2015-16 TO 2020-21

Quarterly National Accounts

Pakistan

Ministry of Planning Development and Special Initiatives

Pakistan Bureau of Statistics

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Foreword

Over the years Pakistan Bureau of Statistics (PBS) has been compiling and publishing macroeconomic statistics such as Gross Domestic Product (GDP), Gross National Income (GNI), Per Capita Income, Gross Fixed Capital Formation (GFCF) and Expenditure on GDP on annual basis. Although these statistics play an important role in policy formulation and informed decision making and are often highlighted in print, electronic, and social media platforms, however, the need of quarterly national accounts has been increasing day by day. Quarterly National Accounts (QNA) adopts the same principles, definitions, and structure as of the annual national accounts (ANA).

National Accounts team took the challenge of compiling QNA in January, 2022 soon after the approval of the change of base of national accounts from 2005-06 to 2015-16. With the support of the technical assistance of the World Bank expert, they have been able to compile the QNA series from 2015-16 to 2021-22, which has been presented in this document in a very simple and understandable manner. This document explains the compilation procedure of QNA by industries with detail of indicators used in each industry along with relevant deflators. Work in progress has also been accounted for at industry level particularly for crops which are basically sown in one quarter and harvested in another quarter. One of the important aspects of the document is that for the first time in the history of the country QNA have been compiled on the basis of international standards with proper vetting of the international experts from the World Bank.

As quarterly national accounts have to be consistent with the annual national accounts, so QNA at basic prices have been compiled using production approach. Compilation of QNA will help PBS in improving the coverage and indicators of other regular surveys conducted by PBS such as Labour Force Survey and PSLM/HIES Survey. It will also pave the way for initiation of new surveys to bridge the data gaps identified during compilation of QNA. PBS has developed an in-house capacity to compile QNA with a lag of one quarter. I am sure that this will usher new era of evidence based decision making on quarterly basis for the policy makers and will enable the researchers and academicians to have better insight of the macroeconomic aggregates.

At the PBS, the task of completing the Quarterly National Accounts from 2015-16 and 2021-22 has been completed by the highly dedicated team of National Accounts professionals led by S. Ejaz Wasti, Member, National Accounts, and Mr. Attiq-ur-Rehman, Deputy Director General National Accounts. I would like to request views and comments on this exercise to help PBS in further improving of the Quarterly National Accounts.

Chief Statistician
Pakistan Bureau of Statistics
December, 2023

Preface

In Pakistan, the history of compilation of Quarterly National Accounts is not so rich. In 2014-15 the first ever quarterly national accounts estimates were prepared and estimates for the first and second quarter for 2014-15 were released. The Governing Council of Pakistan Bureau of Statistics, in its 5th meeting in 2014, issued a policy directive to rebase the National Accounts after every ten years and start compilation of QNA on the basis of new base. As a result, it was decided to change the base year for National Accounts from 2005-06 to 2015-16. The work on the next base year i.e. 2015-16 was started with the approval of a development scheme titled "**Change of Base of National Accounts 2005-06 to 2015-16**" costing Rs.279.95 Million in November 2014. Under the umbrella of rebasing, PBS conducted various censuses, surveys and studies. Further, to ensure consistency among various macroeconomic aggregates, PBS has also changed the reference periods for the compilation of price indices from 2007-08 to 2015-16. The results of the change of base of National Accounts from 2005-06 to 2015-16 were approved in a special National Accounts Committee (NAC) meeting held in January 2022.

After the approval of the rebasing, the National Accounts team took the historic initiative of compilation of QNA. PBS has always been striving hard to enhance its data collection tools and systems, and introduce new data dissemination techniques in the statistical system of the country. Through a series of consultations, the WB arranged the services of a QNA expert in Washington DC through remote connection. Due to pre-engagement of the WB expert it was decided to start the technical assistance online twice a week. The quarterly national accounts compilers attended the sessions and discussed at length the conceptual issues regarding compilation of QNA. The process of online sessions lasted from July 2022 to March 2023 during which the industry wise methodology of compilation of QNA was discussed with hands on exercises. In December, 2022 PBS developed the framework of QNA by identification of industry wise QNA indicators. Later on, the modalities of QNA were finalized during the visit of the WB expert in June 2023.

Concepts such as benchmarking, development of volume indicators, value indicators, price indicators, composite indices and application of appropriate weights etc., have been discussed in detail in the document along with their impact on each industry. Two important techniques namely Denton Technique and Tramoseats have been applied in the compilation of QNA. Annual estimates of the Gross Value Added at constant and current prices have been broken down into quarters by using Denton Technique on the basis of available volume and value indicators industry by industry. The document is a valuable addition to the statistical system of the country, which will provide evidence based quarterly estimates of GDP to the policy makers.

The completion of the task of compilation of QNA is the result of coordinated and dedicated efforts of an inspired team of the National Accounts Wing led by an experienced national accountant Mr. Attiq-ur-Rehman, Deputy Director General (National Accounts). Suggestions for improvement are welcome.

S. Ejaz Wasti
Member National Accounts
December, 2023

Acknowledgement

By the grace of Allah, the gargantuan task of compilation of Quarterly National Accounts from 2015-16 onwards has been completed successfully and this report is a reflection of the tireless efforts of officers and officials of National Accounts Wing of Pakistan Bureau of Statistics. I wish to extend my special gratitude to Mr. Jose Pablo, consultant World Bank for his technical assistance on the issue. His continued support and guidance during the online sessions, held during July 2022 to March 2023, helped us in understanding the basic theoretical and practical concepts of Quarterly National Accounts. He had to stay awake late night for online sessions and in some cases had to wake up early in the morning to address the time difference. Mr. Jose Pablo's visit to PBS enabled the National Accounts team to have hands on exercise on the subject matter with better understanding of the benchmarking techniques, application of Denton techniques and XLPBM. The assistance provided by Mr. Moritz, senior economist World Bank enabled us to complete the compilation methodology on time, which also needs to be commemorated.

The officers of national accounts, Mr. Fazil Baig, DDG, Mr. Sohaib, Director, Dr. Liaqat Ali, CSO, Mr. Asif, CSO, Dr. Rashid, CSO, Mr. Ehsan ul Haq, CSO, Dr. Muhammad Adil, CSO, Dr. Khalid Farooq, CSO, Mr. Tahir ul Islam, SO, Mrs. Naeema Yousaf, SO, Mrs. Hina Nousheen, SO, Mrs. Tayyiba Javaid, SO, Mr. Arshad Mehmood, SO, Mr. Shahzad, SO and Mrs. Hafsa, SO worked dedicatedly to compile the Quarterly National Accounts along with their routine work. Special thanks to Dr. Adil, CSO who coordinated the activities of QNA and worked dedicatedly to complete the task in a timely manner. In fact these officers and their staff were the real team to complete the gigantic task of compilation of Quarterly National Accounts. The support rendered by the IT team also needs special appreciation for providing us an environment with all technical facilities for attending the online technical sessions.

I am extremely grateful to Mr. Zafarul Hasan, Joint Chief Economist, M/o Planning Development and Special Initiatives, Dr. Zahid Asghar, Professor, School of Economics Quaid e Azam University, Dr. Hasan Mohsin, Chief, M/o Planning Development and Special Initiatives, Dr. Naseem Faraz, Deputy Economic Advisor, Ministry of Finance, Dr. Nasir Iqbal, Associate Professor, PIDE, Mr. Javaid Iqbal, Director SBP, Mr. Asif Mehmood, Director, SBP and industry experts who reviewed the compilation methodology of the QNA and gave their valuable inputs and suggestions which have been incorporated in this document.

The patronage of Dr. Naeem uz Zafar, Chief Statistician, PBS and Syed Ejaz Wasti, Member National Accounts PBS, kept our spirits high during the compilation of Quarterly National Accounts. Able guidance of Syed Ejaz Wasti enabled the national accounts staff to work as a team and bring out their best. In the end I would like to confess that all positive attributes are because of National Accounts officers and staff and all shortcomings attributable to me.

(Attiq-ur-Rehman)
Deputy Director General
(National Accounts)
December, 2023

Acknowledgement Team-National Accounts

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Mr. Shahzad	Statistical Officer
Mrs. Hafsa	Statistical Officer

Abbreviations and Acronyms

Abbreviations	Acronyms
AJK	Azad Jammu &Kashmir
AMIS	Agriculture Marketing Information Services
API	Agriculture Policy Institute
APL	Attock Petroleum limited
BMR	Balancing, Modernizing And Replacement
CAA	Civil Aviation Authority
CAAD	Capital Administration and Development Division
CDWP	Central Development Working Party
CMI	Census of Manufacturing Industries
CPC	Central Product Classification
CPI	Consumer Price Index
CRS	Crop Reporting Services
CSO	Central Statistical Office
DFI's	Development Financing Institutions
EPZA	Export Processing Zones Authority
FATA	The Federally Administered Tribal Areas
FBS	Federal Bureau of Statistics
FISIM	Financial Intermediation Services Indirectly Measured
FOTCO	Fauji Oil Terminal And Distribution Company Ltd
GDP	Gross Domestic Product
GFCF	Gross Fixed Capital Formation
GNI	Gross National Income
GPA	Gawadar Port Authority
GVA	Gross Value Added
HDIP	Hydrocarbon Development Institute of Pakistan
HIES	Household Integrated Economic Survey
HIICS	Household Integrated Income and Consumption Survey
IATA	International Air Transport Association
IBRD	International Bank for Reconstruction and Development
ICPF	Insurance Corporations And Pension Funds
IPPS	Independent Power Producers
ISIC	International Standard Industrial Classifications
ISPs	Internet Service Providers
KIBOR	Karachi Interbank Offer Rate
KICT	Karachi International Container Terminal
KPT	Karachi Port Trust (Pakistan)
LNG	Liquefied Natural Gas
LSMI	Large Scale Manufacturing Industries
MMF	Money market funds
MNFSR	Ministry of National Food Security and Research
NAC	National Accounts Committee
NEC	National Economic Council

NEPRA	National Electric Power Regulatory Authority
NIC	National Income Commission
NPI	Net Primary Income
NPISH	Non-Profit Institutions Serving Households
NTDC	National Transmission and Distribution Company
NTRC	National Transportation Research Center
OPS	Other Private Services
P@SHA	Pakistan Software House Association
PARACS	Pakistan Railways Advisory and Consultancy Services
PARCO	Pak-Arab Refinery Company Limited
PASHA	Pakistan Software Houses Association for IT
PBS	Pakistan Bureau of Statistics
PCI	Per Capita Income
PEC	Pakistan Engineering Council
PEMRA	Pakistan Electronic Media Authority
PEPCO	Pakistan Electric Power Company
PHA	Pakistan Hotels Association
PIA	Pakistan International Airlines
PICT	Pakistan International Container Terminal
PNSC	Pakistan National Shipping Corporation
PPS	Probability Proportional to size
PQA	Port Qasim Authority (Pakistan)
PSEB	Pakistan Software Export Board
PSIC	Pakistan Standard Industrial Classification
PSLM	Pakistan Social and Living Standards Measurement
PSX	Pakistan Stock Exchange
PTDC	Pakistan Tourism Development Corporation
QICT	Qasim International Container Terminal
QIM	Quantum Index of Large Scale Manufacturing
QoQ	Quarter on Quarter
RNA	Rebasing of National Accounts
SBP	State Bank of Pakistan
SECP	Securities and Exchange Commission of Pakistan
SHMI	Small and Household Manufacturing Industries Survey
SNA	System of National Account
SNGPL	Sui Northern Gas Pipeline
SPI	Sensitive Price Index
SRC	Self-Representative Cities
SSGC	Sui Southern Gas Company
WPDA	Water and Power Development Authority
WPI	Wholesale Price Index
WRT	Wholesale and retail trade
YoY	Year on Year

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CHAPTER 1
Overview of Quarterly National Accounts

Group photo of 107th NAC meeting held on 28th November, 2023 which approved the introduction of QNA in the Statistical System of the country.

QUARTERLY NATIONAL ACCOUNTS IN PAKISTAN

1.1 Introduction

Quarterly National Accounts (QNA) provides a timely picture of current economic developments in the country as compared to Annual National Accounts (ANA) and are more comprehensive than individual short-term indicators. QNA serve as a framework for assessing, analysing, and monitoring current economic developments. In Pakistan, the history of compilation of QNA is not very rich and it has been a rather neglected area and all the emphasis had been on the compilation of ANA. First concrete steps taken in this direction were in 2014-15, when PBS compiled the first and second quarter estimates for the financial year 2014-15. However, during the same year, the work on the compilation of change of base of national accounts from 2005-06 to 2015-16 was initiated so it was decided by the Governing Council (the apex body of PBS) to hold the compilation of QNA and restart it once the results of the change of base were approved. On the contrary, the demand for the QNA kept on increasing day by day from policy makers, researchers and academia.

The rebasing of national accounts exercise was initiated in 2014-15 and final approval of the results of the new base was accorded in January 2022. The new base year replaced the existing base of 2005-06 by including new censuses, surveys, studies and enhanced implementation of 2008 SNA as well as enhanced coverage of economic activities as per PSIC. Many censuses, surveys and studies were launched to generate an updated database for National Accounts under the umbrella of rebasing of national accounts from 2005-06 to 2015-16. The most relevant of them were:

a) Household Integrated Income and Consumption Survey (HIICS), which has been used to change the base of the Consumer Price Index (CPI) from 2007-08 to 2015-16.
b) Census of Large Scale Manufacturing (CMI) 2015-16 (which also provided the base for the revision of the Quantum Index of Manufacturing (QIM))
c) Small and Household Manufacturing Industries (SHMI) Survey
d) Census of Electricity Establishments
e) Census of Exploration Companies (Oil and Gas)
f) Construction Survey
g) Rent Survey
h) Survey of Non-Governmental Organizations (NGO's)
i) Survey on Other Private Services
j) Various studies for updating prices and input-output structure of crops, trade & transport margin, livestock and for estimating output and intermediate consumption of cotton ginning, forestry, inland fishing and marine fishing
k) Studies of mining industries and stone crushing
l) Study on slaughtering
m) Study on accommodation and food service activities (Hotels and restaurants)
n) Various studies on components of transport, warehousing, storage and communication services
o) Studies on exchange companies and stock exchange brokers

p) Study on autonomous bodies providing education, human health and social work services

q) Studies on TV Channels, Computer Related Activities, Professional, Scientific and technical activities

1.2 Collaboration with the World Bank

PBS has always been striving hard to enhance its data collection tools and systems, and introduce new data dissemination techniques in the statistical system of the country. Through a series of consultations with the WB, PBS has developed a nice working relationship with the World Bank. The experts of the WB also reviewed the methodology of change of base of Annual National Accounts and found it in accordance with the 2008 SNA. The WB country representatives in Pakistan were requested to provide technical assistance regarding compilation of QNA soon after the approval of the rebasing of ANA in January 2022. The WB arranged the services of the WB QNA expert in Washington DC through remote connection. Due to pre-engagement of the WB expert, it was decided to start the technical assistance online twice a week. The quarterly national accounts compilers attended the sessions and discussed at length the conceptual issues regarding compilation of QNA. The process of online sessions lasted from July 2022 to April 2023 during which the industry wise methodology of compilation of QNA was discussed with hands on exercises.

Mr. Jose Pablo, the World Bank expert on QNA visited PBS in June 2023 and held week long technical sessions with the national accounts team. During these sessions the compilation methodology was reviewed in detail along with detailed discussion on revision and dissemination policy of QNA. Technical modalities were finalized during this visit and PBS was in a position to produce QNA as per international standards. IMF manual 2017 was the reference document for compilation of QNA.

1.3 Procedure adopted for compilation of QNA

QNA are commonly compiled by combining ANA data with short-term source statistics, thus providing a combination that is timelier than that of the ANA and that has increased information content and quality compared with short-term source statistics. In Pakistan the availability of short-term indicators varies from industry to industry. There are certain industries for which there are very good quarterly indicators such as Fisheries, Mining & Quarrying, Large Scale Manufacturing, Electricity Generation & Distribution, Gas Distribution, Financial & Insurance activities and General Government etc. Similarly, there are industries for which there are only quarterly input indicators available but output indicators are not available namely livestock, construction etc. Further due to undocumented nature of the economy, there are few industries for which there is neither quarterly indicator available nor even annual indicator. Such industries are compiled on annual basis on fixed growth. These include Small Scale Manufacturing, Accommodation and food service activities and Ownership of Dwellings and Real estate activities (Housing Services). Apart from this, the agriculture industry, which is one of the most important industries in Pakistan, comprises of five important crops and about 125 other crops/fruits/vegetables have the issue of work in progress as these have different sowing and harvesting seasons.

Since PBS is a National Statistical Organization (NSO) so it has to adopt certain international standards while compiling macro-economic indicators as these indicators are not only locally consumed by the users but are internationally compared with other countries and regions. For QNA, PBS followed the IMF manual 2017. Some of the broad guidelines provided in the manual are given below.

Initial design of QNA should be based on ANA as much as possible
(Para 2.4, page 15 of the IMF Manual 2017)

Generate time series of QNA data for past years ("back series"). Benchmark the time series of quarterly source data to the time series of annual data (using methods such as the enhanced proportional Denton method or the Cholette–Dagum method). To be done for a sufficiently long time series and at the most detailed level.
(Box 2.1, page 16 of the IMF Manual 2017)

Since the QNA should be anchored to the ANA, the coverage of the QNA should then be consistent with the coverage of the ANA. This means that the coverage should either be the same as the ANA or constitute a subset of the ANA.
(Para 2.6, page 17 of the IMF Manual 2017)

The production approach is used more widely to compile QNA relative to the expenditure approach. This is because of problems in availability, timing, valuation, and coverage in expenditure source data.
(Para 2.11, page 18 of the IMF Manual 2017)

Work-in-progress concerns production that goes beyond one period. Measurement of such production poses the problem that a single process has to be split into separate periods. Because of the shorter accounting period, these difficulties are relatively more significant for quarterly national accounts (QNA) than for annual national accounts (ANA).
(Para 11.1, Page 235 of the IMF Manual 2017)

Industry wise detail of quarterly indicators will be discussed in the relevant chapters.

1.4 Adoption of Denton Technique and Tramo Seats

As an initial step, theoretical concepts of QNA were discussed in detail with the World Bank expert. Concepts such as benchmarking, development of volume indicators, value indicators, price indicators, composite indices and application of appropriate weights etc., came under discussion and their availability as well as impact on each industry was also discussed at length. An important technique namely Denton Technique was also discussed and applied during the compilation of QNA. Annual estimates of the Gross Value Added at constant and current prices were broken down into quarters by using Denton Technique on the basis of available volume and value indicators industry by industry. Denton method is a well-known method for benchmarking. Its aim is to achieve consistency between time series on the same target variables that are measured at different frequencies. TRAMO-SEATS are a model based seasonal adjustment method developed by Vistor Gomez and Agustin Maravall. It consists of two linked programs: TRAMO and SEATS. TRAMO (Time Series Regression with ARIMA Noise, Missing Observations and Outliers) performs

estimation forecasting and interpolation of regression models with missing observations and ARIMA errors, in the presence of possible several types of outlier. SEATS (Signal Extraction in ARIMA Time Series) perform an ARIMA-based decomposition of an observed time series into unobserved components.

1.5 Why Quarterly National Accounts

QNA can be seen as positioned between ANA and specific short-term indicators. QNA is available within three months after the end of the reference quarter while ANA, on the other hand, are produced with a considerable time lag. The initial ANA (accounts based on annual data as opposed to first estimates on the basis of the sum of the four quarters) are often available six months or more after the end of the year. Even if the ANA were as timely as the QNA, they would not provide timely information about the current economic situation since the information for, say, the first quarter would be delayed. Also, annual information is insufficient for monitoring of the business cycle, and the timing of economic policy aimed at affecting the business cycle, since it masks higher frequency developments. Within-the-year economic developments are not shown in the ANA. In addition, developments that started in one year and end in the next may not be visible in the ANA. The strength of the ANA is to provide information about the economic structure and long-term trends, rather than to provide data needed for monitoring the business cycle. QNA are best positioned for forecasting purposes as they provide up-to-date information on the current economic situation.

Furthermore, quarterly data more adequately reflect the dynamic relationships between economic variables and they provide four times as many observations, which is very helpful when using mathematical techniques such as regression analysis. QNA are indispensable during times of high inflation or sharp changes in relative prices for at least two reasons. First, in these circumstances, one of the basic axioms of the ANA is violated: namely, the assumption of price homogeneity over time. Although this basic axiom never fully applies (unless there are no price changes), in times of low inflation, it does not affect the usefulness of the ANA. However, in situations of high inflation, adding up current price data over a year becomes meaningless because the prices vary so much within the year. QNA are much less affected by this situation (although under extreme circumstances the accounting period should even be shorter). Second, the problem of holding gains is much less severe for QNA than for ANA and can more easily be eliminated because changes in valuation are less frequent in a shorter accounting period.

QNA are less timely than short-term indicators, but they provide a more comprehensive picture of current economic developments organized in an integrated framework for analyzing the data. Short-term indicators such as price indices, labor market indicators, industrial production indices, and turnover data for retail trade are often available on a monthly basis shortly after the reference period. These short-term indicators provide valuable information on specific aspects of current economic developments. However, these indicators do not provide a coherent, comprehensive, and consistent picture of the different aspects of the current economic situation. This hampers tracing the causes of current problems and identifying potential future developments.

Furthermore, by providing time series of quarterly data on macroeconomic aggregates in a coherent accounting framework, QNA allow analysis of the dynamic relationships between these aggregates

(particularly, leads and lags). Thus, QNA provide the basic data for business-cycle analysis and for economic modeling purposes. Also, QNA have a particular role to play for accounting under high inflation, sharp changes in relative prices, and where annual source data are based on varying fiscal years. In addition, as with the annual accounts, QNA provide a coordinating conceptual framework for design and collection of economic source statistics and a framework for identifying major gaps in the range of available short-term statistics.

In Pakistan, GDP is compiled through production and expenditure approaches on annual basis. These annual estimates are approved by the National Accounts Committee (NAC) in the month of May every year, where estimates for three years are approved. The estimates of the recent year are considered as provisional, which are based on six to nine month data, while estimates for the last year are revised and estimates of year before last are finalized. The provisional estimates of macroeconomic aggregates are the only estimates, which remain under discussion throughout the year, as there are no quarterly estimates. In this situation the need for the quarterly estimates has increased over the years as country has been facing severe economic shocks in the shape of COVID 19, floods and high inflation. Policy makers, researchers and academicians have been pressing hard for provision of quarterly macroeconomic aggregates.

1.6 Gross Domestic Product Approaches for QNA

In international analyses and comparisons, GDP at market prices is the most important and most common macroeconomic indicator. As a measure of aggregated production, it is the sum of the gross value added of all resident producers plus any taxes on products not included in the value of their output minus any subsidies on products included in the value of their output. For short: GDP at market prices represents the final results of the production activity of resident producers' units.

GDP at market prices is also equal to the market value of all final uses of goods and services during a year (which includes exports), less the value of imports. Finally, GDP at market prices is also equal to the sum of primary incomes (payables out of the value-added created by production) distributed by resident producers.

Keeping in view the availability of data/ indicators on quarterly basis, production approach has been used for the compilation of QNA.

1.6.1 Production Approach

It measures the contribution to output made by each producer. It is obtained by deducting from the total value of its output the value of goods and services it has purchased from other producers and used up in producing its own output. Total value added by all producers, adjusting taxes and subsidies equals GDP.

Gross Value Added at basic prices = Output at basic prices - Intermediate consumption at purchasers' prices

GDP = Output – Intermediate consumption + Taxes on products – Subsidies on products

or

GDP = Gross value added + Taxes on products – Subsidies on products

1.7 Review of Technical Committee

As described in the preceding paras, PBS started compilation work of QNA in June 2022 soon after the approval of the new base year 2015-16. After thorough consultation with the World Bank team, a comprehensive methodology was developed for the compilation of QNA and a series of quarterly estimates were developed from 2015-16 onwards as per the recommendations of the IMF manual on QNA-2017. In order to seek expert opinion on the compilation methodology of QNA, a technical committee comprising of representatives from various Ministries/Departments was constituted. Four meetings were held in which the compilation methodology was discussed industry by industry. The technical committee comprised of representatives from the following departments/organizations

    i.   Ministry of Finance
    ii.   Ministry of Planning Development and Special Initiatives
    iii.   State Bank of Pakistan
    iv.   Pakistan Institute of Development Economics (PIDE)
    v.   Department of Economics, Quaid-e-Azam University
    vi.   Independent expert on the subject.

The valuable suggestions/recommendations have been incorporated in this document.

TORs of the Committee were to

i.   Review the methodology of QNA
ii.   Review the compiled series of QNA estimates from 2015-16 to 2020-21
iii.   Review the dissemination policy and revision policy of QNA
iv.   Suggest any improvement in the compilation methodology

Four (04) meetings were held as per following schedule

i.   First meeting held on 19-07-2023 to review methodology of Agriculture Sector
ii.   Second meeting held on 25-07-2023 to review methodology of Industry Sector
iii.   Third meeting held on 02-08-2023 to review methodology of Services Sector
iv.   Fourth meeting held on 08-08-2023 to review methodology of Services Sector and revision as well as dissemination policy.

The committee recommended the compilation methodology of QNA estimates which is in line with the IMF manual of Quarterly National Accounts 2017 and also approved the dissemination policy according to which, the QNA estimates will be disseminated with a lag of three months (90 days) which is in line with the Special Data Dissemination Standards (SDDS) set by the IMF. The committee also approved the revision policy for QNA.

1.8 Presentation of the Estimates

There are various ways to sub-classify the economy. One of these is the structure of six institutional sectors of the SNA i.e. financial corporations, non-financial corporations, households, non-profit institutions serving households (NPISH), General Government and the Rest of the world. Others are formal versus informal economy or producing activities versus services and the like. In Pakistan, it has been common so far to divide the economy by using the term "sector". However, SNA

designates all economic activities as industries. The grouping of the industries for the presentation of QNA estimates is given below:

Agriculture, Forestry and Fishing
- Crops
  - Important Crops
  - Other Crops
  - Cotton Ginning
- Livestock
- Forestry
- Fishing

Producing Industries
- Mining and quarrying
- Manufacturing
  - Large-Scale Manufacturing
  - Small-Scale Manufacturing
  - Slaughtering
- Electricity, Gas and Water supply
- Construction

Services
- Wholesale and retail trade (Inc. repair of motor vehicles and motorcycles)
- Transportation and storage
- Accommodation and food service activities
- Information and communication
- Financial and insurance activities
- Real estate activities (Housing Services)
- Public administration and social security
- Education
- Human health and social work activities
- Other Private Services

1.9 Dissemination Policy:

The QNAs are the only set of data available on a quarterly basis, consistent with the national accounts and the existing annual GDP figures that provide a detailed view of the developments of an economy and the trend in economic growth. Thus, the QNA are a very important instrument for timely and informed economic policy decision making. The QNA are more useful for economic policy purposes as well as for general users, the sooner they are available after the end of the reference quarter. PBS has developed a dissemination policy to keep the users informed about the release of the QNA. It is a fact that the level of accuracy and completion of the QNA depends on the amount of information available at the time of their release. This unavoidable trade-off between timeliness and accuracy must be addressed by determining a date for which a sufficient amount of information is available. Based on this date, a release calendar has been elaborated and every effort will be made to release the QNA in line with the release dates included in this preannounced schedule.

QNA will be disseminated simultaneously through press releases, as well as via social media and on the PBS' website. QNA releases will be fully compliant with their release calendar and include a press release with the main results (mainly GDP growth in current and constant prices) and a more detailed publication covering all aspects of the QNA.

For each quarter, a press release will be published including: (i) a simple table showing quarterly GDP growth in current and constant prices for the last 2-3 years; (ii) a summary table showcasing the results; and (iii) and a brief description of the results obtained. The note will include a catchy heading and simple text for users to have a quick snapshot of the current trend on economic growth. To the extent possible, this note will be standardized and be ready for publication shortly after the quarterly results are obtained. The report will contain a thorough analysis of the data, including the full set of results (quarterly GVA/GDP in current and constant prices, both levels and growth rates), supported by graphs describing those results. In terms of the text included in the document, it will include technical explanations as needed and identify the main highlights. The publication will highlight any revision (either regular or irregular) that may have taken place. Interpretation of the results will be kept to a minimum, avoiding taking a position on economic and political issues to influence users, and keeping to the facts.

1.10   Revision Policy:

There are basically two types of revisions: those included into the regular revision cycle, and those considered irregular and outside the revision policy. All of them must be properly identified including the size and the reasons for revising.

The regular revision cycle includes three types of revisions:

(i)   Revisions in the current accounting period of the quarters previously released. Quarter 1 can be revised when releasing quarter 2 data, and quarters 1 and 2 can be revised when publishing quarter 3, and quarters 1, 2 and 3 can be revised when releasing quarter 4;

(ii)   Revisions in years other than the current year for which no annual benchmark is available;

(iii)   Revisions due to regular changes in annual benchmarks. When existing annual accounts benchmarks are revised, quarterly accounts will be revised accordingly.

Irregular revisions outside the regular revision cycle for which annual benchmarks are typically available respond to:

(i)   Irregular revisions of annual benchmarks motivated by changes in data sources or compilation in the annual national accounts. Quarterly accounts will be revised accordingly by benchmarking the existing indicators to the revised annual benchmarks.

(ii)   Irregular revisions of source data. QNA will also be revised accordingly by benchmarking the revised indicators to the existing annual national accounts benchmarks.

(iii)   QNA compilation errors. QNA will be revised when errors are identified.

Regardless of the type of revision, all of them will be flagged, mentioning the reason and size of the revision, and its impact on GDP.

1.11 Release calendar

An exercise has been conducted to measure the amount of information available in GDP terms on a daily basis, to determine the date at which a reasonable amount of information is available to compile GDP with a sufficient amount of certainty, avoiding the inclusion of an excessive number of forecasted values in the different short-term indicators used to compile the QNA. The QNA release could be published around t+Y, (90 days) with approximately 95% of information available. On the recommendations of the technical committee and the amount of information available to compile QNA, it has been decided that the QNA will be released within three months after the end of reference quarter. This release calendar is in line with the IMF Data Quality Assessment Framework (DQAF), which states that, **"quarterly GDP estimates should be disseminated within three months after the end of reference quarter"** under the Special Data Dissemination Standards (SDDS).

1.12 List of Indicators

List of Indicators used in the compilation of QNAs are as under:

S. No	Sector/Industry	Indicators	Source of data	Periodicity
A	**Agriculture, Forestry and Fishing**			
	Important Crops	Indicators of Output (area, production, yield), Fertilizer, Pesticides , Water	Provincial Crop Reporting Services, National Fertilizer Development Corporation, Plant Protection Department, Ministry of National Food Security and Research and Indus River System Authority (IRSA)	Quarterly
	Other Crops	Indicators of Output (area, production, yield), Fertilizer, Pesticides , Water for Potato, Onion, Mango, Green Fodder,	Provincial Crop Reporting Services, National Fertilizer Development Corporation, Plant Protection Department, Ministry of National Food Security and Research and Indus River System Authority (IRSA)	Quarterly
	Cotton Ginning & Miscellaneous	No Indicator		
	Livestock	Number of live animals, Green Fodder, Dry Fodder	Provincial Crop Reporting Services, NA Agriculture & Trade Section	Quarterly
	Forestry	No Indicator		
	Fishing	Fish catch	Marine Fisheries Department	Quarterly
B	**Industrial Activities**			
	Mining and Quarrying	Actual Production data from sources	Provincial Mines and Minerals Departments, Ministry of Energy	Monthly
	Large Scale Manufacturing	Quantum Index of Manufacturing	Industry Section PBS	Monthly
	Small Scale Manufacturing	No Indicator		
	Slaughtering	No Indicator		
	Electricity Generation, Transmission and Distribution	Quarterly Output and Intermediate Consumption by the sources	Generation companies, Transmission Companies, Distribution companies, IPPs', nuclear plants, renewable energy, captives.	Quarterly
	Gas Distribution	Quarterly Output and Intermediate Consumption by sources	Sui Northern Gas Pipelines Limited, Sui southern Gas Pipelines Limited, Mari Distribution Company	Quarterly
	Water Supply	No Indicator		
	Construction	Construction related		Monthly

		items from QIM and Mining Industry		
C	**Services**			
	Wholesale & Retail trade	Combined indicator of output of agriculture, manufacturing and imports	Agriculture and Trade Section NA, External Trade Section PBS Karachi.	Quarterly
	Transportation & Storage	Quarterly data from sources, Number of vehicles on road	Pakistan Railways, Domestic and Foreign Air Lines, Shipping Corporations, NTRC etc	Monthly
	Accommodation and Food Services Activities (Hotels & Restaurants)	No Indicator		Fixed Growth
	Information and Communication	Quarterly data of Mobile companies	Mobile Companies	Quarterly
	Financial and Insurance Activities	FISIM based on loans and deposits	State Bank of Pakistan	Monthly
	Stock brokers	No of Shares traded	State Bank of Pakistan	Monthly
	Exchange companies	Remittances	State Bank of Pakistan	Monthly
	Life Insurance	Premium Received	Insurance Association of Pakistan (IAP)	Monthly
	Non-Life Insurance	Premium Received	Insurance Association of Pakistan (IAP)	Monthly
	Real Estate Activities (OD)	No Indicator		
	Public Administration and Social Security (General Government)	Wages/Compensation of employees	Budget documents	Quarterly
	Education	Wages/Compensation of employees for public education and for private there is no indicator	Budget documents	Quarterly
	Human Health and Social Work Activities	Wages/Compensation of employees for public education and for private there is no indicator	Budget documents	Quarterly
	Other Private Services	Number Of Engineers for Scientific and Research Development. For other components there is no indicator	Pakistan Engineering Council	Quarterly

1.13 Summary Results – (Seasonally unadjusted with base year 2015-16)

Table 1: Values and growth of GVA at constant and current prices for Agriculture

Years	Quarters	Value of GVA (Rs. Million)		YOY Growth GVA		QOQ Growth GVA	
		Constant Prices	Current Prices	Constant Prices	Current Prices	Constant Prices	Current Prices
2015-16	1	1877499	1796908				
	2	1833474	1801867			-2.34	0.28
	3	1764238	1779630			-3.78	-1.23
	4	1831745	1928551			3.83	8.37
2016-17	1	1914034	1925904	1.95	7.18	4.49	-0.14
	2	1842507	1907983	0.49	5.89	-3.74	-0.93
	3	1813876	1886658	2.81	6.01	-1.55	-1.12
	4	1898483	2087993	3.64	8.27	4.66	10.67
2017-18	1	1995928	2093630	4.28	8.71	5.13	0.27
	2	1901092	2074774	3.18	8.74	-4.75	-0.90
	3	1884766	2026664	3.91	7.42	-0.86	-2.32
	4	1976647	2290009	4.12	9.68	4.87	12.99
2018-19	1	2013494	2273491	0.88	8.59	1.86	-0.72
	2	1923198	2179641	1.16	5.05	-4.48	-4.13
	3	1907976	2185411	1.23	7.83	-0.79	0.26
	4	1986628	24178033	0.50	5.59	4.12	10.64
2019-20	1	2083853	2422731	3.49	6.56	4.89	0.19
	2	2009414	2587095	4.48	18.69	-3.57	6.78
	3	1992917	2590684	4.45	18.54	-0.82	0.14
	4	2051676	2789032	3.27	15.34	2.95	7.66
2020-21	1	2158869	2953772	3.60	21.92	5.22	5.91
	2	2082385	3238347	3.63	25.17	-3.54	9.63
	3	2080632	3115736	4.40	20.27	-0.08	-3.79
	4	2102155	3346036	2.46	19.97	1.03	7.39
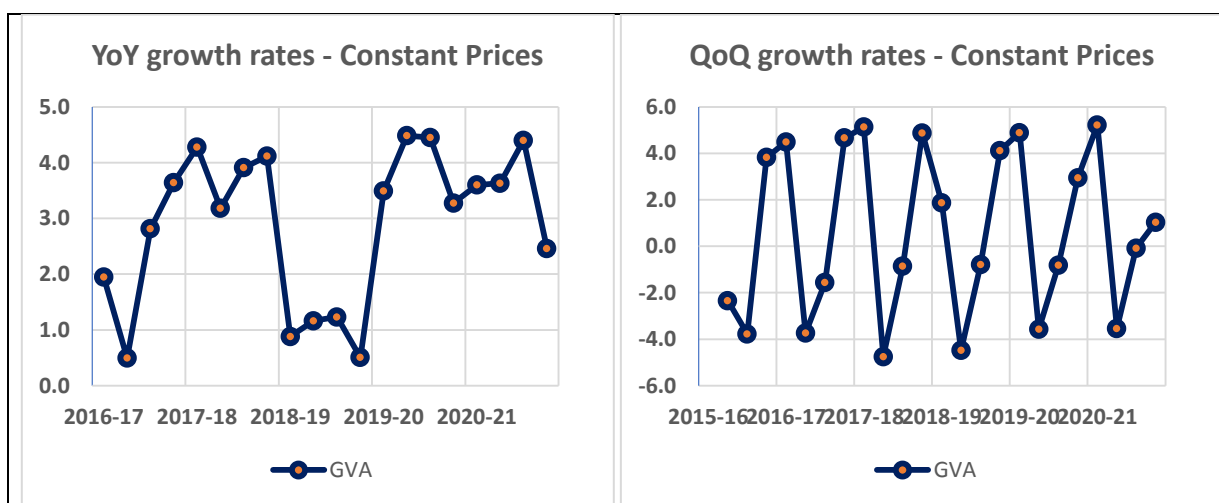
Figure 1: YoY and QoQ GRs at constant prices for Agriculture
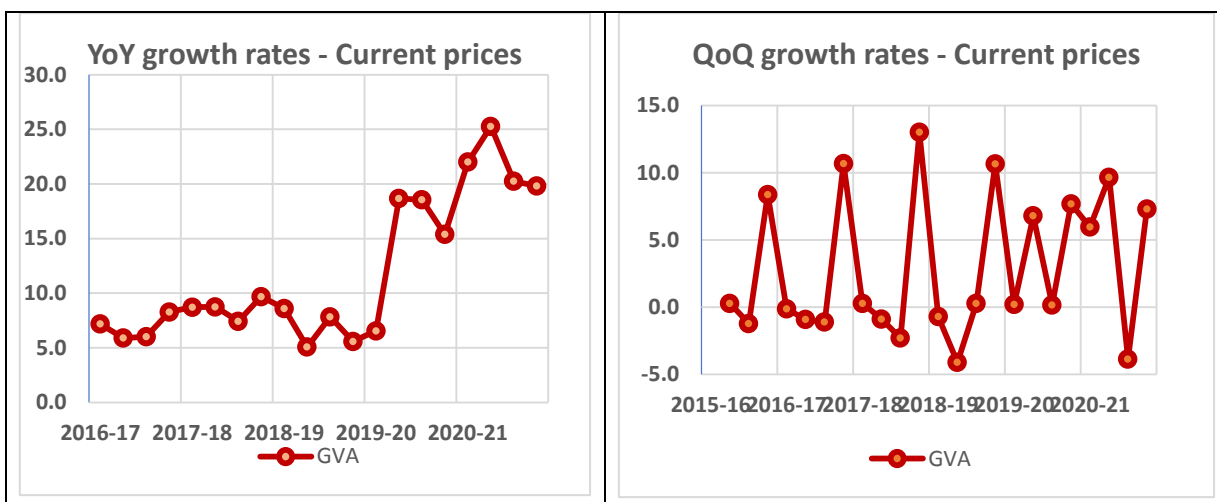
Figure 2: YoY and QoQ GRs at current prices for Agriculture

Table 2: Values and growth of GVA at constant and current prices for Industry

Years	Quarters	Value of GVA (Rs. Million)		YOY Growth GVA		QOQ Growth GVA	
		Constant Prices	Current Prices	Constant Prices	Current Prices	Constant Prices	Current Prices
2015-16	1	1467478	1464165				
	2	1439618	1452120			-1.90	-0.82
	3	1541392	1541299			7.07	6.14
	4	1491150	1482052			-3.26	-3.84
2016-17	1	1514415	1489538	3.20	1.73	1.56	0.51
	2	1507724	1568105	4.73	7.99	-0.44	5.27
	3	1634261	1723119	6.03	11.80	8.39	9.89
	4	1556895	1654059	4.41	11.61	-4.73	-4.01
2017-18	1	1660060	1657524	9.62	11.28	6.63	0.21
	2	1639838	1747479	8.76	11.44	-1.22	5.43
	3	1752742	1929843	7.25	12.00	6.89	10.44
	4	1731223	1950170	11.20	17.90	-1.23	1.05
2018-19	1	1757362	2041922	5.86	23.19	1.51	4.70
	2	1616676	2087084	-1.41	19.43	-8.01	2.21
	3	1704884	2142992	-2.73	11.04	5.46	2.68
	4	1721754	2296675	-0.54	17.77	0.99	7.17
2019-20	1	1713630	2306266	-2.49	12.95	-0.47	0.42
	2	1638779	2356534	1.36	12.91	-4.37	2.18
	3	1695295	2355572	-0.57	9.92	3.45	-0.04
	4	1362261	1819134	-20.88	-20.79	-19.64	-22.77
2020-21	1	1719889	2423436	0.37	5.08	26.25	33.22
	2	1726305	2580382	5.34	9.50	0.37	6.48
	3	1758978	2745826	3.76	16.57	1.89	6.41
	4	1730266	2801398	27.01	54.00	-1.63	2.02
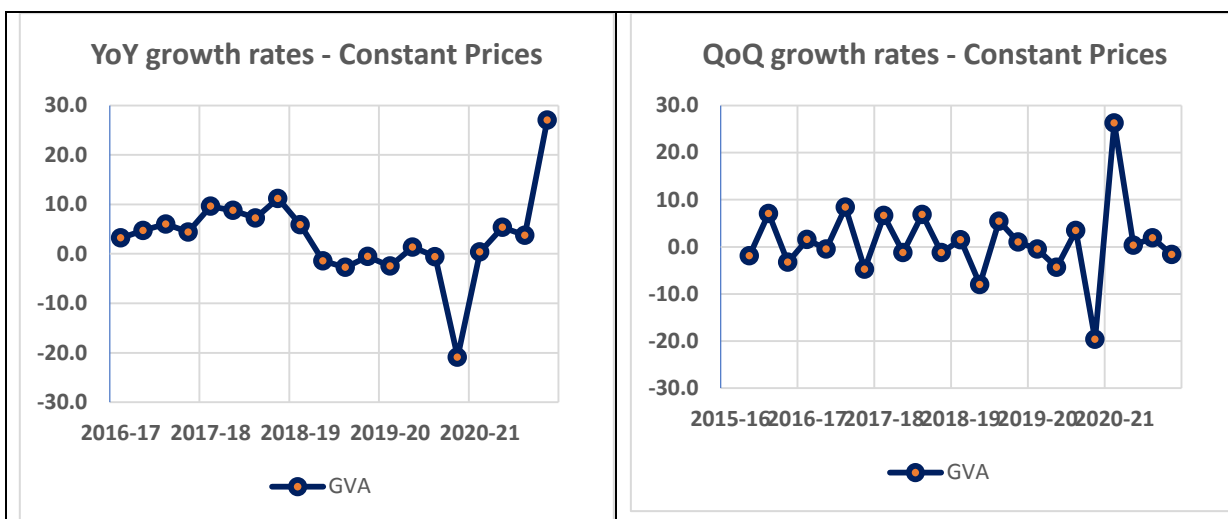
Figure 3: YoY and QoQ GRs at constant prices for Industry
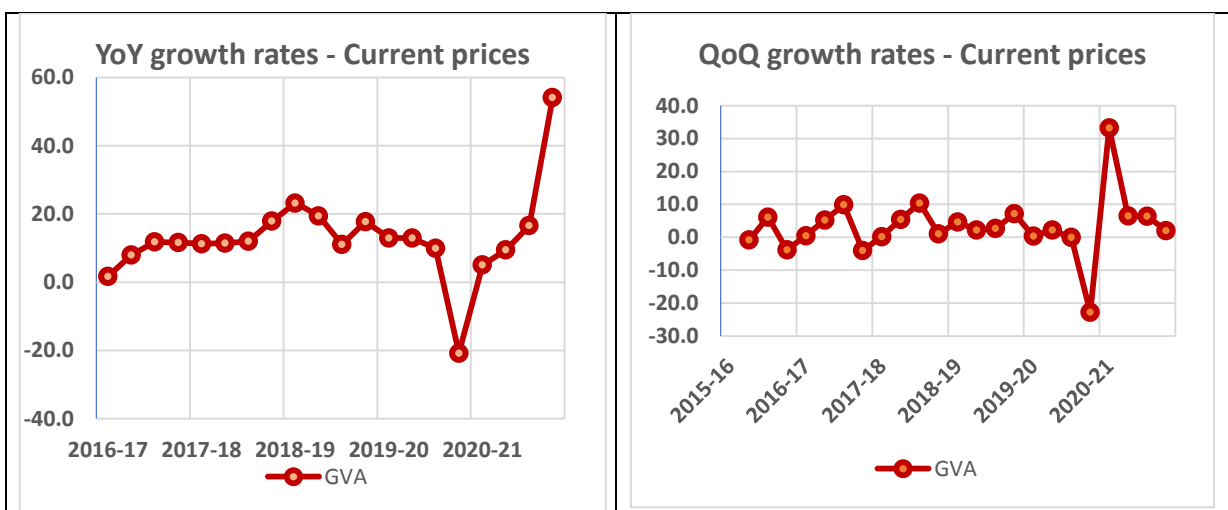
Figure 4: YoY and QoQ GRs at current prices for Industry

Table 3: Values and growth of GVA at constant and current prices for Services

Years	Quarters	Value of GVA (Rs. Million)		YOY Growth GVA		QOQ Growth GVA	
		Constant Prices	Current Prices	Constant Prices	Current Prices	Constant Prices	Current Prices
2015-16	1	4177901	4220249				
	2	4323561	4361794			3.49	3.35
	3	4411146	4361728			2.03	0.00
	4	4349006	4317844			-1.41	-1.01
2016-17	1	4365763	4444316	4.50	5.31	0.39	2.93
	2	4522624	4651658	4.60	6.65	3.59	4.67
	3	4682390	4915801	6.15	12.70	3.53	5.68
	4	4661234	4919835	7.18	13.94	-0.45	0.08
2017-18	1	4726609	4917929	8.27	10.66	1.40	-0.04
	2	4816173	5062670	6.49	8.84	1.89	2.94

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	3	4946658	5389273	5.64	9.63	2.71	6.45
	4	4827883	5374204	3.58	9.24	-2.40	-0.28
2018-19	1	4865333	5561845	2.93	13.09	0.78	3.49
	2	5004156	5710940	3.90	12.80	2.85	2.68
	3	5205970	5956684	5.24	10.53	4.03	4.30
	4	5208611	6255446	7.89	16.40	0.05	5.02
2019-20	1	5022277	6317716	3.23	13.59	-3.58	1.00
	2	5102389	6554621	1.96	14.77	1.60	3.75
	3	5126154	6757135	-1.53	13.44	0.47	3.09
	4	4788018	5890352	-8.07	-5.84	-6.60	-12.83
2020-21	1	5102907	6686543	1.61	5.84	6.58	13.52
	2	5332885	7197618	4.52	9.81	4.51	7.64
	3	5424796	7609602	5.83	12.62	1.72	5.72
	4	5362420	7555316	12.00	28.27	-1.15	-0.71
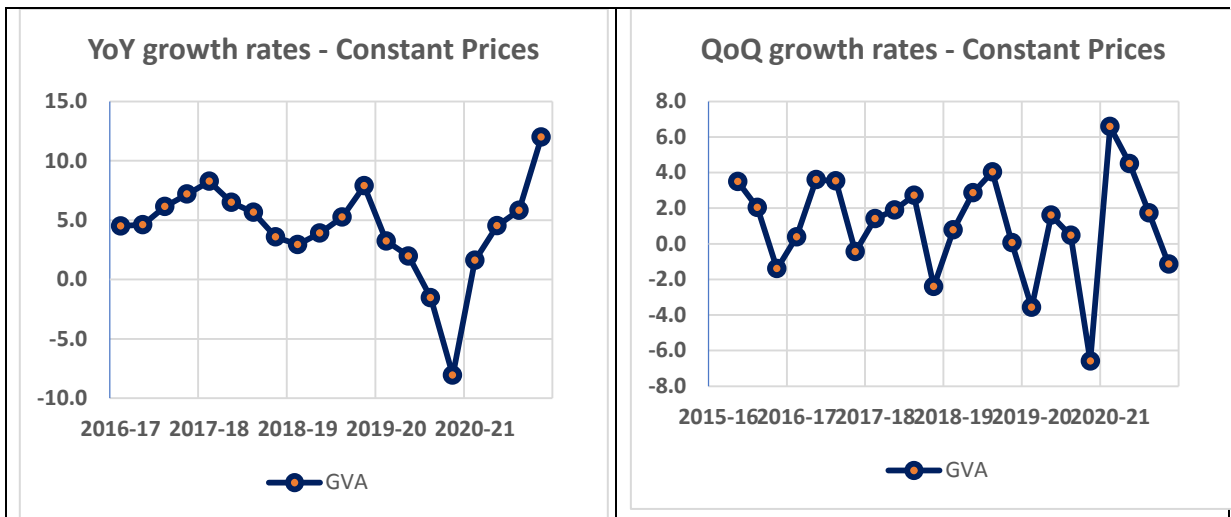
Figure 5: YoY and QoQ GRs at constant prices for Services
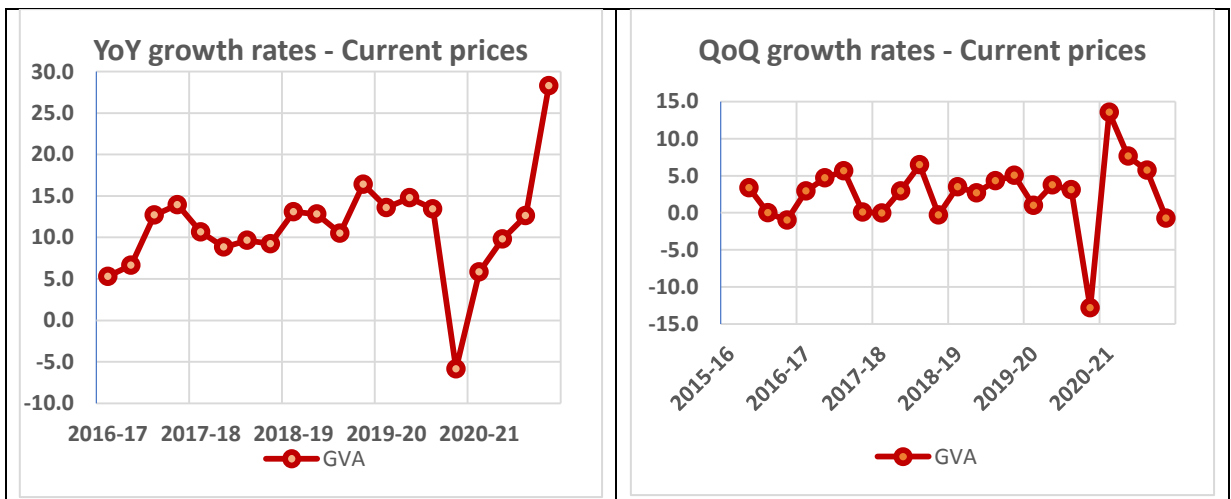
Figure 6: YoY and QoQ GRs at current prices for Services

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Table 4: Values and growth of overall GVA at constant and current prices

Years	Quarters	Value of GVA (Rs. Million)		YOY Growth GVA		QOQ Growth GVA	
		Constant Prices	Current Prices	Constant Prices	Current Prices	Constant Prices	Current Prices
2015-16	1	7522877	7481322				
	2	7596653	7615780			0.98	1.80
	3	7716775	7682657			1.58	0.88
	4	7671901	7728446			-0.58	0.60
2016-17	1	7794212	7859758	3.61	5.06	1.59	1.70
	2	7872856	8127746	3.64	6.72	1.01	3.41
	3	8130528	8525578	5.36	10.97	3.27	4.89
	4	8116612	8661888	5.80	12.08	-0.17	1.60
2017-18	1	8382597	8669084	7.55	10.30	3.28	0.08
	2	8357103	8884923	6.15	9.32	-0.30	2.49
	3	8584166	9345780	5.58	9.62	2.72	5.19
	4	8535754	9614382	5.16	11.00	-0.56	2.87
2018-19	1	8636188	9877259	3.03	13.94	1.18	2.73
	2	8544030	9977665	2.24	12.30	-1.07	1.02
	3	8818830	10285087	2.73	10.05	3.22	3.08
	4	8916994	10970154	4.47	14.10	1.11	6.66
2019-20	1	8819760	11046713	2.13	11.84	-1.09	0.70
	2	8750582	11498251	2.42	15.24	-0.78	4.09
	3	8814367	11703392	-0.05	13.79	0.73	1.78
	4	8201955	10498518	-8.02	-4.30	-6.95	-10.30
2020-21	1	8981665	12063751	1.84	9.21	9.51	14.91
	2	9141575	13016347	4.47	13.20	1.78	7.90
	3	9264405	13471163	5.11	15.10	1.34	3.49
	4	9194841	13702751	12.11	30.52	-0.75	1.72
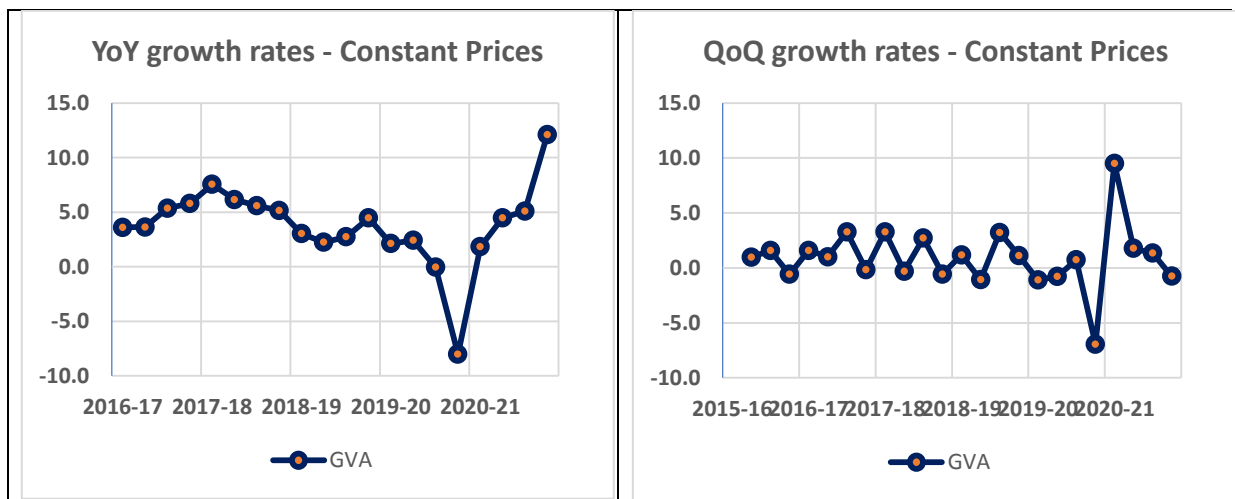
Figure 7: YoY and QoQ GRs at constant prices for overall GVA

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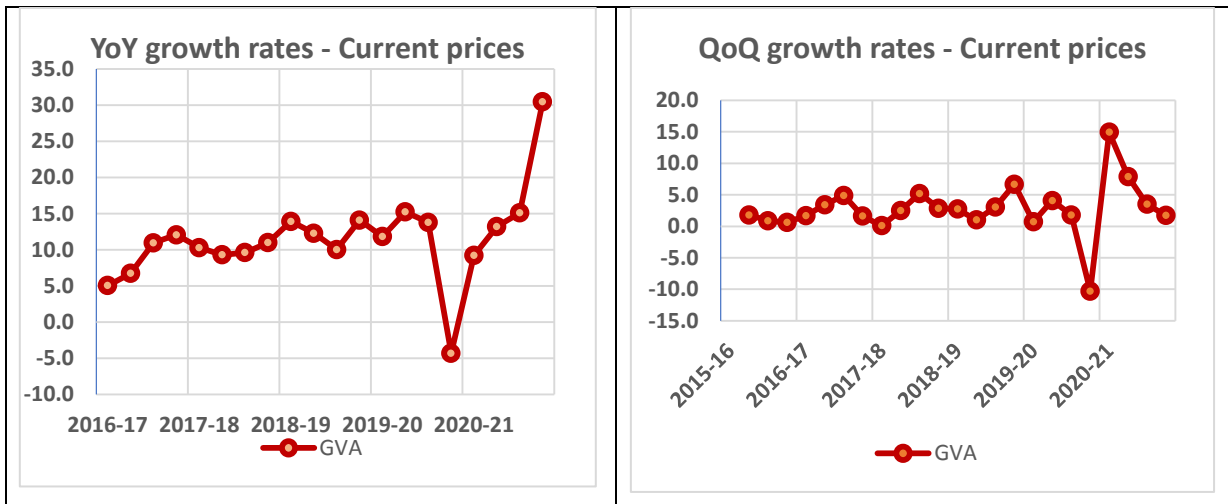
Figure 8: YoY and QoQ GRs at current prices for overall GVA
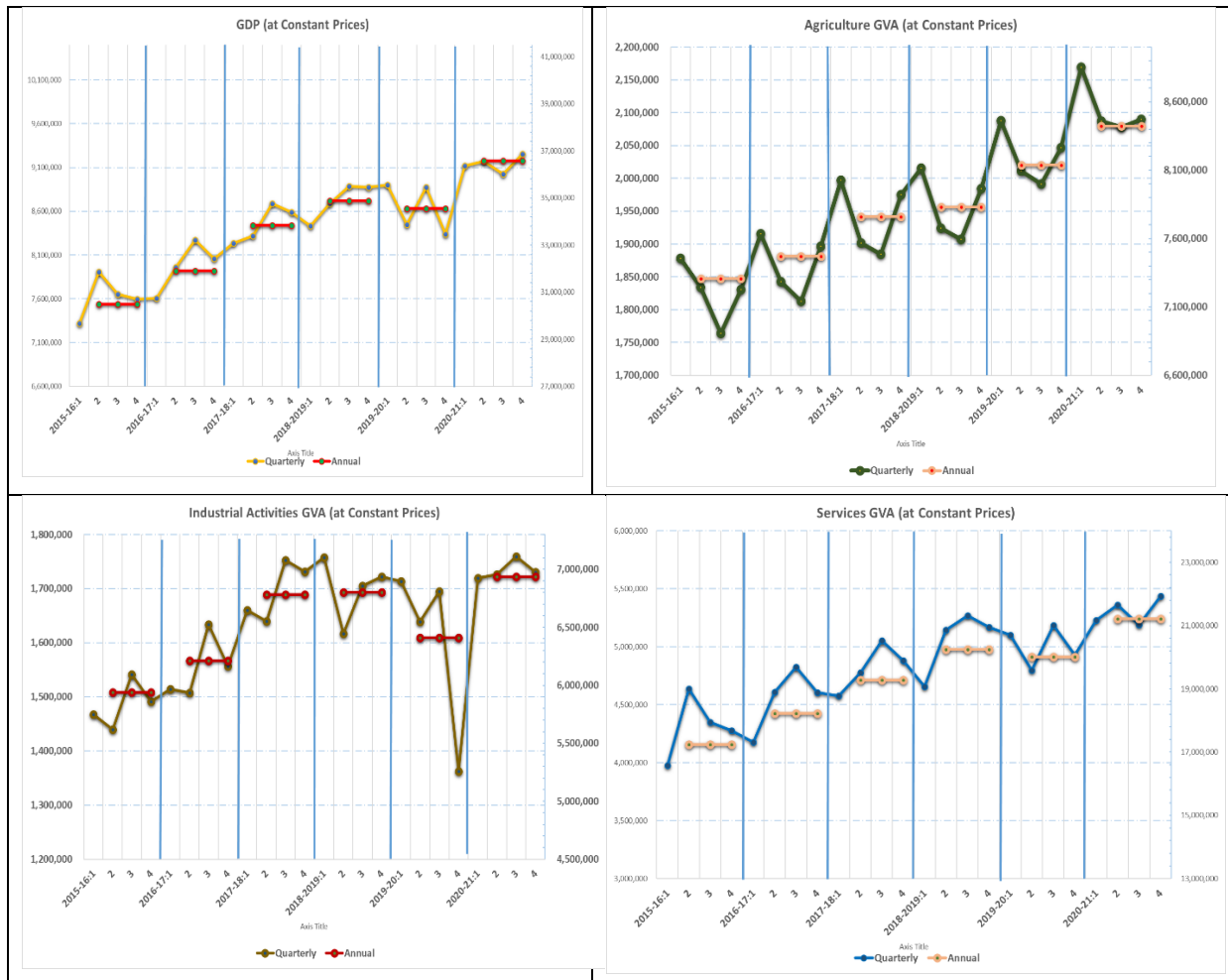
Figure 9: Comparison of annual benchmarks and QGVA

CHAPTER 2
Agriculture, Forestry and Fishing

Group photo with the World Bank team

AGRICULTURE, FORESTRY AND FISHING

2.1 Introduction

Pakistan's agriculture sector comprises of Crops, Livestock, Forestry and Fishing. Crops are further classified into Important Crops and Other Crops. Important Crops include Wheat, Rice, Cotton, Sugarcane and Maize. While, the "other crops" comprise of various pulses, vegetables and fruits. The agriculture industry in Pakistan not only plays a vital role in the development of the economy but also has a significant contribution to the country's GDP. It is also the main source of employment engaged directly or indirectly with agriculture. At the same time, it is the key source of supply of raw material to the industrial sector.

2.2 Crops

Crop-wise production is available from authentic, reliable source, i-e Provincial Crop Reporting Services (CRS). Information on inputs of crops namely fertilizer, pesticide and water is available from National Fertilizer Development Corporation (NFDC), Plant Protection Department and Indus River System Authority (IRSA) respectively. Crops have been categorized into three groups namely, important crops (wheat, cotton, rice, sugarcane and maize), other crops (remaining crops such as fruits, vegetables, oilseeds etc. and Nurseries) and cotton ginning (including non-monetized investment termed as own-account capital formation).

The groups 011, 012 and 013 of Division 01 "Crop and animal production, hunting and related activities" mentioned in Pakistan Standard Industrial Classification (PSIC)-2010 have been covered in this sub-sector. PBS has prepared PSIC 2010, rev. 4 to implement the internationally agreed latest version of the International Standard Industrial Classification (ISIC) which is now ISIC rev.4. According to the PSIC 2010, crop production is covered under codes 011, 012, 013 and partly 016.

2.2.1 Area and Production

The crop area is being provided by Provincial CRSs. They provide three estimates for important crops such as crop area (first estimate), crop area and provisional production (second estimate) and final estimate based on final area and production. Thus, province-wise area and production for all crops, pulses, vegetables, fruits, condiments, oilseeds and other crops are available. Data on the volume of inputs such as water, fertilizer and pesticides are available from different sources. The data on crop-wise prices are available from Price Statistics. The output of crops is the product of production and harvest prices. Harvest prices are available at the provincial level through the study results and crop-wise production is received from Provincial CRS. By-products have been included in the crops to which these belong. Own-account capital formation, according to the SNA, is also an output.

2.2.2 Crop Cycle

In Pakistan the crops are grown and harvested in different quarters throughout the country. For compilation of QNA it becomes imperative to thoroughly examine the sowing and harvesting pattern of each crop as work in progress has to be incorporated for compilation of QNA of crops. Since

important crops play an important role in the economy of the country, so work in progress for each crop has been estimated separately by keeping in view its crop cycle. The statistics regarding area and production released by the provincial CRSs also follow certain timelines. Wheat, which is a Rabi crop, is sown in Q2 (October-December) of a financial year and is harvested in Q3 (January – March) and Q4 (April – June). Table below gives the cropping pattern of important crops in the country. According to CRS crop calendar, first estimate, which gives the area under cultivation of wheat, is available in Q2, second estimate, which provides revised area and initial estimates of production, are released in Q3, while final estimates of area and production are available in Q1 of the next financial year. Most of the input cost, which includes ploughing and planking, water, transportation charges, seed, fertilizer and pesticides, are carried out in Q2 by the farmer, while harvesting is done in Q3 and Q4.

In case of Rice, which is a Kharif crop, sowing is done in Q1 of the financial year, while harvesting is carried out in Q2 of the same financial year. First estimates of area are released by the CRS in Q1, second estimates of area and initial production in Q2, while the final estimates of production are available in Q3. For Cotton, which is also Kharif crop, is sown in Q4 of a financial year and is harvested in Q1 and Q2 of the next financial year. So farmers' carryout most of their input costs in Q4 and most of the output is available in Q1 and Q2. CRS provide the first estimates of area under the cotton crop in Q1 of a financial year, which is followed by second estimate of initial production in Q2 and final estimate of production is released in Q3. Maize is a crop, which is spread throughout the whole year, as it is sown and harvested as Rabi as well as Kharif crop. It is sown in Q1 as autumn crop and harvested in Q2, while as spring crop it is sown in Q3 and harvested in Q4. According to CRS, initial estimate of area is given in Q2 and final estimate of production in Q3. For Rabi crop of Maize, first estimate of area is released in Q4 and final estimate is provided in Q1 of the next financial year. Sugarcane is an important crop of the country, which is sown in Q1, Q2 and Q3, while the harvesting period is also Q2 and Q3 as it takes one year to harvest. Farmer has to bear input cost in the shape of water, pesticide and fertilizer during Q1 and Q4. As per CRS calendar, the first estimate of area is received in Q1, second estimate of initial production in Q2 and final estimate of production is available in Q4.

Other crops, which include vegetables, pulses and fruits, also have a varying sowing and harvesting season spread in different quarters. The detail is as under:

Table 5: Crops Cycle

S.No.	Crop	RELEASE		
		1st	2nd	Final
KHARIF				
1.	Rice	Q1	Q2	Q3
2.	Sugarcane	Q1	Q2	Q4
3.	Cotton	Q1	Q2	Q3
4.	Bajra	Q2		Q3
5.	Jowar	Q2		Q3
6.	Maize	Q2		Q3
7.	Sesamum	Q2		Q3
8.	Mung	Q1		Q3

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S.No.	Crop	RELEASE		
		2nd	2nd	2nd
	RABI			
9.	Mash	Q1		Q3
10.	O.K. Pulses	Q1		Q3
11.	Ginger			Q3
12.	Turmeric			Q3
13.	Kh. Chillies			Q3
14.	Groundnut			Q3
15.	Kharif Vegetable			Q3
16.	Bitter Guard			Q3
17.	Ladyfinger			Q3
18.	Tinda			Q3
19.	Tomato (KPK & Balch.)			Q3
20.	Kharif Fruits			Q3
21.	Mango			Q3
22.	Apple			Q3
23.	Guava			Q3
24.	Apricot			Q3
25.	Peach			Q3
26.	Pear			Q3
27.	Plum			Q3
28.	Pomegranate			Q3
29.	Banana			Q3
30.	Kharif Fodder			Q3
31.	Guarseed			Q3
32.	Jute			Q3
33.	Sunhemp			Q3
34.	Wheat	Q3	Q4	Q1
35.	Gram	Q3	Q4	Q1
36.	Potato	Q2	Q4	Q1
37.	Onion (Balochistan)	Q4		Q2
38.	R & Mustard	Q3		Q1
				Q1
39.	Tobacco	Q4		Q1
40.	Barley	Q3		Q1
41.	Masoor	Q3		Q1
42.	Soyabean			Q1
43.	Safflower			Q1
44.	Sunflower			Q1
45.	Matter (Pulse)	Q3		Q1
46.	O.R. Pulses	Q3		Q1
47.	Garlic			Q1
48.	Coriander			Q1
49.	Chilies (Sindh)			Q1
50.	Linseed			Q1
51.	Rabi Vegetables			Q1
52.	Turnip			Q1
53.	Carrot			Q1
54.	Cauliflower			Q1
55.	Matter Green			Q1
56.	Tomato			Q1
57.	All Provinces			Q1

58.	Rabi Fruits			Q1
59.	Citrus Fruit			Q1
60.	Banana			Q1
61.	Guavas			Q1
62.	Dates			Q1
63.	Almonds			Q1
64.	Grapes			Q1
65.	Rabi Fodder			Q1
66.	Castor seed			Q1
67.	Sugar beet			Q1
	Onion			Q1
68.	(Punjab Sindh & KPK	Q3		Q1
				Q1
69.	Maize (Punjab)			Q1

2.2.3 Work in Progress

A fundamental national accounting principal is that production should be measured at the time it occurs and be valued at prices of that time. Work in progress is significant for some activities, particularly agriculture and construction. In Agriculture, crops grow over several seasons. According to SNA, the work on unfinished products is considered output. The solution for measuring the work-in-progress is to use output measures based on quarterly input costs in conjunction with values or markups for the whole process. Where such costs are not available, proxies such as fixed proportions can be used[1].

As described in the aforementioned paragraphs, the crop wise output is available on annual basis, while the value of input cost is also available on annual basis as an aggregate. In other words, we have the information about the overall off take of fertilizer on annual basis. For QNA, annual output is estimated by using the available information from CRS. This annual output is then distributed into quarters by using the input structure of crops provided by the CRS.

In order to benchmark the quarterly estimates of GVA of important crops into four quarters since 2015-16 onwards, three indicators were developed namely: volume indicator, price indicator and the value indicator. Keeping in view the consistency of QNA with the ANA, volume indicator of each important crop was developed by using the quarterly output of that crop at constant prices. Quarterly output of each important crop was combined to develop a composite index using volume weights of output derived from 2015-16. In this way, a composite volume indicator was developed. This indicator was used to distribute the overall GVA of important crops into four quarters by using Denton Technique. WPI of each important crop was taken as the price indicator, while the value indicator was developed implicitly.

For other crops, it was not possible to develop quarterly output of all the crops on the basis of their input structure because of non-availability of data. PBS compiles the GVA of about 125 other crops including fruits, vegetables and oil seeds. Four crops i.e. green fodder, mango, potato and onion have been used as indicator, which have 61% share of output of the other crops. The crop calendar of these crops was used to distribute three inputs namely Fertilizer, Pesticide and Water into four quarters received from the provincial CRSs'. Like important crops, composite volume indicator was developed by using the quarterly output of three crops at constant prices. Quarterly output was developed by applying output weights of onion, mango, potato and green fodder. For price indicator

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[1] IMF Quarterly National Accounts Manual 2018, Chapter 11, Work-in-progress page 235.
www.imf.org/external/pubs/ft/qna/2017/chapter11.pdf

a composite price indicator was developed based on the WPI of these crops, while the value indicator was developed implicitly.

Table 6: Values and growth of GVA at constant and current prices for Important Crops`

Years	Quarters	Value of GVA (Rs. Million)		YOY Growth GVA		QOQ Growth GVA	
		Constant Prices	Current Prices	Constant Prices	Current Prices	Constant Prices	Current Prices
2015-16	1	340462	329670				
	2	522657	521750			53.51	58.26
	3	299407	300944			-42.71	-42.32
	4	299929	310092			0.17	3.04
2016-17	1	352735	397399	3.60	20.54	17.61	28.16
	2	509072	554003	-2.60	6.18	44.32	39.41
	3	309660	325743	3.42	8.24	-39.17	-41.20
	4	330154	388582	10.08	25.31	6.62	19.29
2017-18	1	385436	453199	9.27	14.04	16.74	16.63
	2	498292	523100	-2.12	-5.58	29.28	15.42
	3	326357	326989	5.39	0.38	-34.50	-37.49
	4	355639	421220	7.72	8.40	8.97	28.82
2018-19	1	353876	469986	-8.19	3.70	-0.50	11.58
	2	472435	495761	-5.19	-5.23	33.50	5.48
	3	295935	316849	-9.32	-3.10	-37.36	-36.09
	4	308952	409835	-13.13	-2.70	4.40	29.35
2019-20	1	367246	520802	3.78	10.81	18.87	27.08
	2	507467	617808	7.42	24.62	38.18	18.63
	3	320553	421533	8.32	33.04	-36.83	-31.77
	4	310997	454892	0.66	10.99	-2.98	7.91
2020-21	1	384980	607259	4.83	16.60	23.79	33.50
	2	542137	948804	6.83	53.58	40.82	56.24
	3	355940	611044	11.04	44.96	-34.35	-35.60
	4	310928	563469	-0.02	23.87	-12.65	-7.79
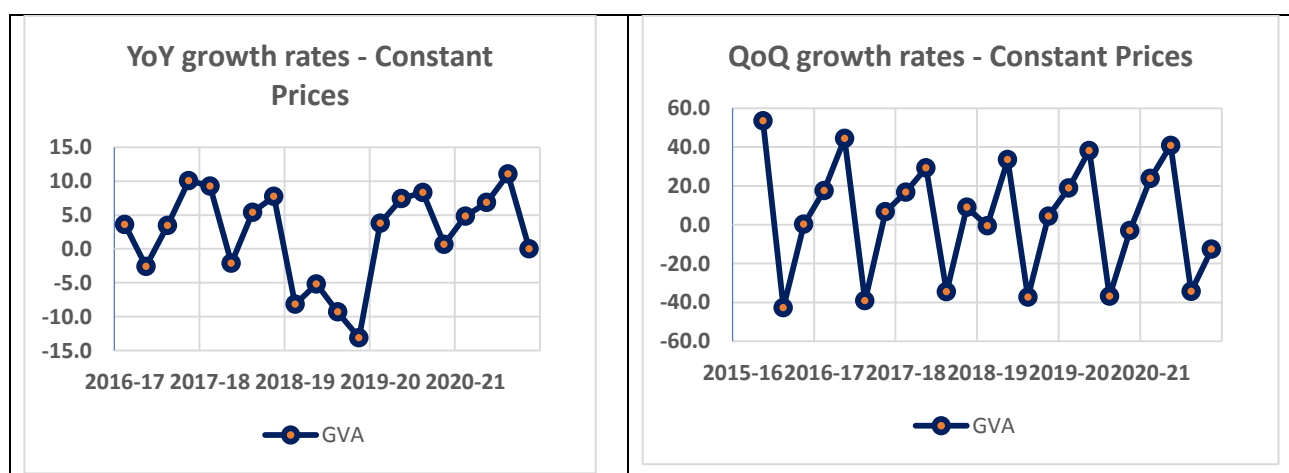
Figure 10: YoY and QoQ GRs at constant prices for Important Crops

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Figure 11: YoY and QoQ GRs at current prices for Important Crops

Table 7: Values and growth of GVA at constant and current prices for Other Crops

Years	Quarters	Value of GVA (Rs. Million)		YOY Growth GVA		QOQ Growth GVA	
		Constant Prices	Current Prices	Constant Prices	Current Prices	Constant Prices	Current Prices
2015-16	1	225280	194904				
	2	230805	236491			2.45	21.34
	3	233424	253837			1.13	7.33
	4	222880	227155			-4.52	-10.51
2016-17	1	222419	211765	-1.27	8.65	-0.21	-6.78
	2	225356	251289	-2.36	6.26	1.32	18.66
	3	229726	278492	-1.58	9.71	1.94	10.83
	4	223598	253847	0.32	11.75	-2.67	-8.85
2017-18	1	227901	223385	2.46	5.49	1.92	-12.00
	2	237511	306912	5.39	22.14	4.22	37.39
	3	243552	304463	6.02	9.33	2.54	-0.80
	4	234077	262147	4.69	3.27	-3.89	-13.90
2018-19	1	235309	234654	3.25	5.04	0.53	-10.49
	2	244675	286053	3.02	-6.80	3.98	21.90
	3	251384	337412	3.22	10.82	2.74	17.95
	4	245798	294022	5.01	12.16	-2.22	-12.86
2019-20	1	256701	263973	9.09	12.49	4.44	-10.22
	2	268909	434405	9.90	51.86	4.76	64.56
	3	276469	467356	9.98	38.51	2.81	7.59
	4	265101	337120	7.85	14.66	-4.11	-27.87
2020-21	1	282844	355130	10.18	34.53	6.69	5.34
	2	293078	538731	8.99	24.02	3.62	51.70
	3	294418	486138	6.49	4.02	0.46	-9.76
	4	281669	418827	6.25	24.24	-4.33	-13.85
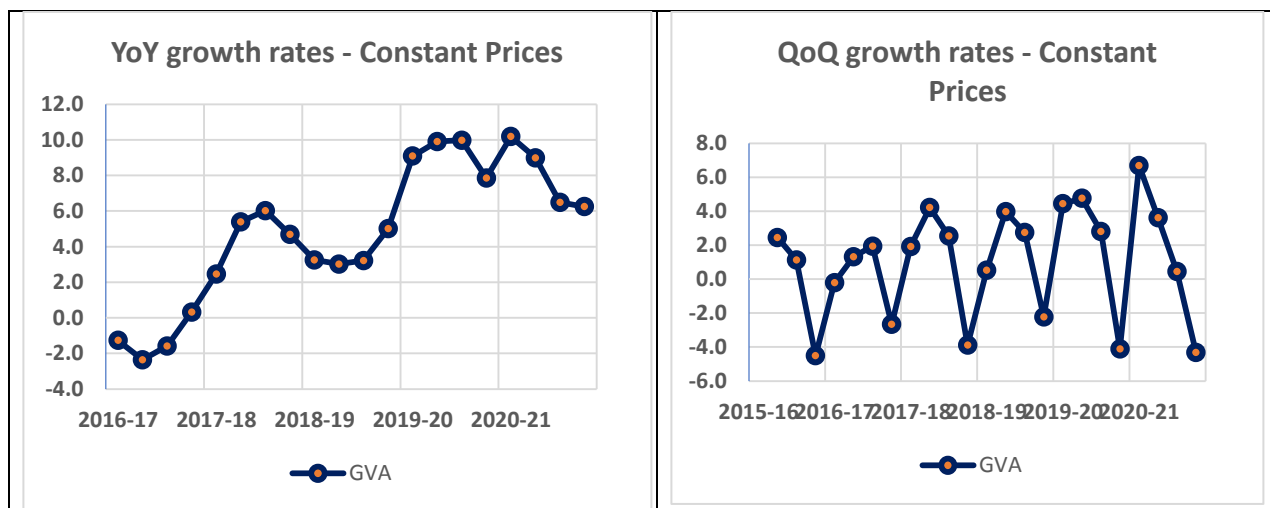
Figure 12: YoY and QoQ GRs at constant prices for Other Crops
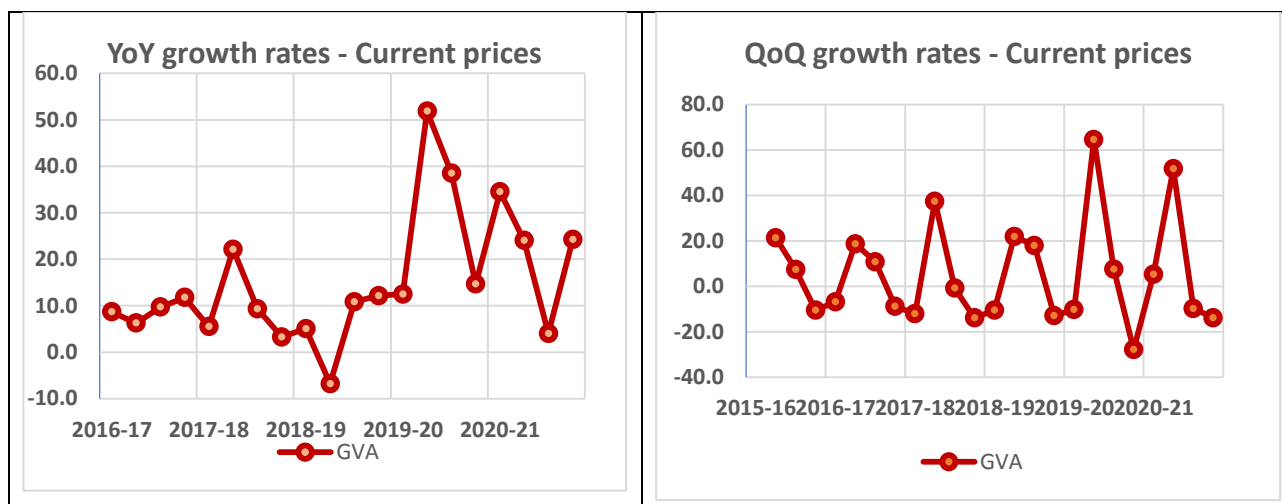
Figure 13: YoY and QoQ GRs at current prices for Other Crops

2.3 Cotton ginning including non-monetized investment (own account capital formation)

Cotton phutti is brought to cotton ginning factories for processing. The first mechanical process involved in the processing of cotton, is ginning. Ginning is the process of separating lint from seed to cotton. The factories involved in ginning are mostly located in the cotton-growing areas. Thus, Cotton ginning is the post-harvest crop activity, which takes place after the cotton crop is being harvested. According to PSIC 2010, it falls under class 0163. Own account capital formation includes the construction activities carried out by the farmer as non-monetized investment such as farms, buildings, sheds etc.

2.3.1 Quarterly Estimates

For compilation of quarterly estimates of Cotton ginning including non-monetized investment, no quarterly indicator is available, so constant indicator "1" has been used to benchmark the quarterly GVA at constant prices by applying Denton technique. WPI cotton has been used as price indicator and value indicator is compiled implicitly.

Table 8: Values and growth of GVA at constant and current prices for Cotton ginning

Years	Quarters	Value of GVA (Rs. Million)		YOY Growth GVA		QOQ Growth GVA	
		Constant Prices	Current Prices	Constant Prices	Current Prices	Constant Prices	Current Prices
2015-16	1	30400	27981				
	2	30471	31056			0.23	10.99
	3	30613	31255			0.47	0.64
	4	30826	32018			0.69	2.44
2016-17	1	31109	36449	2.33	30.26	0.92	13.84
	2	31651	35880	3.87	15.53	1.74	-1.56
	3	32450	39578	6.00	26.63	2.53	10.31
	4	33508	41797	8.70	30.54	3.26	5.61
2017-18	1	34823	40625	11.94	11.46	3.92	-2.81
	2	35356	41862	11.71	16.67	1.53	3.05
	3	35107	47423	8.19	19.82	-0.70	13.28
	4	34077	46348	1.70	10.89	-2.94	-2.27
2018-19	1	32265	47598	-7.35	17.16	-5.32	2.70
	2	31004	45493	-12.31	8.67	-3.91	-4.42
	3	30296	44178	-13.70	-6.84	-2.28	-2.89
	4	30140	44568	-11.55	-3.84	-0.51	0.88
2019-20	1	30537	43528	-5.36	-8.55	1.31	-2.33
	2	30348	48577	-2.12	6.78	-0.62	11.60
	3	29576	48841	-2.38	10.55	-2.55	0.54
	4	28218	45422	-6.38	1.91	-4.59	-7.00
2020-21	1	26277	38702	-13.95	-11.09	-6.88	-14.79
	2	25305	44421	-16.62	-8.56	-3.70	14.78
	3	25303	53052	-14.45	8.62	-0.01	19.43
	4	26270	55151	-6.90	21.42	3.82	3.96

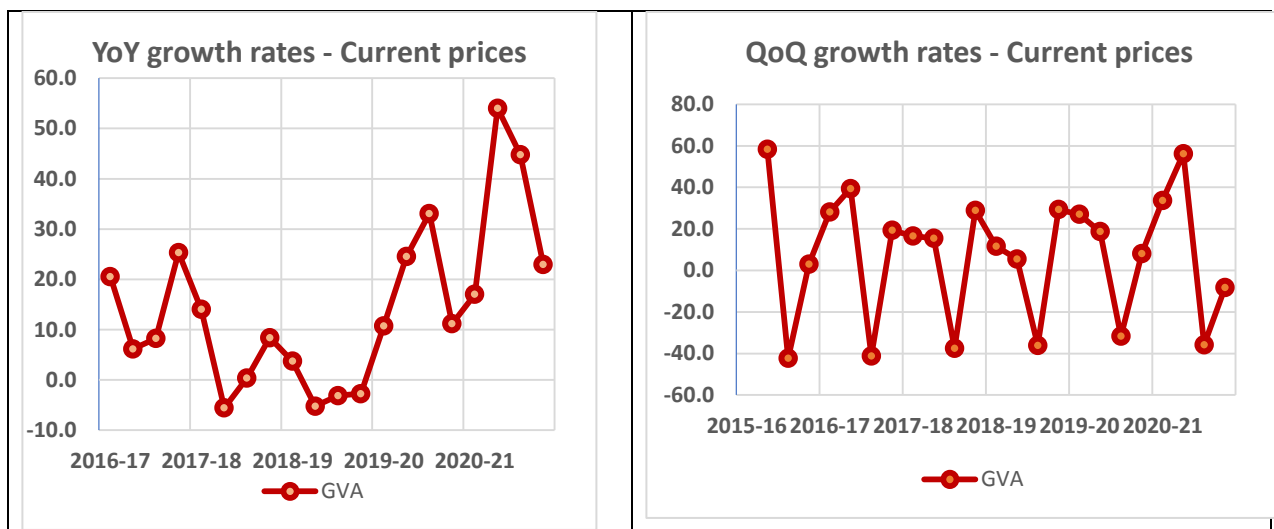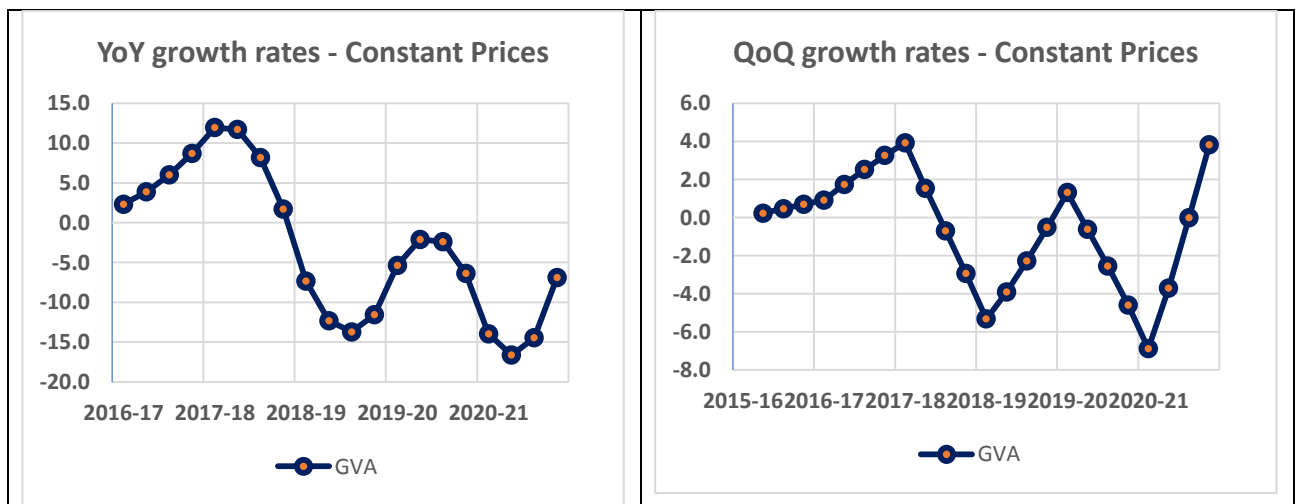**Figure 14: YoY and QoQ GRs at constant prices for Cotton Ginning**
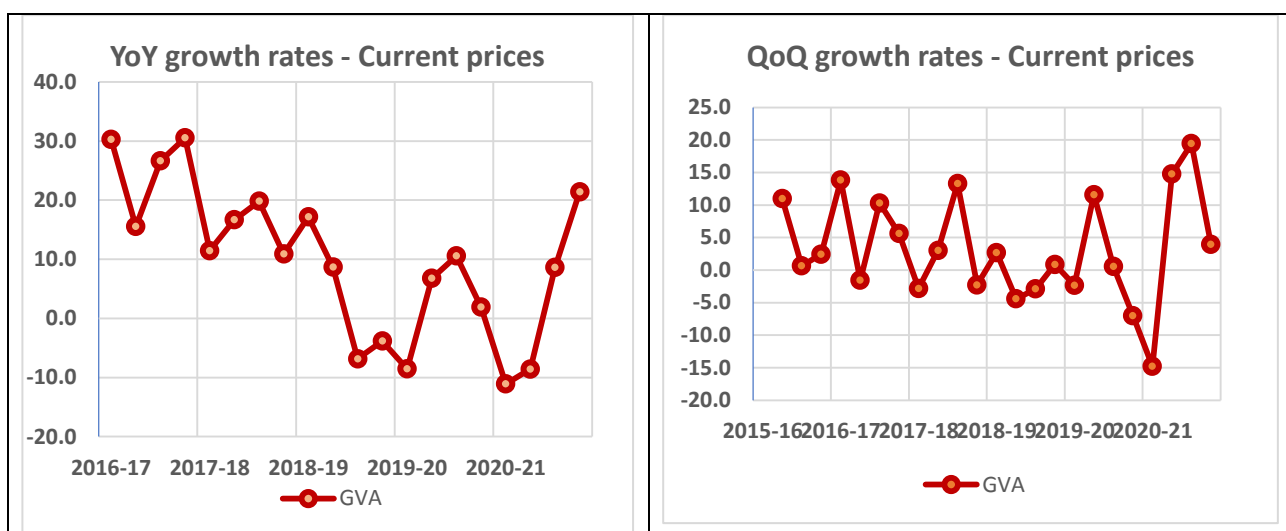
Figure 15: YoY and QoQ GRs at current prices for Cotton Ginning

Table 9: Values and growth of GVA at constant and current prices for Crops

Years	Quarters	Value of GVA (Rs. Million)		YOY Growth GVA		QOQ Growth GVA	
		Constant Prices	Current Prices	Constant Prices	Current Prices	Constant Prices	Current Prices
2015-16	1	596142	552554				
	2	783933	789297			31.50	42.85
	3	563443	586036			-28.13	-25.75
	4	553635	569265			-1.74	-2.86
2016-17	1	606264	645613	1.70	16.84	9.51	13.41
	2	766079	841171	-2.28	6.57	26.36	30.29
	3	571836	643813	1.49	9.86	-25.36	-23.46
	4	587259	684227	6.07	20.19	2.70	6.28
2017-18	1	648160	717209	6.91	11.09	10.37	4.82
	2	771158	871875	0.66	3.65	18.98	21.56
	3	605017	678874	5.80	5.45	-21.54	-22.14
	4	623793	729715	6.22	6.65	3.10	7.49
2018-19	1	621449	752238	-4.12	4.88	-0.38	3.09
	2	748114	827307	-2.99	-5.11	20.38	9.98
	3	577616	698439	-4.53	2.88	-22.79	-15.58
	4	584891	748425	-6.24	2.56	1.26	7.16
2019-20	1	654483	828303	5.32	10.11	11.90	10.67
	2	806725	1100790	7.83	33.06	23.26	32.90
	3	626598	937729	8.48	34.26	-22.33	-14.81
	4	604316	837434	3.32	11.89	-3.56	-10.70
2020-21	1	694100	1001091	6.05	20.86	14.86	19.51
	2	860520	1531956	6.67	39.17	23.98	53.03
	3	675660	1150234	7.83	22.66	-21.48	-24.92
	4	618868	1037448	2.41	23.88	-8.41	-9.81
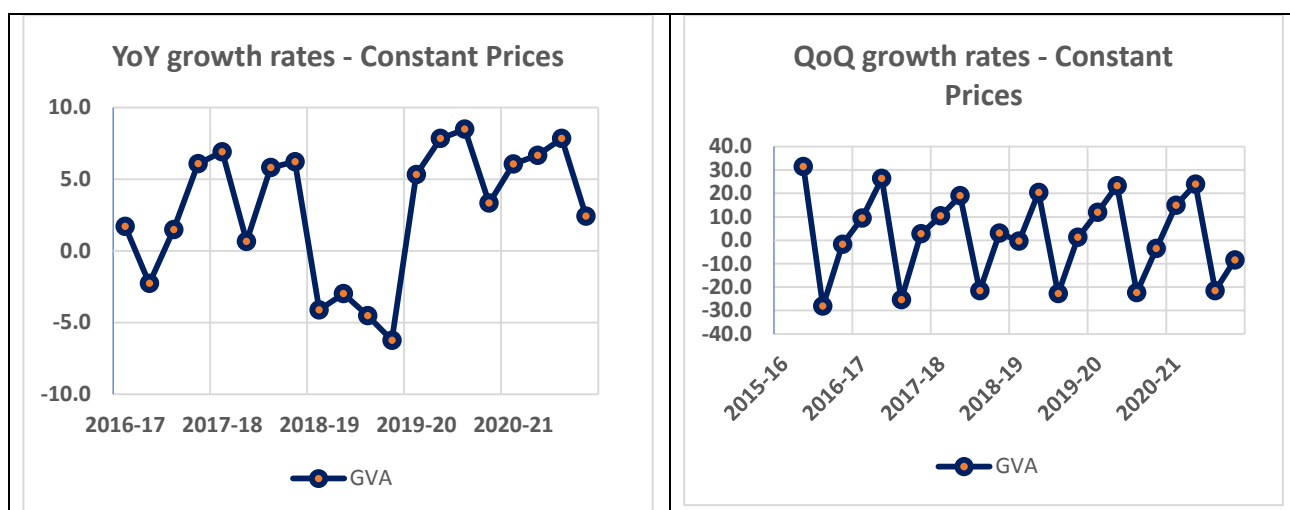
Figure 16: YoY and QoQ GRs at constant prices for Crops
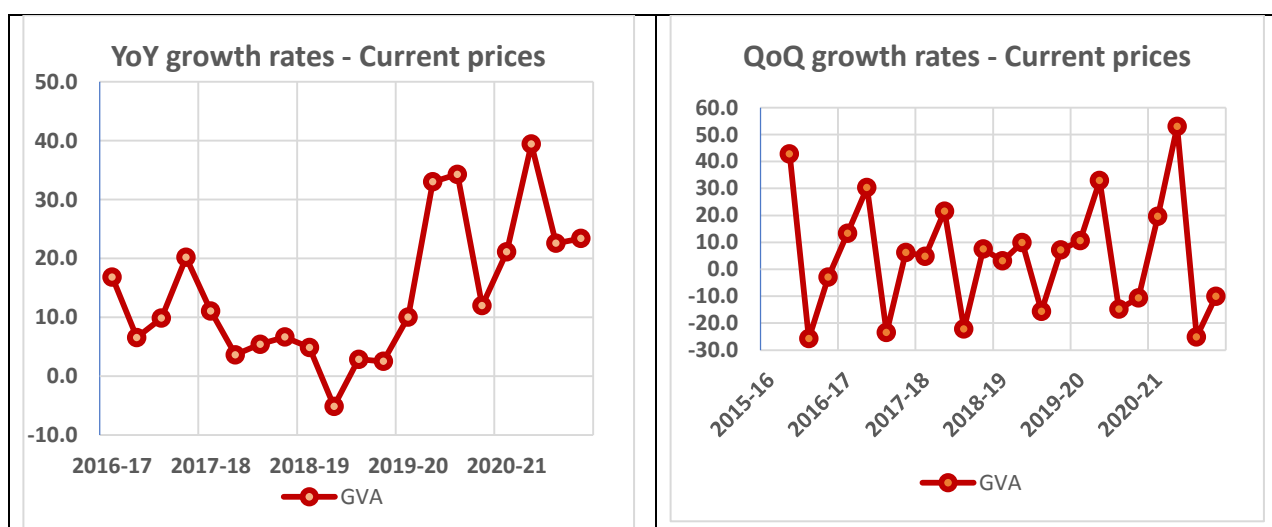
Figure 17: YoY and QoQ GRs at current prices for Crops

2.4 Livestock

Livestock is raised and crops are grown by the Pakistani farmers simultaneously. Nevertheless, crops' contribution to GDP has been evaluated separately. Poultry and poultry products, animal husbandry, hunting and farm honey are also included in this industry. Coverage of livestock industry comprises of Buffaloes, Cattle, Sheep, Goats, Camels, Horses, Mules and Asses. It also includes the other livestock products such as milk, draught power, dung and urine, wool and hair and Desi Ghee (homemade substitute for cheese & butter) sold by farmers. The data on these products (except "Desi Ghee", which is a new component in 2015-16 rebasing) is being provided by the Livestock Wing of the Ministry of National Food Security and Research (MNFSR).

2.4.1 Quarterly Estimates

For quarterly estimates, there must be quarterly data of the industry or some suitable quarterly indicators. For livestock industry, there is neither quarterly data on livestock nor is quarterly indicator of output available. After detailed discussion with the World Bank experts about data limitations, it was decided to estimate quarterly output and input separately and then estimate GVA

by production approach. To estimate output of livestock by Denton technique, "1" was taken as volume indicator to benchmark the annual constant output. Composite WPI indicator for meat and milk has been used as price indicator, while value indicator is compiled implicitly to benchmark the annual output at current prices.

For inputs, main input of livestock is green and dry fodder. Quarterly constant values of green and dry fodder have been taken from crops and weighted composite volume indicator has been developed (derived from annual aggregate value of fodders 2015-16 base) for green and dry fodders respectively. This is called volume indicator, which has been used to benchmark the annual constant value of inputs. Similarly, quarterly current value of green fodder and dry fodder from crops (wheat, maize rice & sugarcane) has been taken and added. It is then converted into index by using 2015-16 as base. This is called value indicator, which has been applied to benchmark the annual current value of inputs. Price indicator of the livestock inputs is estimated implicitly. The overall annual value of inputs at constant and current prices has been distributed into quarters by using volume and value indicator respectively. GVA for each quarter has been derived by output less inputs for each quarter.

Table 10: Values and growth of GVA at constant and current prices for Livestock

Years	Quarters	Value of GVA (Rs. Million)		YOY Growth GVA		QOQ Growth GVA	
		Constant Prices	Current Prices	Constant Prices	Current Prices	Constant Prices	Current Prices
2015-16	1	1216505	1184430				
	2	970709	938101			-20.21	-20.80
	3	1143191	1137122			17.77	21.22
	4	1201480	1272231			5.10	11.88
2016-17	1	1243830	1207995	2.25	1.99	3.52	-5.05
	2	998509	977396	2.86	4.19	-19.72	-19.09
	3	1185501	1180562	3.70	3.82	18.73	20.79
	4	1235005	1315120	2.79	3.37	4.18	11.40
2017-18	1	1283674	1304108	3.20	7.96	3.94	-0.84
	2	1050877	1110012	5.24	13.57	-18.14	-14.88
	3	1221718	1281614	3.05	8.56	16.26	15.46
	4	1274055	1467364	3.16	11.58	4.28	14.49
2018-19	1	1325047	1444754	3.22	10.78	4.00	-1.54
	2	1092618	1253199	3.97	12.90	-17.54	-13.26
	3	1269118	1415540	3.88	10.45	16.15	12.95
	4	1319948	1567875	3.60	6.85	4.01	10.76
2019-20	1	1360271	1509969	2.66	4.51	3.05	-3.69
	2	1118553	1375171	2.37	9.73	-17.77	-8.93
	3	1303764	1574002	2.73	11.19	16.56	14.46
	4	1364112	1842017	3.35	17.48	4.63	17.03
2020-21	1	1393960	1856043	2.48	22.92	2.19	0.76
	2	1135799	1583943	1.54	15.18	-18.52	-14.66
	3	1340744	1877011	2.84	19.25	18.04	18.50
	4	1398507	2187843	2.52	18.77	4.31	16.56
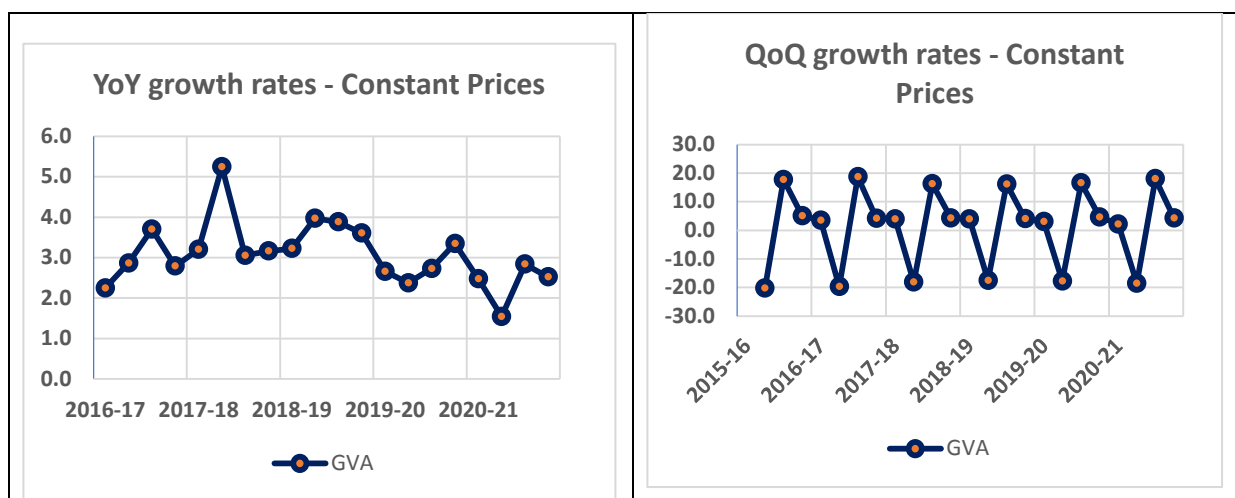
Figure 18: YoY and QoQ GRs at constant prices for Livestock
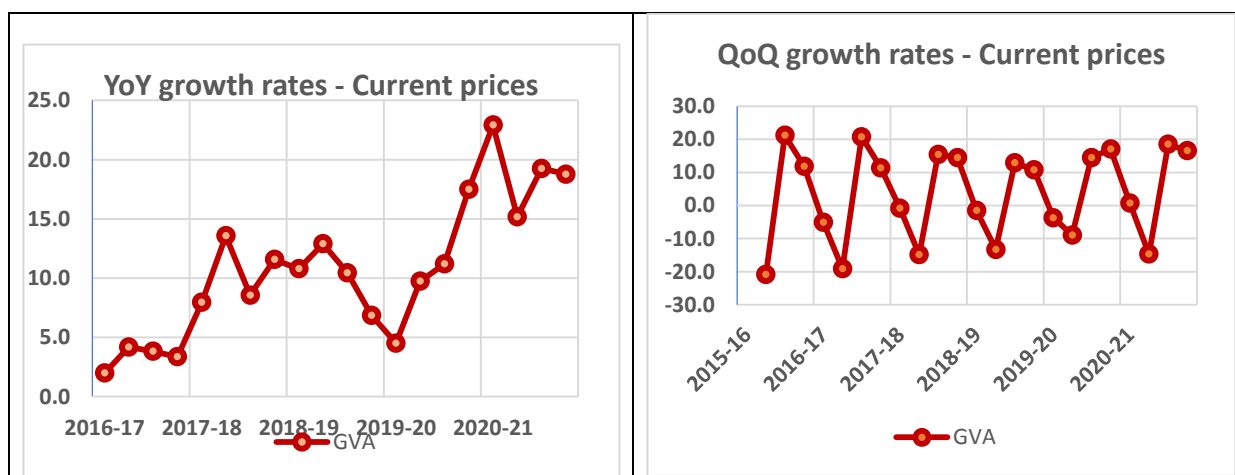
Figure 19: YoY and QoQ GRs at current prices for Livestock

2.5 Forestry

It covers the production of round wood for the forest-based manufacturing industries (PSIC rev. 4, Divisions 16 and 17) as well as the extraction and gathering of wild growing non-wood forest products. Besides the production of timber; forestry activities result in products that undergo little processing such as firewood, charcoal, wood chips and round wood used in unprocessed forms. Natural and planted forests are both included. The activity pertains to PSIC rev. 4, Division 02, Section A.

This is a small sector of the economy as far as its contribution to the GDP is concerned, which is 0.42%. There are three important types of data sets. Data on timber and firewood from the public forests are provided by the Inspector General, forests, a government department. It provides quantity, cut and sold. A bulk supply is from the private-owned forests but it is not available directly. The non-wood forest product is another component. The data on this component is also scanty. For annual national estimates, the data needed for direct valuation of this sub-sector through the *production* approach is not available; hence it is measured indirectly from the *user* side. The uses of timber and firewood in the industry sector, i.e., mining and quarrying, large scale manufacturing

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industry, small and household manufacturing industry and construction have been taken from the surveys and census conducted for this purpose in 2015-16 rebasing. This situation indicates that there is neither quarterly data nor quarterly indicator.

2.5.1 Quarterly Estimates

For quarterly estimation by "Denton Technique" indicator '1' has been used for volume and composite WPI timber and fuel wood have been used as a price indicator. Value indicator is compiled implicitly.

Table 11: Values and growth of GVA at constant and current prices for Forestry

Years	Quarters	Value of GVA (Rs. Million)		YOY Growth GVA		QOQ Growth GVA	
		Constant Prices	Current Prices	Constant Prices	Current Prices	Constant Prices	Current Prices
2015-16	1	40732	37695				
	2	40613	38198			-0.29	1.33
	3	40375	40354			-0.59	5.64
	4	40018	45490			-0.88	12.73
2016-17	1	39541	39956	-2.92	6.00	-1.19	-12.17
	2	39236	39723	-3.39	3.99	-0.77	-0.58
	3	39103	39654	-3.15	-1.74	-0.34	-0.18
	4	39141	40160	-2.19	-11.72	0.10	1.28
2017-18	1	39351	40285	-0.48	0.82	0.54	0.31
	2	39748	40759	1.31	2.61	1.01	1.18
	3	40334	41656	3.15	5.05	1.47	2.20
	4	41108	42588	5.02	6.05	1.92	2.24
2018-19	1	42069	43762	6.91	8.63	2.34	2.76
	2	42839	45812	7.78	12.40	1.83	4.68
	3	43417	47340	7.64	13.65	1.35	3.34
	4	43804	47594	6.56	11.75	0.89	0.54
2019-20	1	43999	47780	4.59	9.18	0.44	0.39
	2	44269	49173	3.34	7.34	0.61	2.92
	3	44614	50516	2.76	6.71	0.78	2.73
	4	45035	50302	2.81	5.69	0.94	-0.42
2020-21	1	45532	57316	3.49	19.96	1.10	13.95
	2	45905	58961	3.70	19.91	0.82	2.87
	3	46156	59911	3.46	18.60	0.55	1.61
	4	46284	60008	2.77	19.30	0.28	0.16
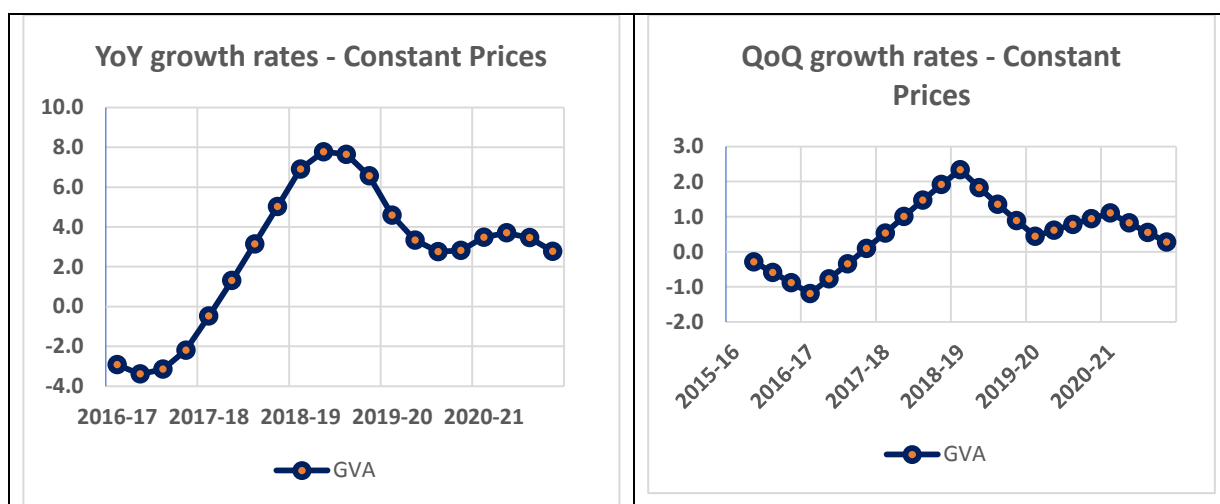
Figure 20: YoY and QoQ GRs at constant prices for Forestry
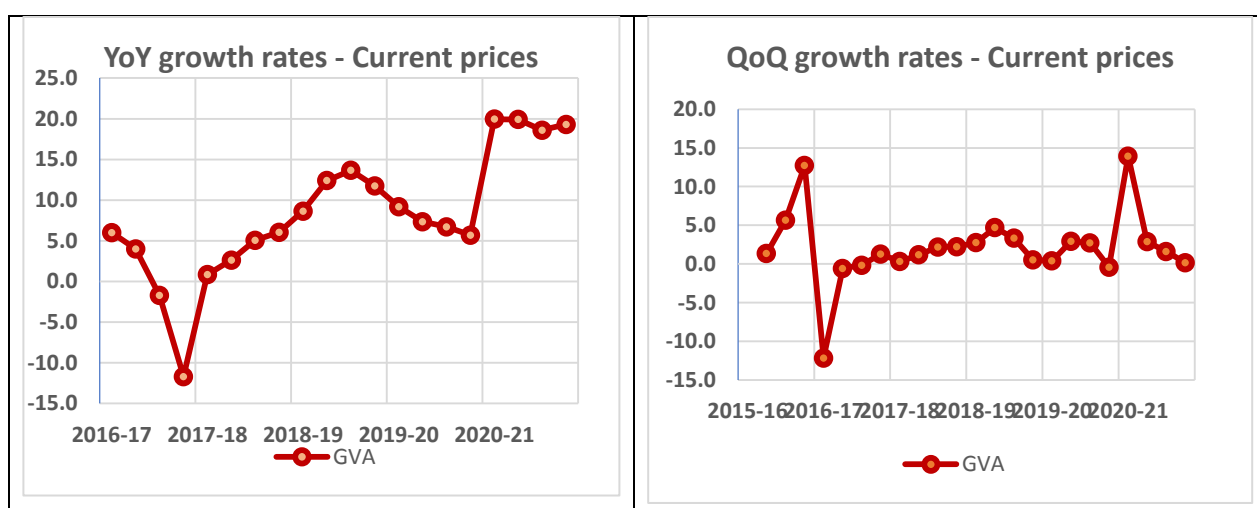
Figure 21: YoY and QoQ GRs at current prices for Forestry

2.6 Fishing

This activity is divided into two categories, marine fishing and freshwater fishing. The input structure and jurisdiction of these activities are different. Freshwater activity is concentrated in the areas where suitable underground tube well water is available. The other location of the activity is where the land is available on the banks of large canals. However, marine fishing is concentrated at the coastal belt of Sind and Baluchistan. According to PSIC rev. 4 this activity pertains to PSIC Division 03, Section A, which covers Marine Fishing and Freshwater Fishing. It includes the activities of aquaculture, marine as well as freshwater. The data on fish catch, on regular basis, is being supplied by the "Marine Fisheries Department" Ministry of Maritime Affairs, Government of Pakistan.

2.6.1 Quarterly Estimates

For Compilation of Quarterly GVA, quarterly data on fish catch for marine and inland fish supplied by the source (Marine Fisheries Department, Karachi) is used for the compilation of quarterly accounts. Volume indicator has been compiled based on a weighted production index of marine and freshwater fishing. WPI fish has been used for price indicator. Current value indicator has been

compiled implicitly. Volume and value indicators have been used to benchmark the annual constant and current GVA respectively by applying Denton Technique.

Table 12: Values and growth of GVA at constant and current prices for Fishing

| Years | Quarters | Value of GVA (Rs. Million) | | YOY Growth GVA | | QOQ Growth GVA | |
		Constant Prices	Current Prices	Constant Prices	Current Prices	Constant Prices	Current Prices
2015-16	1	24119	22229				
	2	38220	36270			58.46	63.16
	3	17229	16118			-54.92	-55.56
	4	36613	41564			112.51	157.87
2016-17	1	24398	32339	1.16	45.48	-33.36	-22.19
	2	38683	49692	1.21	37.00	58.55	53.66
	3	17436	22630	1.20	40.40	-54.93	-54.46
	4	37077	48487	1.27	16.66	112.65	114.26
2017-18	1	24744	32028	1.42	-0.96	-33.26	-33.94
	2	39308	52128	1.61	4.90	58.86	62.76
	3	17697	24520	1.50	8.35	-54.98	-52.96
	4	37691	50342	1.66	3.83	112.98	105.31
2018-19	1	24929	32738	0.75	2.21	-33.86	-34.97
	2	39627	53323	0.81	2.29	58.96	62.88
	3	17825	24092	0.73	-1.75	-55.02	-54.82
	4	37985	54140	0.78	7.54	113.10	124.72
2019-20	1	25100	36679	0.69	12.04	-33.92	-32.25
	2	39868	61961	0.61	16.20	58.83	68.93
	3	17941	28437	0.65	18.04	-55.00	-54.10
	4	38212	59280	0.60	9.49	112.99	108.45
2020-21	1	25277	39322	0.70	7.20	-33.85	-33.67
	2	40161	63486	0.74	2.46	58.88	61.45
	3	18072	28580	0.73	0.50	-55.00	-54.98
	4	38497	60737	0.75	2.46	113.02	112.53
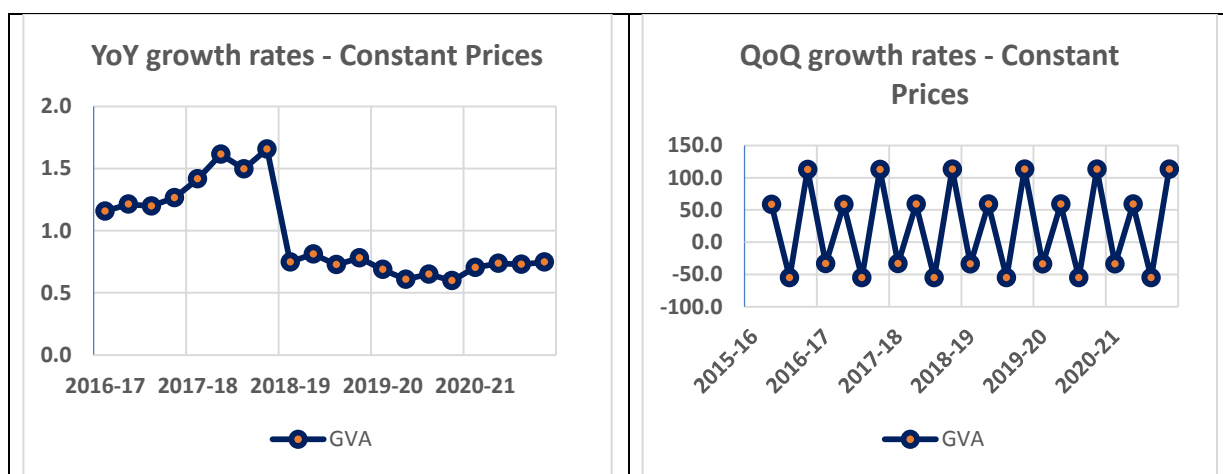
Figure 22: YoY and QoQ GRs at constant prices for Fishery
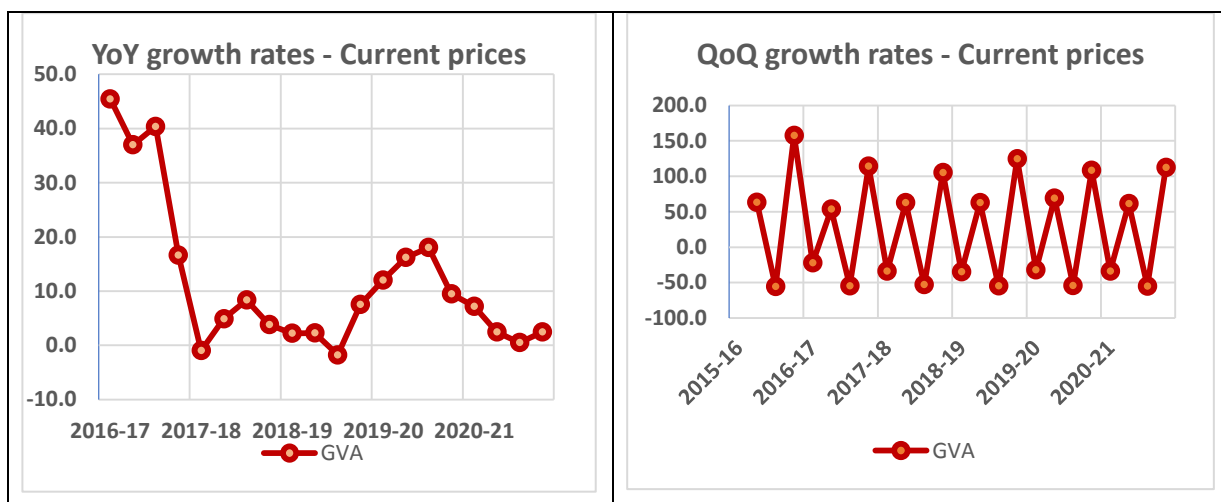
Figure 23: YoY and QoQ GRs at current prices for Fishery

CHAPTER 3
Industry

Review of QNA by the technical committee

INDUSTRY

3.1   Introduction

First part of this chapter covers the mining and quarrying activities, while the second part covers the manufacturing industry, which is further sub-divided into three distinct components, i.e., large scale manufacturing, small scale manufacturing and slaughtering. Third part covers electricity, gas and water supply. Gas production is a component of mining and quarrying. Construction activities are covered separately in last part of the chapter. Description of each industry is given as follows.

3.2   Mining and Quarrying

According to the PSIC-2010, Mining and Quarrying include the extraction of minerals occurring naturally as solids (coal and ores), liquids (petroleum) or gases (natural gas). Extraction can be achieved by underground or surface mining or well operation. This section includes services incidental to mining, e.g. drilling services, derrick erection and the like. This section also includes supplementary activities aimed at preparing the crude materials for marketing, for example, crushing, grinding, cleaning, drying, sorting, concentrating ores, liquefaction of natural gas and agglomeration of solid fuels. These operations are often accomplished by the units that extracted the resource and/or others located nearby. This section excludes manufacturing of gas and distribution of gaseous fuels through mains which in PSIC 2010 is covered under Section D "Manufacturing of gas; distribution of gaseous fuels through main", group 352.

3.2.1   Quarterly Estimates

For mining and quarrying, quarterly data on all other minerals is provided by "Provincial Mines and Mineral Departments" and for Oil and Gas, by the Ministry of Energy. For the compilation of Quarterly GVA, quarterly production of mining and quarrying products provided by the sources has been used to estimate the quarterly value addition, as is done in ANA.

Table 13: Values and growth of GVA at constant and current prices Mining & Quarrying

Years	Quarters	Value of GVA (Rs. Million)		YOY Growth GVA		QOQ Growth GVA	
		Constant Prices	Current Prices	Constant Prices	Current Prices	Constant Prices	Current Prices
2015-16	1	171720	177287				
	2	175680	182642			2.31	3.02
	3	172046	166926			-2.07	-8.60
	4	171813	164403			-0.14	-1.51
2016-17	1	162316	161276	-5.48	-9.03	-5.53	-1.90
	2	175470	179122	-0.12	-1.93	8.10	11.07
	3	171708	181471	-0.20	8.71	-2.14	1.31
	4	175610	184745	2.21	12.37	2.27	1.80
2017-18	1	174695	185633	7.63	15.10	-0.52	0.48
	2	189422	209073	7.95	16.72	8.43	12.63
	3	185264	219399	7.89	20.90	-2.20	4.94
	4	185437	233649	5.60	26.47	0.09	6.50

| 2018-19	1	181629	249265	3.99	34.28	-2.05	6.68
	2	188367	310721	-0.53	48.62	3.71	24.65
	3	185847	293675	0.34	33.85	-1.34	-5.49
	4	182948	303168	-1.32	29.75	-1.56	3.23
2019-20	1	168257	321359	-7.38	28.92	-8.03	6.00
	2	179445	327701	-4.76	5.46	6.65	1.97
	3	181547	331591	-2.34	12.91	1.17	1.19
	4	156594	249842	-14.43	-17.59	-13.74	-24.65
2020-21	1	173362	301153	3.03	-6.29	10.71	20.54
	2	179612	314912	0.09	-3.90	3.61	4.57
	3	176198	328646	-2.95	-0.89	-1.90	4.36
	4	168497	319569	7.60	27.91	-4.37	-2.76
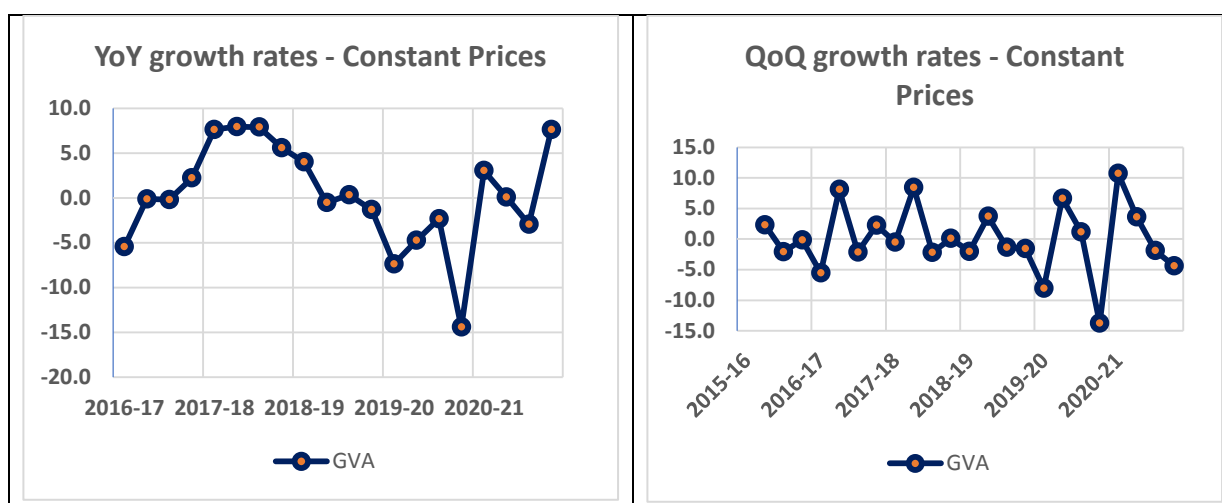
Figure 24: YoY and QoQ GRs at constant prices for Mining and Quarrying
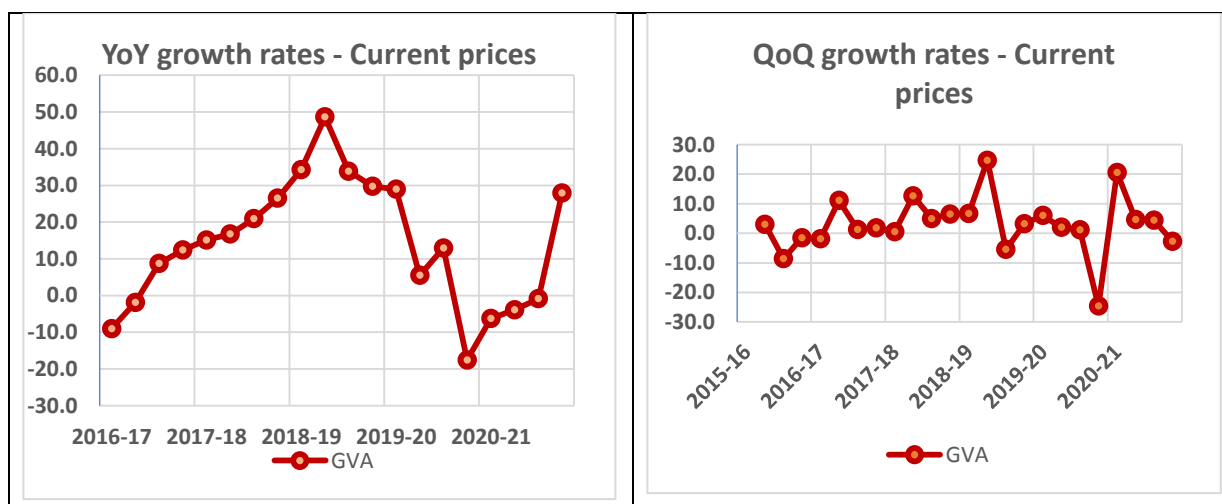
Figure 25: YoY and QoQ GRs at current prices for Mining and Quarrying

3.3   Manufacturing

Manufacturing is one of the key segments of the economy in Pakistan. Currently, it contributes about 12% to GDP. Manufacturing comprises of establishments engaged in the physical or chemical transformation of materials, substances or components into new products or Manufacturing is the processing of converting raw materials or parts into finished goods through the use of tools, human labour, machinery and chemical processing. Materials used in manufacturing are products of agriculture, forestry, fishing, mining & quarrying as well as products of other manufacturing activities.

For empirical reasons manufacturing activity is classified in three different components because of different sources of data available in the country:

- a.   Large Scale Manufacturing
- b.   Small Scale Manufacturing
- c.   Slaughtering

In PSIC-2010, all economic activities concerning manufacturing are covered in section C, Divisions 10 to 33. Data for the manufacturing industries (large & small scale) have been obtained from Census of Large Scale Manufacturing Industries (CMI 2015-16) and Survey of Small and Household Manufacturing Industries (SHMI) 2015, respectively.

3.3.1   Large-Scale Manufacturing

Large Scale Manufacturing covers the establishments having 10 or more employees. The source of data is the Census of Manufacturing Industries (CMI) for the year 2015-16. Quantum Index of Manufacturing (QIM) measures the changes in production of Large Scale Manufacturing Industries (LSMI) over time on monthly as well as cumulative basis. The weights presently used for the QIM were derived from the CMI 2015-2016. One hundred twenty-three (123) items, with total weight of 78.37% of value added, are being used for computation of QIM. The production data is collected from Oil Companies Advisory Committee (OCAC), Ministry of Industries & Production and Provincial Bureaus of Statistics.

3.3.2   Quarterly Estimates

QIM is an indicator, which is used for compilation of annual GVA of the large scale manufacturing industries. For compilation of QNA, the same indicator has been used as volume indicator to benchmark the annual GVA at constant prices of large scale manufacturing industries on quarterly basis. Specifically constructed WPI of large scale manufacturing industries has been used as price indicator and value indicator has been estimated implicitly.

Table 14: Values and growth of GVA at constant and current prices for Large Scale Manufacturing

Years	Quarters	Value of GVA (Rs. Million)		YOY Growth GVA		QOQ Growth GVA	
		Constant Prices	Current Prices	Constant Prices	Current Prices	Constant Prices	Current Prices
2015-16	1	668097	660313				
	2	695546	697647			4.11	5.65
	3	777907	779998			11.84	11.80
	4	700159	703750			-9.99	-9.78
2016-17	1	668620	683455	0.08	3.50	-4.50	-2.88
	2	725953	750047	4.37	7.51	8.57	9.74
	3	822076	868905	5.68	11.40	13.24	15.85

|							
	4	741265	780739	5.87	10.94	-9.83	-10.15
2017-18	1	750159	787658	12.20	15.25	1.20	0.89
	2	764125	819180	5.26	9.22	1.86	4.00
	3	873547	980867	6.26	12.89	14.32	19.74
	4	774746	911470	4.52	16.74	-11.31	-7.08
2018-19	1	755292	954015	0.68	21.12	-2.51	4.67
	2	791589	1023493	3.59	24.94	4.81	7.28
	3	893589	1149968	2.29	17.24	12.89	12.36
	4	833765	1138668	7.62	24.93	-6.69	-0.98
2019-20	1	750449	1055965	-0.64	10.69	-9.99	-7.26
	2	774849	1076370	-2.11	5.17	3.25	1.93
	3	807899	1135979	-9.59	-1.22	4.27	5.54
	4	573381	757922	-31.23	-33.44	-29.03	-33.28
2020-21	1	731247	1045826	-2.56	-0.96	27.53	37.99
	2	818030	1196291	5.57	11.14	11.87	14.39
	3	885259	1384013	9.58	21.83	8.22	15.69
	4	806257	1307502	40.61	72.51	-8.92	-5.53
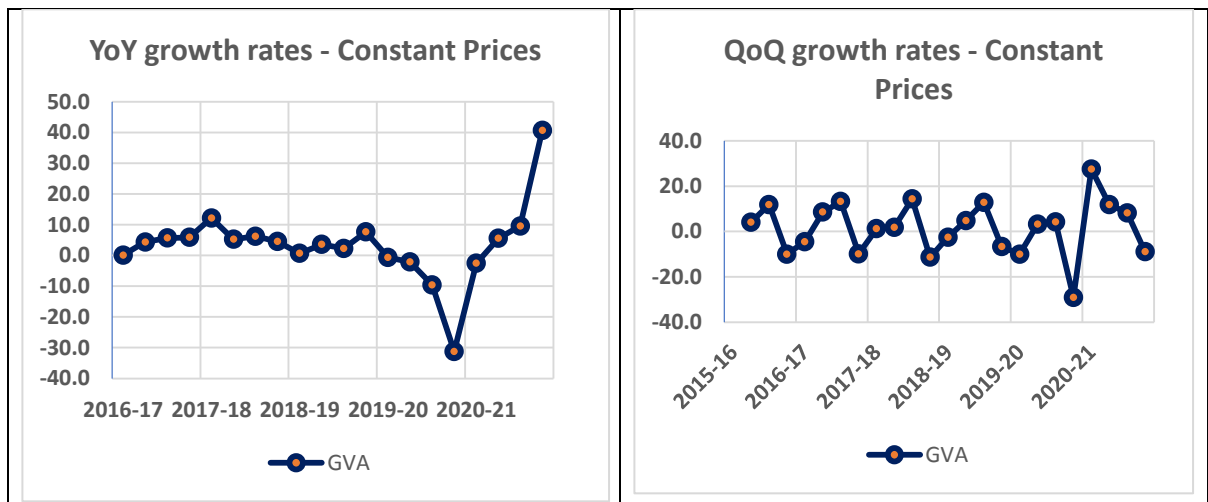
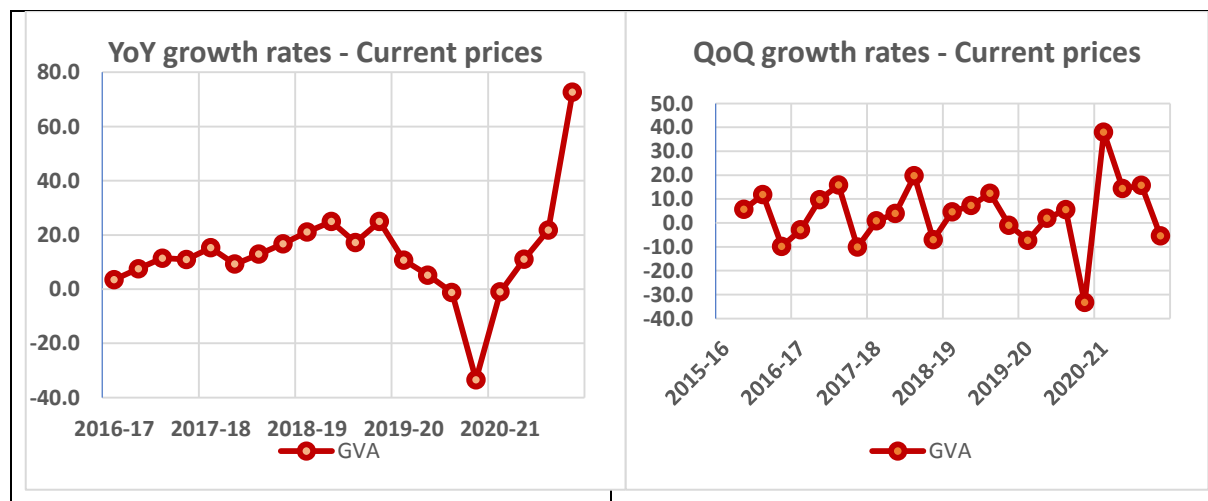**Figure 26: YoY and QoQ GRs at constant prices for Large Scale Manufacturing**

Figure 27: YoY and QoQ GRs at current prices for Large Scale Manufacturing

3.3.3 Small Scale Manufacturing Industries

Small Scale Manufacturing Industries cover establishments & households units that are engaged in manufacturing activities having less than ten employees. The majority of the units are not registered and are part of the informal sector but most of them are difficult to estimate. PBS collects base year information through a special survey titled, "Small and Household Manufacturing Industries Survey" (SHMI). Since no reliable indicator is available to extrapolate the GVA of the small scale manufacturing industries on annual basis, so on the recommendations of the technical committee, a fixed growth rate of 8.87% is being applied to estimate GVA on annual basis.

3.3.4 Quarterly Estimates

For QNA the major issue was the availability of quarterly indicator. Since there was no annual indicator to estimate the GVA on annual basis, so it was not possible to identify and apply any quarterly indicator for this industry. After detailed discussion with the World Bank expert and on the recommendations of the technical committee, it was decided that in order to keep the QNA methodology and ANA methodology inline, we may use the same growth on quarterly basis. Thus a fixed growth of 8.87% has been used to benchmark the annual GVA of small scale manufacturing industries.

Table 15: Values and growth of GVA at constant and current prices for Small Scale Manufacturing

| Years | Quarters | Value of GVA (Rs. Million) | | YOY Growth GVA | | QOQ Growth GVA | |
		Constant Prices	Current Prices	Constant Prices	Current Prices	Constant Prices	Current Prices
2015-16	1	121626	122550				
	2	122471	123607			0.69	0.86
	3	124159	123279			1.38	-0.27
	4	126693	125513			2.04	1.81
2016-17	1	130070	139168	6.94	13.56	2.67	10.88
	2	133233	142186	8.79	15.03	2.43	2.17
	3	136182	146250	9.68	18.63	2.21	2.86
	4	138916	147904	9.65	17.84	2.01	1.13
2017-18	1	141436	149445	8.74	7.39	1.81	1.04
	2	144456	153433	8.42	7.91	2.14	2.67
	3	147977	161373	8.66	10.34	2.44	5.17
	4	151998	168814	9.42	14.14	2.72	4.61
2018-19	1	156520	182886	10.66	22.38	2.97	8.34
	2	159583	188252	10.47	22.69	1.96	2.93
	3	161188	194120	8.93	20.29	1.01	3.12
	4	161335	207286	6.14	22.79	0.09	6.78
2019-20	1	160024	205501	2.24	12.37	-0.81	-0.86
	2	160228	208432	0.40	10.72	0.13	1.43
	3	161945	215066	0.47	10.79	1.07	3.18
	4	165177	222922	2.38	7.54	2.00	3.65
2020-21	1	169923	238139	6.19	15.88	2.87	6.83
	2	174401	249888	8.85	19.89	2.64	4.93

	3	178610	266423	10.29	23.88	2.41	6.62
	4	182551	284046	10.52	27.42	2.21	6.61
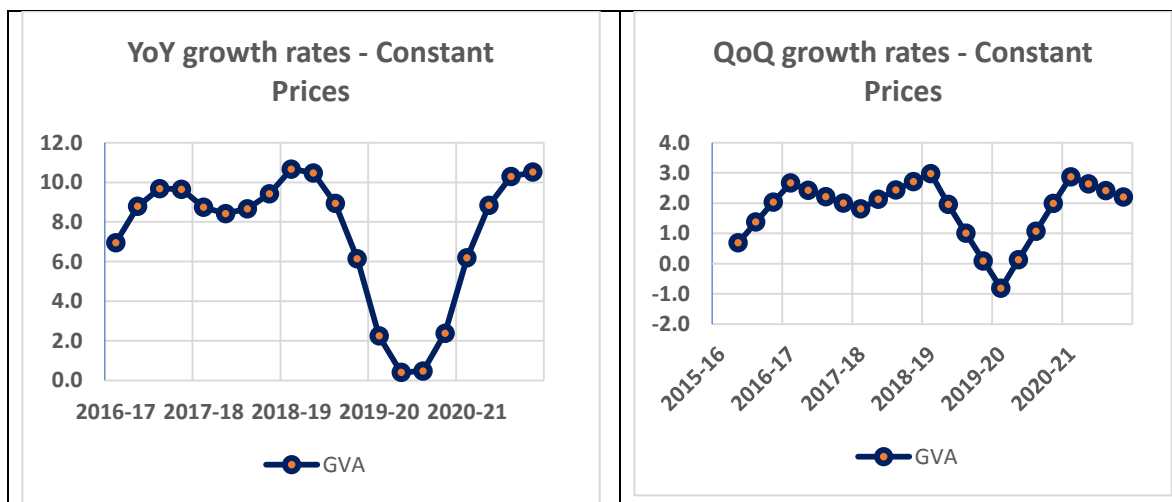
Figure 28: YoY and QoQ GRs at constant prices for Small Scale Manufacturing
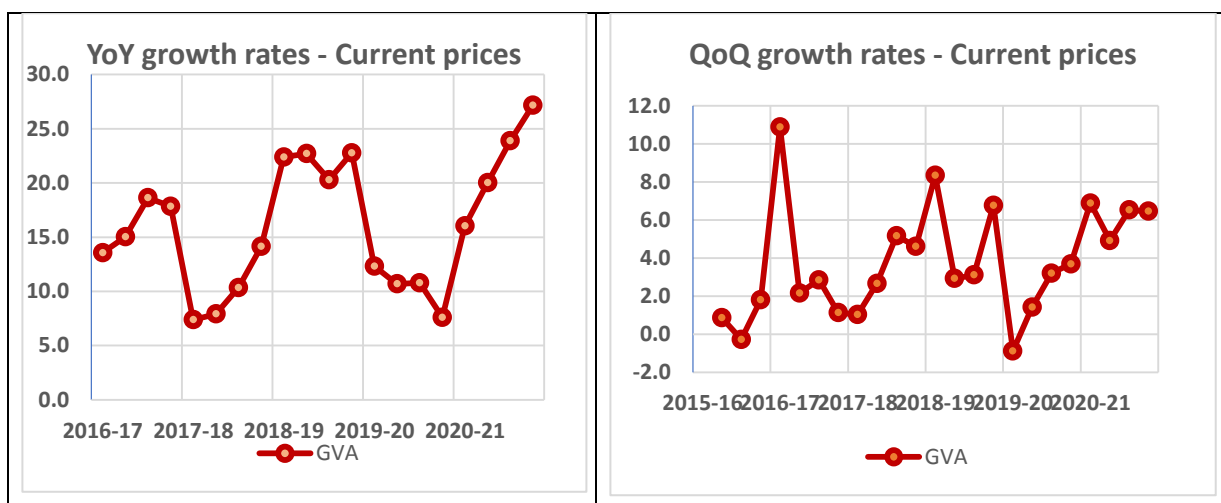
Figure 29: YoY and QoQ GRs at current prices for Small Scale Manufacturing

3.4   Slaughtering

Slaughtering is not easy to define and classify. In Pakistan, slaughtering activity can roughly be categorized into three different kinds:

i.   Slaughtering is an activity of large scale manufacturing resulting in commodities delivered at a big scale to wholesale or retail trade for the domestic market or exports.

ii. Slaughtering is a small scale activity carried out by butchers belonging to the informal sector of the economy.

iii. Services rendered by slaughterhouses to butchers who use these facilities against paying a fee for this.

Slaughterhouses can be part of the formal or informal sector. A slaughterhouse provides a facility where animals are processed/ slaughtered for consumption as food products. In PSIC rev. 4, the activities of slaughterhouses and butchers are covered in Section C, in class 1010 of Division 10. Then the meat is cut and sold in specialized shops. For this purpose, the "Retail sale of food in specialized stores" category, 4721 of PSIC rev. 4 is reserved.

The data situation in Pakistan does not encourage an "establishment approach" to cover the output of slaughtering. It is considered to have a "commodity flow approach" instead. This means that annual data about slaughtered animals are the basis for the calculation.

3.4.1 Quarterly Estimates

For compilation of quarterly GVA of slaughtering, quarterly data or quarterly indicator is not available. To compile quarterly GVA, Denton Technique with "indicator 1" has been applied to annual constant GVA. For current indicator of slaughtering, constant indicator has been inflated by applying Price indicator (WPI meat) and this indicator has been used to break current adjusted GVA of slaughtering into quarters.

Table 16: Values and growth of GVA at constant and current prices for Slaughtering

Years	Quarters	Value of GVA (Rs. Million)		YOY Growth GVA		QOQ Growth GVA	
		Constant Prices	Current Prices	Constant Prices	Current Prices	Constant Prices	Current Prices
2015-16	1	82125	82583				
	2	82487	85844			0.44	3.95
	3	83211	86248			0.88	0.47
	4	84298	77445			1.31	-10.21
2016-17	1	85746	85634	4.41	3.69	1.72	10.57
	2	87131	87473	5.63	1.90	1.61	2.15
	3	88452	90752	6.30	5.22	1.52	3.75
	4	89709	94722	6.42	22.31	1.42	4.37
2017-18	1	90903	97478	6.01	13.83	1.33	2.91
	2	92145	100256	5.75	14.61	1.37	2.85
	3	93437	104877	5.64	15.56	1.40	4.61
	4	94778	112241	5.65	18.50	1.44	7.02
2018-19	1	96168	112108	5.79	15.01	1.47	-0.12
	2	97569	118528	5.89	18.23	1.46	5.73
	3	98979	117809	5.93	12.33	1.45	-0.61
	4	100400	125892	5.93	12.16	1.44	6.86
2019-20	1	101830	129373	5.89	15.40	1.42	2.77
	2	103299	132781	5.87	12.03	1.44	2.63
	3	104808	137296	5.89	16.54	1.46	3.40
	4	106356	149640	5.93	18.86	1.48	8.99
2020-21	1	107942	156421	6.00	20.91	1.49	4.53
	2	109575	172650	6.07	30.03	1.51	10.37
	3	111252	173383	6.15	26.28	1.53	0.42
	4	112976	189312	6.22	26.51	1.55	9.19
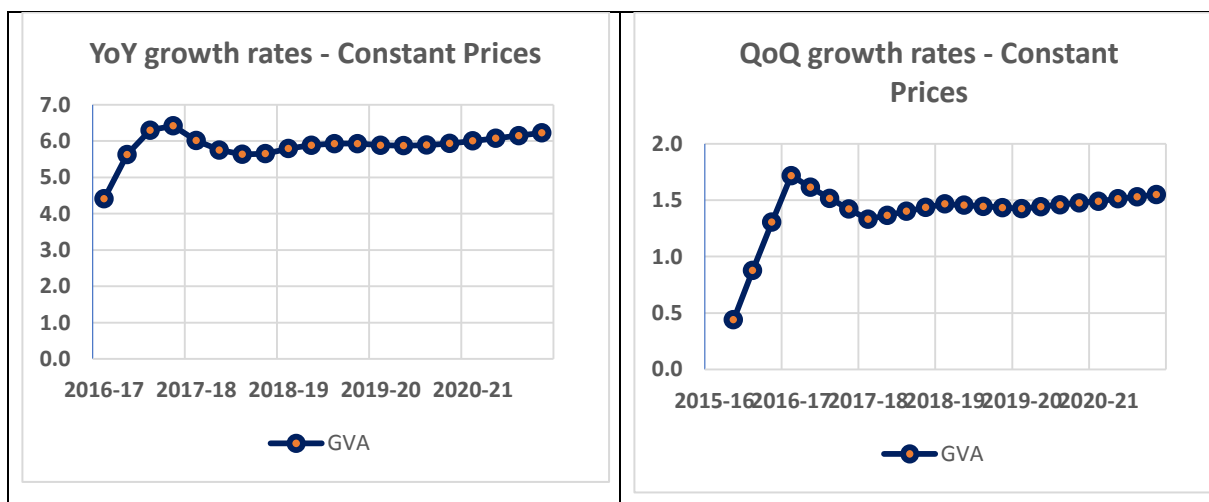
Figure 30: YoY and QoQ GRs at constant prices for Slaughtering
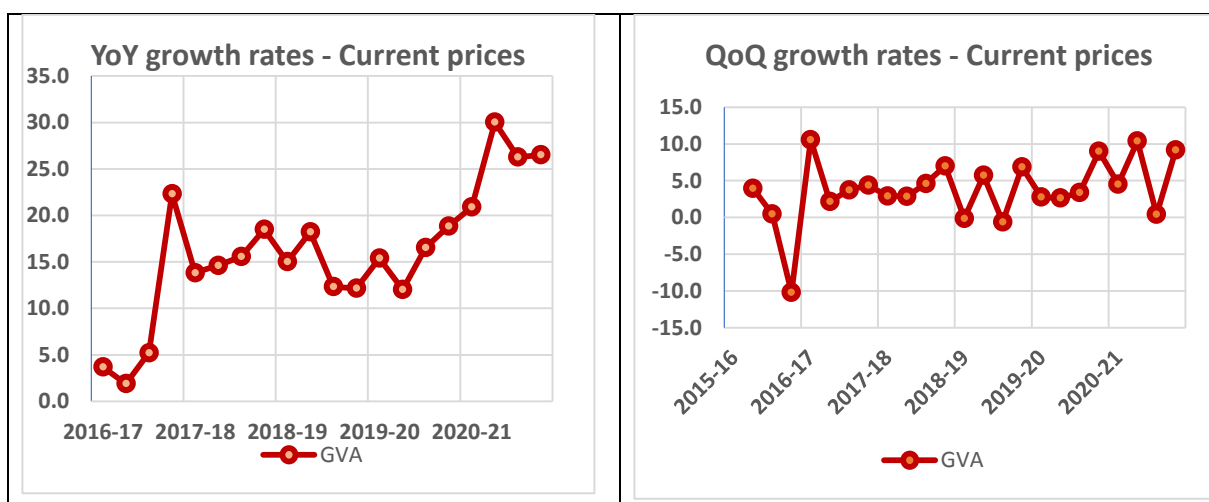
Figure 31: YoY and QoQ GRs at current prices for Slaughtering

Table 17: Values and growth of GVA at constant and current prices manufacturing

Years	Quarters	Value of GVA (Rs. Million)		YOY Growth GVA		QOQ Growth GVA	
		Constant Prices	Current Prices	Constant Prices	Current Prices	Constant Prices	Current Prices
2015-16	**1**	871848	865447				
	2	900504	907098			3.29	4.81
	3	985278	989526			9.41	9.09
	4	911150	906708			-7.52	-8.37
2016-17	**1**	884436	908257	1.44	4.95	-2.93	0.17
	2	946317	979706	5.09	8.00	7.00	7.87
	3	1046710	1105907	6.24	11.76	10.61	12.88
	4	969890	1023365	6.45	12.87	-7.34	-7.46
2017-18	**1**	982497	1034581	11.09	13.91	1.30	1.10
	2	1000726	1072869	5.75	9.51	1.86	3.70
	3	1114961	1247117	6.52	12.77	11.42	16.24

	4	1021522	1192525	5.32	16.53	-8.38	-4.38
2018-19	1	1007980	1249009	2.59	20.72	-1.33	4.74
	2	1048740	1330273	4.80	23.99	4.04	6.51
	3	1153757	1461897	3.48	17.22	10.01	9.89
	4	1095500	1471846	7.24	23.42	-5.05	0.68
2019-20	1	1012303	1390840	0.43	11.36	-7.59	-5.50
	2	1038376	1417583	-0.99	6.56	2.58	1.92
	3	1074652	1488341	-6.86	1.81	3.49	4.99
	4	844913	1130483	-22.87	-23.19	-21.38	-24.04
2020-21	1	1009112	1440386	-0.32	3.56	19.43	27.41
	2	1102005	1618829	6.13	14.20	9.21	12.39
	3	1175122	1823818	9.35	22.54	6.63	12.66
	4	1101785	1780860	30.40	57.53	-6.24	-2.36
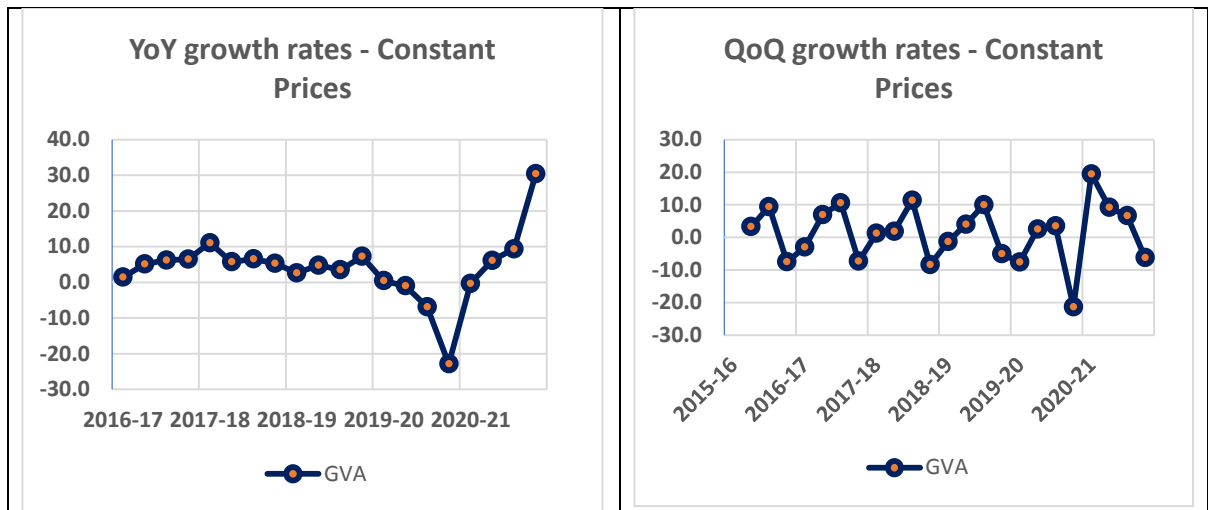
Figure 32: YoY and QoQ GRs at constant prices for Manufacturing
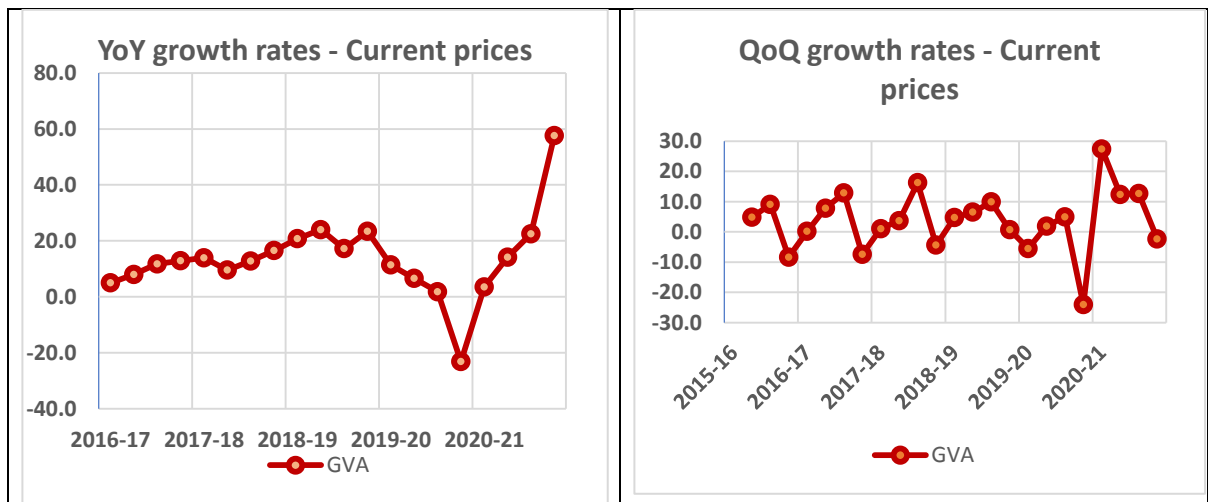
Figure 33: YoY and QoQ GRs at current prices for Manufacturing

3.5   Electricity, Gas and Water Supply

This industry consists of electricity generation, transmission & distribution, gas distribution and water supply in the private sector. Electricity is considered as backbone for the economic development of a country. Electricity sector is comprised of three major activities- generation, transmission and distribution. In Pakistan, these activities are conducted separately. Moreover, the treatment of subsidies on products is taken into consideration at the time of distribution by making it part of the output. According to PSIC-2010, the coverage of the activity pertains to Division 35, Group 351, Class 3510.

In Pakistan, there are four sources of electricity i.e. hydel, thermal, nuclear and renewables (mainly solar and wind-based power generation). WAPDA and provincial energy departments supply hydel power, whereas Pakistan Electric Power Company (PEPCO) manages thermal electricity generation all over the country except Karachi and some areas of the Sindh and Baluchistan provinces. These areas fall under the jurisdiction of K-Electric, which is performing all three tasks i.e. generation, transmission and distribution. However, in the case of generation, the company also purchases power from IPPS and PEPCO. Captive units generate electricity for their use but also supply their surpluses to other distributors. Under the heading of electricity generation and distribution, the activity of the captive units is confined to their input to the public grid.

The transmission of electricity is performed by National Transmission and Dispatch Company (NTDC), which is public owned entity. NTDC transmit electricity to distribution companies (DISCOs). DISCOs then supply electricity to end users. The data on production and intermediate consumption is being supplied by the generation, transmission and distribution establishments regularly on quarterly basis.

The input structures of the four types of products are different from each other. Hydel generation is a cheaper one, as it uses a flow of water as one of the major inputs. Thermal generation requires another input set such as furnace oil and natural gas / LNG. The third component is nuclear power, which is being provided by nuclear power plants in the country. Renewable electricity is the fourth source of generation and is mainly provided by wind and solar power.

As WAPDA and provincial energy departments along with some IPPs are responsible for hydroelectricity generation, therefore its input structure is entirely different from other generation establishments. In the case of GENCOs, the input structure is heavily dependent on the use of fossil fuels. Generation from GENCOs is therefore almost completely dependent upon the use of natural gas / LNG and furnace oil. Gas is the main fuel for K-Electric. The dependence of IPPs' input is heavily on furnace oil and gas. The remaining are the mixed expenditures. The captive units are supplying to the national system what is surplus with them. The own use of energy in the captive units is being covered in the Census of large scale Manufacturing Industries.

a.   Quarterly Estimates
Since data is available from major sources on quarterly basis regarding output and intermediate consumption so no indicator has been used for compilation of QNA.

3.5.1   Gas Distribution

Natural gas forms a part of the output of mining. Its contribution to GDP has been discussed in the relevant industry (mining). The distribution activity is being discussed under a separate industry (class 3520 in PSIC 2010) but it should be noted that gas distribution here is confined to distribution through mains, while sales of gas as energy for vehicles through CNG-stations does not fall under

"gas distribution" but is covered under retail trade-in class 4730 of PSIC 2010. It should further be noted that production of Liquefied Petroleum Gas (LPG) is covered under manufacturing, class 1920 and its distribution is covered under trade-in class 4661 of PSIC 2010. In Pakistan, gas distribution is carried out by Sui Southern, Sui Northern and Mari Gas companies. The data is available from these sources on quarterly basis.

a. Quarterly Estimates

Since data is available from major sources on quarterly basis regarding output and intermediate consumption so no indicator has been used for compilation of QNA.

3.5.2 Water Supply; Sewerage, Waste Management And Remediation Activities

Water is basic necessity of life and scarce natural resource. It is not only used as an input to different economic activities, but also provides ecosystem services. Water has been recognized as an essential economic good for its use in economic activity. The prosperity of economies is heavily dependent on water resources. Management of this scarce source therefore plays vital role in economic development

This industry is covered in Section E of the PSIC and is comprised of Divisions 36-Water collection, treatment and supply, 37-Sewerage, 38-Waste collection, treatment and disposal activities; materials recovery, and 39-Remediation activities and other waste management services. It includes the collection, treatment, and distribution of water for domestic and industrial needs. The activities related to the collection, treatment, and disposal of various forms of wastes, such as solid or non-solid industrial or household waste, as well as contaminated sites are also included.

a. Quarterly Estimates

All out efforts were made to identify quarterly indicators for water supply, however in consultation with industry experts and exploring available resources, no reliable indicator was identified. So much so that even for annual estimates the technical committee, which reviewed rebasing exercise also came to the same conclusion that there was no reliable indicator at annual basis to estimate this activity. Thus in consultation with the World Bank, the quarterly estimates for this activity has been developed by using constant growth. Denton technique was used to benchmark the annual gross value added at constant and current prices.

Table 18: Values and growth of GVA at constant and current prices for Electricity, Gas and Water Supply

| Years | Quarters | Value of GVA (Rs. Million) | | YOY Growth GVA | | QOQ Growth GVA | |
		Constant Prices	Current Prices	Constant Prices	Current Prices	Constant Prices	Current Prices
2015-16	1	219068	214656				
	2	137182	136816			-37.38	-36.26
	3	147232	149380			7.33	9.18
	4	177548	180178			20.59	20.62
2016-17	1	236212	188133	7.83	-12.36	33.04	4.42
	2	147837	166258	7.77	21.52	-37.41	-11.63
	3	147107	151898	-0.09	1.69	-0.49	-8.64
	4	159463	178347	-10.19	-1.02	8.40	17.41
2017-18	1	229303	141275	-2.92	-24.91	43.80	-20.79
	2	112651	104856	-23.80	-36.93	-50.87	-25.78
	3	126589	114444	-13.95	-24.66	12.37	9.14
	4	277004	240863	73.71	35.05	118.82	110.46
2018-19	1	266809	182943	16.36	29.49	-3.68	-24.05

	2	155192	172903	37.76	64.90	-41.83	-5.49
	3	151137	126912	19.39	10.89	-2.61	-26.60
	4	213770	240856	-22.83	0.00	41.44	89.78
2019-20	1	291958	276422	9.43	51.10	36.58	14.77
	2	154915	261733	-0.18	51.38	-46.94	-5.31
	3	165597	173889	9.57	37.02	6.90	-33.56
	4	202234	224341	-5.40	-6.86	22.12	29.01
2020-21	1	290660	340437	-0.44	23.16	43.72	51.75
	2	190209	292969	22.78	11.93	-34.56	-13.94
	3	166794	238135	0.72	36.95	-12.31	-18.72
	4	240438	368311	18.89	64.17	44.15	54.66
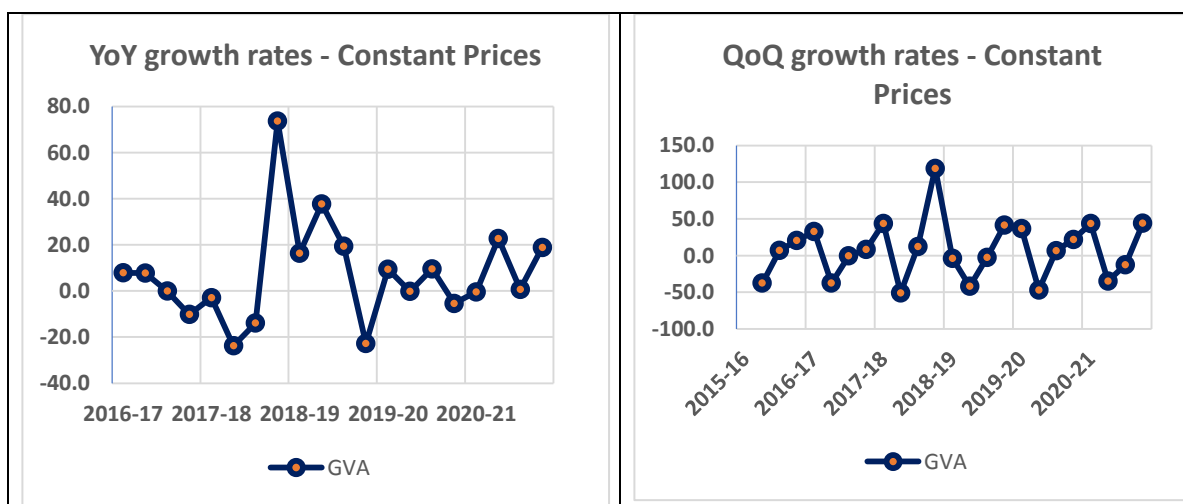
Figure 34: YoY and QoQ GRs at constant prices for Electricity, Gas and Water Supply
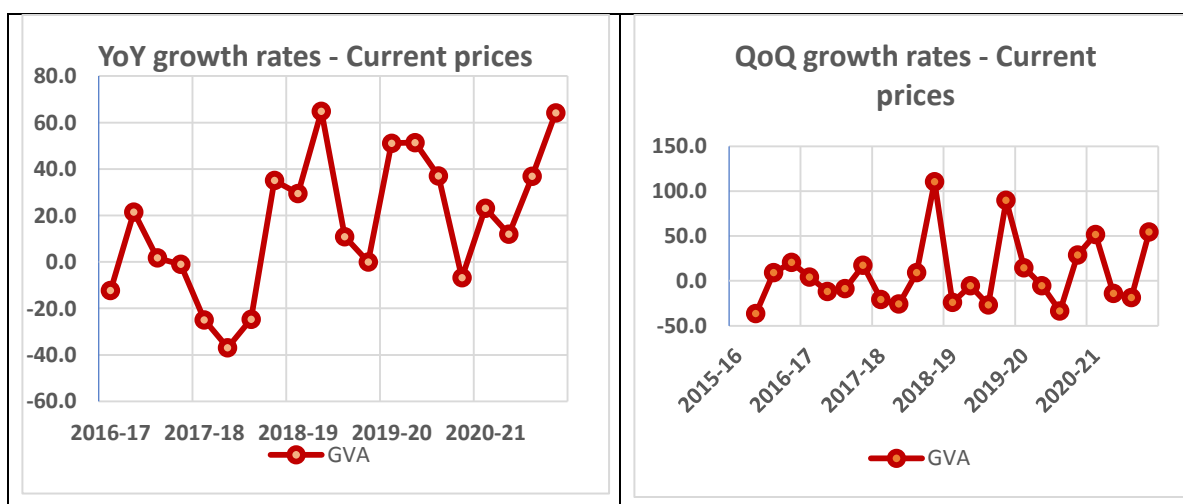
Figure 35: YoY and QoQ GRs at current prices for Electricity, Gas and Water Supply

3.6   Construction

The construction industry accounts for 2.8% of the total GDP in Pakistan. According to PSIC 2010, Section F deals with general construction and specialized construction activities for building and civil engineering works. It includes new work, repair, additions and alterations, the erection of

prefabricated buildings or structures on the site, and also a construction of temporary nature. Further, the section includes the complete construction of buildings (Division 41), the complete construction of Civil engineering works (Division 42) as well as specialized construction activities, if carried out as a part of the construction process (Division 43).

3.6.1 Quarterly Estimates

Viewed from its products, the construction activity covers land improvement and construction of all types of buildings, roads, bridges, railway lines, utility lines (telecommunication lines, power lines, pipelines) waterways, dams as well as repairs and maintenance of such infrastructure. In ANAs, construction activity is compiled by a product flow approach based on the expenditures incurred by the establishments. However, for QNA this approach cannot be applied because of scarcity of time so with the consultation of the World Bank team and the technical committee, which reviewed the QNA methodology, it was decided that input indicators such as production of cement, iron & steel, marble etc. may be used as an indicator. The QIM and the mining industry provide monthly production data of construction input items. Thus, a composite indicator comprising of production of construction indicators was developed, which was used as volume indicator. A specifically designed WPI comprising of construction items is used as price indicator, while value indicator is compiled implicitly.

Table 19: Values and growth of GVA at constant and current prices for Construction

Years	Quarters	Value of GVA (Rs. Million)		YOY Growth GVA		QOQ Growth GVA	
		Constant Prices	Current Prices	Constant Prices	Current Prices	Constant Prices	Current Prices
2015-16	1	204842	206775				
	2	226253	225564			10.45	9.09
	3	236836	235468			4.68	4.39
	4	230639	230763			-2.62	-2.00
2016-17	1	231451	231873	12.99	12.14	0.35	0.48
	2	238100	243019	5.24	7.74	2.87	4.81
	3	268737	283843	13.47	20.54	12.87	16.80
	4	251932	267602	9.23	15.96	-6.25	-5.72
2017-18	1	273564	296035	18.20	27.67	8.59	10.63
	2	337039	360680	41.55	48.42	23.20	21.84
	3	325927	348882	21.28	22.91	-3.30	-3.27
	4	247261	283133	-1.85	5.80	-24.14	-18.85
2018-19	1	300944	360706	10.01	21.84	21.71	27.40
	2	224377	273187	-33.43	-24.26	-25.44	-24.26
	3	214142	260508	-34.30	-25.33	-4.56	-4.64
	4	229536	280805	-7.17	-0.82	7.19	7.79
2019-20	1	241113	317645	-19.88	-11.94	5.04	13.12
	2	266043	349517	18.57	27.94	10.34	10.03
	3	273499	361752	27.72	38.86	2.80	3.50
	4	158520	214468	-30.94	-23.66	-42.04	-40.71
2020-21	1	246755	341460	2.34	7.50	55.66	59.21
	2	254479	353672	-4.35	1.19	3.13	3.58
	3	240864	355227	-11.93	-1.80	-5.35	0.44

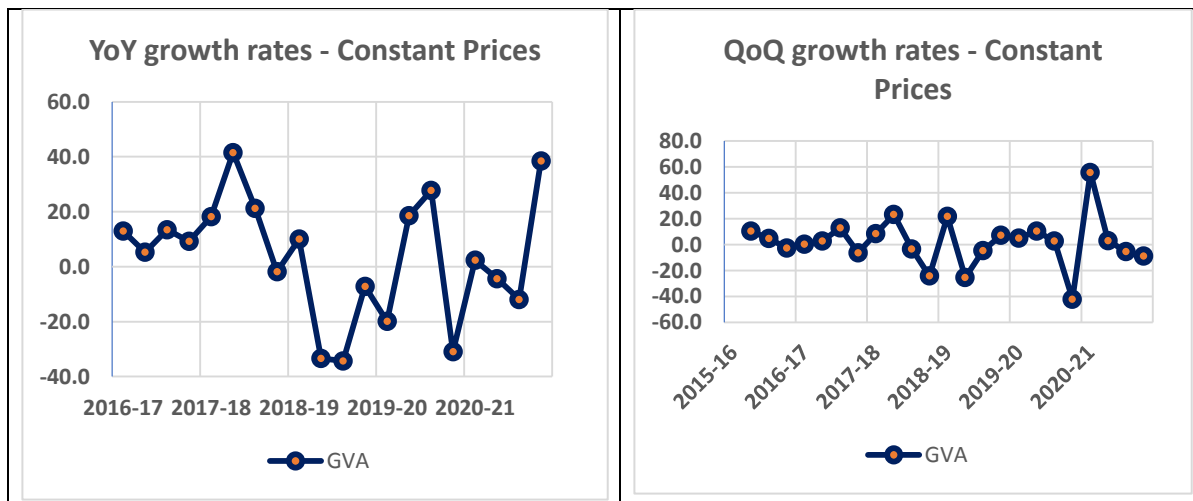|	4	219547	332658	38.50	55.11	-8.85	-6.35

Figure 36: YoY and QoQ GRs at constant prices for Construction

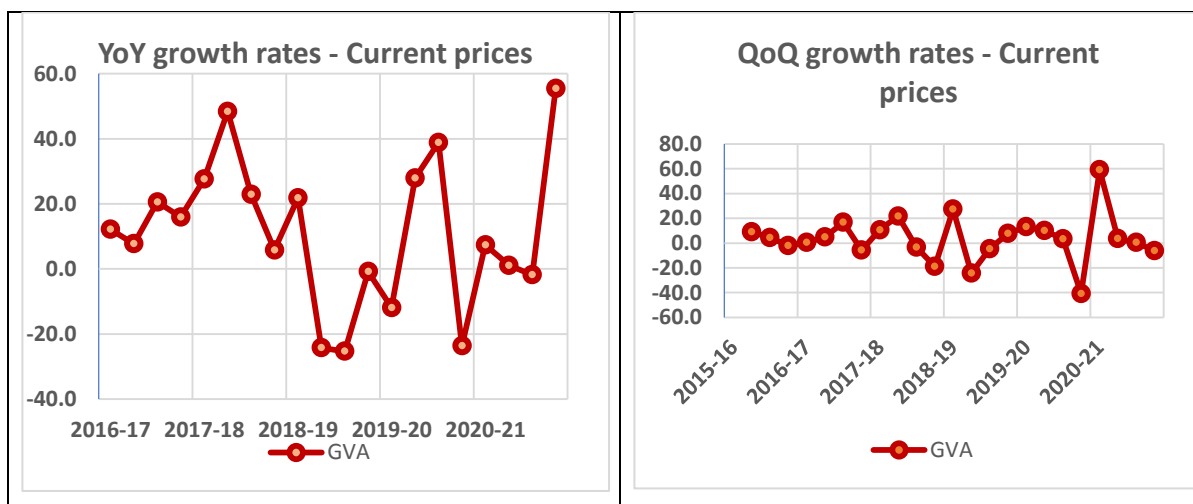**Figure 37: YoY and QoQ GRs at current prices for Construction**

CHAPTER 4
Services

Review of QNA by the Technical Committee

SERVICES

4.1 Wholesale and Retail Trade

Wholesale and retail trade (WRT) is covered in Section-G of PSIC-2010, termed as "Wholesale and retail trade; repair of motor vehicles, motorcycles". This industry is comprised of wholesale & retail trade, repair of motor vehicles & motorcycles, wholesale trade & retail trade except for motor vehicles and motorcycles.

4.1.1 Quarterly Estimates

The output for the agricultural products at constant and current basic prices, compiled for the value-added estimation of agriculture e.g. crops, livestock, forestry and fishing, are subsequently used for the estimation of trade value-added. For products of large scale manufacturing industries, the output at constant and current basic prices is used for the estimation of trade value added. Similarly for small scale manufacturing industries and slaughtering industry, the output at constant and current basic prices is used in the estimation of trade value added. Imports, which also contribute significantly in value addition of trade, comprises of three categories, i.e., consumer goods, capital goods and intermediate goods. The data on respective imports is supplied by the external trade section of PBS. For WRT the price indicator is compiled implicitly.

Table 20: Values and growth of GVA at constant and current prices for Wholesale and Retail Trade

Years	Quarters	Value of GVA (Rs. Million)		YOY Growth GVA		QOQ Growth GVA	
		Constant Prices	Current Prices	Constant Prices	Current Prices	Constant Prices	Current Prices
2015-16	1	1271740	1259587				
	2	1359540	1362358			6.90	8.16
	3	1411018	1417432			3.79	4.04
	4	1338032	1340952			-5.17	-5.40
2016-17	1	1320886	1337530	3.86	6.19	-1.28	-0.26
	2	1437447	1468560	5.73	7.80	8.82	9.80
	3	1529999	1599248	8.43	12.83	6.44	8.90
	4	1438944	1505537	7.54	12.27	-5.95	-5.86
2017-18	1	1467325	1528866	11.09	14.31	1.97	1.55
	2	1512652	1604401	5.23	9.25	3.09	4.94
	3	1620441	1785430	5.91	11.64	7.13	11.28
	4	1514243	1728921	5.23	14.84	-6.55	-3.16
2018-19	1	1491538	1775534	1.65	16.13	-1.50	2.70
	2	1569587	1879107	3.76	17.12	5.23	5.83
	3	1659091	2012463	2.39	12.72	5.70	7.10
	4	1611519	2052264	6.42	18.70	-2.87	1.98
2019-20	1	1515423	1964959	1.60	10.67	-5.96	-4.25
	2	1589876	2081865	1.29	10.79	4.91	5.95
	3	1599713	2136296	-3.58	6.15	0.62	2.61
	4	1293695	1644764	-19.72	-19.86	-19.13	-23.01
2020-21	1	1540653	2083039	1.66	6.01	19.09	26.65
	2	1700106	2409572	6.93	15.74	10.35	15.68
	3	1756881	2582086	9.82	20.87	3.34	7.16
	4	1649559	2512817	27.51	52.78	-6.11	-2.68
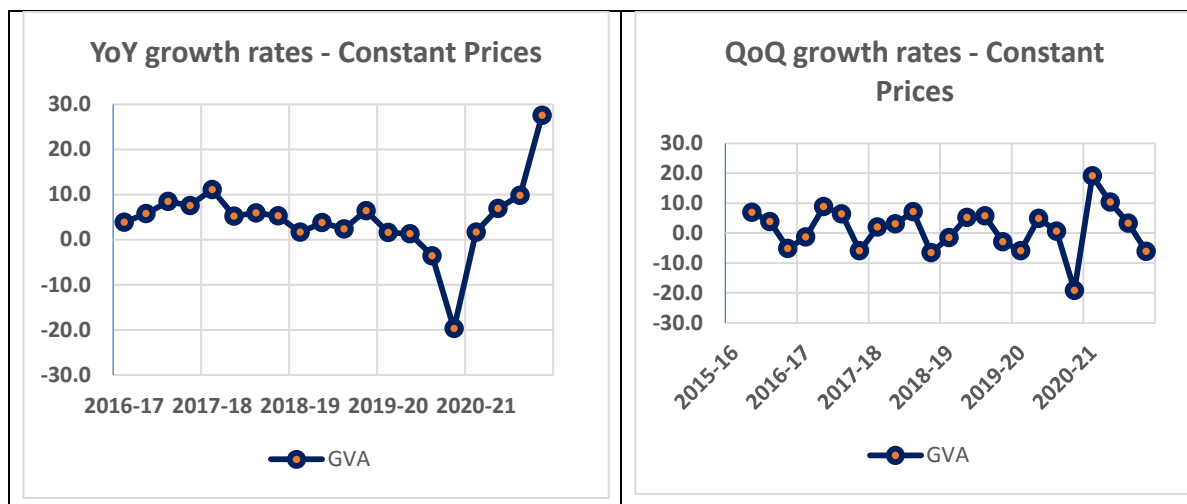
Figure 38: YoY and QoQ GRs at constant prices for Wholesale and Retail Trade
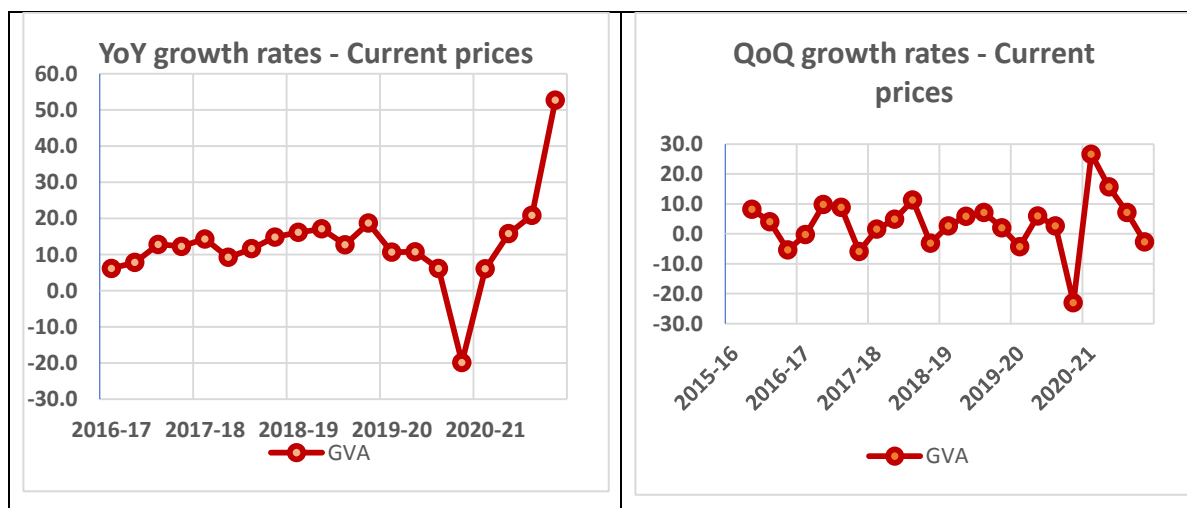
Figure 39: YoY and QoQ GRs at current prices for Wholesale and Retail Trade

4.2 Transport and Storage

It is a big sector in the economy of the country with multiple data sources. Data availability is the main factor to determine the estimation approach. The coverage is according to the PSIC-2010, which includes the provision of passenger or freight transportation, by land, water and air. It includes rail, road, pipeline, water, air and associated activities such as terminal and parking, cargo handling, storage etc. The renting of transportation equipment with operators, postal and courier services are also part of this industry. Transport has been divided into three main groups, land, water and air transport. These are further subdivided into groups according to their characteristics. Passengers and freight transportation are the main categories according to the PSIC. Land transport is the major category of the industry. Transportation via railways, road and pipeline are the sub-categories. Road transport is a major component of transportation activities, which is mostly informal. It contributes 85% to GVA of the transport and storage industry. In the case of road transport, the most reliable figure is that of the number of registered vehicles used for commercial transport.

4.2.1 Quarterly Estimates

For compilation of quarterly estimates, timely data availability is necessary. As transport industry is a combination of a number of activities so it is compiled industry by industry. For water transport, the data on quarterly basis is available from the sources at current prices, which is taken as value indicator and unit value index of water transport is used as price indicator. Volume indicator is derived implicitly. For air transport, the sources do provide quarterly information on regular basis at current prices, which are used as value indicator. Specially designed unit value index is used as price indicator and volume indicator is derived implicitly. Same is the case with the railways and pipeline transport as the sources provide quarterly information at current prices. For railways, a specially designed unit value index is used as price indicator and for pipelines CPI general is used as price indicator. Value indicator is compiled implicitly for both industries. For road transport, which contributes the most in the transport industry, is estimated by using the number of vehicles on road provided by the NTRC. Number of vehicles on road is used as volume indicator. WPI diesel is used as price indicator and value indicator is estimated implicitly. For overall quarterly estimates of the transport sector the subsectors are added at constant and current prices.

Table 21: Values and growth of GVA at constant and current prices for Transport and Storage

Years	Quarters	Value of GVA (Rs. Million)		YOY Growth GVA		QOQ Growth GVA	
		Constant Prices	Current Prices	Constant Prices	Current Prices	Constant Prices	Current Prices
2015-16	1	850095	937773				
	2	869530	922604			2.29	-1.62
	3	865887	801236			-0.42	-13.15
	4	863095	786995			-0.32	-1.78
2016-17	1	885200	879188	4.13	-6.25	2.56	11.71
	2	890186	887206	2.38	-3.84	0.56	0.91
	3	896437	920601	3.53	14.90	0.70	3.76
	4	917429	918362	6.30	16.69	2.34	-0.24
2017-18	1	927157	831498	4.74	-5.42	1.06	-9.46
	2	939416	818363	5.53	-7.76	1.32	-1.58
	3	921409	889918	2.79	-3.33	-1.92	8.74
	4	919956	873313	0.28	-4.91	-0.16	-1.87
2018-19	1	923886	897327	-0.35	7.92	0.43	2.75
	2	968760	864276	3.12	5.61	4.86	-3.68
	3	1033064	879522	12.12	-1.17	6.64	1.76
	4	1065063	1022415	15.77	17.07	3.10	16.25
2019-20	1	977759	1066752	5.83	18.88	-8.20	4.34
	2	916737	1043010	-5.37	20.68	-6.24	-2.23
	3	884555	1081254	-14.38	22.94	-3.51	3.67
	4	855100	785102	-19.71	-23.21	-3.33	-27.39
2020-21	1	910957	1059853	-6.83	-0.65	6.53	35.00
	2	961779	1140618	4.91	9.36	5.58	7.62
	3	963398	1283313	8.91	18.69	0.17	12.51
	4	975056	1184789	14.03	50.91	1.21	-7.68

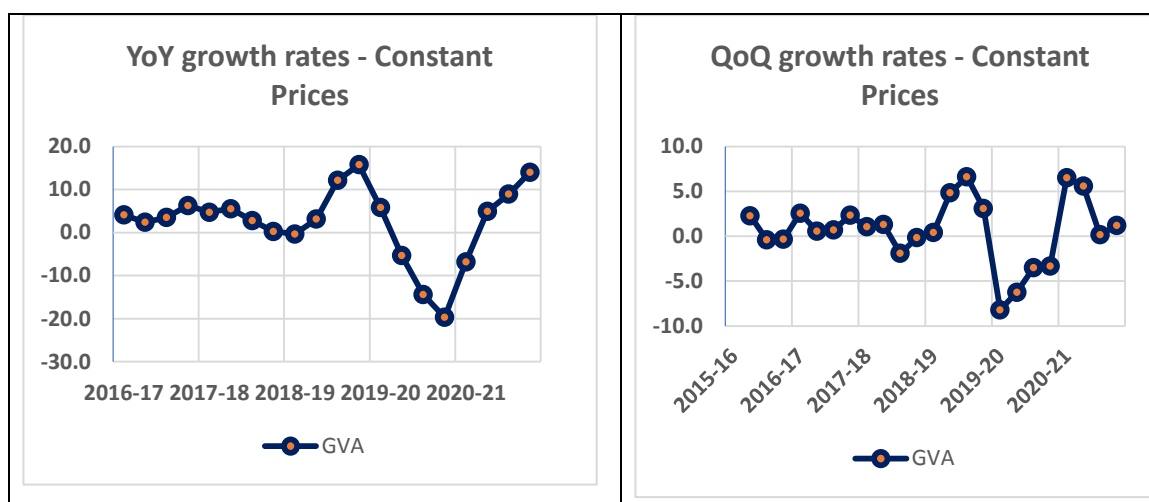**Figure 40: YoY and QoQ GRs at constant prices for Transport and Storage**
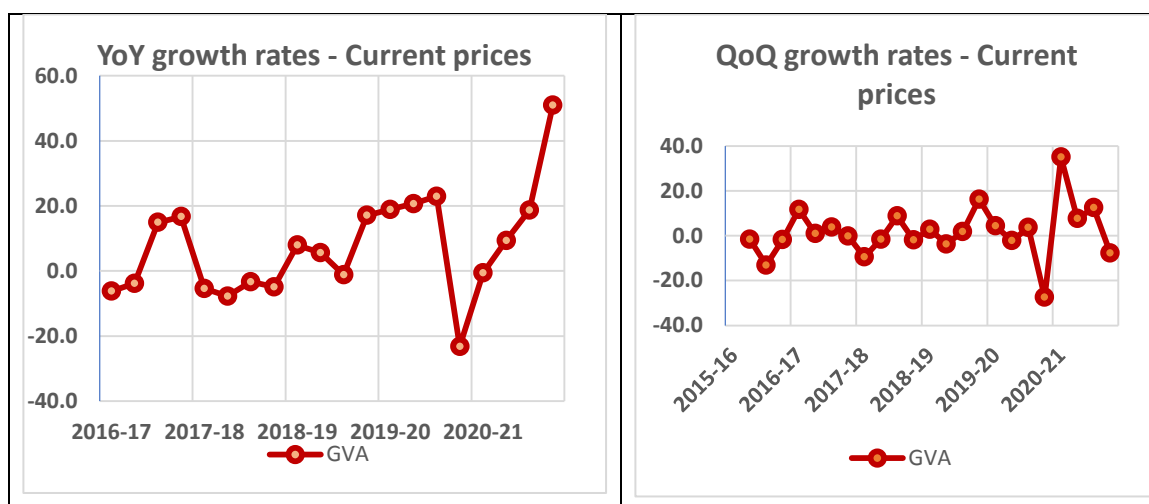

Figure 41: YoY and QoQ GRs at current prices for Transport and Storage

4.3 Accommodation and Food Service Activities (Hotels and Restaurants

According to PSIC-2010, accommodation and food service activities include the provision of short-stay accommodation for visitors and other travelers and provision of complete meals and drinks fit for immediate consumption. The accommodation activities are covered under PSIC code 55 and include the provision of short-stay accommodation for visitors and other travelers, typically on a daily or weekly basis provided by hotels, resort hotels, suite/apartment hotels, motels, motor hotels, guesthouses, bed and breakfast units, visitor flats and bungalows, time-share units, holiday homes, chalets, housekeeping cottages and cabins, youth hostels and mountain refuges. In the food and beverage serving activities, all the establishments providing complete meals or drinks fit for immediate consumption, whether in traditional restaurants, self-service, or take-away restaurants, whether as permanent or temporary stands with or without seating have been covered. The establishment engaged in the production of meals not fit for immediate consumption or not planned to be consumed immediately or those producing prepared food that is not considered to be a meal have not been covered here. Under food and beverage service activities establishments like restaurants, cafeterias, fast-food restaurants, pizza delivery, take-out eating places, ice cream truck vendors, mobile food carts, and food preparation in market stalls have been covered.

4.3.1 Quarterly Estimates

All out efforts were made to identify quarterly indicators for this industry, however in consultation with industry experts and exploring available resources, no reliable indicator was identified. So much so that even for annual estimates the technical committee, which reviewed rebasing exercise, also came to the same conclusion that there was no reliable indicator at annual basis to estimate this activity. Thus, in consultation with the World Bank, the quarterly estimates for this activity have been developed by using constant growth. Denton technique was used to benchmark the annual gross value addition at constant and current prices.

Table 22: Values and growth of GVA at constant and current prices for Accommodation and Food Services Activities

Years	Quarters	Value of GVA (Rs. Million)		YOY Growth GVA		QOQ Growth GVA	
		Constant Prices	Current Prices	Constant Prices	Current Prices	Constant Prices	Current Prices
2015-16	1	105597	101842				
	2	105925	104837			0.31	2.94
	3	106580	109017			0.62	3.99
	4	107564	109970			0.92	0.87
2016-17	1	108875	112779	3.10	10.74	1.22	2.55
	2	110129	116391	3.97	11.02	1.15	3.20
	3	111324	120832	4.45	10.84	1.09	3.82
	4	112461	124244	4.55	12.98	1.02	2.82
2017-18	1	113541	128853	4.29	14.25	0.96	3.71
	2	114651	132027	4.11	13.43	0.98	2.46
	3	115793	136573	4.01	13.03	1.00	3.44
	4	116966	140336	4.01	12.95	1.01	2.76
2018-19	1	118171	144113	4.08	11.84	1.03	2.69
	2	119378	146876	4.12	11.25	1.02	1.92
	3	120588	148283	4.14	8.57	1.01	0.96
	4	121800	148704	4.13	5.96	1.01	0.28
2019-20	1	123015	149540	4.10	3.77	1.00	0.56
	2	124247	151090	4.08	2.87	1.00	1.04
	3	125497	157425	4.07	6.16	1.01	4.19
	4	126763	162656	4.08	9.38	1.01	3.32
2020-21	1	128048	171724	4.09	14.83	1.01	5.58
	2	129345	180172	4.10	19.25	1.01	4.92
	3	130655	185771	4.11	18.01	1.01	3.11
	4	131977	188717	4.11	16.02	1.01	1.59
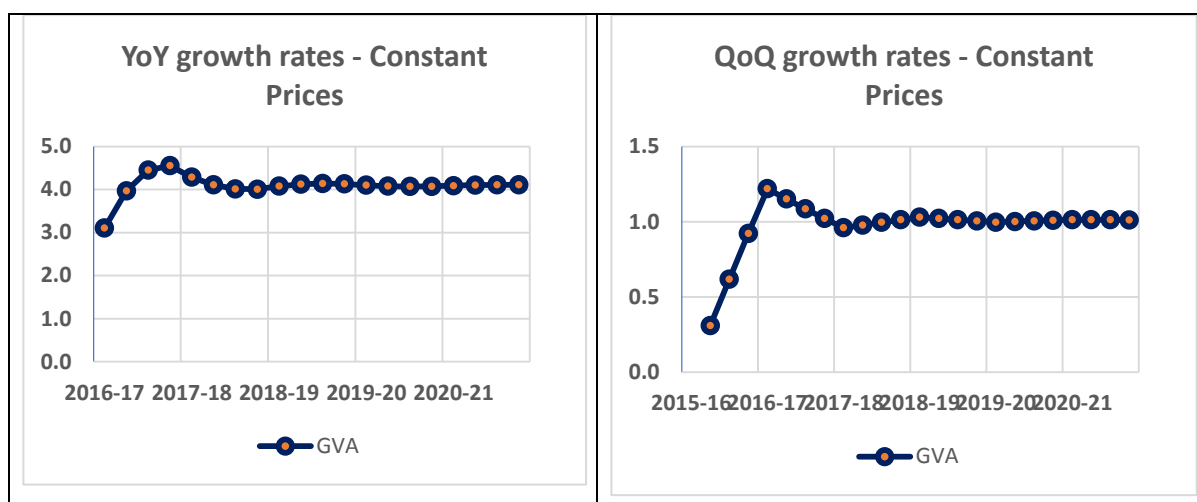
Figure 42: YoY and QoQ GRs at constant prices for Accommodation and Food Services Activities
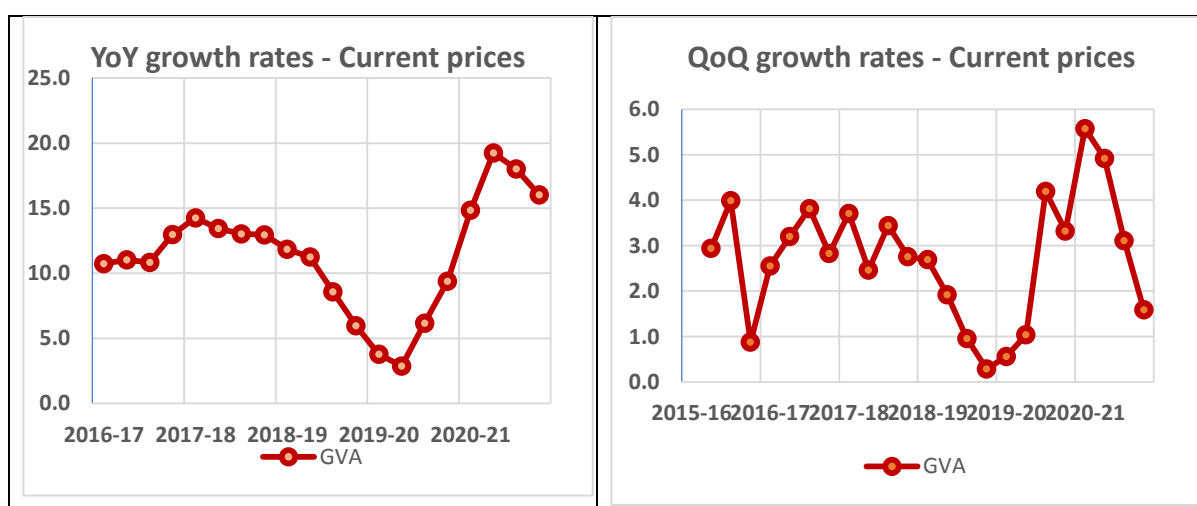
Figure 43: YoY and QoQ GRs at current prices for Accommodation and Food Services Activities

4.4 Information and Communication Services

This is covered under Section J of PSIC-2010. The main components of this section are publishing activities including software publishing (Division 58), motion picture and sound recording activities (Division 59), radio and TV broadcasting and programming activities (Division 60), Telecommunication activities (Division 61), information technology activities (Division 62) and other information service activities (Division 63).

4.4.1 Quarterly Estimates

The purpose of developing quarterly estimates is to examine the performance of the sector on quarterly basis. Information and Communication is mostly a documented sector, so the quarterly data of mobile companies is used as a value indicator for the industry. CPI (Communication) is used as a price indicator. Volume indicator is compiled implicitly.

Table 23: Values and growth of GVA at constant and current prices for Information and Communication Services

Years	Quarters	Value of GVA (Rs. Million)		YOY Growth GVA		QOQ Growth GVA	
		Constant Prices	Current Prices	Constant Prices	Current Prices	Constant Prices	Current Prices
2015-16	1	145729	146270				
	2	150502	150645			3.28	2.99
	3	155863	155868			3.56	3.47
	4	158858	158169			1.92	1.48
2016-17	1	156891	156703	7.66	7.13	-1.24	-0.93
	2	155424	155148	3.27	2.99	-0.94	-0.99
	3	166273	165604	6.68	6.25	6.98	6.74
	4	196587	194902	23.75	23.22	18.23	17.69
2017-18	1	178363	175516	13.69	12.01	-9.27	-9.95
	2	175724	172005	13.06	10.86	-1.48	-2.00
	3	174430	169825	4.91	2.55	-0.74	-1.27
	4	174926	170027	-11.02	-12.76	0.28	0.12
2018-19	1	187461	184476	5.10	5.11	7.17	8.50
	2	182709	180979	3.97	5.22	-2.53	-1.90
	3	192144	191399	10.16	12.70	5.16	5.76
	4	200902	207615	14.85	22.11	4.56	8.47
2019-20	1	191541	203604	2.18	10.37	-4.66	-1.93
	2	229721	246013	25.73	35.94	19.93	20.83
	3	229612	246740	19.50	28.91	-0.05	0.30
	4	217464	233419	8.24	12.43	-5.29	-5.40
2020-21	1	231672	247678	20.95	21.65	6.53	6.11
	2	239655	255940	4.32	4.03	3.45	3.34
	3	236404	251947	2.96	2.11	-1.36	-1.56
	4	246087	264287	13.16	13.22	4.10	4.89
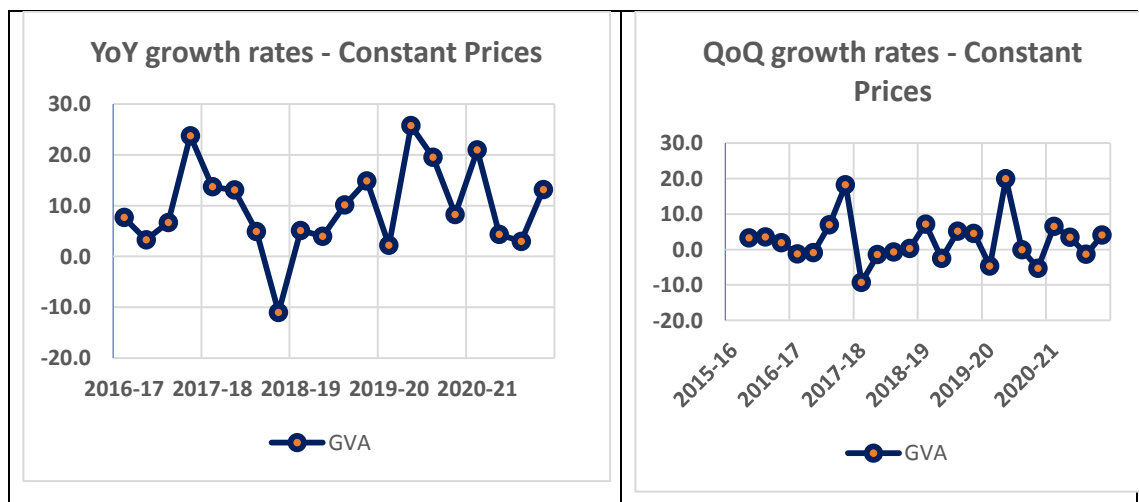
Figure 44: YoY and QoQ GRs at constant prices for Information and Communication Services

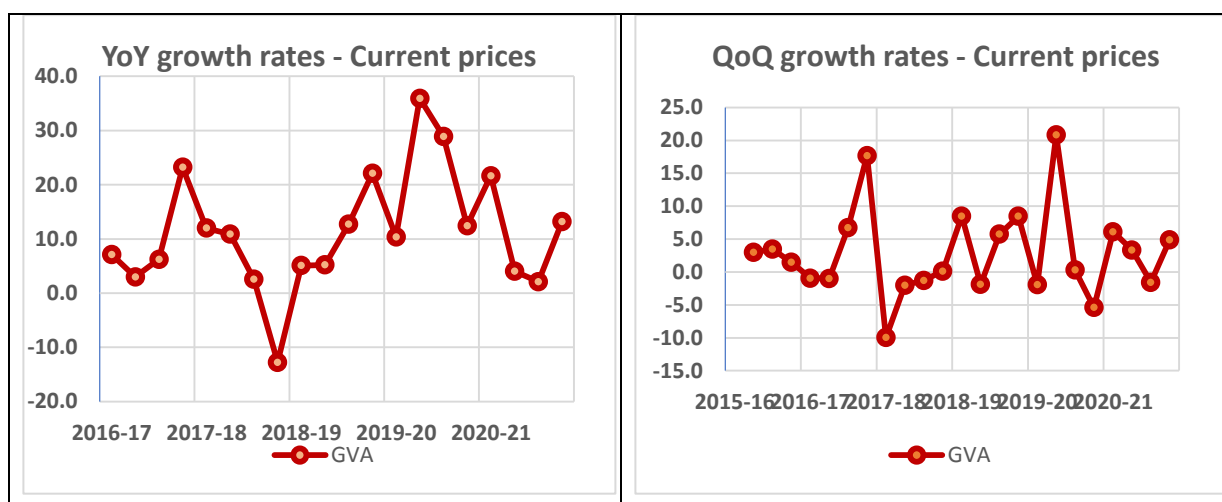**Figure 45: YoY and QoQ GRs at current prices for Information and Communication Services**

4.5 Finance and Insurance Activities

The finance and insurance sector constitutes financial corporations providing financial services. The production (goods and services) of financial services is the result of financial intermediation, financial risk management, liquidity transformation or auxiliary financial activities. According to SNA 2008 financial intermediation is carried out by financial corporations exclusively. Financial corporations consist of all resident financial institutes that are primarily engaged in providing financial services, including insurance and pension fund services, to other institutional units. The provision of financial services is always subject to strict regulation and financial institutes always provide financial services as "primary production". The SNA 2008 often uses the term "financial institution" which is a pure synonym for "financial corporation". Financial production is an economic activity. SNA 2008 describes that there are two main types of output, namely goods and services which are described as products. The output of an enterprise/ establishment is classified as market output or non-market output based upon the nature of production. The market output of financial services is available at economically significant prices while non-market output is provided in the absence of economically significant prices."

Finance and insurance activities (Section K) are classified according to PSIC-2010 into three main Divisions i.e. Division 64 "Financial service activities except for insurance and pension funds", Division 65 Insurance, reinsurance and pension funding, except compulsory social security; and Division 66 Activities auxiliary to financial service and insurance activities. A special group 641, "monetary intermediation", is subdivided into 6411 "central banking" and 6419 "other monetary intermediation".

4.5.1 Quarterly Compilation

The main objective of compiling quarterly estimation of the finance & insurance sector is to analyze the performance of the sector in detail. FISIM, which is an output of financial services, contributes about 86% to the total output of the sector and is used as an indicator for quarterly estimation of GVA of financial services. The central bank provides the data for loans and deposits every month. SBP also provides monthly KIBOR rate. Denton technique is used for quarterly estimation of the data.

Premium received by Life and Non-Life Insurance Companies is used as an indicator for compiling quarterly GVA of Life Insurance Companies and Non-Life Insurance companies respectively.

Quarterly data is available on the website of Insurance Association of Pakistan. CPI is used as price indicator, while value indicator is derived implicitly for life and non-life insurance industry.

To estimate GVA of Stock Brokers, Number of Shares Traded, is used as an indicator. This information is available with SBP with a time lag of one month. A special deflator has been developed using "All Share Index" available with SBP at monthly level is used as price indicator. The value indicator has been derived implicitly for this industry. Similarly, quarterly GVA of Exchange Companies is estimated using "Remittances" as an indicator. SBP provide monthly information on Remittances. CPI is used as price indicator, while value indicator is derived implicitly. GVA at constant and current prices of all these activities is added up to estimate the GVA of financial and insurance industry at constant and current prices.

Table 24: Values and growth of GVA at constant and current prices for Financial and Insurance Activities

| Years	Quarters	Value of GVA (Rs. Million)		YOY Growth GVA		QOQ Growth GVA	
		Constant Prices	Current Prices	Constant Prices	Current Prices	Constant Prices	Current Prices
2015-16	1	124839	122924				
	2	133157	132372			6.66	7.69
	3	135512	135910			1.77	2.67
	4	136677	138980			0.86	2.26
2016-17	1	137309	134687	9.99	9.57	0.46	-3.09
	2	141709	143235	6.42	8.21	3.20	6.35
	3	146405	143816	8.04	5.82	3.31	0.41
	4	148405	151648	8.58	9.12	1.37	5.45
2017-18	1	148278	156575	7.99	16.25	-0.09	3.25
	2	157501	170877	11.14	19.30	6.22	9.13
	3	161692	169454	10.44	17.83	2.66	-0.83
	4	156608	176496	5.53	16.39	-3.14	4.16
2018-19	1	157122	194263	5.96	24.07	0.33	10.07
	2	167260	218980	6.20	28.15	6.45	12.72
	3	170325	235750	5.34	39.12	1.83	7.66
	4	167443	255887	6.92	44.98	-1.69	8.54
2019-20	1	155137	271419	-1.26	39.72	-7.35	6.07
	2	159753	286859	-4.49	31.00	2.98	5.69
	3	165991	304960	-2.54	29.36	3.90	6.31
	4	166553	225754	-0.53	-11.78	0.34	-25.97
2020-21	1	165684	212228	6.80	-21.81	-0.52	-5.99
	2	168488	227191	5.47	-20.80	1.69	7.05
	3	171576	233724	3.36	-23.36	1.83	2.88
	4	177245	252142	6.42	11.69	3.30	7.88
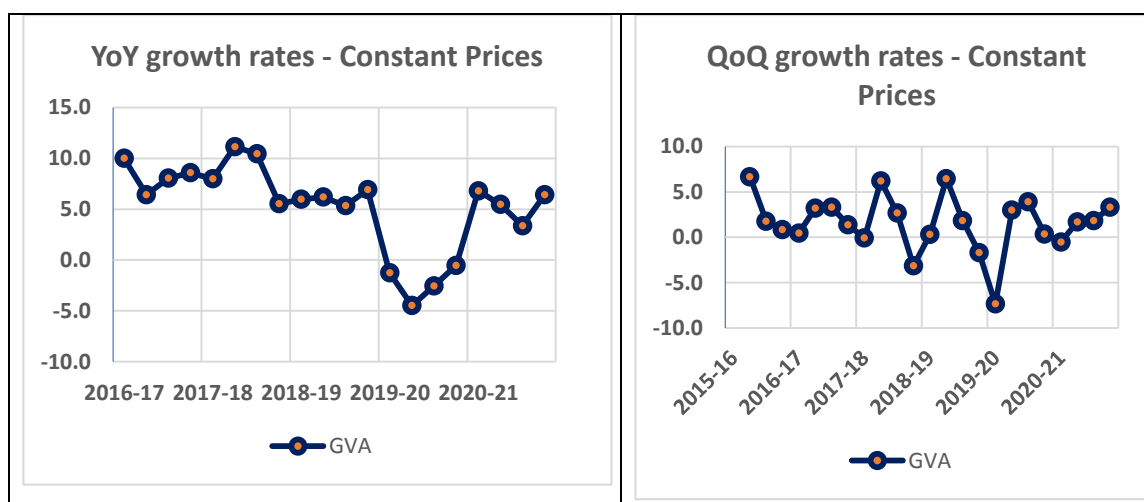
Figure 46: YoY and QoQ GRs at constant prices for Finance and Insurance Activities
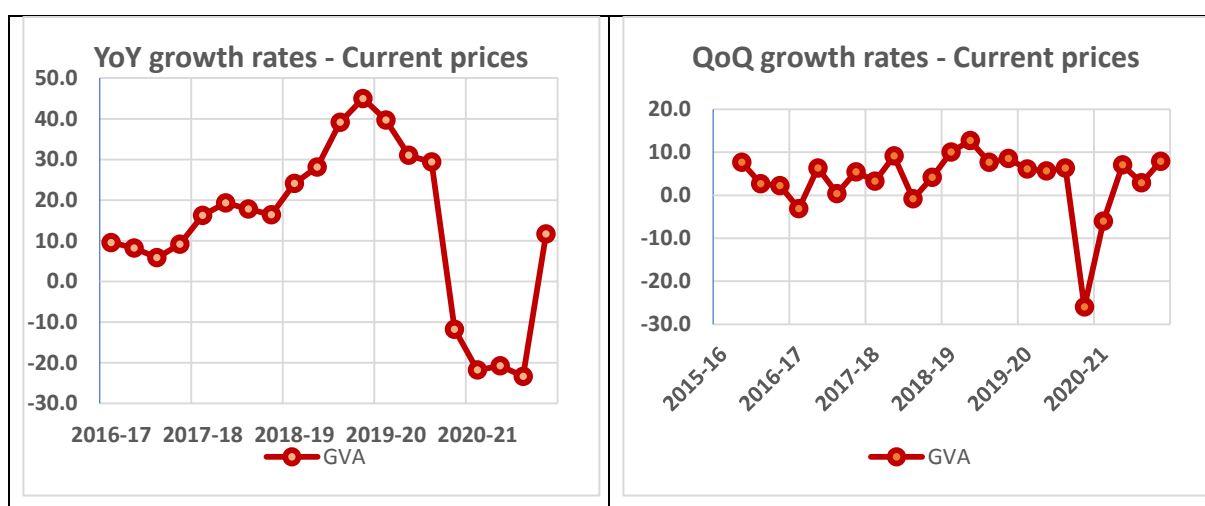

Figure 47: YoY and QoQ GRs at current prices for Finance and Insurance Activities

4.6 Real Estate Activities (Including Ownership of dwellings)

Real estate activities are covered in the Section L of the PSIC- 2010, which includes acting as lessors, agents, and/or brokers in one or more of the following: selling or buying real estate, renting real estate, providing other real estate services such as appraising real estate or acting as real estate agents. Activities in this section may be carried out on their own or leased property and may be done on a fee or contract basis. Maintaining ownership or leasing of such structures is also included in the building of structures. PBS has broadly divided these activities into two categories including:

i)   "Ownership of Dwellings" i.e. the provision of housing services by the owner of a dwelling to its occupants irrespective of whether the owner is also an occupier

ii)   Activities of real estate agents.

4.6.1 Quarterly Estimates

All out efforts were made to identify quarterly indicators for this industry, however in consultation with industry experts and exploring available resources, no reliable indicator was identified. So much so that even for annual estimates the technical committee, which reviewed rebasing exercise, also came to the same conclusion that there was no reliable indicator at annual basis to estimate this

activity. Thus in consultation with the World Bank, the quarterly estimates for this activity has been developed by using constant growth. Denton technique was used to benchmark the annual gross value addition at constant and current prices

Table 25: Values and growth of GVA at constant and current prices for Real Estate Activities

| Years | Quarters | Value of GVA (Rs. Million) | | YOY Growth GVA | | QOQ Growth GVA | |
		Constant Prices	Current Prices	Constant Prices	Current Prices	Constant Prices	Current Prices
2015-16	1	430807	422448				
	2	432029	424474			0.28	0.48
	3	434475	441971			0.57	4.12
	4	438142	446560			0.84	1.04
2016-17	1	443033	467835	2.84	10.74	1.12	4.76
	2	447655	477412	3.62	12.47	1.04	2.05
	3	452010	499152	4.04	12.94	0.97	4.55
	4	456096	506634	4.10	13.45	0.90	1.50
2017-18	1	459914	515662	3.81	10.22	0.84	1.78
	2	463860	524431	3.62	9.85	0.86	1.70
	3	467935	539712	3.52	8.13	0.88	2.91
	4	472137	553997	3.52	9.35	0.90	2.65
2018-19	1	476467	566734	3.60	9.90	0.92	2.30
	2	480898	582856	3.67	11.14	0.93	2.84
	3	485429	595752	3.74	10.38	0.94	2.21
	4	490059	610908	3.80	10.27	0.95	2.54
2019-20	1	494790	625465	3.85	10.36	0.97	2.38
	2	499454	634338	3.86	8.83	0.94	1.42
	3	504050	652359	3.84	9.50	0.92	2.84
	4	508579	660492	3.78	8.12	0.90	1.25
2020-21	1	513042	677784	3.69	8.36	0.88	2.62
	2	517619	690297	3.64	8.82	0.89	1.85
	3	522313	710222	3.62	8.87	0.91	2.89
	4	527121	727985	3.65	10.22	0.92	2.50
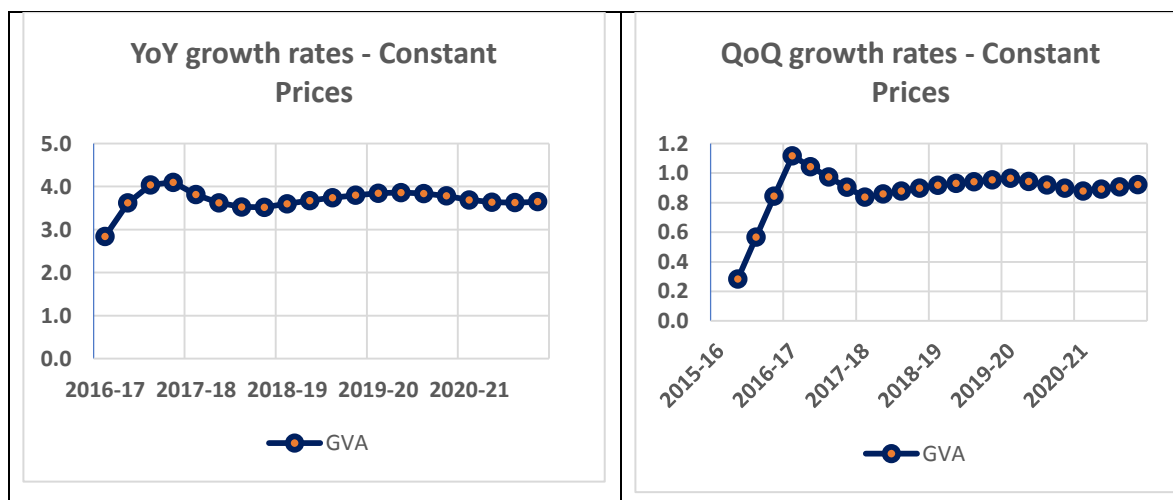
Figure 48: YoY and QoQ GRs at constant prices for Real Estate Activities
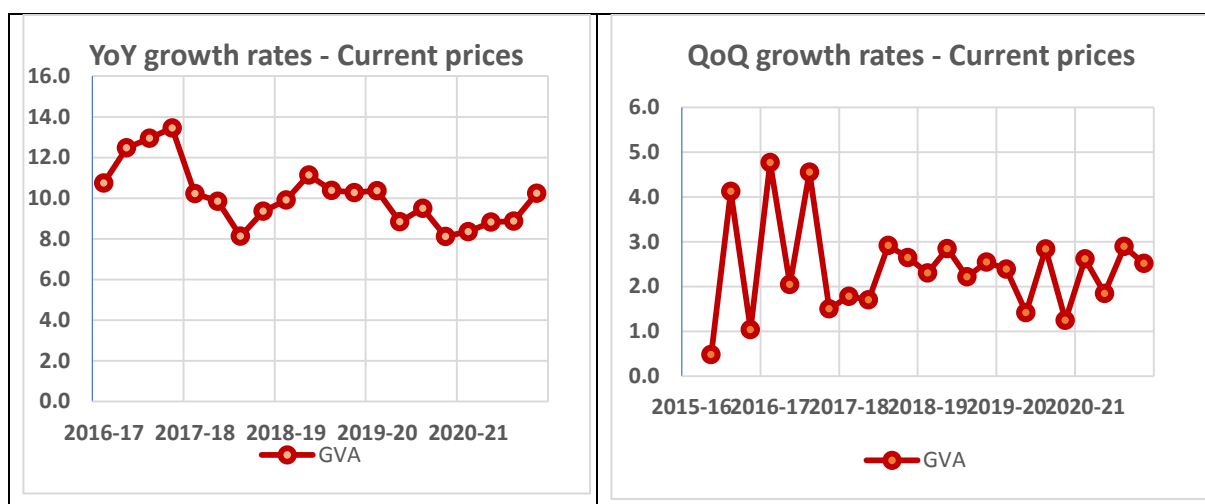
Figure 49: YoY and QoQ GRs at current prices for Real Estate Activities

4.7 Public Administration and Social Security (General Government)

The public administration and defence; compulsory social security is also known as "General Government" are described in Section O of the PSIC-2010. The "General Government" is one of the institutional sectors other than non-financial corporations, financial corporations, households, and non-profit institutions serving households (NPISH). The activities of the general government are dispersed over various industries, including public administration and defence, education, health, and many others. In 2015-16 rebasing, all the figures of production have been calculated in a way that both purposes are served i.e. figures by PSIC as well as figures by COFOG for the government sector are available.

The general government in Pakistan includes Federal, Provincial, District governments, Local bodies, Cantonment boards and Social security funds. The budget documents of federal, provincial, district government, tehsil municipal administrations, cantonment boards, and autonomous bodies are the universe for the coverage, most of which have been taken into account. The non-market output of the sector is comprised of employee remuneration, which covers wages and salaries of all employees. It also includes in-kind payments, rations, entertainments, gifts, scholarships, etc. to employees including residential accommodation facilities and allowances.

4.7.1 Quarterly Estimates

The data for Public administration and Social Security (General Government) is collected from Finance Divisions and various departments at Federal and Provincial level together with data accessed from District governments, Local bodies, and Cantonment boards. For compilation of quarterly estimates, an indicator based on wages and salaries has been used to benchmark the annual GVA at current prices and CPI general is used as price indicator while volume indicator is derived implicitly.

Table 26: Values and growth of GVA at constant and current prices for Public Administration and Social Security (General Government)

Years	Quarters	Value of GVA (Rs. Million)		YOY Growth GVA		QOQ Growth GVA	
		Constant Prices	Current Prices	Constant Prices	Current Prices	Constant Prices	Current Prices
2015-16	1	356076	350676				
	2	361244	359189			1.45	2.43
	3	373486	374712			3.39	4.32
	4	367659	373889			-1.56	-0.22
2016-17	1	376068	387254	5.61	10.43	2.29	3.57
	2	382186	397289	5.80	10.61	1.63	2.59
	3	396319	417067	6.11	11.30	3.70	4.98
	4	393417	420795	7.01	12.55	-0.73	0.89
2017-18	1	430139	464113	14.38	19.85	9.33	10.29
	2	432061	474220	13.05	19.36	0.45	2.18
	3	440337	485754	11.11	16.47	1.92	2.43
	4	414593	467612	5.38	11.13	-5.85	-3.73
2018-19	1	451539	519382	4.98	11.91	8.91	11.07
	2	437801	513343	1.33	8.25	-3.04	-1.16
	3	446338	530453	1.36	9.20	1.95	3.33
	4	441096	539267	6.39	15.32	-1.17	1.66
2019-20	1	446300	565610	-1.16	8.90	1.18	4.88
	2	453043	592424	3.48	15.41	1.51	4.74
	3	468762	619832	5.02	16.85	3.47	4.63
	4	462049	607875	4.75	12.72	-1.43	-1.93
2020-21	1	457208	623980	2.44	10.32	-1.05	2.65
	2	446193	625355	-1.51	5.56	-2.41	0.22
	3	458888	652394	-2.11	5.25	2.85	4.32
	4	457804	666030	-0.92	9.57	-0.24	2.09
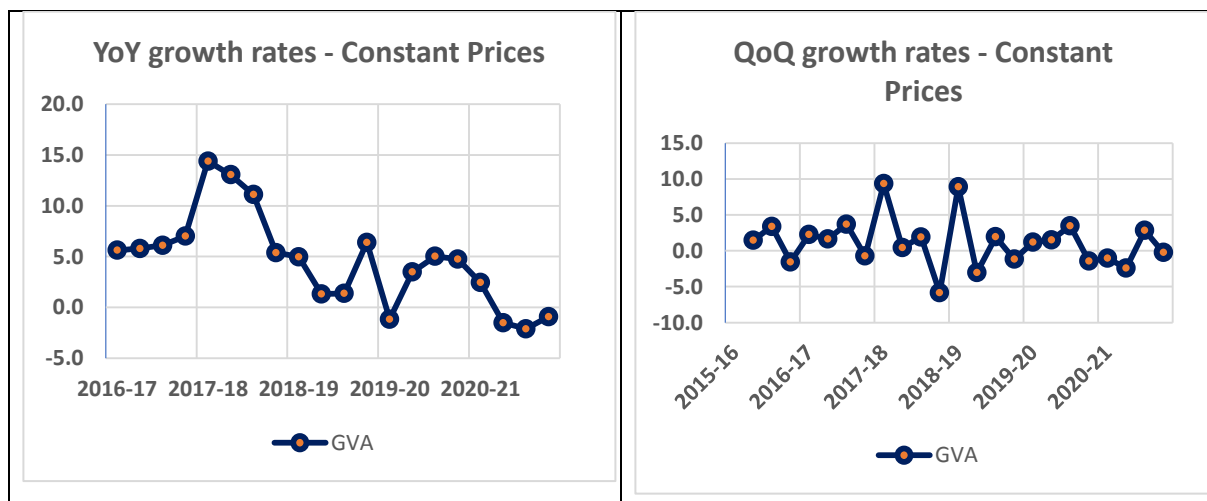
Figure 50: YoY and QoQ GRs at constant prices for Public Administration and Social Security
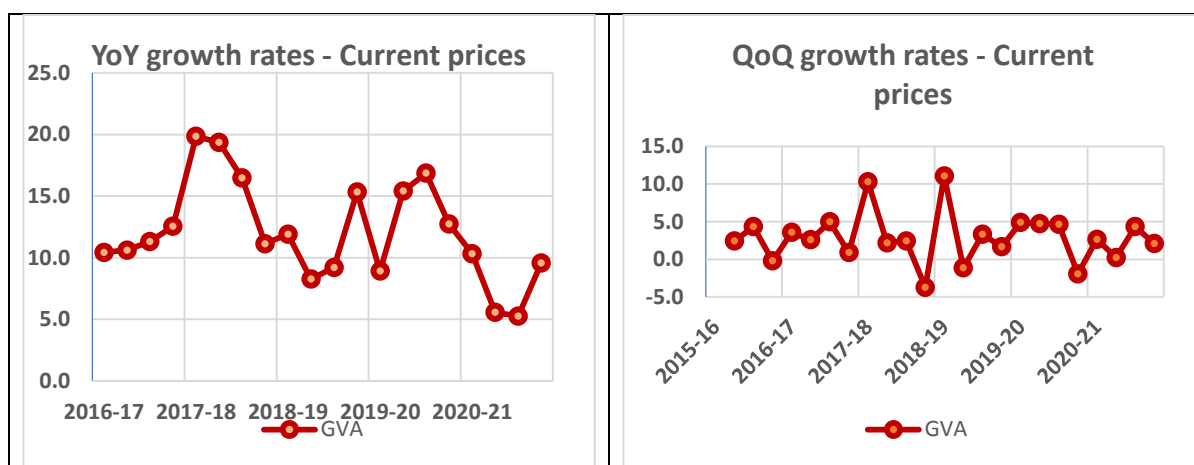
75

Figure 51: YoY and QoQ GRs at current prices for Public Administration and Social Security

4.8 Education

Education is primarily described by level in the PSIC-2010. PBS has broadly divided education into four major categories including i) Public sector education provided by institutions of federal, provincial, and district governments purely on a non-market basis covered in the budget of respective governments ii) Autonomous bodies engaged in education and falling under federal and provincial governments but with separate budgets iii,) Education provided by non-profit institutions purely on a non-market basis and iv) Education provided in the private sector on a market basis. The value-added contribution of autonomous bodies providing educational services at economically significant prices i.e. with market output; has been combined with private sector education and those with non-market output have been added to the general government.

4.8.1 Quarterly Estimates

To have a better assessment of the contribution of private-sector education, an annual weighted index is developed by using the number of students enrolled in different classes and the fee structure. This annual index is then quarterized by using the Denton Technique without indicator and is used as volume indicator. CPI education is used as price indicator, while value indicator is compiled implicitly. Like general government, the education in public sector is compiled on the basis of wages and salaries used as value indicator. These are compiled from the budget documents of federal, provincial, district and TMAs'/local governments. CPI education is used as price indicator and volume indicator is derived implicitly. In order to estimate the combined quarterly estimates of education industry at constant and current prices the quarterly estimates of Private and Public are added.

Table 27: Values and growth of GVA at constant and current prices for Education

| Years | Quarters | Value of GVA (Rs. Million) | | YOY Growth GVA | | QOQ Growth GVA | |
		Constant Prices	Current Prices	Constant Prices	Current Prices	Constant Prices	Current Prices
2015-16	1	232546	225849				
	2	236060	231713			1.51	2.60
	3	242547	239771			2.75	3.48
	4	243403	257223			0.35	7.28
2016-17	1	227371	236914	-2.23	4.90	-6.59	-7.90
	2	231838	251124	-1.79	8.38	1.96	6.00

|							
	3	239141	260967	-1.40	8.84	3.15	3.92
	4	241219	282736	-0.90	9.92	0.87	8.34
2017-18	1	235994	279559	3.79	18.00	-2.17	-1.12
	2	240861	297121	3.89	18.32	2.06	6.28
	3	247679	317268	3.57	21.57	2.83	6.78
	4	248320	334729	2.94	18.39	0.26	5.50
2018-19	1	241005	327263	2.12	17.06	-2.95	-2.23
	2	244840	336590	1.65	13.28	1.59	2.85
	3	251947	346106	1.72	9.09	2.90	2.83
	4	254106	363371	2.33	8.56	0.86	4.99
2019-20	1	250334	363339	3.87	11.02	-1.48	-0.01
	2	254858	371833	4.09	10.47	1.81	2.34
	3	260545	380499	3.41	9.94	2.23	2.33
	4	259024	378638	1.94	4.20	-0.58	-0.49
2020-21	1	249359	365004	-0.39	0.46	-3.73	-3.60
	2	250696	369130	-1.63	-0.73	0.54	1.13
	3	255896	376486	-1.78	-1.05	2.07	1.99
	4	256477	377921	-0.98	-0.19	0.23	0.38
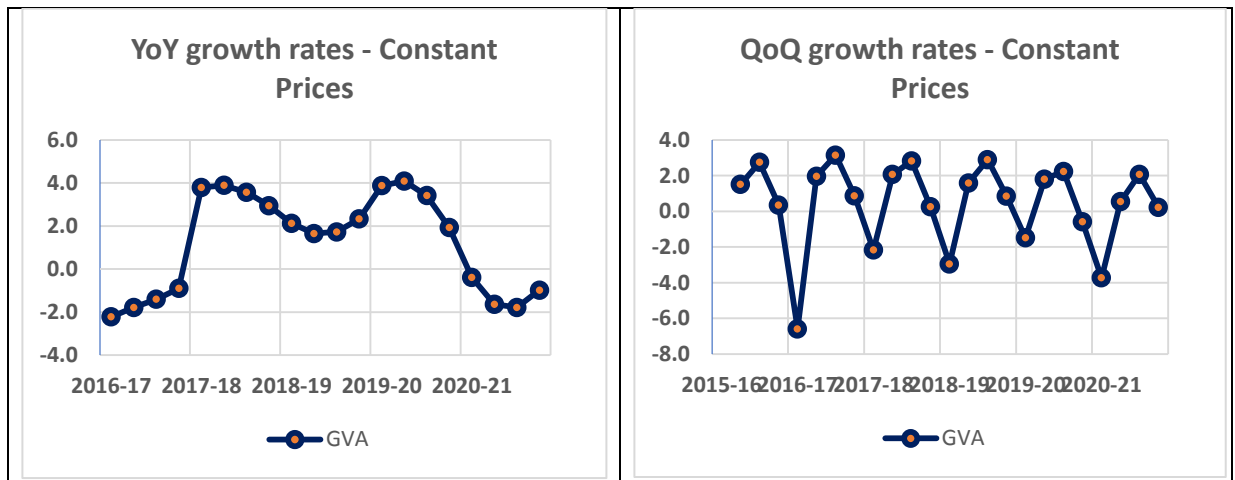
Figure 52: YoY and QoQ GRs at constant prices for Education
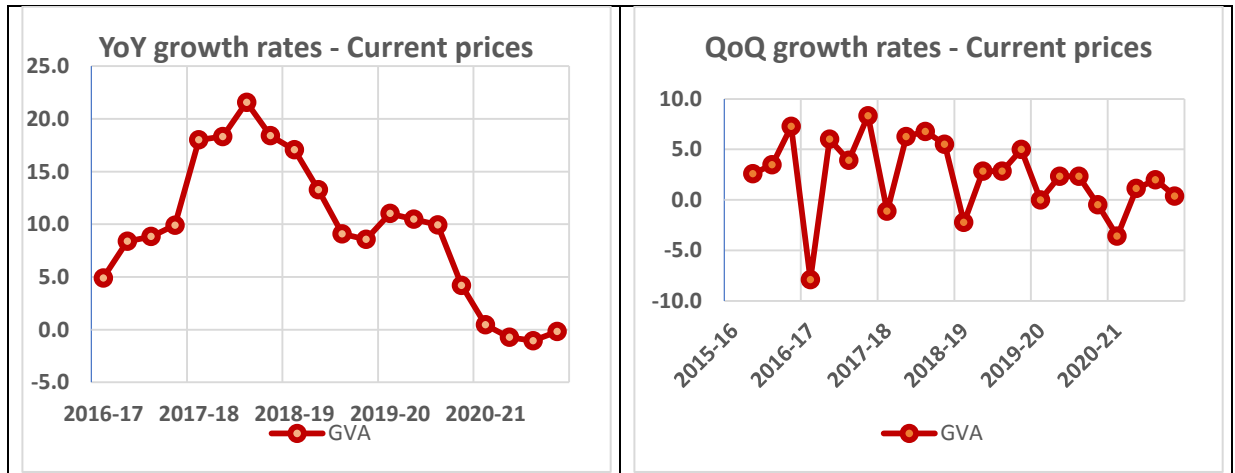

Figure 53: YoY and QoQ GRs at current prices for Education

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4.9 Human Health and Social Work Activities

Human health and social work activities are described in Section Q of the PSIC and are comprised of three distinct Divisions i.e. 86-Human health activities, 87-Residential care activities, and 88-Social work activities without accommodation. For coverage in the rebasing of national accounts from 2005-06 to 2015-16, human health and social work activities have been broadly divided into i) Human health and social work activities provided by public sector institutions of federal, provincial, and district governments purely on the non-market basis and covered in the budget of respective governments ii) Autonomous bodies engaged in the provision of human health and social work activities and falling under federal and provincial governments but with separate budgets, iii,) Human health and social work activities are provided by non-profit institutions purely on a non-market basis and iv) Human health and social work activities are provided in the private sector on a market basis. The value-added contribution of autonomous bodies providing human health and social work activities at economically significant prices i.e. with market output; has been combined with the private sector and those with non-market output have been added to the general government.

4.9.1 Quarterly Estimates for Health and Social Work in the Private Sector

To have a better assessment of the contribution of private-sector health & social work, an annual weighted index is developed by using the number of health personals in different categories and the fee structure. This annual index is then quarterized by using the Denton Technique without indicator and is used as volume indicator. CPI health services is used as price indicator while value indicator is compiled implicitly. Like general government, the health and social work in public sector is compiled on the basis of wages and salaries used as value indicator. These are compiled from the budget documents of federal, provincial, district and TMAs'/local governments. CPI health is used as price indicator and volume indicator is derived implicitly. In order to estimate the combined quarterly estimates of education industry at constant and current prices the quarterly estimates of Private and Public are added.

Table 28: Values and growth of GVA at constant and current prices for Human Health and Social Work

Years	Quarters	Value of GVA (Rs. Million)		YOY Growth GVA		QOQ Growth GVA	
		Constant Prices	Current Prices	Constant Prices	Current Prices	Constant Prices	Current Prices
2015-16	1	102551	103259				
	2	103813	105031			1.23	1.72
	3	106173	104391			2.27	-0.61
	4	107107	106963			0.88	2.46
2016-17	1	114008	118107	11.17	14.38	6.44	10.42
	2	116292	122016	12.02	16.17	2.00	3.31
	3	119484	131248	12.54	25.73	2.75	7.57
	4	120538	134795	12.54	26.02	0.88	2.70
2017-18	1	120631	140910	5.81	19.31	0.08	4.54
	2	122911	148878	5.69	22.02	1.89	5.66
	3	126223	156685	5.64	19.38	2.69	5.24
	4	127332	161600	5.64	19.89	0.88	3.14
2018-19	1	130134	166667	7.88	18.28	2.20	3.14
	2	132513	173323	7.81	16.42	1.83	3.99
	3	135962	178991	7.72	14.24	2.60	3.27
	4	136933	182230	7.54	12.77	0.71	1.81
2019-20	1	138144	189219	6.16	13.53	0.88	3.83

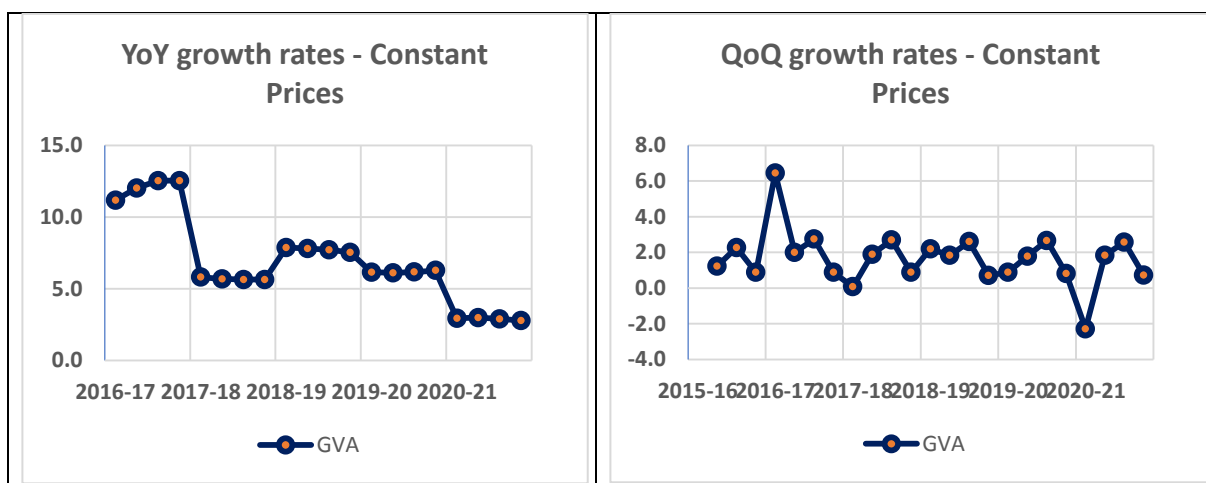|						
	2	140610	194544	6.11	12.24	1.79	2.81
	3	144351	202086	6.17	12.90	2.66	3.88
	4	145533	206281	6.28	13.20	0.82	2.08
2020-21	1	142205	206551	2.94	9.16	-2.29	0.13
	2	144806	216973	2.98	11.53	1.83	5.05
	3	148532	226531	2.90	12.10	2.57	4.41
	4	149595	232189	2.79	12.56	0.72	2.50

Figure 54: YoY and QoQ GRs at constant prices for Human Health and Social Work
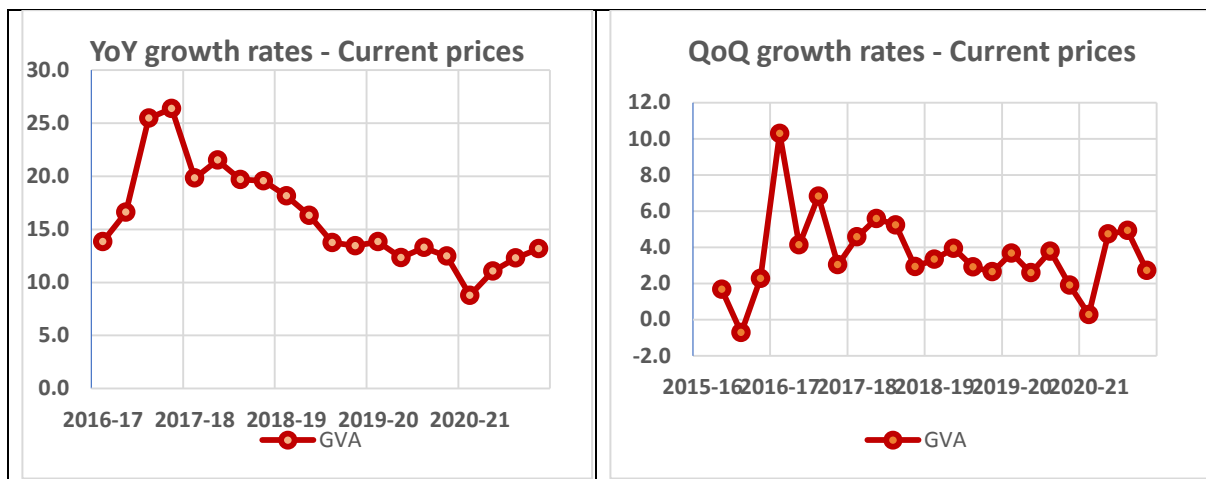

Figure 55: YoY and QoQ GRs at current prices for Human Health and Social Work

4.10 Other Private Services

Other Private Services (OPS) deals with diverse economic activities comprising of various industries (PSIC). The data sources vary accordingly. Activities have been picked up from components of different surveys/studies, covering different sections of the PSIC. The services described in this industry represent the remnants of the services as general government services, wholesale and retail trade services, transport services, financial services, owner-occupied dwellings, health, education and information & communication services covered in respective sections. Nevertheless, they represent a vibrant part of the economy of Pakistan. Other Private Services comprise of:

    a.   Professional, scientific, and technical activities

b. Administrative and support services
c. Arts, entertainment and recreation
d. Other service activities (activities of membership organizations, repair of computers and personal household goods and other personal service activities including washing, dry cleaning etc.)
e. Activities of households as employers of domestic services.

4.10.1 Quarterly Estimates

The activities of architects and engineers occupy major share in GVA of other private services, therefore, number of engineers registered in Pakistan Engineering Council has been used as volume indicator for quarterly estimation of the GVA of architects and engineers. The data on the activities of architects and engineers is available on quarterly basis. Quarterly CPI (General) is used as a price indicator. The value indicator has been derived implicitly. Since there is no suitable indicator available for remaining activities of other private services, therefore Denton Technique by using "1" as an indicator, was applied for quarterly estimates at constant prices. CPI is used as price indicator while value indicator has been derived implicitly.

Table 29: Values and growth of GVA at constant and current prices for Other Private Services

| Years	Quarters	Value of GVA (Rs. Million)		YOY Growth GVA		QOQ Growth GVA	
		Constant Prices	Current Prices	Constant Prices	Current Prices	Constant Prices	Current Prices
2015-16	1	557922	549621				
	2	571761	568572			2.48	3.45
	3	579603	581419			1.37	2.26
	4	588468	598142			1.53	2.88
2016-17	1	596124	613321	6.85	11.59	1.30	2.54
	2	609759	633277	6.65	11.38	2.29	3.25
	3	624999	657266	7.83	13.05	2.50	3.79
	4	636138	680181	8.10	13.72	1.78	3.49
2017-18	1	645267	696377	8.24	13.54	1.44	2.38
	2	656535	720346	7.67	13.75	1.75	3.44
	3	670719	738655	7.32	12.38	2.16	2.54
	4	682803	767172	7.34	12.79	1.80	3.86
2018-19	1	688010	786085	6.62	12.88	0.76	2.47
	2	700410	814610	6.68	13.09	1.80	3.63
	3	711084	837965	6.02	13.44	1.52	2.87
	4	719690	872783	5.40	13.77	1.21	4.16
2019-20	1	729835	917808	6.08	16.76	1.41	5.16
	2	734089	952645	4.81	16.94	0.58	3.80
	3	743078	975685	4.50	16.44	1.22	2.42
	4	753257	985371	4.66	12.90	1.37	0.99
2020-21	1	764081	1038703	4.69	13.17	1.44	5.41
	2	774197	1082371	5.46	13.62	1.32	4.20
	3	780254	1107128	5.00	13.47	0.78	2.29
	4	791499	1148439	5.08	16.55	1.44	3.73
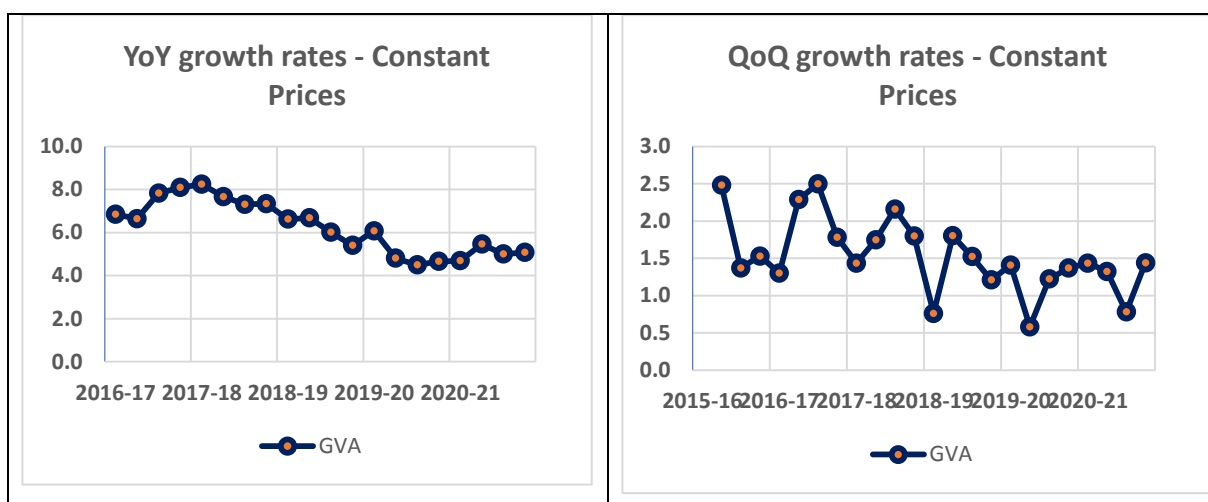
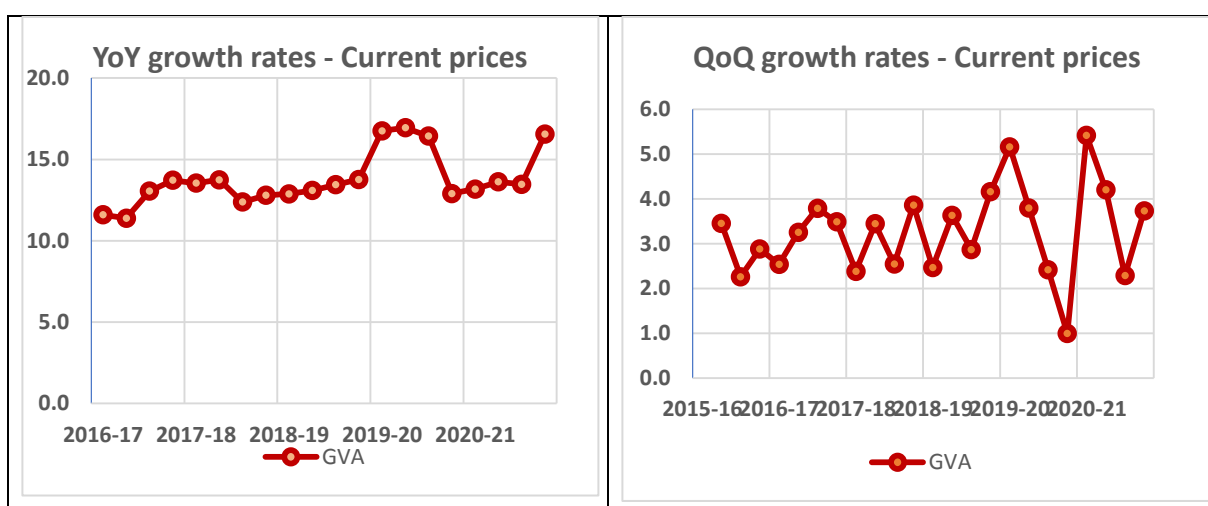**Figure 56: YoY and QoQ GRs at constant prices for Other Private Services**

Figure 57: YoY and QoQ GRs at current prices for Other Private Services

4.11   Limitations of the report

Although the National Accounts Wing of PBS has done a historic work of introduction of QNAs in the statistical system of the country, yet a lot still needs to be done. Some of the limitations of the report are narrated as under:

- The QNA series presented in this report is seasonally unadjusted so the researchers and policy makers may use it with caution. The work on seasonal adjustment is underway and the seasonally adjusted series will be published later on.
- The report contains the quarterly series of the supply side of the economy only. Work on expenditure/use side is underway, which will be published during the next financial year.
- Some of the industries have been quarterized by using fixed growth rate because of non-availability of quarterly indicators. Efforts will be made to identify quarterly indicators and sources for such industries during the next rebasing.