EVIDENCE BASED REVENUE FORECASTING

FY2023-24

Federal Board of Revenue

Feedback & Comments

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List of Acronyms

CD	Customs Duty
CFY	Current Fiscal Year
DLI	Disbursement Linked Indicator
DT	Direct Tax
DT (D)	Direct Tax (Domestic)
DT (M)	Direct Tax (Imports)
EBRF	Evidence-Based Revenue Forecasting
FBR	Federal Board of Revenue
FED	Federal Excise Duty
FED (D)	Federal Excise Duty (Domestic)
FED (M)	Federal Excise Duty (Imports)
FY	Fiscal Year
GDP	Gross Domestic Product
LSM	Large Scale Manufacturing
PFY	Previous Fiscal Year
RA	Revenue Analysis
ST (D)	Sales Tax (Domestic)
ST (M)	Sales Tax (Imports)

Preface

FBR is the key institution in mobilizing and collecting revenues for the government. It collects the major chunk of the total revenues for the national exchequer. For informed decision making, revenue forecasting thus assumes a crucial role for FBR. As with most other estimates, revenue forecasting is also riddled with uncertainty, and it is dependent on assumptions based on ever changing and complex nature of macroeconomic indicators and global economic trends. As a result, revenue forecast, at best, is a theoretical exercise based on factual historical data of revenue collection.

This is the third "Evidence-Based Revenue Forecasting" report and I am pleased to announce that it is the first one prepared solely by FBR's indigenous team of Directorate General Revenue Analysis. This report fulfills the requirements of "Disbursement Linked Indicator – 2 (DLI-2) under the World Bank's project "Pakistan Raises Revenue". In this report, tax-wise buoyancy estimates and macroeconomic indicators have been used to forecast FBR revenues for FY2023-24.

I appreciate the efforts put in by the team of Directorate General Revenue Analysis, under the supervision of Director General (Revenue Analysis) for producing this Evidence-Based Revenue Forecast Report for FY2023-24. I hope the technique used in this report provides fair estimates of the revenues that are compatible with the existing potential of the economy based on the projected economic performance parameters.

(ASIM AHMAD)
Chairman Federal Board of Revenue/
Secretary Revenue Division

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1.   Summary of Revenue Forecasts for FY2023-24

The autonomous growth of FBR revenues for FY2023-24 is projected at Rs. 9,000 (billion) calculated on the basis of expected collection figures for FY2022-23 translating into a growth of 26.1% (Table 1). This amount would be further enhanced as a result of policy / administrative measures to be taken separately.

Table 1: Tax-wise Revenue Forecasts FY 2023-24 (Rs. Billion)

Tax Heads	Expected Collection	Autonomous Growth Forecast	Growth (%)
	FY2022-23	FY2023-24	
DT	3,184	3,938	23.7
ST	2,646	3,410	28.9
FED	356	427	19.9
CD	952	1,224	28.6
Total (FBR)	**7,139**	**9,000**	**26.1**

2.   Current Revenue Trends

The growth trend of FBR collection over the past five years' period FY 2017-18 till FY2021-2022 shows an increasing trend except one year in which the growth was negative. The growth in FY2018-19 was a negative (0.4) percent, however, in the following years it started picking up. In FY2019-20 growth remained 4.4 percent and reached 18.7 percent in FY2020-21 despite Covid-19 related challenges. This upward trajectory continued and particularly during FY2021-22 the growth reached well above the normal range and the federal taxes recorded almost 30% growth. The target was exceeded by Rs. 49 billion. The collection also crossed the 6 trillion mark for the first time in the country's history. Tax-wise revenue performance during this period is shown in Table 2.
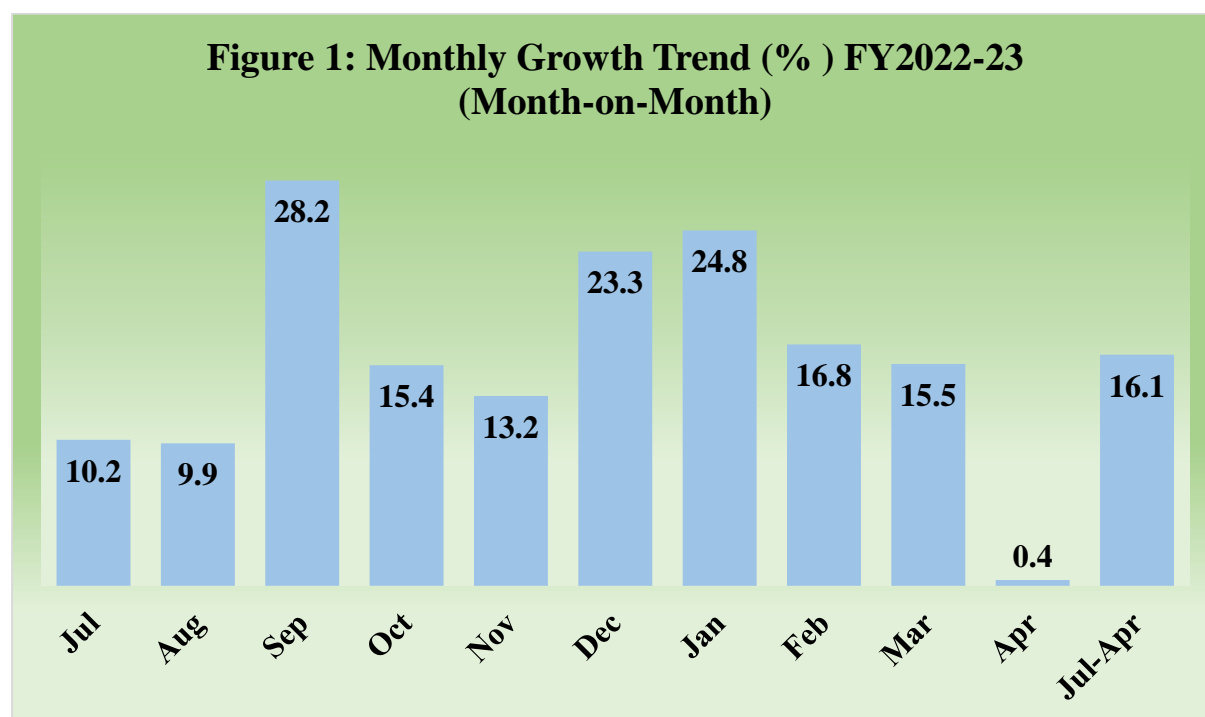
Table 2: FBR Yearly Collection Trend (Rs. Billion)

Tax	FY 2017-18	Growth %	FY 2018-19	Growth %	FY 2019-20	Growth %	FY 2020-21	Growth %	FY 2021-22	Growth %
DT	1,537	14.3	1,446	-5.9	1,523	5.4	1,731	13.6	2,285	32.0
ST	1,485	11.8	1,459	-1.8	1,597	9.4	1,988	24.5	2,532	27.4
FED	213	7.9	238	11.6	250	5.2	277	10.6	321	15.8
CD	608	22.5	686	12.7	627	-8.6	748	19.4	1011	35.1
Total	3,844	14.1	3,828	-0.4	3,997	4.4	4,745	18.7	6,149	29.6

During July-April FY2022-23 the overall FBR taxes grew by 16.1%, which is encouraging despite slowdown in the economy due to internal and global events. All taxes have recorded a positive growth except customs duties which shows a negative growth due to import compression. The tax-wise provisional collection during CFY is shown in table 3.

Table 3: Net Collection July-April FY2022-23 (Rs. Billion)
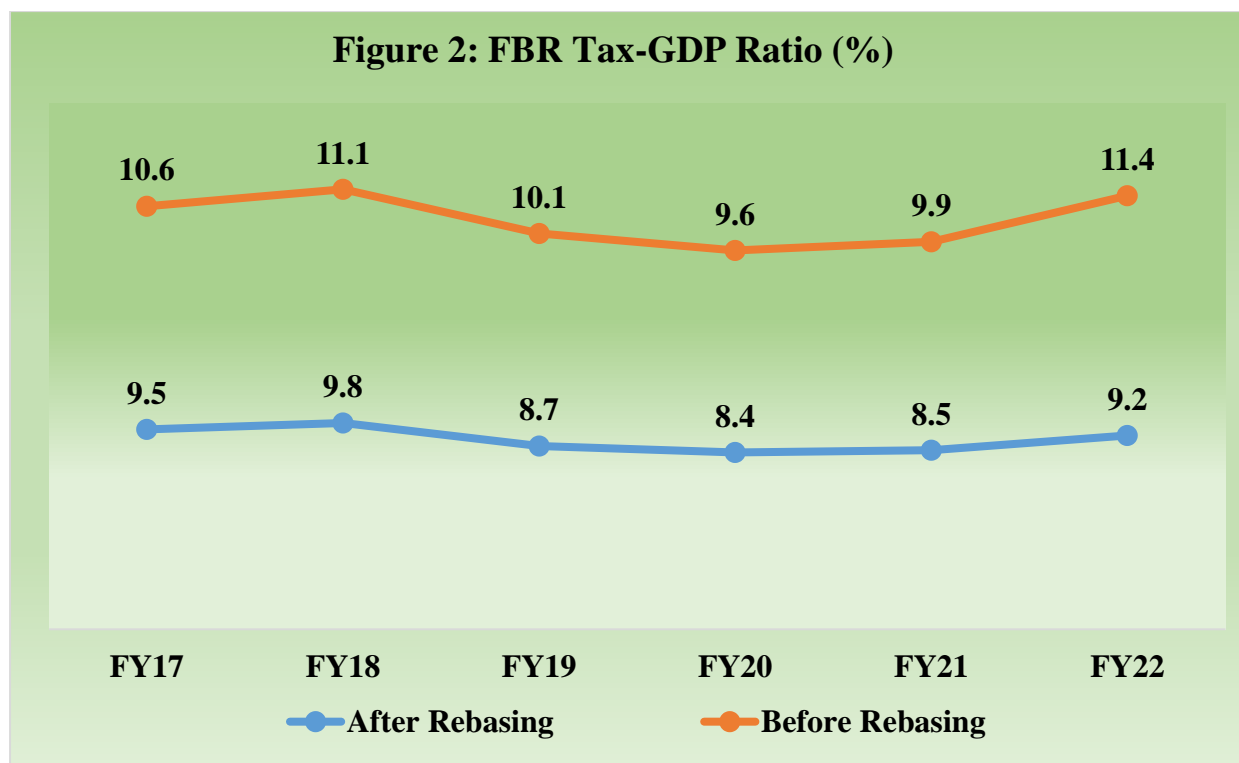
Tax Heads	July-April		Growth (%)
	FY2022-23	FY2021-22	
DT	2,515	1,744	44.2
ST	2,090	2,064	1.2
FED	281	256	9.8
CD	752	792	-5.0
Total	5,638	4,856	16.1

The month-wise breakdown of growth rate trend is reflected in figure 1 below. The monthly growth rates show a mixed trend for each month as compared to the same month of the PFY.

Figure 1: Monthly Growth Trend (%) FY2022-23 (Month-on-Month)

Month	Growth %
Jul	10.2
Aug	9.9
Sep	28.2
Oct	15.4
Nov	13.2
Dec	23.3
Jan	24.8
Feb	16.8
Mar	15.5
Apr	0.4
Jul-Apr	16.1

Tax-GDP Ratio

FBR revenue collection has shown a steady trend during the last six years as a percentage of GDP. The Tax-GDP computations were updated due to the rebasing of National Accounts in early 2022. The trend of Tax-GDP ratio over the past six years before and after rebasing of National Accounts is given below (Figure 2). The ratio remained in the range of 9.6 percent to 11.4 percent, however, due to rebasing a substantial impact has been noted as it plummeted to 9.2 percent during FY 2021-22 instead of 11.4 percent.

Figure 2: FBR Tax-GDP Ratio (%)

	FY17	FY18	FY19	FY20	FY21	FY22
Before Rebasing	10.6	11.1	10.1	9.6	9.9	11.4
After Rebasing	9.5	9.8	8.7	8.4	8.5	9.2

3. Tax-wise Evidence Based Revenue Forecasts FY2023-24

The traditional methodology has been adopted to forecast FBR revenues for FY2023-24. The autonomous growth (Table 8) has been applied on base year's (FY2022-23) expected collection (Rs. 7,139 billion) for respective taxes, which estimates an increase of Rs. 1,861 billion for FY2023-24 (Table 9)**.** This amount has been added in the expected collection of FY2022-23 thus arriving at an estimate of Rs. 9,000 billion (Table 4).

Table 4: Revenue Projections (Before Adjustment) for FY2023-24 (Rs. Billion)

Tax Heads	Domestic	Imports	Total
Direct Taxes	**DT (D)**	**DT (M)**	**DT (Total)**
Expected Collection FY2022-23	2,882	302	**3,184**
Projections (Autonomous) FY2023-24	3,527	412	**3,938**
Required Growth (%)	22.4	36.1	**23.7**
Sales Tax	**ST (D)**	**ST (M)**	**ST (Total)**
Expected Collection FY2022-23	966	1,680	**2,646**
Projections (Autonomous) FY2023-24	1,201	2,209	**3,410**
Required Growth (%)	24.4	31.5	**28.9**
Federal Excise Duty	**FED (D)**	**FED (M)**	**FED (Total)**
Expected Collection FY2022-23	342	14	**356**
Projections (Autonomous) FY2023-24	410	17	**427**
Required Growth (%)	19.7	25.6	**19.9**
Customs Duty			**CD (Total)**
Expected Collection FY2022-23			**952**
Projections (Autonomous) FY2023-24			**1,224**
Required Growth (%)			**28.6**
Total Expected Collection FY2022-23			**7,139**
Total Projections FY2023-24 (Autonomous)			**9,000**
Required Growth (%)			**26.1**

4.   Conclusion

During FY2023-24, given that the prevailing downturn in economy is reversed, a higher growth rate is expected in FBR revenues, and it is estimated that autonomous growth will reach around Rs. 9,000 billion. However, this autonomous growth is expected to be further reinforced by policy / administrative measures to be taken in due course. FBR taxes are generally buoyant and there is a potential for achieving growth in tax revenues provided that macroeconomic indicators perform well.

Annex 1

Methodology

FBR collects the Federal level taxes including Direct Taxes (DT), Sales Tax (ST), Federal Excise Duty (FED) and Customs Duties (CD). The methodology for revenue forecasting is based on projections of macroeconomic indicators and tax buoyancy[1] value of each tax. The buoyancy estimates have been updated as per the rebased National Accounts. Table 6 reflects the respective buoyancies which are estimated using simple log regression method in excel sheet. The least squares estimator methodology has been adopted for being the most efficient among other methodologies provided in the literature for estimation of buoyancies. The estimates of relevant macroeconomic indicators are applied on specific tax buoyancy estimates to arrive at the autonomous growth rate for that specific tax (Table 8).

Tax-wise buoyancy estimates are calculated by using historical tax collection and multiplying with the respective tax base data. In this report the buoyancy estimates have been calculated on the data of tax collection, GDP, LSM and Imports for the years 2002-03 to 2021-22[2]. GDP-Gross value addition at Current Factor Cost at market prices (inclusive of Taxes less subsidies) has been used for measuring the Buoyancy estimates.

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[1] Tax buoyancy is ratio of percentage change in tax revenues to percentage change in tax base. In other words, it is an indicator to measure responsiveness of tax revenue in response to change in the base. A buoyant tax means the tax revenues increase more than proportionately in response to a rise in GDP or tax base.

[2] Available at https://www.pbs.gov.pk/national-accounts-tables

Table 5. Head-wise FBR taxes and Respective Tax Bases

Tax Heads	Tax Base
Direct Tax (D)	GDP
Direct Tax (M)	Import Value
Sales Tax (D)	Large Scale Manufacturing (LSM)
Sales Tax (M)	Import Value
Customs Duties	Import Value
Federal Excise Duty (D)	Large Scale Manufacturing (LSM)
Federal Excise Duty (M)	Import Value

The buoyancy estimates of tax-wise FBR taxes are as follow:

$$DT(D)\ Buoyancy\ Estimates = \frac{\%\ Change\ in\ Actual\ Income\ Tax\ Revenues}{\%\ Change\ in\ GDP}$$

$$DT(M)\ Buoyancy\ Estimates = \frac{\%\ Change\ in\ Actual\ Income\ Tax\ Revenues}{\%\ Change\ in\ Import\ Value}$$

$$ST(D)\ Buoyancy\ Estimates = \frac{\%\ Change\ in\ Actual\ ST\ Revenues}{\%\ Change\ in\ LSM}$$

$$ST(M)\ Buoyancy\ Estimates = \frac{\%\ Change\ in\ Actual\ Sales\ Tax\ Revenues}{\%\ Change\ in\ Import\ Value}$$

$$CD\ Buoyancy\ Estimates = \frac{\%\ Change\ in\ Actual\ Customs\ Duty\ Revenues}{\%\ Change\ in\ Import\ Value}$$

$$FED\ (D)\ Buoyancy\ Estimates = \frac{\%\ Change\ in\ Actual\ FED\ Revenues}{\%\ Change\ in\ LSM}$$

$$FED\ (M)\ Buoyancy\ Estimates = \frac{\%\ Change\ in\ Actual\ FED\ Revenues}{\%\ Change\ in\ Import\ Value}$$

Autonomous growth for each tax has been obtained by multiplying buoyancy estimates with respective macroeconomic indicators/bases (Tables 6, 7, 8). The autonomous growth has been applied on tax-wise provisional collection for FY2022-23, which gives the expected additional

amount of collection. This additional amount is added in the base year's tax-wise collection to arrive at the FBR revenue forecast for FY2023-24 (Table 9).

Table 6: Buoyancy Estimates

DT (M)	DT (D)	ST (D)	ST (M)	CD	FED (M)	FED (D)
1.2	1.0	1.1	1.0	1.0	0.8	0.8

Table 7: Macroeconomic Indicators

Macroeconomic Indicators	Growth (%) Assumptions FY2023-24
GDP (Nominal)	23.5
LSM (Nominal)	23.2
Total Imports	30.1
Inflation	20.0
GDP (real)	3.5
LSM (real)	3.2

Source: Economic Advisor Wing, Finance Division, Government of Pakistan

Table 8: Autonomous Growth

	(%)
DT Imports (Imports x DT imports Buoyancy)	**36.1**
DT Dom (GDP Nominal x DT Domestic Buoyancy)	**22.4**
ST Dom (LSM Nominal x ST(Domestic Buoyancy)	**24.4**
ST Imports (Import x ST Imports Buoyancy)	**31.5**
CD (Imports x CD Buoyancy)	**28.6**
FED Imports (Imports x FED Imports Buoyancy)	**25.6**
FED Dom (LSM Nominal x FED Domestic Buoyancy)	**19.7**

These autonomous growth numbers have been used to project the autonomous growth estimates of respective tax revenue heads to forecast revenue for FY2023-24 (Table 9).

Table 9: FBR Revenue Projections for FY2023-24

(Rs. Billion)

Macroeconomic Indicators %		Buoyancy Estimates		Autonomous growth (%)	
GDP (Nominal)	23.5	DT Imports	1.2	DT Imports (Imports x DT imports Buoyancy)	36.1
LSM(Nominal)	23.2	DT Domestic	1.0	DT Dom (GDP Nominal x DT Domestic Buoyancy)	22.4
Total Imports	30.1	ST Domestic	1.1	ST Dom (LSM Nominal x ST(Domestic Buoyancy)	24.4
Inflation	20.0	ST Imports	1.0	ST Imports (Import x ST Imports Buoyancy)	31.5
GDP (real)	3.5	Customs	1.0	CD (Imports x CD Buoyancy)	28.6
LSM (real)	3.2	FED Imports	0.8	FED Imports (Imports x FED Imports Buoyancy)	25.6
		FED Domestic	0.8	FED Dom (LSM Nominal x FED Domestic Buoyancy)	19.7

		DT (D)	DT (M)	DT (Total)	ST (D)	ST (M)	ST (Total)	CD	FED (D)	FED (M)	FED (Total)	Total
A	Provisional Collection FY2022-23	2,882	302	**3,184**	966	1,680	**2,646**	952	342	14	**356**	**7,139**
B	Projection with Autonomous Growth	645	109	**754**	235	529	**764**	272	67	3	**71**	**1,861**
C	Projection FY2023-24 (A+B)	3,527	412	**3,938**	1,201	2,209	**3,410**	1,224	410	17	**427**	**9,000**
	Tax-wise Required Growth	*22.4*	*36.1*	*23.7*	*24.4*	*31.5*	*28.9*	*28.6*	*19.7*	*25.6*	*19.9*	*26.1*

Annex-II:

Table 10: Tax Collection Data

(Rs. Million)

S. No	FY	DT (Total)	DT (M)	DT (D)	ST (Total)	ST (M)	ST (D)	FED (Total)	FED (M)	FED (D)	Customs	Total
1	2002-03	151,898	20,787	131,111	195,139	105,605	89,534	44,754	1,657	43,097	68,836	460,627
2	2003-04	165,079	22,829	142,250	219,167	125,875	93,292	45,553	1,659	43,894	91,045	520,844
3	2004-05	183,372	24,484	158,888	238,537	144,845	93,692	53,104	3,249	49,855	115,374	590,387
4	2005-06	224,988	26,878	198,110	294,798	171,445	123,353	55,271	3,852	51,419	138,384	713,441
5	2006-07	333,737	25,790	307,947	309,396	175,909	133,487	71,804	4,847	66,957	132,299	847,236
6	2007-08	387,861	27,675	360,186	377,430	196,034	181,396	92,137	14,352	77,785	150,663	1,008,091
7	2008-09	443,549	30,102	413,447	451,744	203,715	248,029	117,455	14,377	103,078	148,403	1,161,151
8	2009-10	525,977	50,253	475,724	516,348	247,246	269,102	124,784	13,557	111,227	160,273	1,327,382
9	2010-11	602,451	66,399	536,052	633,357	308,648	324,709	137,354	19,521	117,833	184,853	1,558,015
10	2011-12	738,424	85,334	653,090	804,899	430,399	374,500	122,464	8,857	113,607	216,906	1,882,693
11	2012-13	743,409	103,236	640,173	842,528	429,831	412,697	120,964	7,153	113,811	239,459	1,946,360
12	2013-14	877,255	123,808	753,447	996,382	495,330	501,052	138,084	9,591	128,493	242,811	2,254,532
13	2014-15	1,033,720	147,352	886,368	1,087,790	553,028	534,762	162,247	13,217	149,030	306,220	2,589,977
14	2015-16	1,217,474	179,728	1,037,746	1,302,371	678,313	624,058	188,054	10,785	177,269	404,572	3,112,471
15	2016-17	1,344,226	197,041	1,147,185	1,328,965	702,565	626,400	197,911	11,822	186,089	496,772	3,367,874
16	2017-18	1,536,583	218,691	1,317,892	1,485,306	824,219	661,087	213,493	9,856	203,637	608,373	3,843,755
17	2018-19	1,445,508	221,833	1,223,675	1,459,213	810,357	648,856	238,186	12,667	225,519	685,575	3,828,482
18	2019-20	1,523,445	199,691	1,323,754	1,596,877	876,345	720,532	250,474	9,518	240,956	626,612	3,997,408
19	2020-21	1,731,255	218,498	1,512,757	1,988,305	1,115,912	872,393	277,046	19,374	257,672	748,391	4,744,997
20	2021-22	2,284,916	288,019	1,996,897	2,532,228	1,740,692	791,536	320,658	22,514	298,144	1,010,694	6,148,496

Source FBR

Annex-III:

Table 11: Tax Base Data

(Rs. Million)

S. No	FY	GDP (GVA+T-S)*	LSM	Imports
1	2002-03	6,116,024	518,279	714,372
2	2003-04	7,059,769	652,097	897,825
3	2004-05	8,109,529	820,629	1,223,079
4	2005-06	9,349,898	974,870	1,711,158
5	2006-07	10,514,773	1,125,730	1,851,806
6	2007-08	12,105,665	1,471,028	2,512,072
7	2008-09	15,021,118	1,540,254	2,723,570
8	2009-10	16,918,474	1,774,338	2,910,975
9	2010-11	20,798,383	2,314,710	3,455,287
10	2011-12	22,812,691	2,549,522	4,009,093
11	2012-13	25,474,626	2,718,555	4,349,880
12	2013-14	28,641,817	3,048,172	4,630,521
13	2014-15	31,229,850	3,079,209	4,644,152
14	2015-16	32,725,049	2,841,709	4,658,749
15	2016-17	35,552,819	3,083,146	5,539,721
16	2017-18	39,189,810	3,499,175	6,694,897
17	2018-19	43,798,401	4,266,145	7,443,253
18	2019-20	47,540,409	4,026,236	7,029,819
19	2020-21	55,836,225	4,933,633	7,221,754
20	2021-22	66,623,564	7,048,190	14,313,613

Source: Pakistan Bureau of Statistics, Government of Pakistan
* GDP after adjustments of taxes and subsidies or GDP at market value

Annex-IV: Impact of Variation in Autonomous Growth Rates

The impact on tax collection projections resulting from change in tax-wise autonomous growth rates is given in the following tables. The impact is calculated based on tax-wise growth rates variation by 10% on the estimated projected value of autonomous growth of revenue for FY 2023-24.

10% Reduction in autonomous growth rates

	DT (D)	DT (M)	DT	ST (D)	ST (M)	ST	CD	FED (D)	FED (M)	FED	Total
Provisional Collection FY2022-23	2,882	302	**3,184**	966	1,680	**2,646**	**952**	342	14	**356**	**7,139**
Tax-wise 10% Reduced Autonomous Growth Rates	20.1	32.5	**21.3**	21.9	28.3	**26.0**	**25.7**	17.7	23.0	**17.9**	**23.5**
FBR Forecasts without Measures FY2023-24	3,462	401	**3,863**	1,178	2,156	**3,334**	**1,197**	403	17	**420**	**8,814**

10% Increase in autonomous growth rates

	DT (D)	DT (M)	DT	ST (D)	ST (M)	ST	CD	FED (D)	FED (M)	FED	Total
Provisional Collection FY2022-23	2,882	302	**3,184**	966	1,680	**2,646**	**952**	342	14	**356**	**7,139**
Tax-wise 10% Increased Autonomous Growth Rates	24.6	39.7	**26.0**	26.8	34.6	**31.8**	**31.5**	21.6	28.1	**21.9**	**28.7**
FBR Forecasts without Measures FY2023-24	3,591	423	**4,014**	1,225	2,262	**3,487**	**1,252**	416	17	**434**	**9,186**