	15
○ Customs Duties	19
○ Federal Excise Duties	25
○ Concluding Remarks	29
II. Sectoral Contribution in GDP and Taxes: In Search of the Missing Link	31
III. CBR Reform Program: Concept of Data Warehouse	45

Foreword

It is a great pleasure to announce that CBR has surpassed the half-yearly target of Rs. 381.1 billion for FY: 06-07 by a margin of Rs. 29.4 billion. Even more gratifying is the fact that taxpayers' confidence in CBR, in particular, and the tax reform process, in general, has been regained. The universal self-assessment in income tax has been accepted overwhelmingly by all stakeholders. As a result, there has been a remarkable growth, both in the number of returns filed and payments made with returns. Let me reassure the valued taxpayers that the reform program is being pursued religiously to strengthen relationship between the taxpayers and tax collectors.

The current issue of the CBR Quarterly Review provides an in-depth analysis of four federal taxes administered by CBR. It includes a thought-provoking article on Sectoral Contribution in GDP and Taxes. This study highlights glaring differences and mismatch between the share of major sectors in economic activity and taxes. An update on the concept of CBR Data Warehouse is also part of the Review.

I firmly believe that the multifaceted information, analysis, and its lucid presentation will be useful for wide spectrum of readers including business community, policy planners, partners in development, and researchers. We look forward to receiving comments and suggestions from our valued readers for improvement of future issues of the Quarterly.

*M. Abdullah Yusuf
Secretary General
Revenue Division/ Chairman, CBR*

I

CBR Tax Collection: An Analysis of 2nd Quarter Revenue Data¹

The Economy

Howsoever unfortunate it may sound, but the fact remains that economic management in Pakistan, when viewed in a historical perspective, has been inconsistent and flip-flop in nature. All through the decade of the 1990s, when fiscal space was almost non-existent, an easy monetary policy stance was pursued that continued well into the present decade. Both, interest rate and inflation were at their lowest levels. The continuity of financial sector reforms resulted into well designed competition among banks. The improved credit availability with banks allowed generous funds for consumer financing, agricultural loans, and export and investment financing that kept the economy thriving, albeit at less than the desired rate. The fiscal stance, on the other hand, was not favorable to growth. The government spending was extremely low. Whatever was available was misdirected, as spending on infrastructure development, health and education was less than desired. The taxation structure was also going through a rough period of rapid transformation in the shape of reduction and rationalization of tariff structure, experimentation with rate structure of GST, gradual withdrawal of excise duties, and re-structuring of income and corporate tax rates. Therefore, in this era of fiscal indiscipline, it was not possible to provide a well-focused respite to the business.

In most recent years, the monetary policy stance has been reversed. A tight money approach is being followed to what is painted as inflation-targeting and to undo the impact of monetary overhang.² While inflation

¹ The Research Team of Fiscal Research Wing of CBR has carried out the analysis.

² The use of term 'inflation-targeting' is rather unfortunate. Technically, inflation-targeting requires use of inflation forecast as intermediate target rather than any nominal anchor such as M_2 or exchange rate etc. For details see Svensson, L. E. O. (1997) 'Inflation Forecast Targeting: Implementing and Monitoring Inflation Targets', *European Economic Review*, 41, pp. 1111-1146.

remains stubbornly high, confirming *that it is a monetary phenomenon only to a limited extent*, a rather excessive tightening has already raised the cost of borrowing to have an adverse impact on growth as well as inflation! The banking sector is reluctant to comply with ‘soft’ advice of reducing the spread between lending and borrowing rates. Opposite to this monetary stance, the fiscal policy is providing the necessary impetus to growth. Thanks to the availability of fiscal space, partly emanating from reduced debt servicing requirement and partly from improved CBR performance in generating additional resources, the expenditure, especially on PSDP, has increased sharply. The taxation policy is also more tuned to growth with continuously declining tax rates and vastly improved business processes.

Going forward, there is a need for a more balanced approach – where ‘coordination failure’ is not as obvious as it is now. In fact, there is no harm in adopting a strategy where fiscal and monetary policy instruments aim for the twin objectives of low inflation and high growth. On the other hand, the short-term macro imbalances require administrative strength to deal with manipulators, as inflation in Pakistan is largely influenced by import prices and supply constraints rather than money growth.³ Any weakness to tackle supply shortages, and those who are responsible for it, has the potential of further aggravating the inflationary expectations in coming months. The need of the hour is to maintain fiscal discipline. In this regard, extra government spending that requires money financing will have to be avoided at all costs.

Within this background, the choice seems straightforward. Besides extra effort to mobilize resources, a policy of expenditure restraint and prioritization is expected to yield better results along with an accommodating monetary policy stance. In this scenario, there is no room for granting further concessions to non-competitive and inefficient businesses, as traditional sectors have only a limited potential to deliver.

³ Here we refer to empirically verified statistically insignificant relationship between money and inflation.

Instead bold initiatives to diversify the economy are desired for achieving over 8% real growth on sustainable basis. In fact, diversification has assumed a critical role in shaping the course of the economy in medium- to long-run. It may also be recognized that the global pundits have developed an optimistic scenario for Pakistan, one which is based on competitive and aggressive policy stance without fear or favor of any particular segment of the society.⁴

CBR Revenue Target and Collection during H1: 2006-07

CBR has surpassed the half yearly revenue target of Rs. 381.1 billion by a significant margin of 7.7% during the first half of FY: 2006-07. Compared to the start-of-the-year target, an additional amount worth Rs. 29.4 billion has been collected (Table 1). This achievement has been possible due to extra-ordinary performance of direct taxes. It may be recalled that while setting the monthly and the quarterly targets, the contribution of direct taxes was targeted to be slightly higher than historical trend to further reduce regressivity of the taxation system. The share of direct taxes was projected to reach 32.5% of total net collection. Similarly, the contribution of consumption related GST was maintained at its historical level of around 41%. Finally, the targets of customs duties and federal excise were projected by incorporating buoyancy factor, assumed growth of tax base – dutiable imports and value added in large scale manufacturing sector, and additional budgetary measures.

The detailed information confirms that the quarterly targets have been surpassed by 3.1% and 11.8%, respectively during 1st and 2nd quarters of FY: 06-07. Individually, the performance of direct taxes has been remarkable, as the revenue target has been exceeded by around 40%. In terms of value, the realized collection has been Rs. 48.9 billion higher than the target. Similarly, the revenue target of FED for July-December 2006-07 has also been surpassed by 1.7%. On the other hand, the collections of sales tax and customs duties have fallen short of the target

⁴ See World Bank (2007) 'Global Economic Prospects: Managing the Next Wave of Globalization', Washington DC: The World Bank.

by Rs. 9.8 billion and Rs.10.2 billion, respectively mainly due to deceleration in total and dutiable import growth.

Table 1: Targets and Collection of Federal Taxes for H1: 2006-07

(Rs. Billion)

	Direct Taxes	Sales Tax	Excise Duties	Customs Duties	All Taxes
Target					
Quarter 1	56.9	74.0	14.3	33.2	178.4
Quarter 2	66.9	82.1	16.0	37.7	202.7
First Half Year	123.8	156.1	30.3	70.9	381.1
Net Collection					
Quarter 1	66.5	75.6	13.9	27.9	183.9
Quarter 2	106.2	70.7	16.9	32.8	226.6
First Half Year	172.7	146.3	30.8	60.7	410.5
Achievement (%)					
Quarter 1	116.9	102.2	97.2	84.0	103.1
Quarter 2	158.7	86.1	105.6	87.0	111.8
First Half Year	139.8	93.7	101.7	85.6	107.7

Source: Fiscal Research Wing, CBR

Overall Revenue Position and Refunds/ Rebates

The overall gross and net collection has reached Rs. 461.3 billion and Rs. 410.5 billion respectively, indicating remarkable growth of 25.8% and 26.7% (Table 2). The revenue collection during Q2: 2006-07 has been much better than the first quarter. The growth in total gross and net collection during 2nd Quarter of Current Fiscal Year (CFY) has been 28.1% and 31.9%, compared to 23.3% and 20.9%, respectively. Barring the months of August and October when the growth was rather slow, a double-digit growth well over 20% has been recorded on month-on-month basis in the remaining four months of H1: 06-07. This is a significant development as it reflects sustained effort in generating resources for the economy to avoid difficulties of economic management.

Putting things in proper perspective, it is important to mention that there has been a revenue loss of about Rs. 19 billion by the end of December

2006 due to shrinking imports. Therefore, the current performance way beyond the targeted needs, despite this set back, becomes even more fascinating. All this has been possible due to relentless tax effort by CBR employees, better voluntary tax compliance, and improved profitability of leading sectors like banking and insurance, petroleum and natural gas exploration and distribution, and telecommunication.

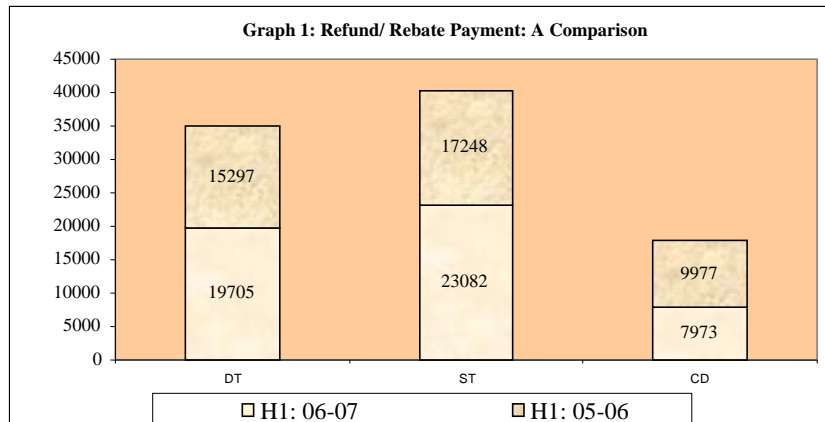
Table 2: A Comparison of Federal Gross and Net Revenue Receipts

(Rs. Billion)

	FY 06-07		FY 05-06		Growth (%)	
	Gross	Net	Gross	Net	Gross	Net
July	54.4	46.2	41.5	34.6	31.1	33.5
August	54.0	46.3	50.3	45	7.4	2.9
September	101.6	91.4	78.4	72.5	29.6	26.1
October	60.4	53.3	56.3	49.1	7.3	8.6
November	67.1	59.0	53.5	47.6	25.5	24.1
December	123.9	114.2	86.6	75.1	43.0	52.1
July-December	461.4	410.5	366.6	323.9	25.8	26.7

Source: Fiscal Research Wing, CBR

This is also relevant to add that over-achievement in net collection has been recorded despite the fact that the overall refund payments of Rs. 50.9 billion during July-December of CFY have been higher by 19.1% over the corresponding period of last year. The increase has been registered in direct as well as sales taxes. On the other hand, there is a decline in rebates related to customs duties. The higher refund payments have been made to achieve the target of maintaining as minimum refund pendency as possible. With speedy disposal of refunds, the pendency of direct tax refunds, especially of banks, has almost been eliminated. Similarly, the effort to clear the sales tax refund backlog has gained momentum. Finally, implementation of policy of rationalization of DTRE rates and zero-rating of export related industries have been instrumental in the reduction of CD related rebates (Graph 1).



Detailed Analysis of Individual Taxes

The two major developments witnessed during the current year are the exceptionally high growth in revenue from direct taxes and slower than expected growth in import-related taxes. It is essential, therefore, to analyze taxes individually to understand weak and strong areas. For instance, it is relevant to understand what has been the source of improved voluntary compliance – whether it is in response to simplified laws and procedures and the introduction of self-assessment or continuous reduction in corporate rates has reduced the incidence of tax evasion and avoidance. Similarly, in GST, it is important to know how serious is commodity substitution between domestic supplies and imports and what are the revenue implications of this change? These concerns are analyzed in a detailed discussion of individual taxes that follows.

Direct Taxes: The performance of direct taxes has been simply spectacular during July-December 2006. The target of Rs. 123.8 billion fixed for H1: 06-07 has been surpassed by a huge margin of Rs. 48.9 billion. The net collection of Rs. 172.7 billion during July-December 2006 has recorded an all-time high growth of 65.6% over the collection of Rs. 104.3 billion in the corresponding period of PFY. In gross terms, the collection has recorded 61% growth over the PFY. The stock of refunds is almost current. As indicated, a substantial amount of Rs. 19.7

billion has already been paid back to the refund claimants during the first six months of CFY.

Box 1: A New Era of Achievements and Success – Attaining New Heights

Adequate revenue generation is a *sine quo non* for the government to meet its expenditure. Any fluctuation in the level of the revenue generation directly affects the government financial position and the society. Until fairly recently, the revenue collection has been quite inadequate compared to budgetary needs. Since the situation required radical changes, broad-based tax policy and administrative reforms were initiated by CBR to improve upon the resource mobilization effort and increase tax compliance by providing congenial environment to the taxpayers.

Unlike the history, the assigned targets are being met regularly for the last few consecutive years. The fiscal year 2006-07 has been an exceptional year. The collection during December 2006 has been unprecedented. This is for the first time in the history that tax collection has exceeded Rs.100 billion mark. In fact, the net collection in December 2006 has even surpassed the entire year's tax effort of 1990-91 when total tax collection was Rs. 110.5 billion whereas the collection in December 2006 has been Rs. 114.2 billion.

It is also interesting to observe that notwithstanding the continuous decline in corporate rates and increase in tax-free threshold; the half-yearly realization of Rs. 172.7 billion by direct taxes is higher than the full year collection in FY: 2003-04. Similarly, during July-December 2006 sales tax collection of Rs. 146 billion has been far above than what was generated in 1999-2000 even though a uniform rate regime has been restored by eliminating higher rates of GST in the shape of further tax and 20% higher tax and the entire chain of export related industries has been zero-rated. Furthermore, despite substantial reduction and rationalization of tariff rates, the collection of Rs. 61 billion in the shape of customs duties during H1: 06-07 is far better than the CD collection in 1990-91 when tariff rates were fairly high. Finally, FED collection during first half of FY: 06-07 exceeds the full year collection of FY: 91-92. One may argue that the size of the economy has also grown over the years. But the fact remains that maintaining a momentum in tax collection during recession of 1990s when tax structure was also under going massive changes is not a small achievement that should go un-noticed.

A number of factors have contributed towards this unprecedented performance. The foremost among them is the improved tax effort by the department. Starting from transformation of field offices on functional basis, all business processes have been revamped. Laws and procedures have been simplified. Universal Self-assessment has been implemented and serious effort has been made to improve capacity of the available human resources. Beside these ‘house-keeping’ activities, credit also goes to the revival of the economy that has expanded the base of federal taxes. Over the years, the profitability of the corporate sector has increased and, as a result, the compliance level has also improved. The number of returns filed during the current fiscal year has increased and so is the payment with returns.

Box 2: The Emerging Tax Mix — Dawn of a New Beginning

Traditionally, customs duties (CD) and central excise duty (now federal excise duty (FED)) were the major sources of revenue of federal taxes through application of higher tax rates. For instance, the contributions of CD and FED during 1990-91 were 46% and 21% respectively. The contribution of direct taxes and sales tax was only 18%, and 15%, respectively. In this scenario the collection of federal taxes was mainly dependant on indirect taxes. It was no wonder that the inability of direct taxes (DT) to provide due contribution had invited criticism from all segments of society on equity and efficiency grounds.

By fiscal year 2005-06, the tax mix has changed in a comprehensive manner. GST emerged as main contributor with 41% share in collection followed by DT with 32% share in the overall revenue collection by CBR. The emergence of GST was initially due to its implementation and then extension of its base to utilities and services. On the other side, large-scale reduction and rationalization of CD and gradual shrinking of FED base have rendered the collection from these two sources to lowest levels as far as their share in the overall tax revenues is concerned.

A historical transformation has taken place during the first half of FY: 06-07. The direct taxes have now assumed a dominating role in total tax receipts with 42% share in collection. This desired change has been possible due to improved buoyancy of the tax, relentless tax effort by CBR, and commitment to continue with tax reforms.

Tax Profile of the Corporate Sector

The tax profile of the corporate sector reveals an across-the-board improved performance. The overall growth in tax receipts has been around 61% during July-December 2006. Further disaggregation highlights that the public companies have registered a healthy growth of 69.8%, and the increase in taxes paid by private companies has been 41.3%. But the main driver of this improvement has been the performance of the banking companies that recorded a robust growth of 121.6% during H1: 06-07. The increased revenue realization has been possible due to wide-ranging reforms in the income tax system aiming at reducing the cost of doing business and facilitating taxpayers. Additionally, the policies of reduction of corporate rates by 2% and 3% per annum for private and banking companies to achieve parity in rates at 35% in tax year 2007 and reduced rates for smaller companies have also resulted into better compliance by the corporate sector (Box 3).

Box 3: Corporate Sector is Growing – Multiple Reasons

Gross Receipts from Public Companies

July - December 2005: Rs. 27.8 B

July - December 2006: Rs. 47.2 B

Growth: 69.8%

Gross Receipts from Private Companies

July - December 2005: Rs.38.7 B

July - December 2006: Rs. 54.6 B

Growth: 41.3%

Gross Receipts from Banking Companies

July - December 2005: Rs.16.0 B

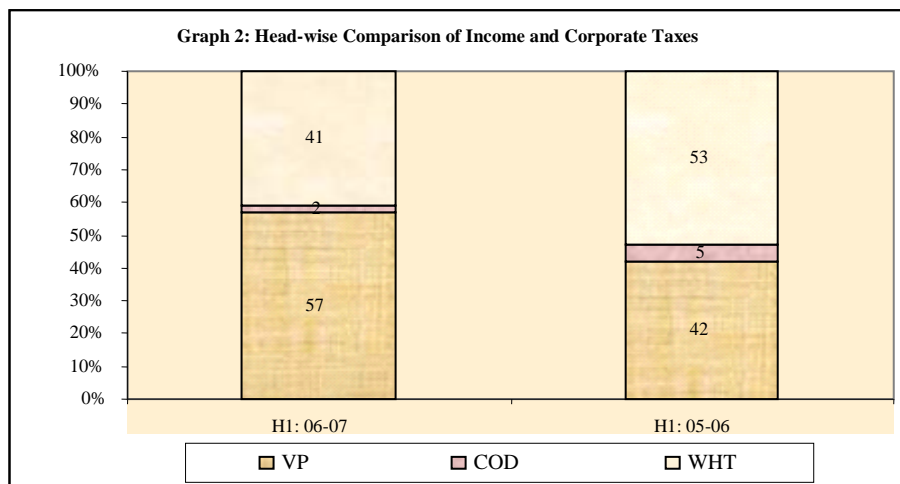
July - December 2006: Rs. 35.5 B

Growth: 121.6%

Components of Income & Corporate Taxes

Major components of income taxes are the voluntary payments (VP), withholding taxes (WHT), and collection on demand (COD). There is a

marked improvement in the composition of income tax; the share of voluntary compliance has overtaken the collection from deductions at source. It may be recalled that previously WHT was the largest contributor to income tax collection. The voluntary compliance, in the shape of payments with returns and advance payments, has emerged as a leading contributor (Graph 2), which is a healthy development.



The detailed discussion of the components of direct taxes is given in the following:⁵

Voluntary Payments (VP): As indicated earlier, the VP has emerged as one of the leading components of income and corporate taxes during H1 06-07. Its collection has increased from Rs. 48.8 billion in H1: 05-06 to Rs. 104.3 billion, a difference of Rs. 55.5 billion. The share of VP in gross income tax collection has touched a new height of around 57% in H1: 06-07, whereas, the same was around 21% earlier when USAS was not in vogue. With the implementation of USAS, the share has gradually increased over the years and in FY: 05-06, it reached 36%.

⁵ The detailed analysis of direct taxes has been carried out on the provisional figures of Rs.171.1 billion in net terms. The difference of Rs 1.5 billion is being reconciled.

To elaborate the outcome of the two components of VP, i.e., payments with returns and advance taxes, it has been observed that there was 19% growth in the number of return filers during July-December of 2005; and 2006 compared to 35% growth in 2004 and 2005 but payment with returns has registered a substantial growth of 94.1% (Rs. 45 billion versus Rs. 23.2 billion) during this period. A comparative position of returns filed and payments with returns is presented as follows:

A) Number of Returns Filed

H1: 2004-05: 1.12 million

H1: 2005-06: 1.27 million

H1: 2006-07: 1.51 million

Growth: (over 04-05) 34.8%

Growth: (over 05-06) 18.9%

B) Payments with Returns

H1: 2004-05: Rs.11, 432.5 million

H1: 2005-06: Rs.23, 210.7 million

H1: 2006-07: Rs.45, 048.2 million

Growth: (over 04-05) 294.0%

Growth: (over 05-06) 94.1%

The second component of VP is the advance tax payments for which the collection has exhibited an all-time high growth of 131.3%. Rs. 59.2 billion have been collected during July-December 2006 compared to Rs. 25.6 billion during H1: 05-06.

Box 4: The Concept of Advance Tax Payments

Under the Income Tax Ordinance 2001, the procedure for advance tax payment has been standardized on the lines of best international practices. The legacy system of two years' concept – the Income Year and Assessment Year – has been done away with. The advance tax is now based on 'pay as you earn' concept. Therefore, the amount of tax on income earned in the current year is determined on expected income by the taxpayer on self assessment basis rather than on the basis of past turnover. To facilitate the taxpayer, the tax amount is now payable in four installments equally spaced within the year.

Sectoral Contribution of Advance Taxes: While it is relevant to know the pattern of voluntary compliance, it is also important to know the contribution of various sectors of the economy that actually are making these payments. This information provides basis to develop a one-to-one correspondence between sectoral contribution in GDP, and income and corporate tax. It is evident from following Table 3 that an amount of Rs. 38 billion has been received in Q2 of CFY under the head of advance tax payment which together with receipts of Q1 goes up to Rs. 59.2 billion, showing an phenomenal increase of 131.3% over H1: 05-06. Whereas nearly 72% of this amount has been paid by six leading sectors, the two sectors with prominent contribution are oil and gas, and banks.

There is a clear implication of this outcome. The main drivers of growth are banking, and oil and gas sectors. These two are followed by the telecom sector. While the overall growth of the economy is fueled by manufacturing and services sectors, there are only few sectors within these two broad categories that are making a real contribution. Thus, to sustain high growth during the coming few years, this pattern needs to be changed in a comprehensive manner. A broad based sectoral growth holds the key to success.

Table 3: Advance Tax Paid by Major Sectors H1: FY: 06-07

(Rs. Billion)

Sector	Amount Q2	Share (%)	Amount H1	Share (%)
Oil and Gas	11.21	29.5	21.68	36.6
Telecom	1.86	4.90	5.08	8.6
Banks	12.32	32.42	18.73	31.6
Tobacco	0.99	2.59	1.19	2.0
Fertilizer	0.64	1.63	1.04	1.8
Automobiles	0.50	1.32	1.47	2.5
Sub Total	27.52	72.40	49.19	83.1
All Others	10.49	27.60	10.01	16.9
Grand Total	38.01	100.00	59.20	100

Source: Regional taxes (Provisional)

Collection on Demand (COD): The COD has reduced to a minor component over the years. During the pre-reform era, i.e., between FY: 97-98 and FY: 02-03, the share of COD was around 15%-16% in gross income tax collection. However, it has reduced to 6.9% in FY: 05-06. The declining trend has continued during H1: 06-07. It has reached 2.5%. It is contemplated that under self-assessment regime, the primary objective of this component would be to deter delinquent taxpayers against possible tax evasion.

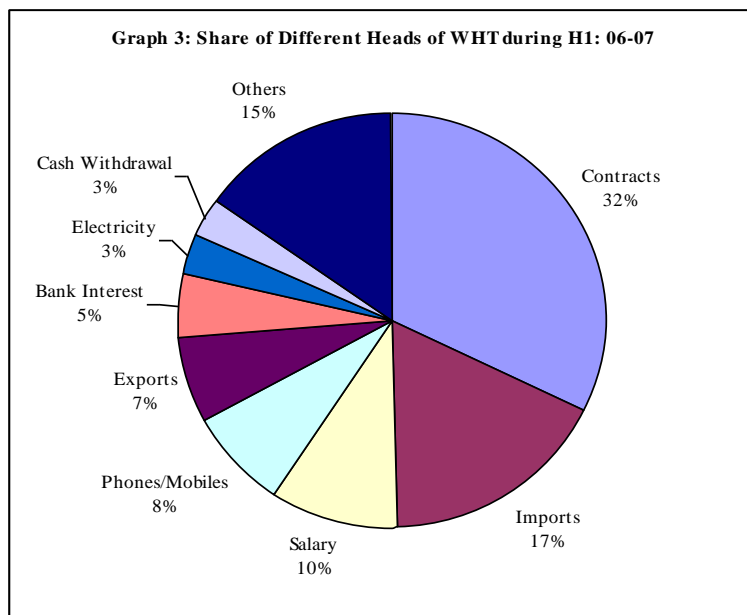
Withholding Taxes (WHT): The third and an important component of income tax is the WHT. As a mechanism of tax collection, WHT was first introduced in the late 1960s but later on its scope was enhanced to a number of additional activities. Currently, the deduction at source is allowed on 18 major WHT heads (excluding sub-heads).⁶ The collection is generated through the withholding agents who are responsible for deducting the tax out of taxable disbursements and then depositing it to the national treasury.

During July-December 2006, the collection from this source has reached Rs. 76.2 billion against Rs. 60.5 billion collected during the corresponding period of PFY, yielding an increase of 26%. The detailed information indicates that notwithstanding the rather large number of withholding taxes, only eight have contributed Rs. 64.5 billion, which constitutes 84.7% of total WHT receipts. Out of these eight major sources, two heads, namely, contracts and imports have contributed Rs. 37.8 billion which is more than half of the WHT receipts. Within this perspective, the base of WHT remains narrow and therefore, the undue concern that this source adds regressivity to the system needs qualification. Graph 3 depicts the share of different heads in WHT.

A detailed analysis of WHT confirms a robust growth in collection for leading sources with the exception of WHT on import where the growth

⁶ For further details, please consult the brochure on Withholding Taxes issued by the Facilitation and Tax Education wing of CBR.

has been negative (0.4%), mainly due to deceleration in import growth. Barring this source, the increase in other WHT heads is consistent with enhanced sectoral economic activities (Table 4). The significant growth of 108.3% on account of cash withdrawal is aligned with tax measures introduced in Federal Budget 2006-07 wherein the WHT rate on cash withdrawal from banks was increased by 100% (from 0.1% to 0.2%).



Around 81% increase in collection from the telecommunication sector indicates that the momentum of growth has been maintained. This has developed as a major service sector having far reaching implications for all segments of society. Likewise 43.8% growth in WHT on bank interest is due to steady increase in interest rate. However, despite growing banking activities in the country on account of rising profits through variety of lending schemes introduced by the banks and other banking activities, the wedge between lending and borrowing rate is growing. Currently, the State Bank of Pakistan is pursuing a 'soft' policy to allow market forces to take roots and allow account holders to make the necessary shift, if deserved, to banks offering better returns. Meanwhile the banks are encouraged to recognize this requirement by themselves.

For the moment, the reaction of banks to this offer remains lukewarm. It may force the SBP as a regular to enforce its decision, which may turn out to be an unpleasant development in a competitive and free market environment.

**Table 4: Quarterly Collection from Major Revenue Spinners
Related to Withholding Taxes during H1: 06-07**

(Rs. Million)

Collection Heads	FY: 06-07	FY: 05-06	Difference	
			Absolute	Percent
Contracts	24624	18227	6397	35.1
Q1	9882	8872	1010	11.4
Q2	14742	9355	5387	57.6
Imports	13145	13203	-58	-0.4
Q1	6844	6687	157	2.3
Q2	6301	6516	-215	-3.3
Salary	7389	6429	960	14.9
Q1	3172	2965	207	7.0
Q2	4217	3464	753	21.7
Telephone Bills	5763	3189	2574	80.7
Q1	2778	1314	1454	111.4
Q2	2985	1875	1110	59.2
Export	5199	4679	520	11.1
Q1	2512	2306	206	8.9
Q2	2687	2373	314	13.2
Bank interest	3709	2579	1130	43.8
Q1	1760	1197	563	47.0
Q2	1949	1382	567	41.0
Electricity	2463	2357	106	4.5
Q1	1165	986	179	18.2
Q2	1298	1371	-73	-5.3
Cash Withdrawals	2235	1073	1162	108.3
Q1	1111	380	731	192.4
Q2	1124	693	431	62.2
Sub-Total (8 major items)	64527	51736	12791	24.7
Share in Total WHT	84.7%	85.5%		
Other WHT	11691	8754	2937	33.6
Total WHT	76218	60490	15728	26.0
Share in Gross I. Tax	41.2%	52.6%		

Sales Tax: The sales tax is a vital source of collection of federal tax revenues. The gross and net collection of sales tax stood at Rs. 169.3 billion and Rs. 146.2 billion, during H1: 06-07 entailing growth of 12.9% and 10.2% over the corresponding period last year. The target of sales tax has been achieved to the extent of 93.7% during July-December 2006. Out of a shortfall of about Rs. 10 billion recorded against the target, the sales tax domestic has missed the target by Rs. 1.3 billion and the rest of the shortfall is on account of sales tax imports. Whereas the shortfall in sales tax domestic ST (D) is attributable to payment of higher refunds to the power sector, the slowdown in imports and decline in the collection of customs duties have been responsible for less than targeted collection from sales tax on imports ST (M). It may be recalled that ST (M) contributes between 55% and 60% of total sales tax net collection and the rest is contributed by ST (D).

Notwithstanding the robust growth of 17.2% in ST (D) during first half of FY: 06-07, it remains slightly below expectation. The two main factors that have hampered the desired outcome were: (a) negative growth observed in the collection of two leading revenue spinners, namely, the electrical energy sector and automobile industry by 115% and 83%, respectively, and (b) less than expected growth in the collection of POL products and cement. Moreover, higher input adjustment in natural gas has further eroded the gross collection. The break-up of collection of the two components of sales tax is highlighted in Table 5.

Table 5: Collection of Sales Tax during H1:2006-07

(Rs. Million)

Tax-Head	Collection			Growth		
	Gross	Refund	Net	Gross	Refund	Net
Sales Tax Imports	85,358	46	85,312	5.6	-19.3	5.7
Sales Tax Domestic	83,961	23,036	60,925	21.4	34.0	17.2
Sales Tax (Total)	169,319	23,082	146,237	12.9	33.8	10.2

Sales Tax (Domestic) Collection and Major Revenue Spinners:

A bulk of ST (D) collection i.e., 88.2% has been contributed by ten commodities during July-December 2006. The comparative net collection from these major items is presented in Table 6.

The net collection from telecom services has been the top contributor with an exceptional growth of 44.8% in H1: CFY as compared to the corresponding period last year due to the continuous buoyancy in the sector. Strong competition among the telecom service providers and expansion in the use of mobile phones, have vastly improved the collection. The collection from POL products has increased by 15.8% during H1: 06-07. This growth is lower than expected for the reason that domestic sale price remained high for the period under consideration and there has been a consistent decline in import prices requiring less input adjustment. The negative growth of 9.6% in the collection from natural gas is mainly attributable to huge input adjustments. The collection from sugar has exhibited a healthy growth of 42.6% in H1:06-07 despite the fact that nearly 1/5th of the sugar-producing industries have paid less taxes during July-December 2006 compared to last year. One possible reason for the increase in sales tax collection is the upward increase in per kg price of sugar, when compared to last year.

A strong growth of 42.8% in collection from cigarettes has been noted despite a decline in taxable sales. The main reason for this robust growth is less input adjustment and upward increase in the price of cigarettes by 7%. The collection from cement has remained below expectation, as an increase of 8.3% has been recorded in H1: 06-07. The main reason for this rather abnormal outcome in the face of rapidly growing construction activities could be the fact that the local market is facing a glut-like situation, which is instrumental in its price reduction at retail stage. Thus, even low prices could not spur a reasonable demand. The collection from aerated water/ beverages has exhibited a growth of 20.1% probably due to continuous increase in per capita income and general improvement in the affluence level. Otherwise, winter is generally a lean period for the

industry. Finally, better performance in collection from auto-parts could not compensate the loss of Rs. 1.2 billion incurred in the collection from automobiles during H1:06-07. The decline in collection is mainly attributable to decline in taxable sales due to increased leasing rates from 4%-6% to 10%-11%, less advance bookings with local manufacturers, and influx of inexpensive imported old and used vehicles. However, the industry projects that this situation will improve in the coming months.

Table 6: Net Collection of GST (Domestic) from Major Revenue Spinners

(Rs. Million)

Commodities/ Items	July-December			Share (%)	
	2006-07	2005-06	Growth (%)	2006-07	2005-06
Telecom Services	17,122	11,822	44.8	28.1	22.7
POL Products including LPG	14,643	12,643	15.8	24.0	24.3
Natural Gas	5,679	6,285	-9.6	9.3	12.1
Sugar	4,774	3,347	42.6	7.8	6.4
Cigarettes	2,879	2,016	42.8	4.7	3.9
Cement	2,493	2,301	8.3	4.1	4.4
Services Excluding Telecom	2,180	1,942	12.3	3.6	3.7
Beverages	1,678	1,397	20.1	2.8	2.7
Auto Parts	1,287	1,059	21.5	2.1	2.0
Iron & Steel Products	1,027	810	26.8	1.7	1.6
Major Ten Commodities	53,762	43,622	23.3	88.2	83.9
All Commodities	60,925	51,991	17.2	100.0	100.0

Sales Tax Collection on Imports:

The ST (M) collection during July-December 2006 has been Rs. 85.3 billion as compared to Rs 80.7 billion realized in the corresponding period of PFY. The growth in collection has been 5.7%, which is quite low when compared to 10.4% growth in total imports.

A detailed analysis of ST (M) confirms that the 10 major commodity groups have contributed more than 80% of collection. The POL products are at the top of revenue spinners with a share of 42%. Besides POL, healthy growth has been recorded in edible oil, mechanical machinery, paper & paper board, and oil and seed (Table 7). The growth of 32.4% in revenue collection from POL has been attained on account of increase in value as well as quantity of imported furnace oil and value of HSD. The increase of 35.2% in the collection of edible oil is mainly due to higher demand. On the other hand, the import value of engines, pumps and industrial goods has resulted into increased collection of sales tax from mechanical machinery.

Table 7: Net Collection of Sales Tax Imports from Ten Major Industry Groups

Sr. No.	Commodities	FY: 06-07	FY: 05-06	Growth (%)	Share (%)
27+ 9928	POL Products	35771	27022	32.4	41.9
87	Vehicles and auto parts	7090	8228	-13.8	8.3
72	Iron & Steel	5178	7468	-30.7	6.1
39	Plastic and articles	4749	4301	10.4	5.6
15	Edible Oil/Ghee	4324	3199	35.2	5.1
84	Mechanical Machinery	3192	2135	49.5	3.7
85	Electrical Machinery	2504	2787	-10.1	2.9
17	Sugar	2317	2640	-12.2	2.7
12	Oil Seeds & Misc. Grains	1815	1157	56.9	2.1
29	Organic Chemicals	1767	1812	-2.5	2.1
	Sub-Total	68707	60749	13.1	80.5
	Others	16651	20056	-17.0	19.5
	Total Sales Tax at Imports	85358	80805	5.6	100.0

It is anticipated that the import structure as well as volume will not change drastically during the next six months of CFY. Therefore, the revenue shortfall from this source may continue. Thus, to achieve the overall GST revenue target, this shortfall will have to be compensated by

ST (D). Given the fact that the collection from ST (D) is also adversely affected by unexpected build-up of refunds to power sector, additional tax effort would be required to make up for this loss.

Customs Duties: Customs duties (CD) are the 3rd major, albeit declining, source of collection of federal taxes. Under the broad-based tax policy and administrative reforms, the Pakistan Customs is in the process of rapid transformation into a modern, customer friendly and efficient organization. Some of the features of the customs reforms are speedy clearance of imports, self-assessment, end-to-end use of information technology, and minimization of interface between the taxpayer and collector. The department appears to have crossed the anticipated dip in collection due to massive tariff reduction and rationalization. During this period, revenue switching between customs duties and GST did not take place to the full extent and, as a result, a substantial decline in tax/GDP ratio has been observed. To provide continuous impetus to growth, the policy envisages special treatment for import of raw materials and machinery. The idea is to bring down the cost of inputs and machinery for expansion in investment and promotion of economic activities.

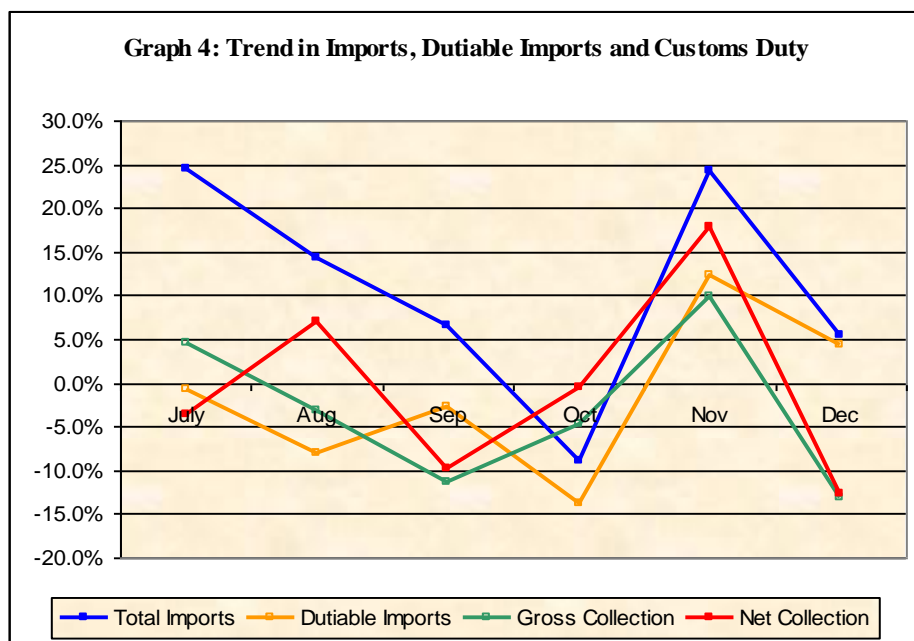
Box 5: Customs Duty Rates

The rates of CD have been curtailed significantly over time to boost the economy. The idea is to encourage investment, facilitate importers, reduce anti-export bias, and fulfilling international commitments. The maximum rates of customs duties have been slashed down from 150% in 1987-88 to 25% in 2003-04 onwards. The present rate structure is as follows.

Rate Structure	Application
5	Mostly to primary raw materials
10 and 15	Mostly to intermediate goods
20 and 25	Mostly to finished goods
30	Applicable to CBU trucks above 5 tones gross weight and CKD kits of motorcycle
35	Applicable to CKD kits of automotive vehicles
50	CBU rate for car and jeeps up to 1500 cc
60	Applicable to import of trucks of less than 5 tones gross weight
65	CBU rates for cars of engine capacity 1501 to 1800 cc
75	CBU rates for cars and jeeps above 1800 cc
90	CBU rates for motorcycles and alcoholic drinks

*Specific rates are applicable to edible oils.

The gross and net collection of customs duties realized during July-December 2006 stood at Rs. 68.7 billion and Rs. 60.7 billion, respectively. The difference between gross and net collection amounting Rs. 8 billion have been paid back as refund/ rebates. The decline by 3.9% and 1.2% in the gross and net collection of CD is mainly due to drop in the volume of dutiable imports by 1.3%. Due to shrinking of base, the CD target of Rs. 70.9 billion has been missed by 14.3% during H1: 06-07. It may be recalled that the growth in imports during PFY was nearly 35% and of dutiable imports 31%. This growth has dwindled substantially during the first six months of CFY. The month-wise trend in imports, dutiable imports, and collection of CD is obvious in Graph 4.



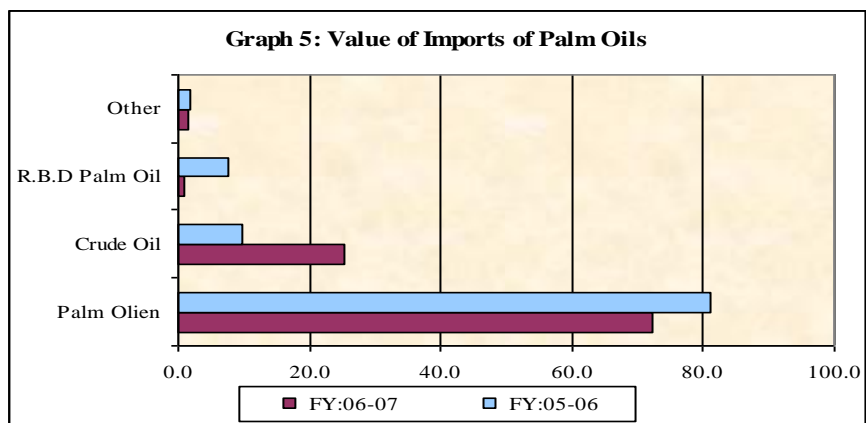
It may be recalled that the CD target for FY: 06-07 had assumed 15% growth in the value of imports and dutiable imports. It is estimated that if the current trend continues during the next 6 months, the gap between the target and collection of CD will widen to about Rs. 20 billion, which needs to be plugged. Considering this changing scenario, the target of CD needs revision but without altering the overall revenue target.

Customs Duty from Major Revenue Spinners

The growth in CD and import value of 15 major revenue spinners is reflected in Table 8. These commodity groups constitute around 78% of gross CD collection during July-December FY: 06-07. The automobile sector continues to be the mainstay contributing around 21% of gross collection. However, it is relevant to mention that the momentum of growth in CD gained in the last couple of years has been retarding gradually. In fact, the collection has come down by 9.1%. A detailed analysis of the automobile sector reveals that the import of motor cars and jeeps (PCT heading 87.03) appears to be playing a pivotal role in the collection of CD from this sector. According to the revised baggage rules announced in the Federal Budget 2006-07, restriction has been imposed on the import of old and used vehicles aging more than 3 years. As a consequence, the import of vehicles in CBU condition is fast decelerating as compared to last year. The growth in the number of motor cars and jeeps in CBU condition has been only 2.6% while import value has declined by 34.7%. Resultantly, a reduction of Rs. 1.7 billion has been observed in CD during H1: 06-07. This decline is mainly attributed to the lesser imports of number of jeeps and motorcars (*high cc*). Elaborating further, a loss of Rs. 280 million has also been recorded during July-December, 2006 due to exemption of agriculture tractors in CBU condition in the budget 2006-07.

Edible oil has been the second major source of CD during July-December 2006-07. About 97% of the import of edible oils is dutiable. Whereas the dutiable imports of edible oils have increased by 14.3%, the collection has increased by only 3.6%. A deeper analysis of various constituents of edible oil confirms that around 95% of collection from edible oils (Ch: 15) has been fetched from palm oils. The value of import of RBD Palm oil has dropped by around 88%. Similarly, the import of palm oilien has exhibited a lower growth of 4.2% in value of import and as a result, the collection has dropped by 7%. The imported quantity has also declined by 10%. On the other hand, the value of import of crude edible oil has

increased by 206% generating a substantial growth of 160% in CD (Graph 5).



Although, the import of POL products grew by 32.2%, the dutiable portion increased by only 6.3%. Consequently, the CD collection grew only by 1.9%. As far as electrical machinery is concerned, the reduced rates of CD have spurred the import of electrical machinery (including mobile phones) by around 32% and accordingly, the collection has also improved substantially by 27.1% during H1: 06-07. This implies that negative impact of tariff reduction has largely been offset by increased volume of imports of electrical machinery. On the other hand, the decline in total and dutiable imports of mechanical machinery has adversely affected the collection by 11.5%. Despite lowering of rates of mechanical machinery, the imports could not improve during H1: 06-07. The import of mechanical machinery has declined mainly due to dip in the import of textile and construction machinery by 31.6% and 24.4% respectively. Accordingly, the collection has also gone down by 32.4% and 34.9%. Similarly, due to reduced rates on plastic, the collection has dropped by 2.6% despite an improvement in dutiable imports by 6.6%.

Iron and steel (Ch: 72) has also posted a decline in customs duty partly because the rates have been lowered but more importantly and essentially, due to reduction in imports and dutiable imports. It may be

recalled that a massive growth in the iron and steel (Ch: 72) was recorded during FY: 05-06 as Pakistan Steel Mill (PSM) was not operating at its earlier potential. There could be two reasons for decline in revenue from this source. Either there is saturation in the local availability or imported steel is being substituted by domestic supplies as PSM has started its operations. Another factor worth mentioning is the increase of 55% of quantity of iron and steel products (Ch: 72) in transit to Afghanistan. The quantity has increased from 926.1 thousand Kg in H1: 05-06 to 1,432.4 thousand Kg in H1: 06-07. The import of articles of iron and steel has maintained its robust demand in the country for the second year running. However, contrary to 58% increase in the value of imports, the increase in CD has been only 3.1% mainly due to reduced rates of CD.

Table 8: Major Revenue Spinners of Customs Duties and Effective Rates

(Growth and Effective Rates in percent)

PCT Chapter	Tariff Description	July-December Growth: CFY over PFY			Effective Rates on Dutiable Imports	
		Total Import	Dutiable Imports	Customs Duties	Up to Dec-06	Up to Dec-05
87	Vehicles	-2.3	-9.0	-9.1	36.4	36.4
15	Edible oil and Waxes	17.5	14.3	3.6	29.3	32.3
27	POL Products	32.2	6.3	1.9	9.6	10.0
85	Electrical Machinery	31.7	34.2	27.1	7.4	7.8
84	Mechanical Machinery	-3.2	-13.1	-11.5	6.8	6.7
39	Plastic Resins, etc.	8.6	6.6	-2.6	8.0	8.8
72	Iron and Steel	-25.8	-33.3	-32.5	10.7	10.5
48	Paper and Paperboard	14.9	-9.8	2.3	21.3	18.8
29	Organic Chemicals	3.1	-18.4	-20.5	8.2	8.4
73	Articles of Iron & Steel	57.6	46.7	3.1	10.2	14.6
38	Misc. Chemical Prod.	-8.1	-9.3	-12.3	8.1	8.4
9	Coffee and Tea etc.	4.2	6.7	5.8	10.0	10.0
40	Rubber & Articles	2.3	4.0	-5.3	10.7	11.8
54	Man Made Filament	-13.1	-6.8	-6.5	9.0	9.0
32	Dyes, Paints etc.	8.2	4.4	-0.6	12.3	12.9
<i>Sub-total</i>		<i>12.7</i>	<i>-0.1</i>	<i>-4.1</i>	<i>12.7</i>	<i>13.2</i>
Others		4.0	-6.7	-3.1	17.1	16.5
Grand Total		10.4	-1.3	-3.9	13.5	13.9

Finally, in an effort to expand industrial output, the rates for chemicals were reduced in the Budget 2006-07. The collection from organic and misc. chemicals has declined by 20.5% and 12.3%, respectively not only due to reduction in rates but also due to drop in the dutiable imports. It appears that the policy of reduction in rates has not been instrumental in raising its demand.

Federal Excise: The FED has performed well during H1: 06-07 and its share has remained around 8% in total federal tax collection. In absolute terms, Rs. 30.8 billion net revenue has been recorded during H1: CFY against Rs. 25.4 billion in the H1: PFY, indicating a growth of 21.6%. The 2nd quarter performance has been better than Q1, as 29.4% growth was recorded in Q2 as compared to 13.3% in the 1st quarter of CFY. The month-wise details indicate that except for September, a double-digit growth has been registered during all other months. The significant improvement in the collection of FED is a healthy sign when viewed within the broader context. There has been an increase in industrial production and clearance of excisable products. The broadening of excise base by bringing certain services into tax net has also been instrumental for improved FED performance.

The commodity-wise collection of major spinners provides a comparison between H1: 06-07 against H1: 05-06 (Table 9). It is worth mentioning that with the addition of services in the net, the share of major five items has reduced to around 85% against 91% experienced earlier.

The major contributors in the FED collection are: cigarettes with a share of 35.7%, cement 23%, beverages 10.1%, natural gas 8.8%, and POL Products 7.7%. A significant growth of 28% has been recorded in collection from beverages, followed by cement (20%), POL Products (12.4%) and cigarettes (8.2%). In the case of natural gas, the negative growth of 4.3% during Q1 has been compensated by 4.2% positive growth in Q2 of CFY. The major reason for stagnation in growth has been the fact that substantial input claims has been entertained by major

explores and suppliers of natural gas – an increase from Rs. 7.8 billion during H1: 05-06 to Rs. 15.1 billion during H1: 06-07.

Table 9: A Comparative Analysis of FED Collection

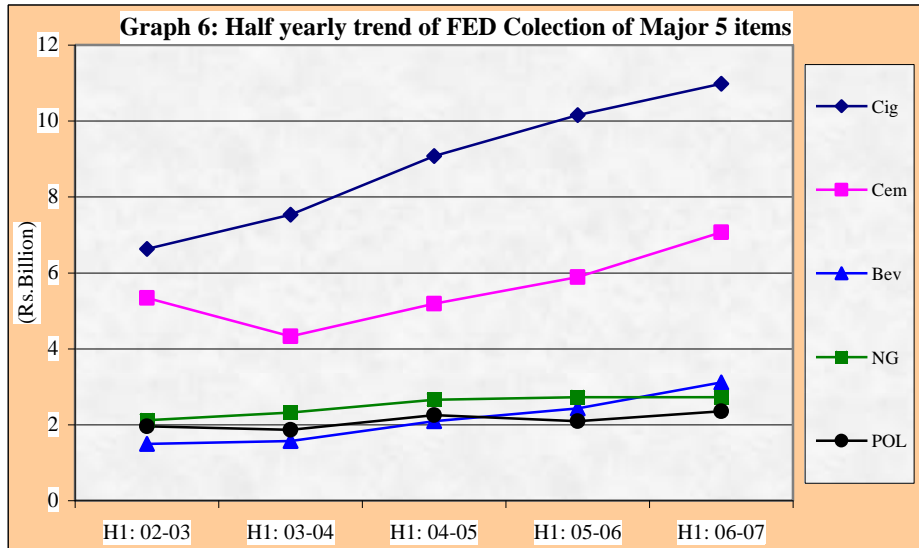
(Rs. Million)

Major Revenue Spinners	H1:2006-07	H1: 2005-06	Difference	
			Absolute	Percent
<i>Cigarettes</i>				
Q1	4582.9	4555.8	27.1	0.6
Q2	6394.8	5592.2	802.6	14.4
Total	10977.7	10148.0	829.7	8.2
<i>Cement</i>				
Q1	3385.1	2952.8	432.3	14.6
Q2	3684.6	2938.5	746.1	25.4
Total	7069.7	5891.3	1178.4	20.0
<i>Natural Gas</i>				
Q1	1284.3	1341.5	-57.2	-4.3
Q2	1435.0	1377.2	57.8	4.2
Total	2719.3	2718.7	0.6	0.0
<i>POL Products</i>				
Q1	1189.3	1051.6	137.7	13.1
Q2	1164.4	1041.7	122.7	11.8
Total	2353.7	2093.3	260.4	12.4
<i>Beverages & Concentrate</i>				
Q1	1808.1	1397.7	410.4	29.4
Q2	1297.1	1028.4	268.7	26.1
Total	3105.2	2426.1	679.1	28.0
<i>Sub-Total</i>				
Q1	12249.7	11299.4	950.3	8.4
Q2	13975.9	11978.0	1997.9	16.7
Total	26225.6	23277.4	2948.2	12.7
<i>All Commodities</i>				
Q1	14040.0	12493.0	1547.0	12.4
Q2	16892.0	13061.0	3831.0	29.3
Total	30932.0	25554.0	5378.0	21.0

Half Yearly Collection of Major Contributors in FED:

The half-yearly collection trend of major heads is presented in Graph 6. The collection from cigarettes has continuously risen since H1: 02-03 to

H1: 06-07, and the FED collection from cement is also on rise except for a dip in H1: 03-04. The collection from remaining major items has also been increasing but at a much slower pace.



As indicated, the half-yearly FED collection is in line with the overall production and clearance of industrial units. Additional contribution has also poured in from taxable services, particularly air travel. A 394% growth in collection from services has recorded mainly because of budgetary measures introduced during budget FY: 06-07. During FY: 05-06, air travel both, at domestic and international level was taxable. The domestic travel faced FED @ 15% in VAT mode, while CVT @ 1.5% was applicable on international air travel. During Budget 2006-07, CVT has been withdrawn and FED @ 15% was levied. The rate of FED on international air travel has been revised through S.R.O. 777(I)/2006 dated 01.08.06 as indicated in the following.

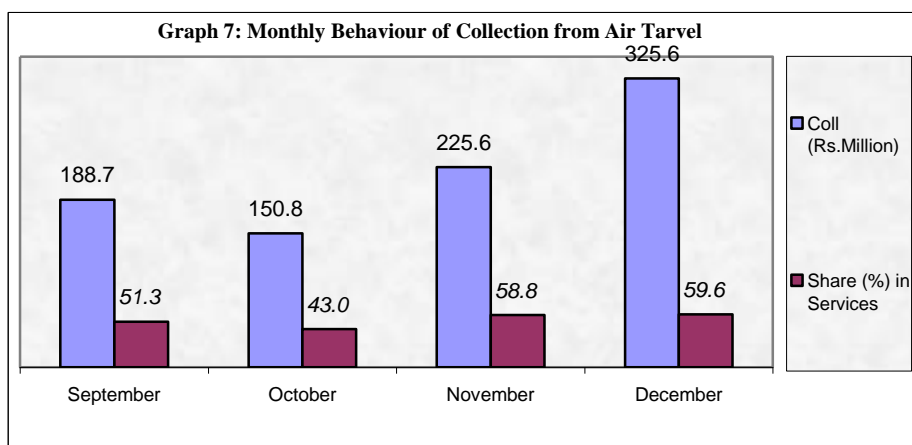
There are certain exemptions to this tax. For example, Hajj and Umra, diplomats, supernumerary crew and passengers having arrived in Pakistan from abroad on tickets issued outside Pakistan and are

embarking only for return journey from Pakistan (SRO.778(1)/2006 dated 01.08.2006) remain outside the tax net.

Destination	Rate of FED in Pak Rupees	
	Economy Class and Economy Plus	Premier, Club, Business and First Class
SAARC Region, UAE (Middle East), Saudi Arabia, Africa and Afghanistan	1500	2500
Europe, Far East, China, USA, Canada, Australia, South America, Others.	2500	4000

Whereas the collection of FED on domestic travel continues to be insignificant mainly due to facility of input adjustment enjoyed by the airlines against FED, an amount of Rs. 891 million has been collected from international travel during July-December FY: 06-07. The month-wise details of FED from international air travel indicate an upward trend in collection since October onwards (Graph 7).

It is further added that the projected loss of Rs. 750 million for full year i.e., during FY: 06-07 due to the withdrawal of CVT from air travel tickets has already been offset. Based on the half-yearly collection, it is anticipated that the year-end collection from this source would be according to *a priori* expectations.



Concluding Remarks

CBR has attained historical heights in revenue collection. The revenue target has been surpassed in a comprehensive manner. The direct taxes have been instrumental in achieving the CBR overall revenue target of Rs. 381.1 billion, fixed for the half year of CFY. The Phenomenal improvement in collection from different sources of direct taxes has compensated for the shortfall in customs and sales tax imports. The improvement in voluntary compliance, both in terms of the number of returns and payments with returns, has been simply impressive so say the least. This is yet another confirmation of earlier claim that the policy changes pursued during recent years to transform the taxation structure in general and income tax regime in particular have started generating benefits that were not possible previously. It is projected that this momentum will continue in future as well.

Going forward, the monthly revenue targets for import-related taxes will require downward adjustment, as the declining trend in import growth is expected to continue. This deficit will need to be compensated through domestic taxes. However, since both corporate and individual returns have already been received, the likelihood that direct taxes will compensate for the loss of trade-related taxes is not as bright as it had been the case during the first two quarters of CFY. This means that extra tax effort will be required to achieve the overall revenue target.

Future Field Structure of Internal and International Taxes (Directed Taxes, GST, Federal Excise, and Customs)

Three Large Taxpayer Units (LTUs) at
Karachi, Lahore and Islamabad

Thirteen Regional Tax Offices (RTOs) at
Karachi, Hyderabad, Sukkur, Quetta, Multan, Lahore, Faisalabad,
Sialkot, Gujranwala, Rawalpindi, Islamabad, Abbottabad, Peshawar

Sixty-Six Tax and Trade Facilitation Centers (TFCs)

Eleven Model Customs Collectorates (MCCs) at
Karachi, Port Qasim, Hyderabad, Quetta, Gawadar, Multan, Lahore,
Faisalabad, Sialkot/Sambrial, Rawalpindi/Islamabad, Peshawar

II

Sectoral Contribution in GDP and Taxes: In Search of the Missing Link⁷

Introduction

A country's tax effort expressed as a percentage of revenue collection to GDP is effected by a number of factors. These include: composition of revenues (income relative to consumption taxes), distortions introduced by the taxation system (level and composition of exemptions provided under the tax system to various economic activities and individuals in the economy), shift from easy to collect taxes (for instance, customs tariff) to hard to collect taxes (VAT), problems in enforcement due to insufficient institutional capacity and political lobbying and the level of tax evasion and tax avoidance in the economy. A deeper analysis of all these factors is important to understand if there is a scope for raising the overall tax compliance in an economy. Unlike many competing economies, Pakistan's low tax effort (expressed as a ratio of tax revenue to GDP) has been a matter of concern not only for the government but also the tax organization itself. A significant real growth of GDP at 7-8 percent in the last couple of years and not so impressive growth in tax revenues have raised the apprehensions about stagnant tax effort further.

Notwithstanding the initial headway to understand the issue, it remains complicated and requires a more detailed analysis. The precise understanding of the phenomenon is important not only to determine the scope of raising further revenues consistent with increasing expenditure needs, but also to ensure horizontal and vertical equity in the taxation system. Needless to emphasize that when some activities are more heavily taxed than others, the allocation of resources gets distorted as proportionately higher resources are allocated to the lightly taxed sectors and too few to more heavily taxed sectors. The misallocation of resources

⁷Authors: Ms. Robina Ather Ahmed Chief (FR&S) and Dr. Ather Maqsood Ahmed, Member (Fiscal Research & Statistics, CBR.

produces an excess burden of taxation which simply means that economy ends up producing less income out of the available resources. To resolve this puzzle, the first step in this direction is to determine the contribution of economic activities in an economy and their corresponding contribution in taxation. An uneven contribution by economic activities should either indicate the possibility of the presence of wide-ranging tax exemptions and concessions or it could be due to the existence of loopholes in the system leading to extensive tax evasion and tax avoidance.

The paper concentrates on both these aspects and has attempted to highlight the match (or mismatch) between contribution of various economic activities in GDP and corresponding contribution in taxes. For this purpose sectoral shares in GDP and in taxes are estimated that provide some indication on whether the activity is under- or over-taxed. Theoretically, the share of taxes paid by an economic activity at the same statutory rate should correspond to its share in value addition or GDP. In the next step, an effort is made to dig deep into the reasons for this lopsidedness by estimating Average Effective Tax Rates (AETR) that helps us determine the effective tax burden. This study uncovers a number of mysteries that have eluded the tax administration so far. The outcome of this study can effectively be summarized by a simple but provocative statement that ‘there is tremendous scope for raising revenues’ as there is no scarcity of sectors that are either outside the tax net or lightly taxed. More importantly, the study finds that some of the sectors which have so far been perceived to be tax-compliant are in fact contributing well below their potential.

Background

The exercise would have been very simple and easy had there been a one-to-one linkage between economic classification of (goods and services) in an economy within the National Income Accounts framework and the classification of direct and indirect taxes. Unfortunately, this is not the case in Pakistan as the two systems of

classification have very few things in common. To put things in proper perspective it is important to understand that there are three international classification systems, ISIC, HS and CPC for tradable goods and services used in National Income Accounts. National Income Accounts based on these international classifications provide a framework for international comparison of statistics dealing with goods, services and assets. These three systems are briefly outlined in the following.

ISIC (International Standard Industrial Classification of all Economic Activities): ISIC is a basic tool for studying economic phenomena, fostering international comparability of data and for promoting sound national statistical systems. Wide use has been made of ISIC in classifying data according to kind of economic activity in the fields of population, employment, GDP and other related activities. Thus, despite the word industrial, ISIC is not just a classification of industries.

In ISIC, a standard classification of economic activities is arranged so that entities can be classified to the activity they carry out. The categories of ISIC at the most detailed level delineated according to what is, in most countries, the customary combination of activities in statistical units. The groups and divisions, the successively broader levels of classifications combine the statistical units according to the character, technology, organization and production.

HS (Harmonized Commodity Description and Coding System): HS is an exhaustive nomenclature of internationally traded commodities (goods) classified according to raw or basic material, degree of processing, by use or function and according to economic activities.

CPC (Central Product Classification): CPC is a system of different, but interrelated, classification of economic activities and goods and services. It has improved harmonization among the various classifications in the economic and other fields. CPC provides a link between HS and ISIC by using the detailed subheading of the HS as building blocks for the part

dealing with transportable goods and to take into account basic categories of economic supply and use as specified in the system of National Accounts (SNA) such as intermediate consumption, final consumption, capital formation and exports. To identify the relationship between CPC and ISIC, each sub class has a reference to the ISIC Rev.3 industry or industries.⁸ The information on correspondence between CPC and ISIC Rev.3 is provided by the United Nation's Statistical Commission on international economic and social classification.

With regard to transportable goods, a close relationship exists between the CPC and the HS, as CPC sub classes in section 0-4 constitute groupings and rearrangements of complete categories of HS 96. As a result, 1143 CPC sub classes have been created by using over 5,000 headings of HS as building blocks.

Though not one to one, yet correspondence between ISIC Rev.3 and CPC and HS is possible. Ideally, therefore, disaggregated estimates of GDP on ISIC Rev.3 or CPC and classification of domestic taxes, GST and Income tax on CPC and tradable goods and corresponding taxes on HS can provide a clear picture of contribution of various economic activities in GDP and taxes. Unfortunately, even though indirect taxes – sales tax, federal excise and customs duties are 'generally' based on HS, the Federal Bureau of Statistics has not adopted ISIC Rev.3 classification system as yet for National Income Accounts. Therefore, there was a need to adopt an alternative methodology to carry out the present exercise for Pakistan. The details are spelled out in the following.

Methodology

To overcome the problem of classification, a simple methodology for disaggregated estimates of GDP and total taxes, direct as well as indirect paid by economic activities, has been designed. Estimates for GDP of various sectors are taken from the National Income Accounts (NIA)

⁸ ISIC Rev.3 refers to Revision 3 of ISIC.

produced by the Federal Bureau of Statistics (FBS). Since detailed estimates of GDP, especially for sectoral contribution of various manufacturing units are not available with the FBS, GDP estimates for the year 2004-05 have been derived from the base year estimates, i.e., 1999-2000. Estimates for the 2004-05 have been extrapolated from base year on the basis of share of these sectors in the GDP. Extensive use has been made of 23 studies carried out by the FBS and its consultants at the time of rebasing of the GDP in year 2000.⁹

To understand the match or mismatch between taxes and GDP and estimate the contribution of various sectors of the economy in taxes, the direct and indirect taxes paid by these sectors through sales tax returns and income tax returns have been calculated. For the purposes of taxes, indirect taxes, i.e., GST, Customs Duty and Federal Excises collected from traded and domestic goods are classified on HS basis whereas for Income Tax, Business Codes developed by the Income Tax Department have been used. Incidentally, the Business Codes are based on classification of economic activities according to stages of manufacturing, wholesale & retail trade, and services.

Limitations of the Study

Several clarifications are required before interpreting the results. Firstly, the estimates should be treated as 'indicative' and not completely precise. Contribution in taxes by various economic activities only includes the initial incidence of tax borne by the economic activity. Since the indirect taxes are ultimately paid by the consumers, in the absence of an in-depth analysis of incidence, it cannot be stated in definitive terms the extent of the burden of taxes actually borne by the sector and how much of it is shifted forward to the final consumer. Secondly, in the case of corporate taxes it was not possible to estimate the extent of burden shifted forward on to the labor, the share-holders, and the consumers (in the form of higher prices). Thirdly, the measurement techniques for the two sets of

⁹ The FBS undertook 23 studies on major sectors and sub-sectors of the economy at the time of re-basing of GDP. These are available with the FBS, Islamabad.

indicators are also very different. Whereas the GDP estimates are based on Product Approach for agriculture, manufacturing and electricity gas and water supply sector, the NIA utilize Expenditure Approach for construction. Finally, Income Approach is used for transport, storage and communication sector and finance and insurance sector. Compared to these diversified approaches in vogue to measure national income, taxes are generally based on the Product Approach.

Sectoral Contribution in GDP and Taxes

The analysis of the relative strength of different components of GDP and their contribution in revenue turns out to be quite revealing.¹⁰ The results highlight the great mismatch.¹¹ Whereas the contribution of agriculture sector in GDP is slightly over 21%, its contribution to taxes is only 1.1%. This has been due to wide-ranging tax-exemptions granted to the agriculture sector, narrow tax base, low compliance and enforcement, and constitutional constraint whereby taxation of agricultural income is a provincial subject. An international experience to this effect confirms that agriculture sector has never been a major source of tax revenue due to its peculiar nature. However, the income emanating from this source, what so ever small it may be, is never kept outside the tax net. Pakistan and few other countries are exceptions. Resultantly, a major loophole has been created in the taxation system. One really wonders how to justify tax exemption to income earned by sprawling orchard-owners and those who are engaged in lucrative horticulture business. At the same time, the anecdotal evidence, only partly confirmed by empirical evidence, also suggests that keeping agriculture outside the tax net has provided ample opportunities for tax avoiders and evaders to declare their incomes earned in the non-agricultural sector as agricultural income. Regarding narrow tax base, it needs to be stressed that nearly fifty percent of agriculture value added is generated by live stocks engaged in milk,

¹⁰ As indicated, this study has extensively used information provided in income and sales tax returns submitted by the taxpayers. Complete availability of income tax returns was the major factor for restricting the analysis for fiscal year 2004-05.

¹¹ These results based on improved methodology are in conformity with earlier estimates presented in *CBR Quarterly Review*, April-June (2005).

poultry, and related activities. This sector, despite its profitability, has almost no tax contribution. Enforcement is yet another critical issue. So far only two provinces have opted to have tax on agriculture income, but even in these provinces, the collection is abysmally low, which speaks volumes about the level of compliance within the agriculture sector.

The second disturbing area as far as tax compliance is concerned is services sector. The tax contribution of this sector is only 33% compared to its share of over 50% in GDP. There are a number of activities that have gained prominence over the years. The most important among them are banking and insurance, telecommunication, wholesale and retail trade, transport, and construction. The growth recorded by these sectors has been simply overwhelming. However, the tax contribution is not found growing at the same pace. As a matter of fact, it has lagged behind by a wide margin and there are very few exceptions.

Finally, the impression that manufacturing and mining and quarrying sectors are paying more than their fair share of taxes than their respective contribution to GDP is not correct. A deeper analysis reveals that out of 53.7% share in taxes, 42.6% are generated through indirect taxes (Table 1). Since the incidence of indirect taxes is almost always shifted forward, the result implies that nearly 80% of taxes attributable to the manufacturing sector are, in fact, borne by final consumers. This forward shifting is glaring in the case of iron & steel industry, cigarette manufacturers, cement producers, edible oil industry, machinery and automobile industries. In all these cases, more than 85% of tax incidence is passed on to the final consumers. The highest transfer of burden of 97% has been estimated for iron and steel industry. Thus, there are serious equity concerns.

In the light of foregoing discussion, the first major conclusion of the study is that there is a great mismatch between sectoral share in GDP and taxes. The agriculture is nearly tax exempt. The services sector is lightly

taxed and the tax contribution of the manufacturing sector is disproportionate to its contribution to GDP.

Table 1: Contribution by Economic Sectors in GDP and Taxes

Economic Activities	Value Added 2004-05 (Rs. Million)	Share (%) in GDP	Total Taxes in 2004-05 (Rs. Million)	Share (%) in Total Taxes	Of which	
					Indirect Tax Input	Direct Tax Input
Agriculture	1377147	20.93	6320.69	1.07	1.03	0.04
Mining & Quarrying	177658	2.7	45269.51	7.67	7.47	0.20
Manufacturing	1107077	16.82	317033.6	53.7	42.6	11.1
Services	3919207	59.55	221762.3	37.57	17.78	19.78
Grand Total	6581089	100	590387	100	68.88	31.12

Source: Pakistan Economic Survey and CBR data bank.

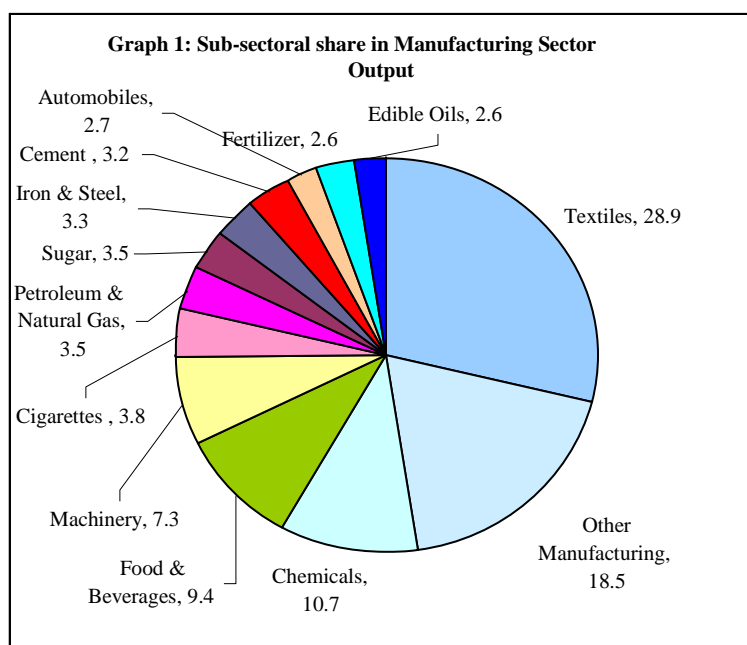
Detailed Analysis of the Manufacturing Sector

While focusing on the manufacturing sector, the first objective was to understand its structure so that a correlation between sub-sectoral contribution in output (value-added in manufacturing) and taxes could be established. Pursuing further in this direction, it was rather disturbing to know that no data are compiled in Pakistan with the help of which one could determine the sub-sectoral contribution within the manufacturing sector. It is simply not possible, through any direct method, to know the contribution of a particular sector (say textile) in the manufacturing sector output. Nonetheless an estimate can be derived with the help of QIM (Quantum Index of Manufacturing), but it is not sufficient for a meaningful analysis. Similarly, another supposedly comprehensive source, namely, the Census of Manufacturing Industries (CMI) has never attained due recognition due to its outdated nature and incomplete coverage.¹² As indicated in the methodology section, the sub-sectoral

¹² There are serious problems related to CMI. The census lacks complete knowledge of population. The response to the questionnaire by industry is half-hearted and there is no follow-up to reconfirm the responses. Therefore, without elaborate and credible information it is not possible to determine the gap between actual production and the true potential of the industry. A subsequent implication of this weakness is that it is not

contribution in manufacturing for the year 2004-05 has been extrapolated from the base year estimates of 1999-2000. For this purpose, the respective contribution of these sectors has been assumed to remain constant over time.

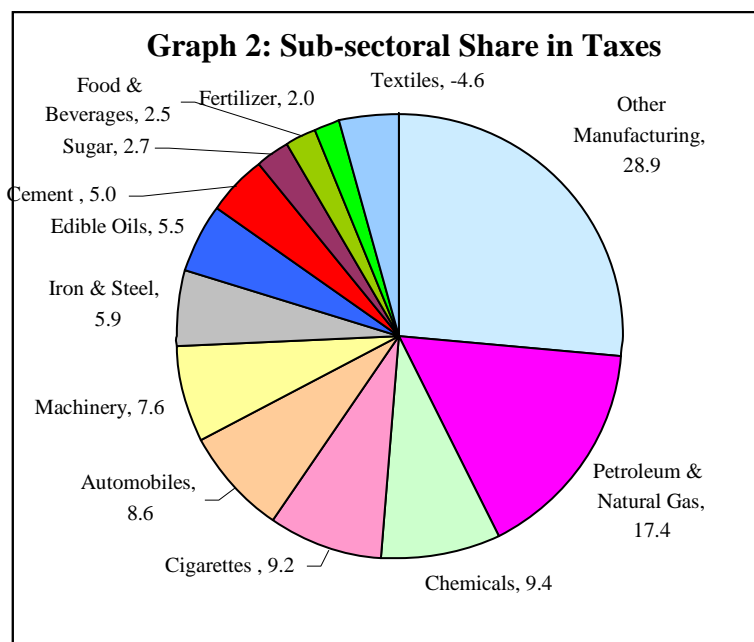
The detailed analysis of the manufacturing sector is no less revealing. The largest contribution to the manufacturing sector output (value added in manufacturing) emanates from textile sector. Other leading contributors to the industrial production are chemicals, food processing units including beverages, machinery, cigarettes, natural gas and so on (Graph 1). Compared to this, the contribution of emerging automobile sector as well as fertilizer and edible oil industry remains low.



It has been found that notwithstanding this dominant position within the manufacturing sector, the tax contribution of textile sector has been almost negligible. In fact, whatever is paid has been received back as

possible to have accurate estimates of domestic demand for a particular sector and the availability (or unavailability) of its exportable surplus.

refund hence the net collection becomes negative. Food and beverages sub-sector also portray a similar picture. On the other hand, highest contribution in taxes comes from petroleum and natural gas sub-sector despite their low contribution to GDP. Similarly, apparently the overall tax contribution of automobile, iron and steel, cigarettes, edible oil, and cement is higher than their respective contribution to GDP. However, this overall situation changes diametrically when tax contribution is decomposed into direct and indirect taxes. Barring petroleum and to some extent automobile sector, the direct tax contribution of all other sectors relative to GDP turns out to be too low. This result confirms that the incidence of federal taxes is not borne by the manufacturing sector, as may have been misconceived on the basis of aggregate analysis. It is unfortunate that almost all the manufacturing sub-sectors prefer to pass taxes forward to final consumers in the shape of higher prices and themselves bear nearly no tax burden.



Thus the second major finding of the study is that the tax contribution within manufacturing sector is also uneven. Some of the sub-sectors like

textile and food processing have a relatively larger contribution in manufacturing sector output but their tax contribution is fairly negligible. On the other hand, the tax payment of petroleum and natural gas sub-sectors is relatively high compared to their contribution in manufacturing sector output.

Detailed Analysis of Services Sector

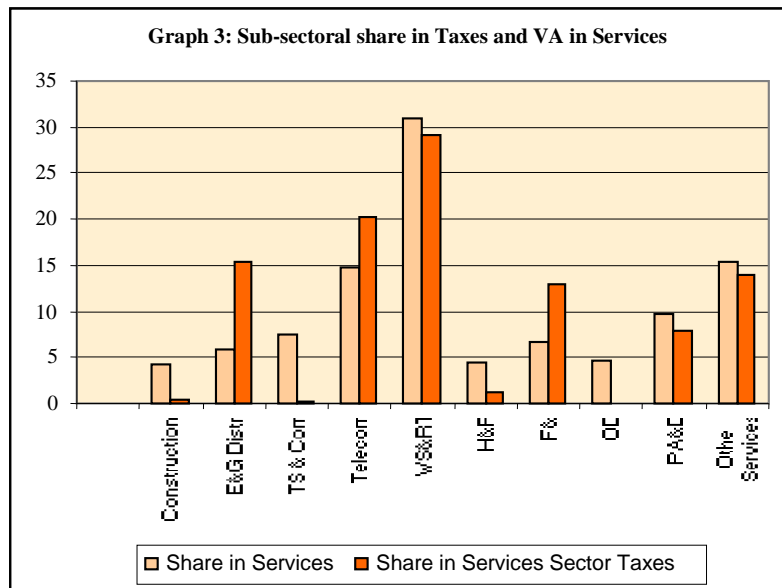
The services sector comprises of Transport, Storage & Communication, Wholesale and Retail Trade, Finance and Insurance, Ownership of Dwellings, Public Administration and Defence, and Other Services. The share of these services in GDP has hovered around 51-52 percent during the past many years [Pakistan Economic Survey, 2005-06; Table 1.2 in Statistical Appendix]. In the present study the contribution of construction and electricity and gas distribution is also merged in the services sector, thereby raising the share of services by 3.4%.

Within services, the contribution of wholesale and retail trade is highest (18-19 percent), followed by transport, stage and communication (10-11 percent), public administration and defence (5-6 percent), and finance and insurance (4 percent). The contribution of other sub-sectors has been less than 3 percent. This excludes 'other' services (Graph 3).

Compared to this situation, the tax compliance of the emerging sub-sectors is not consistent with their contribution to GDP. Unlike the manufacturing sector, there are many sub-sectors whose overall tax compliance is far too low. Among them are construction, transport, storage, telecom, wholesale & retail trade (other than sale repair of motor vehicles), and hotels and restaurants. In fact, the contribution of the construction, transport, and hotel and restaurants sectors to taxes has no match at all to their respective contribution to GDP. The tax payment by wholesaler and retail category requires further explanation. This relatively higher contribution is due to tax deductions at import stage, which are difficult to avoid. Furthermore, within this category, the tax contribution of wholesale and commission agents is almost insignificant.

Finally, despite all pomp and show, there is a mismatch between what is contributed by the telecom sector to GDP and taxes.

The third conclusion of the study is that the tax contribution of services sector is not consistent with its contribution to GDP. The glaring loopholes are found in construction, transport, and wholesale and retail trade sub-sectors. Hotel and restaurant business, the commission agents, and road transporters are among the lowest tax compliant sectors.



Alternative Explanation through AETR

The performance of various sectors can alternatively be explained by calculating Average Effective Tax Rates (AETR). The AETR is measured as the ratio of tax collection to the tax base derived from national income accounts (GDP) – the rate at which these sectors contribute revenues in the economy (Box 1). On the whole, the average tax rate (direct and indirect) faced by the economy is close to 9 percent. However, wide variations exist when AETR is estimated for different sectors (Table 2). As expected AETR faced by the manufacturing and mining and quarrying sectors are the highest; for services it is 5.4 percent

and for agriculture it is less than one percent. Similar variations continue to persist when AETR is decomposed on the basis of direct and indirect taxes.

Box 1: Definition of Average Effective Tax Rate

The AETR is a standard indication of the effective tax burden on categories of income, consumption or economic sectors. It is measured as the ratio of tax collection to its national tax base derived from national income accounts. The difference in the comparison of AETR with statutory rates identifies the gaps that occur due to various tax effects i.e. tax evasion, exemption and the extent of informal economy (Poirson 2006).¹³

Table 2: Estimates of Sectoral AETR

Economic Activities	Value Added 2004-05	All Taxes	Overall AETR
Agriculture	1377147	6320.69	0.46
Mining & Quarrying	177658	45269.51	25.48
Manufacturing	1107077	317033.64	28.64
Services	3542007	191913.25	5.42
GDP	6581089	590387	8.97

Comparison of these AETR with average statutory rates of direct and indirect taken as 20% and 25% respectively confirms the existence of substantial tax gaps across and within sectors.¹⁴

For instance the AETR of indirect taxes for manufacturing is estimated to be 23% against the statutory rate of 25% -- thus there is a gap of 2%. On the other hand, the AETR of direct taxes is only 6% against the statutory rate of 20% which means that there is a gap of 14%. This clearly shows that whereas the collection of indirect taxes is not too far off from

¹³ Poirson, Helene (2006) 'The Tax System in India: Could Reforms Spur Growth', IMF Working Paper No. WP/06/93, IMF: Washington., D.C.

¹⁴ For indirect taxes, the average statutory rate for sales tax and customs duties are taken as 15% and 10%, respectively. For income tax, 20% rate has been assumed recognizing that the corporate rate is 35% but WHT rates are below 10%.

potential as the taxes are collected at entry and exit points of goods (ports and manufacturing units) there is a significant differential in rates when direct taxes are considered. Incidentally, for services the AETR is 3% for direct as well as indirect taxes, indicating that services are highly under taxed.

The analysis of AETR also indicates that various economic sectors are taxed at different rates. Within industry, automobile is facing AETR (indirect taxes) of 76%, food & beverages 7% and textile (-) 7%. In the case of services, sale and maintenance of motor cars is contributing at the AETR of 21%. Most alarming is the state of hotels & restaurants that are currently contributing at AETR of only 1%!

The results obtained from evaluation of economic activities across taxes are even more astonishing. For example, even though the automobile sector faces indirect tax AETR of 76%, its direct tax contribution is at an AETR of 15% only. Similarly, one may argue that the telecommunication sector with its 5% share in indirect taxes and 10% share in direct taxes has a significant contribution in tax revenues, but the AETR for telecom is only 4% each for direct and indirect taxes.

Thus, the AETR calculation re-confirms the existence of serious gaps in actual payment of taxes vis-à-vis the potential.

Summary and Conclusions

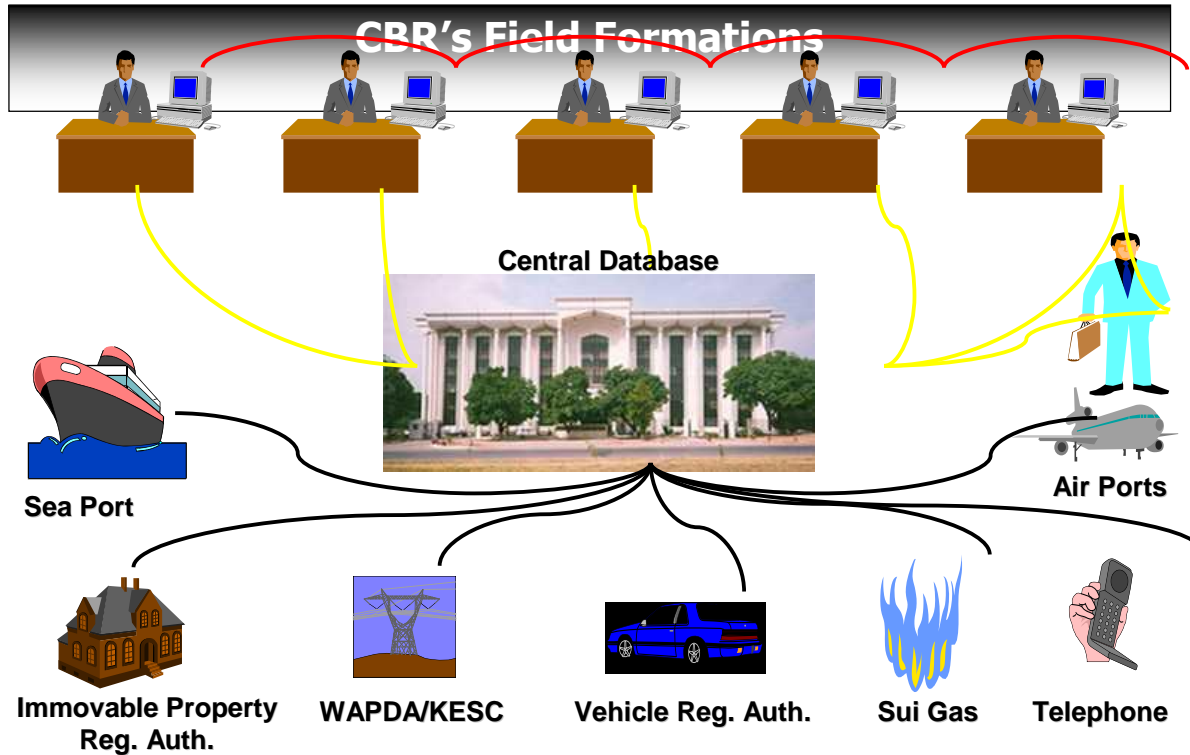
Notwithstanding the initial headway to understand why tax/GDP has been so low in Pakistan, it has remained a complicated topic of research. The present study has attempted to provide the required insight by developing a one-to-one relationship between sectoral share in GDP and taxes using internationally recognized scheme of classification of goods and services. The present analysis has re-confirmed the earlier findings that there is serious lopsidedness in the way major economic activities contribute towards GDP and taxes.

The additional insight is that this tax gap is not pronounced as far as indirect taxation is concerned. The reason could be that these taxes are collected at entry and exit points (manufacturing and import stage), hence it may not be easy to evade them. Secondly, the importers and manufacturers are not hesitating in paying these taxes as they have the power of easily shifting the burden forward to final consumers. As a consequence, their own tax contribution remains negligible. On the other hand, income and corporate tax payments by economic sectors remains far below the desired level. Even the manufacturers who appear to be sharing 'extra' burden of taxation, find it easier to transfer the tax burden forward quite easily.

It has been confirmed that within the manufacturing sector the tax contribution of textile sector remains a mystery. Similarly, the contribution of food processing industries is not consistent with their contribution to GDP. Within services sectors, the low tax compliance appears to be a universally accepted feature. Many sub-sectors like construction, transport, storage and communication, telecom, wholesale & retail trade (other than sale repair of motor vehicles), and hotels and restaurants have very little or virtually no tax contribution. In fact, the contribution of the construction, transport, and hotel and restaurants sectors to taxes has no match at all to their respective contribution to GDP. Similarly, wholesalers and commission agents believe that they are tax exempt, and therefore they are not bothered to contribute to the national exchequer. Incidentally, these findings are further corroborated by the estimates of Average Effective Tax Rates.

Given this precarious compliance level, the outcome remains dreadful. It is clear that the government cannot deliver on sustainable basis with this type of revenue inadequacy. Consequently, the dream of graduating from low-income status to rapidly progressing economy may not materialize. Therefore, to avoid any unpleasant situation, resource mobilization has to improve quite substantially. The taxpayers will have to comply honestly to expect better facilities and concessions from the Government.

NEXUS DATA HUB



III

CBR Reform Program: The Data Warehousing Project (NEXUS)¹⁵

This paper discusses the national imperative driving the CBR Data Warehousing project (Nexus), the considerations involved in its successful completion and the execution strategy being followed by Pakistan Revenue Automation Limited – the CBR technology arm.

The Importance

Pakistan continues to be bedeviled by a low Tax/GDP to ratio (about 10%) even as many other macro-economic indicators have improved in recent times. The results are obvious – inadequate governmental resources to attend to its responsibilities and a widening gap between the haves and have-nots. If this situation persists, the vast majority of our people will continue to grind in a debilitating and apparently endless poverty cycle. The CBR has a responsibility to develop tools and strategies to decisively and squarely address the issue by (1) expanding the tax net, and (2) providing equitable and efficient tax structure for those who are already in the tax net. NEXUS is an important component of the CBR strategy to achieve the aim whereby more and more Pakistanis make a fair and equitable contribution to the national exchequer and Pakistan establishes a culture which rewards compliant taxpayers and penalizes those who attempt to evade or be delinquent.

Business Requirement

Before one delves into the technical domain of defining and conceptualizing what a data warehouse is in the contemporary Information Technology (IT) sense, it is important to clearly understand the purpose and rationale of such a system in terms of the CBR business needs, both micro-operational and macro-strategic. This is probably best explained through some illustrative questions:

¹⁵ Author: Mr. Nasir Uddin Khan (CEO, Pakistan Revenue Automation Limited - PRAL)

Micro-operational

- CBR manages four fairly isolated tax silos – Customs, Income Tax, Sales Tax and Excise Duty. CBR would like to know how does the data in these isolated silos square up and if there are any inconsistencies pointing to evasion or mis-declaration. In short, CBR wants a 360 degree view of every taxpayer.
- If there is any transaction in an external system, like banking, property, utilities, motor vehicles etc, then CBR would like to know about it in order to add that information to the concerned taxpayer's profile and also to add new taxpayers to the tax net.

Macro-Strategic

CBR would like to analyze its databases and correlate them to various external databases to identify macroeconomic trends, anomalies and opportunities to formulate and fine tune policy in a timely manner. This would include sectoral data, tariff slabs, commodity data, regional data, demographic data, exemptions data etc and then its time dimensional (time series) analysis across various unit of time (month, quarter and financial year) to understand the impact of policy and other changes in the economic environment. Such data should provide expeditious answers to questions like:

- What has been the impact of exemptions to a specific sector like automobile manufacturers over the last three years and how does it correlate to the liberalization of policy with respect to import of manufactured automobiles?
- How much has a specific sector contributed to the tax net relative to its share in the GDP?
- What will be the impact to revenues in the event of change in tax rates/slabs in a specific sector?

Technical Considerations

Genesis: The term data warehousing is relatively new in the IT world and really took hold in the 1990s. Yet, long before that information technologists even on relatively old fashioned mainframe computers were meeting the reporting requirements discussed earlier through what were called summary tables. For example, in the context of Customs requirements, CBR has quite effectively met the macro reporting needs through the use of summary tables for over two decades.

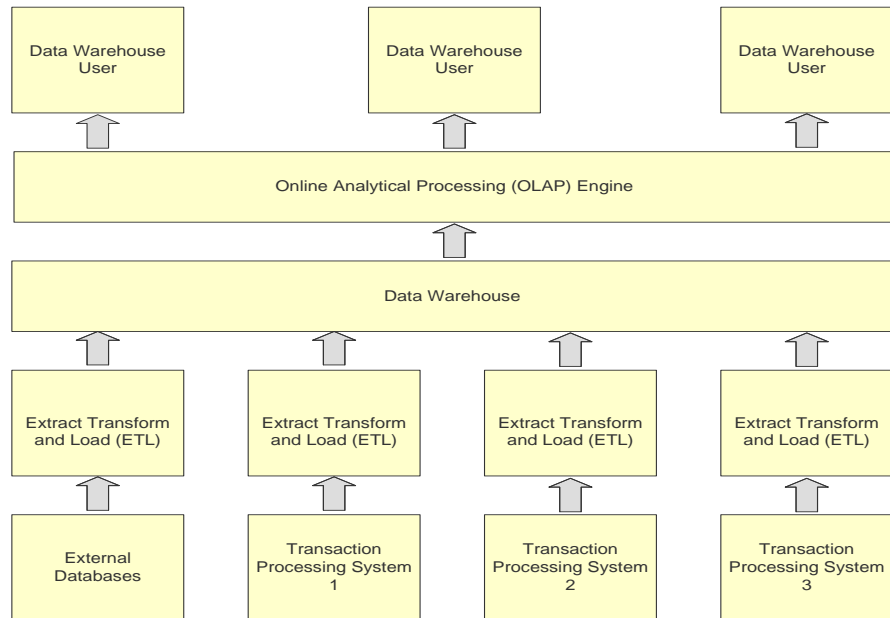
The problem with the traditional approach was two fold:

- The effort tended to programming was intensive; and
- Since, typically, an organization ran several transaction processing systems, the data in these systems often tended to remain isolated within each silo. The organization was therefore, quite often, not getting a total 360 degree view of its own databases.

Albeit, it must be noted that there is nothing that a data warehouse produces that a conventional set of transaction processing systems cannot produce, but they will do so with greater programming effort and a longer turnaround time. The transaction processing systems are the real source of the data and the data warehouse is really only as good as the source data. Data warehouse essentially exploits linkages between data elements and entities in the source systems to consolidate and summarize information and to provide time dimensional views. A data warehouse is extremely computer storage intensive because it maintains pre-aggregated views which a user may or may not need at a particular time, but the upside is that it is very expeditious in its response time and lends itself very well to analytical queries.

Contemporary Systems Architecture: In the 1990's the technology industry started creating an emerging set of enabling tools designed to

promote the data warehousing movement and by the late 1990's the following systems architecture began to take hold in the corporate world:



Technical Challenges

According to the Gartner Group, by 1995 about 90 percent of Fortune 500 companies had launched a data warehousing initiative. The results were however mixed and many learnt that it was a lot more than what they had bargained for – in terms of time, cost and effort.

The single most important issue in data warehouse implementation is the Extraction, Transformation and Loading (ETL) component of the technology which requires that source data is clean and the linking attributes in the databases to be consolidated are in a healthy state.

The important lesson learnt, or rather re-learnt, was that data warehouse is a facilitation tool that will leverage what you can source from your and third party databases. It is not a magic wand that a vendor will deliver to you and which will solve your problems in a flash. Data warehouses are

“created” and “not procured” and they are only as good as your source data in the transaction processing systems. The vendor industry can only provide specific enabling components such as ETL and Analytical Processing tools but data cleansing is your own problem and only you can solve it.

The second important issue in data warehouse implementation is requirement analysis. A technologist cannot in isolation of the business user implement data warehouse schemas which may or may not have relevance to the needs of the business user. There is a need for close and protracted interaction between the technologist and the business user. Data warehouse designs evolve and mature over a reasonably extended period of time, typically two to three years even if there are no source data quality issues. Therefore, it is sensible to follow an evolutionary data warehouse implementation approach while ensuring that the evolutionary approach does not undermine the architectural coherence and harmony of the product.

Thus the two most important lessons to apply in a data warehousing project are:

- Proper appreciation of the data cleansing effort and the recognition that the organization has to solve this problem on its own or through its own IT resources.
- Evolutionary implementation approach so that a feature starts benefiting just as soon as it is ready and the organization does not have to wait for the “big bang” roll-out event.

CBR Execution Strategy (The NEXUS Project)

The NEXUS project has been underway for some time and has demonstrated impressive capability in providing a wholesome 360 degree view of the taxpayer with respect to the different taxes that CBR manages. Predictably, the number one problem has been the health of the linking attributes, namely NTN and CNIC/NIC in the transaction

processing databases. Internationally, this problem has been encountered in some measure even by world's top companies and tax administrations which supposedly have quite mature IT systems. In Pakistan this problem is compounded because some of the source transaction processing systems have been quite rudimentary or are simply non-existent - One-Customs and PaCCS being important exceptions.

Drawing upon the lessons discussed earlier, CBR/PRAL is following a three dimensional strategy to expeditiously move forward with the initiative:

- Data cleansing to provide the necessary linking attributes between the data elements;
- Vertical improvements in the system in terms of its functional features and integration with external databases through continued systems analysis, design and integration effort; and
- Acquisition of computer equipment and enabling software tools as and when they are needed.

The NEXUS project has now reached a level that a production roll-out can be achieved very soon for a sub-set of the taxpayer population for which the requisite degree of data cleansing has been achieved. A product roll-out is planned for a limited population segment in April 2007 and will be followed by quarterly releases which will expand taxpayer population covered under the NEXUS ambit as well as include functional enhancements completed in each quarter.

The project is a major step towards the realization of the goal of establishing a healthy tax culture in Pakistan.