Quarterisation of National Income Accounts of Pakistan

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Abstract

Arby (2008) quarterised the production side of annual GDP, and its subsectors, for 1972 to 2005 based on constant prices of 1999-2000 as well as on current prices. This study provides quarterly estimates of (sectoral and overall) gross domestic production in Pakistan during 1999-2000 to 2009-2010 based on constant prices of 1999-2000 as well as on current prices. Seasonality in quarterly gross domestic product in Pakistan mainly arises from agriculture. Furthermore, the study also provides estimates of various components of expenditures side of the GDP for 1972-1973 to 2009-2010 for the first time as far as we know.

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Non-technical Summary

National Income Accounts (NIA) in Pakistan are regularly compiled by Pakistan Bureau of Statistics (PBS) on annual basis exclusively. PBS does not disseminate the NIA on quarterly basis which could provide a timelier picture than their annual counterpart.

Efforts have been made in the past by the researchers on the quarterisation of annual NIA of Pakistan (like Bengaliwala (1995), Kemal & Arby (2004) etc.). The most recent of such efforts is (Arby, 2008). Though, Arby (2008) provides the quarterly estimates of GDP and its production side sectors/subsectors (for 1972 to 2005) based on current prices and on constant prices of 1999-2000, it lacks production side quarterly estimates of GDP for the second half of the last decade and is silent over the quarterly estimates of expenditure side components of GDP.

We provide estimates of quarterly GDP from production side (both on current prices and on constant prices of 1999-2000) from 2000 to 2010 (the year up to which we have all desired data, necessary for quarterly NIA estimation) following Arby (2008). Combining quarterly GDP production side estimates for 1973-1999 based upon Arby (2008) and those for 2000 to 2010 from this study, we get quarterly GDP from production side for 1973 to 2010. Once we obtain quarterly GDP from production side for 1973 to 2010, we quarterise the expenditures side of the NIA. Quarterly estimates of overall gross fixed capital formation are worked out following Arby and Batool (2007). Government fixed capital formation is quarterised on the basis of quarterly proportion of government total development expenditures. Exports and imports are quarterised using monthly trade data of PBS. After quarterisation of government consumption expenditure on the basis of gross public services expenditure, private consumption expenditures are estimated as a residual.

These data will be useful for business cycle analysis and economic modeling. Of course, for understanding the economy's structure and long term trends, annual NIA are more useful.

1. Introduction

National Income Accounts (NIAs) present macro picture of income cycle of a country. It helps us know the sources of supply of goods and services (agriculture, industry and services) and the uses of the same (final consumption expenditures, gross capital formation, and exports). In Pakistan, Pakistan Bureau of Statistics (PBS) compiles Annual National Income Accounts (ANIA) based on UN System of National Accounts 1993[1]. Some information is also available on monthly basis like large scale manufacturing (LSM) index[2]. PBS does not disseminate Quarterly National Income Accounts (QNIA) which can provide timelier picture than ANIAs and more comprehensive than provided by the indicators like LSM index and merchandise imports/exports.

This study provides the estimates of the quarterly GDP from production as well as expenditures side (both on current prices and on prices of 1999-2000) and its various subsectors/components since 1972-73 following Arby (2008), and Arby and Batool (2007) by using available data.

QGDP production side estimates for 1973-1999 are based upon Arby (2008) while those for 2000-2010 are going to be worked out in this study following Arby (2008). Once we obtain QGDP from production side for 1973 to 2010 we will quarterise the expenditures side of the NIA. Quarterly estimates of overall gross fixed capital formation will be worked out following Arby and Batool (2007). Government fixed capital formation will be quarterised on the basis of quarterly proportion of government total development expenditures. Net exports will be quarterised using monthly trade data of PBS. After quarterisation of government consumption expenditures on the basis of gross public services expenditures, private consumption expenditures will be estimated as a residual.

With these datasets, researchers will be able to do better analysis of dynamic relationships between these aggregates and between these and other important aggregates (like broad money, consumer prices, etc.). Thus, these data will be useful for business cycle analysis and economic modeling. Of course, for understanding the economy's structure and long term trends ANIA are more useful[3]. Though, Arby (2008) provides the quarterly estimates of GDP and its production side sectors/subsectors (for 1972 to 2005) based on current prices and on constant prices of 1999-2000, it lacks production side quarterly estimates of GDP for the second half of the last decade and is silent over the quarterly estimates of expenditure side components of GDP.

There is need to provide the production estimates at least for the second half of 2010s. Since there are usually revisions in the NIA upto 3 years from the first release of the data, there

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[1] The 1993 System of National Accounts (SNA 1993) is a comprehensive, consistent and flexible set of macroeconomic accounts to meet the needs of government and private sector analysts, policy makers and decision takers. It is a conceptual framework, not manual for compilations of NIAs. For that purpose a separate set of handbooks like 'Handbook of National Accounting,' is published by United Nations. SNA 1993 was prepared by Inter-Secretariat Working Group of National Accounts (ISWGNA) - which consists of IMF, EU, OECD, UN and WB – mandated by the Statistical Commission of United Nations to oversee the international coordination on the development of national accounts. Based on evolving needs of users, new developments in economic environment, and advances in methodological research ISWGNA has produced and released updated version SNA 2008. We would like PBS to compile and disseminate national income accounts on the basis of SNA 2008 as soon as possible. SNA 2008 is designed to accommodate the needs of countries at different stages of economic development.

[2] It is an index of the production of large scale manufacturing establishments in Pakistan registered under Factories Act, 1934 (for details see PBS, 2011). It is based upon production of 112 commodities as reported regularly in Monthly Statistical Bulletin of PBS. The weights in the construction of the index are based upon census of manufacturing industries (CMI) conducted in the country from time to time. Recent most weights are from PBS (2009).

[3] For example, changes in the share of agriculture in overall income changes in decades and not in quarters.

is also a need to reassess the quarterly GDP even from 1999-2000. We have estimated quarterly GDP from production side from 1999-2000 to 2009-2010 (the year up to which we have all desired data, necessary for quarterly NIA estimation). We also provide the quarterly estimates of various components of expenditures side of the NIAs for FY1973-FY2010.

The remaining of this paper is organised as follows. Section 2 presents some review of literature. Section 3 describes the methodology to estimate the quarterly NIA (sector-wise as well as sub-sector wise) from production side. In section 4 we discuss (component wise) the approach adopted to estimate the QNIA from expenditures side. The estimates of quarterly NIA (overall as well as component-wise) are presented in appendices: Appendix A presents time series of quarterly GDP (Real) from production side for 1999-00 to 2009-10. Appendix B presents time series of quarterly GDP (Nominal) from production side for 1999-00 to 2009-10. In these appendices (A and B) sector and subsector wise quarterly estimates are provided from production side worked in this study. Appendix C combines the quarterly proportion for GDP(FC) obtained in Arby (2008) for 1972-73 to 1998-99 and those estimated in this study for 1999-00 to 2009-10. For combined period of 1972-73 to 2009-10 we have provided current as well real quarterly GDP(FC) in Appendix D. Appendices E1 to E11 present quarterly estimates of various components of expenditures side of GDP. Appendix E12 contains quarterly estimates of net factor income from abroad. Appendices F, G and H present QGD(MP), QGNP(FC) and QGNP(MP) respectively. In section 5 some observations presented based on the quarterly estimates of GDP are analyzed. The last section presents concluding remarks.

2. Literature Review

The past efforts on the quarterisation of ANIA of Pakistan include a recent study (Arby, 2008) on the issues of NIAs of Pakistan. It provides a very good account of the relevant literature. Earlier studies on the estimates of Pakistan's QNIAs include Bengaliwala (1995), Kemal and Arby (2004), and Arby (2008). Bengaliwala (1995) and Kemal and Arby (2004) quarterise old base (1980-81) GDP data and these studies considered only the contact prices and production side of NIAs. None of these studies provide the latest estimate for quarterly production in Pakistan, which we have provided in this study (up to Q4-FY2010)

Arby and Batool (2007) quarterised the overall gross fixed capital formation for 1972 to 2006. However, our study provides the quarterly private and public sector gross fixed capital formation separately in addition to overall gross fixed capital formation. This study attempts to fill this gap of previous studies by providing quarterly estimates of various components of expenditures side of the NIAs for 1972-73 to 2009-10.

3. Methodology-Production Side

For quarterisation of production side we have followed the methodology used in Arby (2008) and re-estimated the quarterly production for the period of 1999-00 to 2009-10. In the following subsections we discuss the quarterisation process for different sectors and subsectors of the economy.

3.1 Agriculture Sector

This sector consists of five subsectors, major crops, minor crops, live stocks, fishing and forestry. How quarterly estimates of gross value added of these sub-sectors (for FY00 to FY10) are obtained is detailed below.

3.1.1 Major Crops

The value added of 12 major crops (VAMC)[4] has been quarterised ($VAMC_t^q(c); c = 1,2,...,12,;\ t\ is\ time\ (year)\ script\ and\ q = 1,2,3,4$) using

a) Province-wise each major crop production ($PRMC_t(p,c); p = 1,2,3,4\ and\ C = 1,2,...,12$) taken from Agriculture Statistics of Pakistan (various isssues)
b) Share of each major crop in annual value added (calculated from information (a) above) of major crops in Pakistan ($S^c; c = 1,2,...,12; \sum_{C=1}^{12} S^c = 1$)
c) Annual value added of major crops in Pakistan ($VAMC_t(c); c = 1,2,...,12$) on constant prices of 1999-2000
d) Province-wise quarterly harvest calendar[5] of each of the 12 major crops prepared by PBS.

The quarterly value added at 1999-00 prices for quarter q year t is then obtained as follows. Province-wise each major crop production is converted into quarterly province-wise each major crop production ($PRMC_t^q(p,c); p = 1,2,3,4\ and\ c = 1,2,...,12$) based upon province-wise quarterly harvest calendar. This is then summed up over provinces to get quarter-wise each major crop production, i.e.

$$PRMC_t^q(c) = \sum_{p=1}^{4} PRMC_t^q(p,c) \qquad for \qquad c = 1,2,...,12$$

Based on the share of each major crop in annual valued added of major crops we obtain the value of each crop, i.e.

$$VAMC_t(c) = S^c * VAMC_t;\ c = 1,2,...,12;\ \sum_{C=1}^{12} S^c = 1).$$

This annual valued added of each major crop is then divided into four quarters based upon quarter-wise proportion of each major crop production, i.e.

$$VAMC_t^q(c) = VAMC_t(c) * [PRMC_t^q(c)/\sum_{q=1}^{4} PRMC_t^q(c)]$$

Summing this over 12 major crops we get quarterly value added of major crops $VAMC_t^q$ on constant prices of 1999-2000. Then we convert the constant prices quarterly value addition to current prices using quarterly a price index of major crops (constructed using WPI prices of relevant major crops) as data on Producer Price Index (which is used by PBS) is not (publically) available.

3.1.2 Minor Crops

The value added by 37 minor[6] crops has been quarterised by the same process as major crops except that harvest calendar used here is related to minor crops. We convert the constant

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[4] These include wheat, rice (basmati, iri and others), bajra, jowar, maize, barley, gram, sugarcane, rapeseed & mustard, and sesamum, cotton, and tobacco.
[5] Pakistan Bureau of Statistics has prepared harvest calendar for each of the major (as well as minor) crop and for each of the province, on the basis of output harvested in every quarters. For example in the case of sugarcane production in Punjab, 0 percent of sugarcane of the crop is harvested in Jul-Sep, 15 percent in Oct-Dec, 80 percent in Jan-Mar and 5 percent in Apr-Jun. These proportions are 0, 38, 61 and 1 in Sindh; 0, 50, 50, and 0 in case of Khyber Pakhtonkhawah; and 0, 0, 100 and 0 in case of Baluchistan for Jul-Sep, Oct-Dec, Jan-Mar, and Apr-Jun respectively. Though such calendar has practical merit in using it for quarterisation of output, it does not consider economic activities pertaining to sowing of the crops which may have happened in some earlier quarters. Furthermore, one might not expect shocks to the harvest calendar over the short run however, over the long run there can be changes in the crops pattern across the quarters and/or provinces.

prices quarterly value addition to current prices using quarterly a price index of minor crops (constructed using WPI prices of relevant minor crops).

3.1.3 Live Stocks

There are two main contributors on live stocks; Milk and other. Other includes natural growth of animals, draught power, dung and urine, wool, poultry etc. Share of milk in total livestock value addition is found to be around 60 percent (or, $m_t = 0.60$) on the basis of authors estimates based upon annual relevant statistics on milk and others. Following Kemal and Arby (2004), we can say that peak production of milk is obtained in winter. Kemal and Arby (2004) stated that 35 percent of milk production was received in summer (which they divided equally for first and fourth quarter) and 65 percent was obtained in winter season (which they divided in second and third quarter in proportion of 35:30 since third quarter is relatively warmer than the second one). The rest of the value added in the live stock is distributed equally in the four quarters. Thus,

$$VALS_{1t} = VALS_{4t} = VALS_t * (0.175m_t + 0.25(1 - m_t))$$

$$VALS_{2t} = VALS_t * (0.35m_t + 0.25(1 - m_t)); VALS_{3t} = VALS_t * (0.30m_t + 0.25(1 - m_t)).$$

We convert the constant prices quarterly value addition to current prices using quarterly wholesale price index of fresh milk, eggs, chicken and meat.

3.1.4 Fishing

Fishing consists of marine fishing and land (farm) fishing. Following Kemal and Arby (2004) it is assumed that marine fish makes about 30 percent of the total value added of fishing and the rest 70 percent is from land fish. Following seasonal pattern for marine and land fish are reported by PBS (2002).

Table 1: Seasonal factors of Fishing

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun
Marine Fish	0.2012	0.3069	0.2365	0.2554
Land Fish	0.1121	0.2735	0.3498	0.2646

Source: PBS (2002)

Thus quarterly value added of fishing is calculated as $VAF_t^q = (0.3 * mf_q + 0.7 * nf_q) * VAF_t$. Where VAF_t^q =Value added of fishing in quarter q of year t, VAF_t = Value added of fishing in year t, mf_q = Share of Marine Fish in quarter q, nf_q = Share of Land Fish in quarter q. We convert the constant prices quarterly value addition to current prices using quarterly wholesale price index of fish.

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[6] These include mash, masoor, mung, mattar, other pulses, tomato, potato, other vegetables, groundnuts, soybean, sunflower, safflower, canola, linseed, castro seed, mango, banana, apple, citrus fruits, dates, guava, apricot, peach, pears, plums, grapes, pomegranate, almonds, chillies, onion, garlic, turmeric, ginger, Other condiments, gouar seeds, fodder crops, and sugar beet.

3.1.5   Forestry

Annual value added by forestry sub sector is divided into quarterly value additions using quarterly proportion 0.2009, 0.2561, 0.2882, and 0.2548 estimated by Quaidian Economic Consultants (2001). We convert the constant prices quarterly value addition to current prices using quarterly wholesale price index of timber and firewood.

The overall estimated quarterly gross value added by agriculture sector (at 1999-2000 prices) is shown below:

Figure 1: GVA of Agriculture - Quarterly (1999-00 Prices)
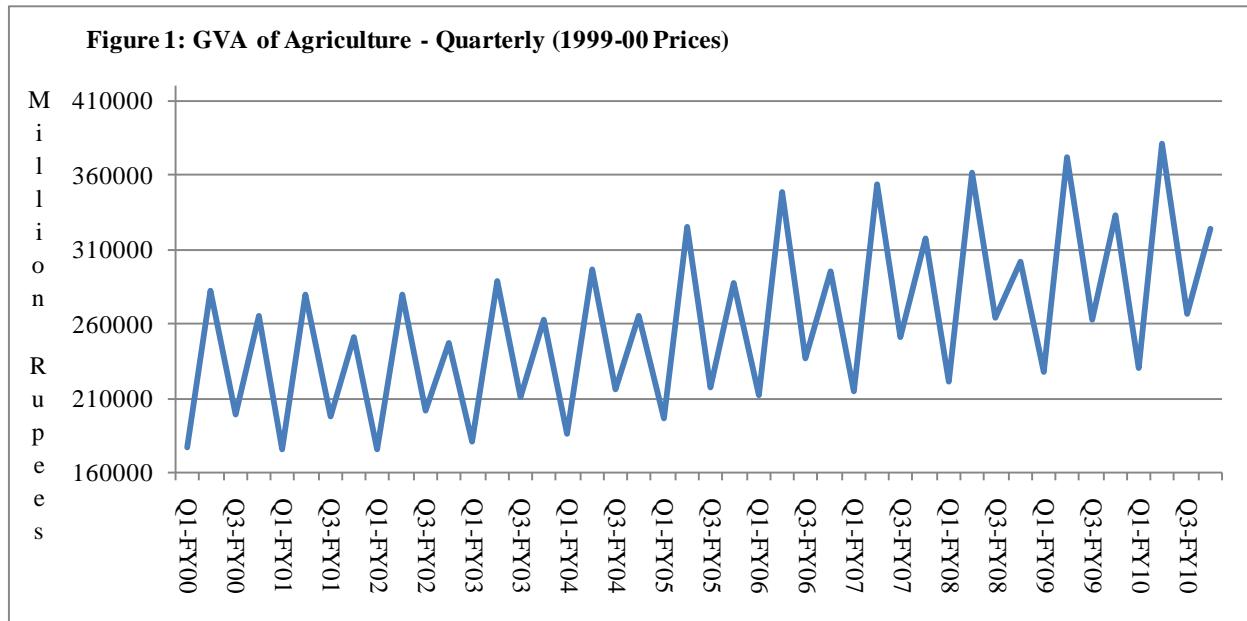
3.2   Industrial Sector

Industrial sector consists of six subsectors: mining and quarrying; small size manufacturing; large scale manufacturing; slaughtering; construction; and electricity, water & gas supply. The detailed process of quarterisation of gross value added by these sub-sectors (for FY2000 to FY2010) is given below.

3.2.1   Mining and Quarrying

This subgroup consists of aragonite marble, agri-clay, silica sand, gypsum, lime stone, ordinary stone, rock salt, coal, copper, copper blister, Iron ore, bauxite, barites, bentonite, celestite, china clay, chalk, chromites, dolomite, laterite, feldspar, fire clay, fluorite, fuller's earth, magnesite, manganese, ochres, ordinary sand, soap stone, sulphur, erby stone, phosphate, allied services, minerals exploration establishments, natural gas, and crude oil. Monthly production of these items (except phosphate, allied services and minerals exploration establishments) is available in Monthly Statistical Bulletin (PBS). We multiply monthly production with base year prices to make quarterly gross value. Summing over the monthly gross values we calculate the quarterly gross values. Annual gross value of phosphate, allied services and minerals exploration establishments has been distributed into quarterly according to quarterly ratios of addition of items for which monthly production is available. Quarterly value

5

addition is calculated by subtracting input costs from the gross value[7]. We convert the constant prices quarterly value addition to current prices using composite quarterly wholesale price index of coal and natural gas (with their respective share in total mining output as weights).

3.2.2 Manufacturing

a) Large-scale Manufacturing

Annual value added by large scale manufacturing (LSM_y) is quarterised on the basis of quarterly shares of large scale manufacturing calculated using monthly large scale manufacturing index[8] (from PBS Monthly Statistical Bulletin), i.e.;

$$LSM_{qy} = \left[\frac{\sum_{m=3k-2}^{3k} LSM_{my}}{\sum_{m=1}^{12} LSM_{my}}\right].LSM_y$$

Where LSM_{qy} is value added by large scale manufacturing sector in quarter q and fiscal year y and LSM_{my} is monthly index of large scale manufacturing of month m and year y. We convert the constant prices quarterly value addition to current prices using wholesale price index of manufacturing.

b) Small-scale Manufacturing

Annual value added by small scale manufacturing (SSM_y) is also quarterised on the basis of monthly large scale manufacturing index (on the basis of backward and forward linkages between these two sectors) using

$$SSM_{qy} = \left[\frac{\sum_{m=3k-2}^{3k} LSM_{my}}{\sum_{m=1}^{12} LSM_{my}}\right].SSM_y$$

Where SSM_{qy} is value added by small scale manufacturing sector in quarter q and fiscal year y and LSM_{my} is monthly index of large scale manufacturing of month m and year y. Again, we convert the constant prices quarterly value addition to current prices using wholesale price index of manufacturing.

c) Slaughtering

Annual value added by slaughtering (both at constant and current prices) has been quarterised using shares estimated in PBS study on slaughtering industry (PBS, 2002a). These are, 18, 25, 35 and 22 percent for quarter 1, 2, 3 and 4 respectively.

3.2.3 Construction

Annual value added by construction is quarterised on the basis of (lagged) quarterly seasonal factors in cement production (taken from PBS Monthly Statistical Bulletin). That is

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[7] Input costs proportions (of output) of coal, crude oil & natural gas, surface minerals, allied services/mineral exploration, and other minerals are 0.24, 0.23, 0.21, 0.47 and 0.21 respectively (Pakistan Bureau of Statistics, 2004).

[8] Since monthly large scale manufacturing index is based upon the actual monthly large scale manufacturing output, we can use this index for quarterisation of value added of large scale manufacturing sector.

$$VA\_Construction_{1,t} = VA\_ConstructionV_t \times \frac{Cement_{4,t-1}}{Cement_t}$$

$$VA\_Construction_{2,t} = VA\_ConstructionV_t \times \frac{Cement_{1,t}}{Cement_t}$$

$$VA\_Construction_{3,t} = VA\_ConstructionV_t \times \frac{Cement_{2,t}}{Cement_t}$$

$$VA\_Construction_{4,t} = VA\_ConstructionV_t \times \frac{Cement_{3,t}}{Cement_t}$$

Where $VA\_Construction_{k,t}$ is the (quarterly) value added of construction in quarter k and year t and $VA\_Construction_t$ is the (annual) value added of construction in year t. Similarly, $Cement_{k,t}$ is the (quarterly) value added of cement in quarter k and year t and $Cement_t$ is the (annual) value added of cement in year t.

We convert the constant prices quarterly value addition to current prices using quarterly wage index, which is obtained by applying seasonal factors of wholesale price index of building material to annual wage index.

3.2.4 Electricity, water & gas supply

Annual value added by this sub-sector is quarterised on the basis of quarterly factors according to the study on electricity, gas & water supply (PBS, 2002b). The quarterly pattern of consumption of this group is given as;

Consumption pattern of electricity, gas & water supply sector

Group\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun
Electricity, gas & water supply	0.245	0.246	0.233	0.275

Source: PBS (2002b)

Annual value added by this sub-sector is given in different issues of Monthly Statistical Bulletin of PBS. The above factors are applied on annual value added of this sub-sector to get its quarterly estimates.

We convert the constant prices quarterly value addition to current prices using wholesale price index of 'fuel and lighting' for electricity and gas; and general wholesale price for water.

The overall estimated quarterly gross value added of industrial sector (at 1999-00 prices) is shown below:

Figure 2: GVA of Industry - Quarterly (1999-00 Prices)
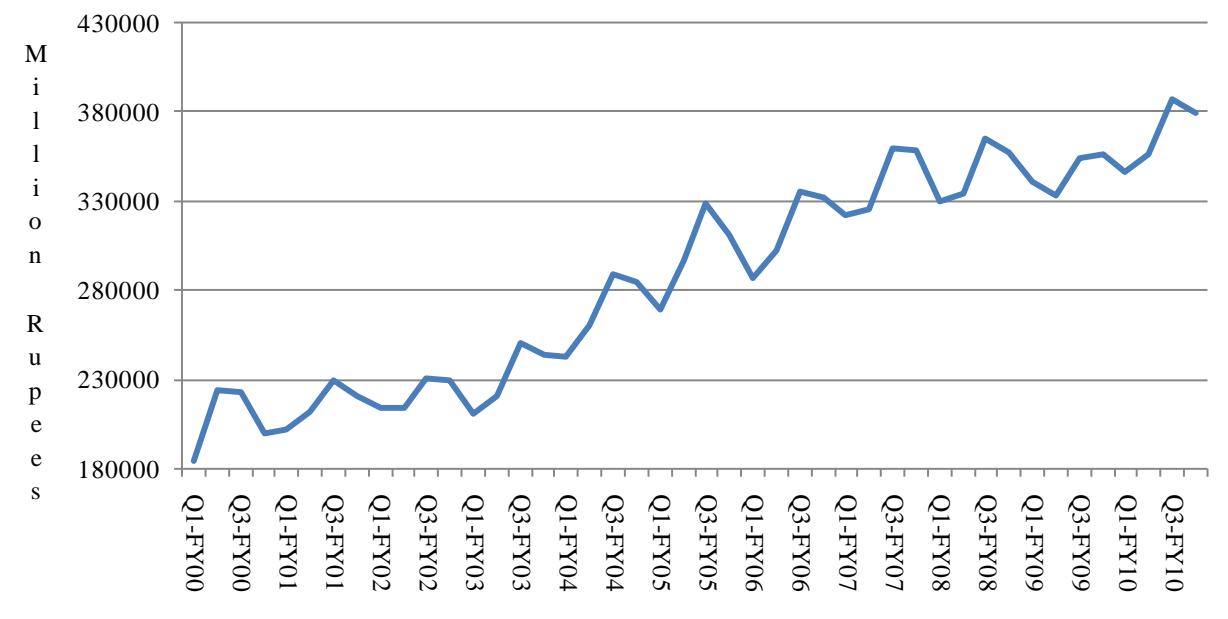
3.3 Services

This sector consists of six subsectors: wholesale and retail trade; transport, storage, and communication; finance and insurance; ownership of dwellings; public administration, and defense and; social community, and personal services. How quarterly estimates of gross value added by these sub-sectors (for FY00 to FY10) are obtained is detailed below.

3.3.1 Wholesale and Retail Trade

PBS estimates the annual value added by this subsector by applying trade margins, which is 16 percent, on (i) imports related trade, and (ii) marketable portions of domestic production. Annual value added by first component of this subsector is obtained as 16 percent of sum of a) consumer goods, b) 75 percent of raw material for consumer goods, and c) 55 percent of capital goods, and raw material for capital goods imports. Annual value added by second component is obtained as residual from overall value added by wholesale and retail trade. Annual value added by (i) and (ii) is quarterised on the basis of seasonal factors of imports and commodity producing sector respectively. We convert the constant prices quarterly value addition of first component to current prices using wholesale price index. However, the constant prices quarterly value addition of second component is converted to current prices using quarterly unit value index of imports (base 1999-2000).

3.3.2 Transport, Storage and Communication

This subsector covers economic activities such as transportation by railways, road, water and air; storage; pipelines for oil and gas transportation; postal services, telecom services, TV, Radio, etc. Because of the absence of quarterly (time series) information about the value addition by any of these services, we do not have any quantifiable base to quarterise the output by transport, storage and communication subs sector. However, Lisman and Sandee (1964) provide

a procedure for quarterisation of value addition of a sector/subsector where we do not have any other information set to assume the pattern of actual (quarterly fluctuations). Lisman and Sandee (1964) developed the following matrix to quarterise the annual value addition:

$$\begin{bmatrix} x_{1t} \\ x_{2t} \\ x_{3t} \\ x_{4t} \end{bmatrix} = \begin{bmatrix} 0.073 & 0.198 & -0.021 \\ -0.010 & 0.302 & -0.042 \\ -0.042 & 0.302 & -0.010 \\ -0.021 & 0.198 & 0.073 \end{bmatrix} \begin{bmatrix} X_{t-1} \\ X_t \\ X_{t+1} \end{bmatrix}$$

Where X_t is annual observation for year t, and x_{jt} is quarterly estimate for quarter j in year t[9]. We convert the constant prices quarterly value addition to current prices using wholesale price index of transport and communication.

3.3.3 Finance and Insurance

PBS estimates the annual value added by this subsector by summing wages, net operating surplus and depreciation pertaining to State Bank of Pakistan, scheduled and non-scheduled banks, development financial institutions (DFIs), cooperative societies, leasing, modarbas and insurance companies. Wages related part of value addition is quarterised by using the methodology given below under the "Public Administration and Defense." The operating surplus is quarterised by using seasonality in monetary aggregate (M2)[10]. Depreciation is distributed over the four quarters uniformly. We convert the constant prices quarterly value addition to current prices using consumer price index.

3.3.4 Ownership of Dwelling

Annual gross value addition of this subsector is quarterised following Lisman and Sandee (1964) method. We convert the constant prices quarterly value addition to current prices using house rent index.

3.3.5 Public Administration & Defense

PBS estimates the annual value added by this subsector based upon three components (a) wages and salaries of government employees, (b) a non-wage bill which is computed by PBS as a fixed ratio of 10% of wages, (c) and depreciation which is computed by PBS as a fixed ratio of 5% of the sum of wage and non-wage bills. While we have uniformly distributed non-wage bill and depreciation into four quarters, the wages are quarterised using the following methodology:

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[9] Lisman and Sandee (1964) method ensures: a) that the sum of quarterly figures equal to the yearly total; b) that if the yearly totals in three successive years are X_{t-1}, X_t and X_{t+1}, the quarterly figures during year 2 are the same but in reverse order from what they would have been had the yearly totals been X_{t+1}, X_t and X_{t-1}; c) that if the yearly totals in three successive years rise by equal steps ($X_t - X_{t-1} = X_{t+1} - X_t$) the quarterly figures during year 2 also rise by equal steps; and that if $X_t - X_{t-1} = X_t - X_{t+1}$ the quarterly figures during year 2 should lie on sinusoid.

[10] Operating surplus of financial subsector is mainly the income from assets of banks created during the period in the forms of lending which constitute part of broad money (M2).

In a fiscal year the wages remain constant for the first six months and then jump upward due to annual increment (usually 5 percent on average[11]) in January and then again remain constant for the subsequent months. The wages and salaries are quarterly distributed as under;

Let $MWAS_t$ represents the monthly wages and salaries during the first half of fiscal year t, and i represents annual increment as fraction of $MWAS_t$. Then monthly wages and salaries for the second half will be $(1 + i) \times MWAS_t$. Thus, total wages and salaries ($AWAS_t$) during the year t will be:

$$AWAS_t = 6 \times (MWAS_t + MWAS \times (1 + i)) = 6MWAS_t(2 + i)$$

Fraction of wages and salaries in each quarter will be;

$$F_{1t} = F_{2t} = \frac{3 \times MWAS_t}{AWAS_t} = 0.5/(2 + i)$$

$$F_{3t} = F_{4t} = \frac{3 \times (1+i)MWAS_t}{AWAS_t} = 0.5(1 + i)/(2 + i) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots$$

The quarterly seasonal factors for Jul-Sep, Oct-Dec, Jan-Mar, and Apr-Jun are found to be 0.244, 0.244, 0.256, and 0.256 respectively.

. We convert the constant prices quarterly value addition to current prices using consumer price index.

3.3.6 Social, Community & Personal Services

Annual gross value addition of this subsector is quarterised following Lisman and Sandee (1964) method. We convert the constant prices quarterly value addition to current prices using consumer price indices for cleaning laundry & personal appearance, and recreation, entertainment & education groups combined with their respective weights in CPI basket.

As reported in Table 7.1.1 of Arby (2008), (real) GDP estimates of Pakistan Bureau of Statistics after 1999-2000 are over estimated by around 1 percent compared to Arby (2008). We have quarterised the PBS released GDP (Factor Cost) for 1999-2000 and onward.

Those who want to make use of previous (1971-72 to 1998-99) as well as our estimates (1999-00 to 2009-10) of quarterly GDP they can use the table (Appendix C) showing quarterly proportions of GDP for 1971-72 to 1998-99 based on Arby (2008) and for 2000-01 to 2009-10 based on this study. Combining the two studies' estimates is convenient as for the year 1999-00 the quarterly proportions of real GDP are same from both the studies up to two decimal places. This approach can be used in case of other sectors and subsectors of the GDP to make combined datasets for 1972-73 to 2009-10.

The overall estimated quarterly gross value added by services sector (at 1999-2000 prices) is shown below in figure 3. In figure 4, we have presented the time series plot of overall real quarterly GDP (FC).

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[11] Periodic budgetary increases in salary are taken care in annual figures and do not affect the monthly distribution of wages and salary

Figure 3: GVA of Services - Quarterly (1999-00 Prices)
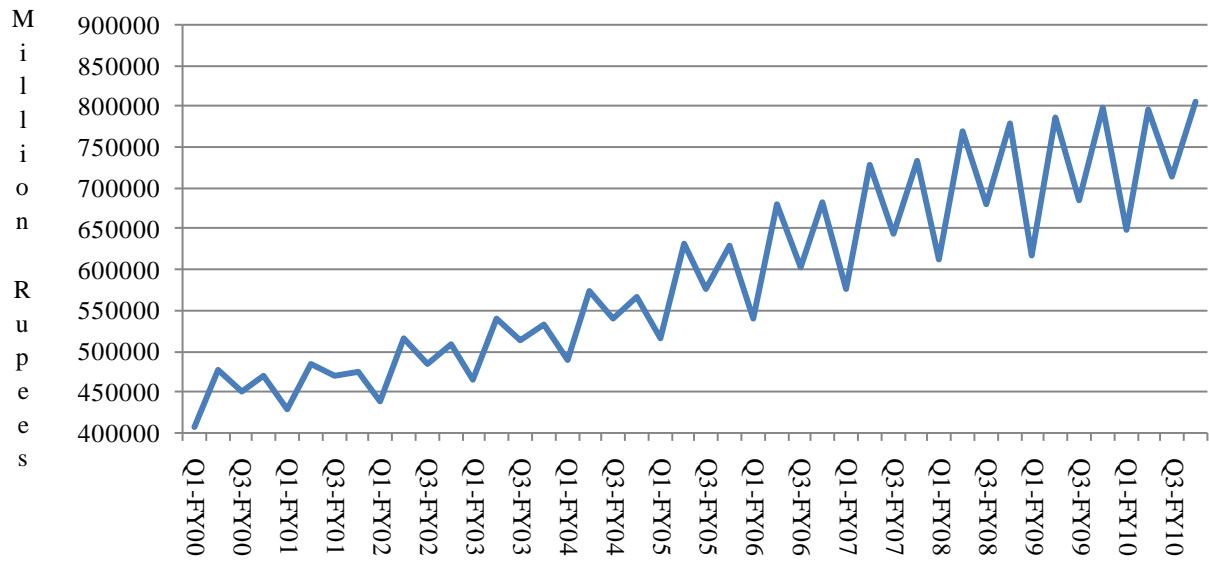
Figure 4: Gross Domestic Product (FC)- Quarterly (1999-00 Prices)
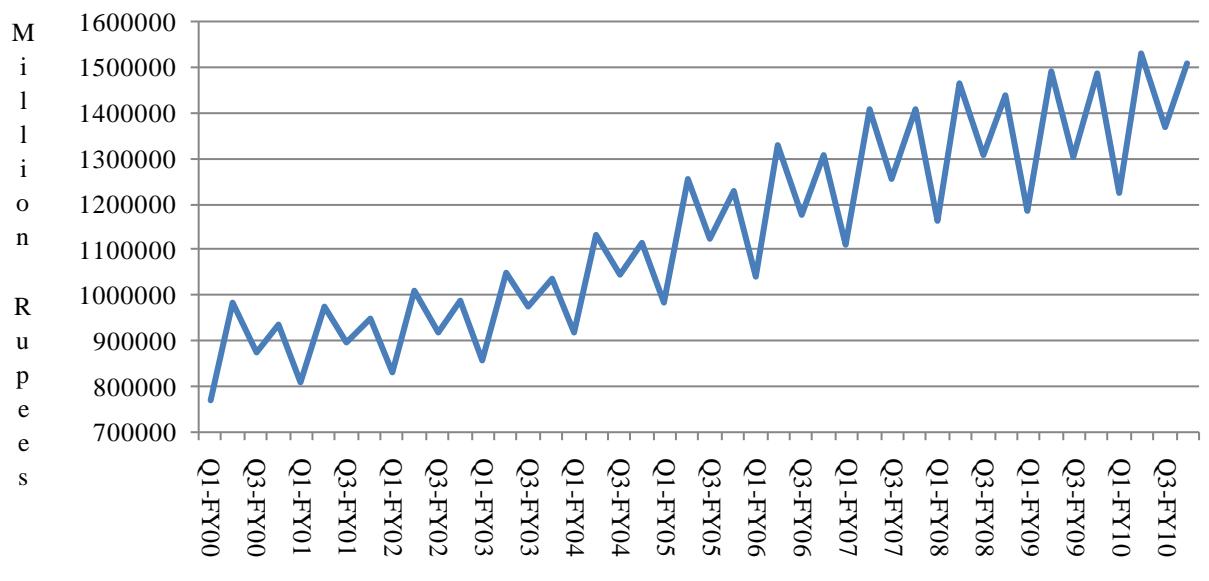
As observed, the seasonal patterns of services sector are closest to those of overall GDP. The same thing can be observed by analyzing the seasonal dispersion worked out in Table I2 in the Appendix.

4. Methodology-Expenditure Side

For quarterisation of expenditure side of the annual national income components for 1972-73 to 2009-10 we assume production side quarterly GDP equals the sum of quarterly components of national income. This assumption helps us finding quarterly private consumption expenditures as a residual[12] once we estimate quarterly government consumption expenditures,

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[12] In the (annual) National Income Accounting System of Pakistan private consumption is actually treated as residual (see Baqai, 1963).

quarterly overall (private as well as government) investment and imports and exports of goods and services. We can quarterise the annual components of GDP using either direct or indirect way. We use direct way when we have basic data for quarterly (or even at higher) frequency as in the case of exports and imports of goods and services. We use indirect way, like the use of relevant indicators, when we do not have required data available at quarterly frequency as in the case of quarterly public sector investment expenditures prior to Q1FY02. In the following we explain the procedure used to quarterise these annual components of GDP.

4.1 Investment

Quarterly gross fixed capital formation (GFCF) has been estimated for 1972 to 2006 by Arby and Batool (2007). Using commodity flow approach Arby and Batool (2007) disaggregated GFCF into four components namely: machinery and equipment (M,), furniture and fixture (R), land improvement (L) and structure (S). Machinery and equipment is further divided into imported machinery and equipment (MF) and domestic machinery and equipment (MD).That is

$$GFCF_t = M_t + R_t + L_t + S_t \; ; \; where \; M_t = \; MF_t + MD_t$$

These components are then quarterised using combination of direct and indirect way. For imported machinery and equipment we already have quarterly imports under the heading 'capital imports' from monthly bulletin of PBS. All other components are quarterised using indirect way that is on the basis of (quarterly) seasonality in the relevant indicator for which quarterly data is available. Following table shows the components, relevant indicators and their data sources. This last column of this table shows the deflator used for converting current prices investment components data into1999-2000 prices data.

Investment Component	Relevant Indicator	High Frequency Data Source	Deflator
MF	Quarterly imported machinery and equipment	Monthly Bulletin of PBS	Unit values index of imports
MD	Quarterly LSM 'machinery and equipment' sub-index (estimated by using relevant items and their weights)	Monthly Bulletin of PBS	WPI manufacturing
S	Quarterly LSM 'building material' sub-index	Monthly Bulletin of PBS	WPI building material
L	Quarterly valued added of crops (with two quarters lead - assuming investment activity is undertaken before/during sowing of crops)	Arby (2008) and this study	WPI food
R	Five percent of quarterly 'structure' (as is the case with annual NIA estimates)	This study	WPI building material

Source: Arby and Batool (2007)

12

The quarterly GFCF is then estimated by summing the quarterly values of all these components. We estimated the GFCF both based on current prices and based on 1999-2000 prices. It helped us to estimate the overall investment deflator.

4.1.1 Government Investment Expenditures

The annual estimates of GFCF in Pakistan are primarily constructed separately for private and government sectors. Problem with the Arby and Batool (2007) is that they quarterised overall GFCF rather than quarterisation of private and government investment separately. However, sometimes, researchers are in need of analysing the private and public sector investment behaviour separately. In addition to estimating the overall investment, we have also attempted to quarterise the government sector investment separately as we explain here in this subsection.

Government investment is measured as total development expenditure (TDE) by the government. TDE includes the expenditures on public sector development program (PSDP) and other development expenditures. Quarterly TDE data is available from the fiscal operations statistics of ministry of finance, government of Pakistan, since the first Q1FY02. The average quarterly proportion of Q1FY02 to Q4FY10 of TDE has been used to quarterise the annual public sector investment for FY73 to FY01.

| Year | Actual Quarterly Shares of TDE | | | |
	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun
2001-02	10.9223	30.2384	32.8802	25.9590
2002-03	16.7900	23.0352	23.9633	36.2115
2003-04	15.4791	19.8790	17.5881	47.0538
2004-05	14.0419	21.7888	24.7082	39.4611
2005-06	13.8980	21.2423	20.7927	44.0670
2006-07	15.5550	18.8592	21.8977	43.6880
2007-08	24.5615	24.3882	23.4411	27.6093
2008-09	12.6446	16.8657	24.6720	45.8178
2009-10	17.7678	18.8569	20.0187	43.3566
Average	**15.74002**	**21.68374**	**23.32911**	**39.24712**

Source: authors' calculations

We have used overall quarterly investment deflator (estimated as in section 4.1) to convert quarterly nominal government investment expenditures into quarterly government investment expenditures based on 1999-2000 prices.

13

4.1.2 Private Sector Investment

Subtracting quarterly public sector investment estimated as in section 4.1.1 from the overall quarterly investment estimated as discussed in section 4.1 we obtain the quarterly private sector investment.

The overall estimated quarterly gross fixed capital formation (at 1999-00 prices) is shown below[13]:

Figure 5: Quarterly Real Total Gross Fixed Capital Formation
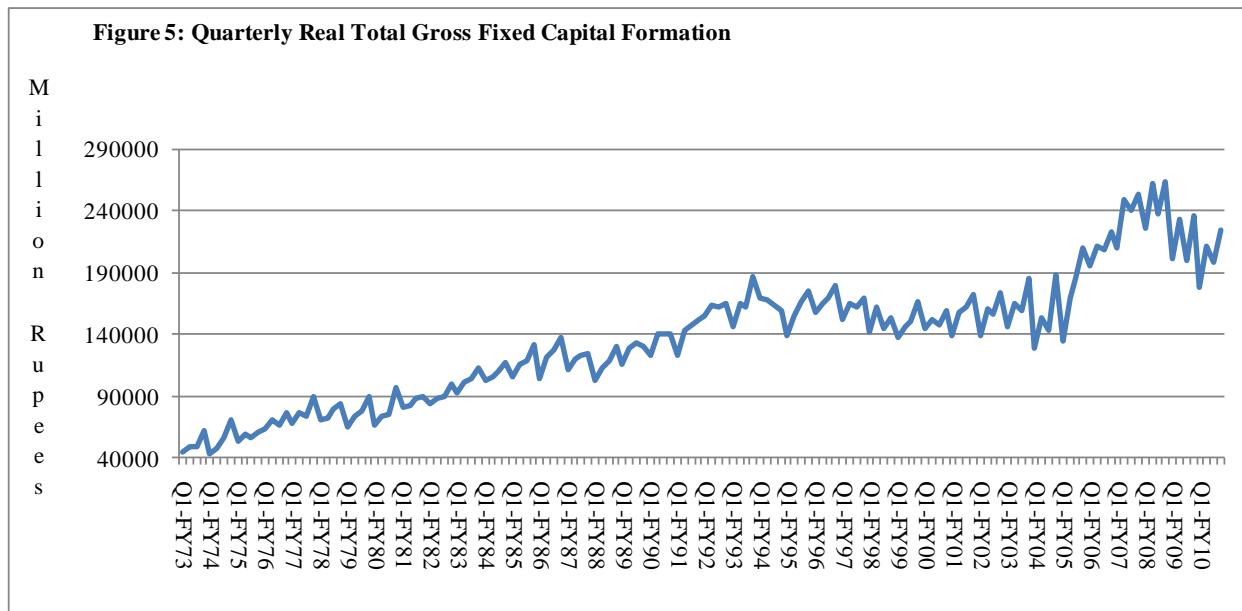
4.2 Imports and Exports of Goods and Services

Imports of goods and services are the components where we use the direct way of estimating the quarterly data from monthly information. Data on merchandise imports and exports are available from PBS in local currency (Pak Rupee). Data on non-factor services and other current transfers are obtained from SBP's monthly balance of payments statistics in US$ which are converted into local currency (Pak Rupee) by using local currency per US$ (average) exchange rate. Quarterly imports and exports of goods and services are reported in Appendix E.

4.3 Government Consumption Expenditures

To estimate the quarterly government consumption expenditures (GCE), the expenditures under General Public Service (GPSE) has been used as an indicator of GCE. The quarterly data is available for GPSE Q1FY02. The GPSE comprises of interest payments (domestic as well as

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[13] One may be interested in knowing why there was stagnancy (fall) in investment in late 1990s (late 2010s) and what were the implications for income and thus consumption. Answering such questions need a thorough investigation and is out of the scope of this study.

external debt servicing), pensions, grant to non-government (total grants/others), and other general public services. For 2001-02 to 2009-10 the quarterly shares of GPSE have been used to quarterise the annual data of GCE. Before Q1FY02 there was no such availability of data on GPSE by the government of Pakistan. For pre Q1FY02 we need to find another indicator which correlates well with the quarterly pattern of GPSE. From the table (below) we can see that the quarterly pattern of GPSEs are very much close to the quarterly pattern of government overall tax revenues – lowest in the first quarter and highest in the last quarter while almost one-fourth in the middle two quarters.

Year	Share of GPSE				Share of Tax Revenues			
	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun
2001-02	23.7361	21.8636	20.0619	34.3383	19.7085	23.9859	23.4805	32.8251
2002-03	23.1520	25.1034	24.7400	27.0046	20.1258	24.9209	22.9249	32.0284
2003-04	21.2113	26.5369	22.4539	29.7979	18.8727	25.5820	23.7300	31.8153
2004-05	20.2012	28.0886	25.5928	26.1175	21.2285	23.7306	23.5904	31.4506
2005-06	19.2950	29.3945	23.4479	27.8625	21.0408	24.5456	23.2561	31.1575
2006-07	16.9428	25.5767	27.1540	30.3265	21.5380	27.1813	22.5139	28.7668
2007-08	18.0272	26.9403	22.3037	32.7288	20.5177	22.3786	24.7881	32.3156
2008-09	20.3422	25.1254	24.3065	30.2259	22.9782	25.0011	22.5129	29.5077
2009-10	22.0936	23.4190	24.7729	29.7146	20.2864	24.3717	24.2302	31.1117
Average	**20.5557**	**25.7832**	**23.8704**	**29.7907**	**20.6996**	**24.6331**	**23.4475**	**31.2198**

Source: authors' calculations

Thus, we can use the quarterly pattern of government overall tax revenues to quarterise the annual GCE for pre Q1FY02 period. We have converted current price quarterly GCE into quarterly GCE based on 1999-2000 using consumer price index.

4.4   Private Consumption Expenditures

Quarterly private consumption expenditures (PCE) are obtained as residual by subtracting the sum of quarterly GCE, overall investment and net exports from the (production side) quarterly GDP provided in Appendix D.

The overall estimated quarterly real consumption is shown below in figure 6. In figure 7, we have presented the time series plot of overall real quarterly GDP (FC).

Figure 6: Quarterly Overall Real Consumption
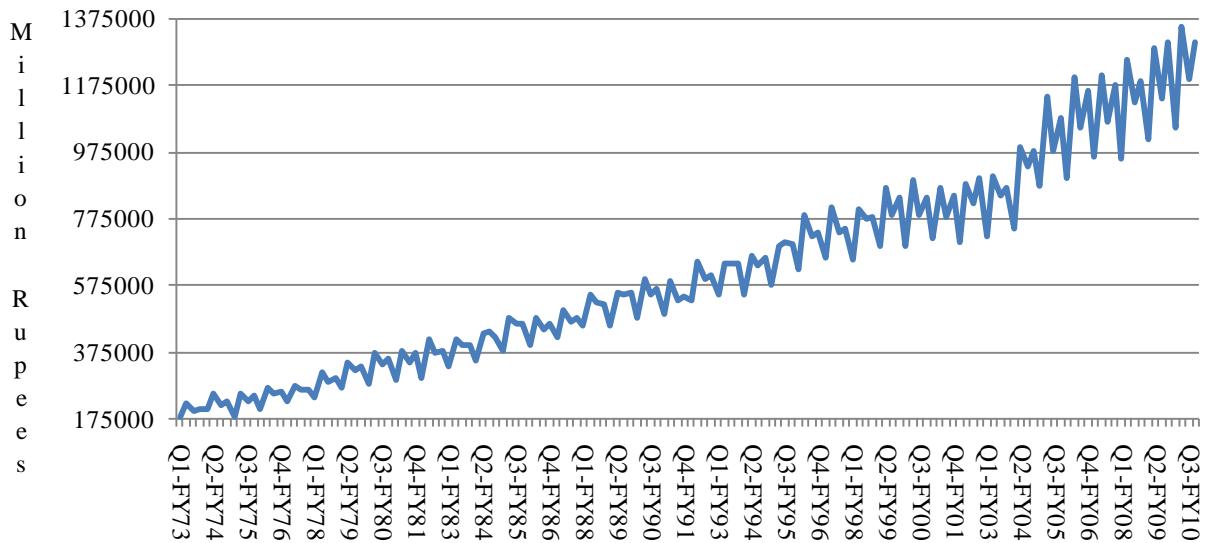
Figure 7: Quarterly Real GDP at Factor Cost
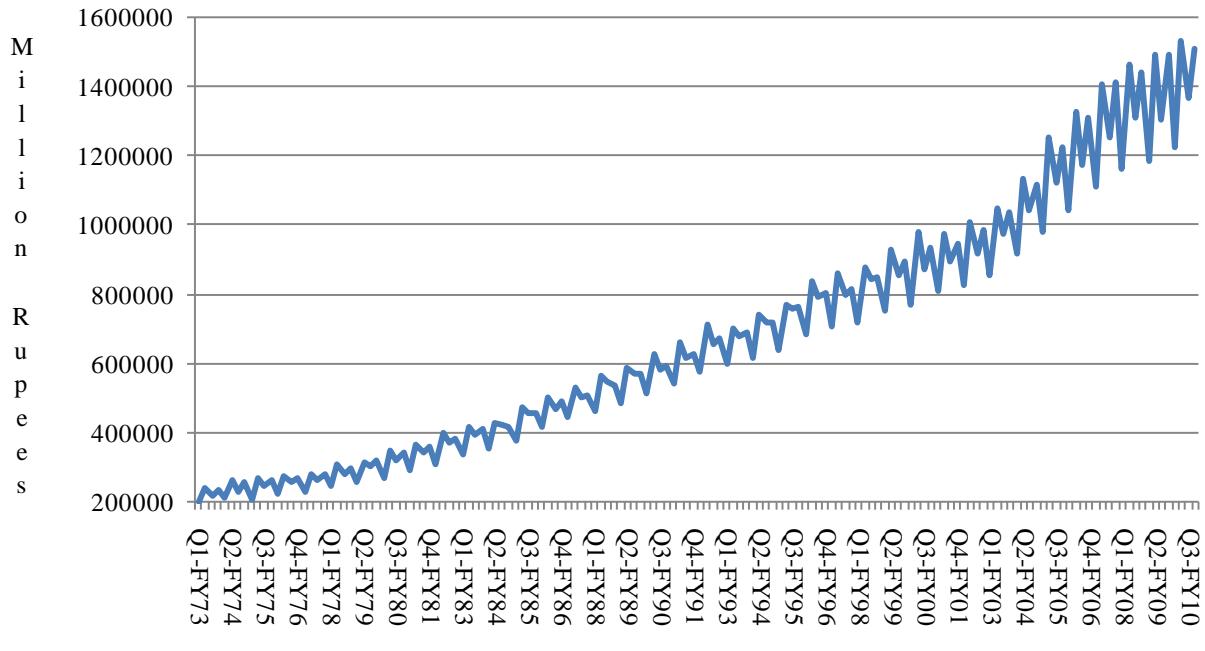
5. Analysis of Results

It has been found that on average 21.73 percent of the real GDP was produced in the first quarter during 1999-2000 to 2009-2010 (See Table I1 in the Appendix I). It has been the lowest share of a quarter in annual real GDP. Second lowest share was observed in the third quarter around 24.43 percent. Highest quarterly share was observed in the second quarter which on average was found to be 27.16 percent. Second highest share was observed in the fourth quarter around 26.68 percent. These results are in line with the findings of Arby (2008) wherein quarterly shares for first, second, third and fourth quarters were found to be 21.8, 26.9, 25.2 and

26.1 percent respectively. As against the dispersion between the quarterly shares in real GDP, half yearly shares were found to be closer (in the ratio of 48.89:51.11) during FY00 to FY11. We have attempted to see in detail the sources of dispersion in the quarterly shares in real GDP. For this purpose, we have calculated dispersion in quarterly shares of various sectors and subsector of GDP (see Table I2 in the Appendix I). Highest dispersion is found to be in the quarterly shares of major crops. Maximum (at 41.37 percent) and minimum (10.29 percent) of quarterly shares are found to be for major crops. This observation is in line with the findings of Arby (2008). Second highest dispersion is found to be in the quarterly shares of finance & insurance subsector. Probably, it is the major crops which are driving the seasonality in the agricultures sector and in finance & insurance, and even to the overall real GDP. This can be said on the basis of fact that (net) operating surplus of financial institutions and insurance companies has been quarterised in this study using the seasonal factors of broad money supply (M2). Seasonality in M2 itself is mainly driven by seasonality in agriculture business credit (see Figure 8, which shows seasonal factors of M2, private agriculture business credit (ABC) and private non-agriculture business credit (NABC) during January 2004 to June 2010 for which we have disaggregated data available).

Figure 8: Seasonal Patterns in Money Supply, Private Agriculture Based Credit and Private Non ABC

Source: authors' calculations
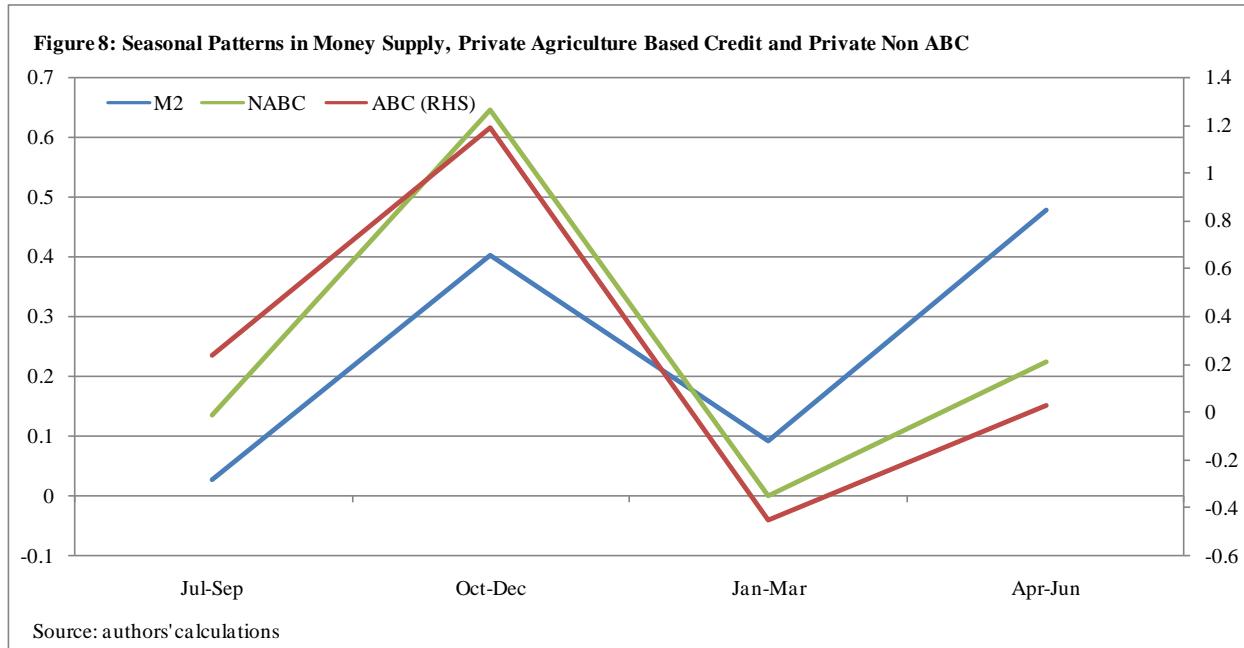
We also investigated, if (during FY2000 to FY2010) the seasonal component in quarterly gross value added (QGVA) by agriculture drives the seasonal components extracted from the QGVA of industrial sector, QGVA of services sector and the overall GDP (FC). Seasonality in industry, services and overall GDP is found to be caused by (in Granger (1969) sense) the seasonality in agriculture sector.

If we analyze the quarterly estimates of various components of expenditures side of the NIAs for FY1973-FY2010 we observe that it is the real investment which is more volatile[14] in

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[14] Measured by four quarter coefficient of variation. It does not make any difference to our findings even if we use 4 quarters rolling coefficient of variation. The same is observed if we use the 4 quarters rolling coefficient of variation upon the cyclical components extracted from seasonally adjusted real consumption and income.

Pakistan, followed by consumption and income (see Figure 9). The same is also true if we compare the volatility of the cyclical components of real consumption, investment, and income (see Table I3 in the Appendix). We also observed this phenomenon when we compared the variances of the growth rates in the per capita[15] real consumption, investment and income. Choudhary and Pasha (2013) also found similar results but for annual frequency. Our findings are in line with the observation by Aguiar and Gopinath (2007) at levels and with Gracia et al (2010) at growth.

Figure 9: Volatility (Coefficient of Variation) in consumption, investment, and income
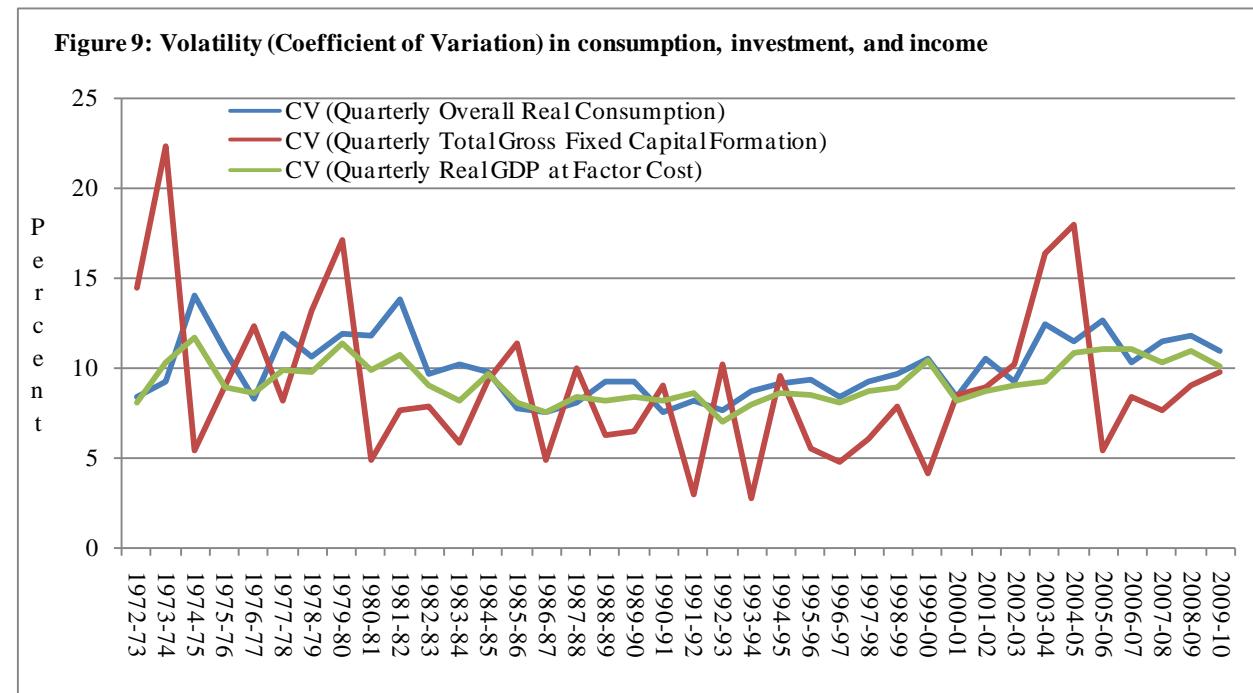
In order to see whether the moments of annual and quarterised data match, we compared the important moments (like variances and correlation coefficients) calculated from the cyclical components of real consumption, investment, and income as reported in Table I3 in the Appendix. The closeness[16] of these estimated moments gives us due comfort that our quarterised data can be used in business cycle research.

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[15] Annual data on population is Pakistan is used from World Bank Development Indicators website (retrieved on February 21, 2013) . It is converted in to quarterly population using EViews 7 based on 'linear match last' approach.

[16] The correlation coefficient between the cyclical components of real investment and the real income from observed annual and quarterised data may be different because in the case of Pakistan the government investment crowds in the private investment, and the government investment is intrinsically volatile in Pakistan and thus generates larger (than usually observed) volatility in overall investment in the country during the year, which disappears on aggregation.

6.   Concluding Remarks

Pakistan Bureau of Statistics (PBS) compiles NIAs for Pakistan on annual basis. Despite availability of some data on higher frequency like for large scale manufacturing output and merchandise trade, PBS does not provide NIA on quarterly basis which contains a comprehensive picture of economy than provided by the indicators like LSM index. In order to meet needs of the researchers some studies in the past provided estimates of quarterly GDP but from production side only. These studies include Bengaliwala (1995), Kemal and Arby (2004), and Arby (2008). None of these studies provide estimates of quarterly GDP from expenditure side.

Arby (2008) provides the quarterly estimates of the annual GDP from production side (for 1972 to 2005) based on current as well as on current (1999-2000) prices. Realizing the need to provide quarterly production estimates for the last decade, this study provides quarterly estimates of (sectoral and overall) gross domestic production in Pakistan during 1999-2000 to 2009-2010 based on constant prices of 1999-2000 as well as on current prices following Arby (2008). Quarterly GDP production side estimates for 1973-1999 based upon Arby (2008) and those for 2000-2010 based upon this study are combined in here to have a longer QGDP from production side. Then we quarterise the expenditures side of the NIAs. This is first study which provides estimates of various components of expenditures side of Pakistan's GDP for 1972-1973 to 2009-2010. On the production side, we find that the agriculture sector is the main driver of (quarterly) seasonality in Pakistan's NIA statistics. On the expenditure side, we observed that real investment is the most volatile in Pakistan followed by consumption and income. Matching of moments of some core macro variables for the annual and quarterised data suggests that the estimated quarterly data provided in this study can be used in research.

This will be even useful for assessing, analyzing and monitoring the ongoing state and performance of economy by the policy makers if PBS (herself) starts providing the estimates of QNIA on regular basis. Particularly, in the environment of high and variable inflation, QNIA are quite important from policy point of view as in these circumstances one of the assumptions of ANIA (price homogeneity during the year) is violated and summing the current prices data over a year may be less useful.

19

Appendix A: Quarterly GDP – Production Side (Real) for 1999-00 to 2009-10

Gross Domestic Product- Quarterly

(1999-2000 prices) (Rs Millions)

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	768920	983290	873797	936010	3562018
2000-01	807466	977510	897929	949186	3632091
2001-02	829474	1011540	917400	986704	3745118
2002-03	857833	1050535	974514	1039222	3922104
2003-04	919079	1132786	1045871	1117846	4215582
2004-05	983493	1256764	1124251	1228723	4593230
2005-06	1041520	1331002	1177106	1310848	4860476
2006-07	1113882	1410238	1255378	1412211	5191709
2007-08	1164522	1467331	1310092	1441067	5383012
2008-09	1187247	1492680	1304320	1491470	5475716
2009-10	1227898	1534075	1369976	1511653	5643602

Gross Value Added of Agriculture – Quarterly

(1999-2000 prices) (Rs Millions)

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	176572	282214	198884	265938	923609
2000-01	175820	278982	197187	251510	903499
2001-02	175766	279418	202327	246922	904433
2002-03	180757	288148	210502	262535	941942
2003-04	186331	296877	215772	265847	964827
2004-05	196641	325611	217846	287305	1027403
2005-06	212282	347883	236960	294973	1092098
2006-07	214773	353830	251170	317264	1137037
2007-08	221505	361354	263807	302185	1148851
2008-09	227244	371884	262679	333196	1195002
2009-10	230577	380861	266650	324323	1202411

Gross Value Added of Major Crops - Quarterly

(1999-2000 prices) (Rs Millions)

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	34469	117955	42346	147430	342200
2000-01	31870	110213	36649	129742	308474
2001-02	30854	107350	39324	123383	300911
2002-03	32190	111180	42783	135352	321505
2003-04	32739	115139	43501	135678	327057
2004-05	41397	142029	44262	157370	385058
2005-06	40544	140017	40865	148579	370005
2006-07	40430	140728	50273	167187	398617
2007-08	37339	137963	52837	145049	373188
2008-09	40364	142875	46777	172119	402135
2009-10	41638	145740	45625	159980	392983

Gross Value Added of Minor Crops- Quarterly

(1999-2000 prices)   (Rs Millions)

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	49778	24649	28199	23054	125679
2000-01	47991	23798	27262	22622	121673
2001-02	46174	22972	26175	21896	117217
2002-03	46858	23478	26741	22369	119446
2003-04	49302	24285	27746	22788	124121
2004-05	50370	24834	28369	22419	125993
2005-06	50799	24606	28581	22471	126457
2006-07	49973	24423	28387	22460	125243
2007-08	55065	27325	31808	24689	138887
2008-09	53937	27076	31436	24752	137201
2009-10	50451	24796	28943	22418	126609

Gross Value Added of Live Stocks - Quarterly

(1999-2000 prices)   (Rs Millions)

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	85510	129307	116794	85510	417120
2000-01	88779	134250	121258	88779	433066
2001-02	92038	139180	125711	92038	448968
2002-03	94401	142753	128939	94401	460495
2003-04	97118	146861	132649	97118	473745
2004-05	99400	150312	135765	99400	484876
2005-06	115108	174065	157220	115108	561500
2006-07	118367	178994	161672	118367	577400
2007-08	123289	186436	168394	123289	601408
2008-09	127152	192278	173671	127152	620253
2009-10	132591	200503	181099	132591	646783

Gross Value Added of Fishing - Quarterly

(1999-2000 prices)   (Rs Millions)

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	2105	4299	4789	3970	15163
2000-01	2043	4172	4647	3853	14715
2001-02	1791	3658	4074	3378	12901
2002-03	1853	3784	4215	3495	13346
2003-04	1890	3859	4298	3564	13611
2004-05	1901	3882	4324	3585	13691
2005-06	2296	4689	5223	4331	16540
2006-07	2649	5410	6026	4996	19080
2007-08	2892	5907	6580	5455	20834
2008-09	2960	6044	6733	5582	21319
2009-10	3003	6133	6832	5664	21632

Gross Value Added of Forestry - Quarterly

(1999-2000 prices)   (Rs Millions)

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	4711	6005	6757	5974	23447
2000-01	5137	6549	7370	6515	25571
2001-02	4909	6258	7042	6226	24436
2002-03	5454	6953	7825	6918	27150
2003-04	5282	6734	7578	6699	26293
2004-05	3573	4555	5126	4532	17785
2005-06	3535	4506	5071	4483	17596
2006-07	3354	4276	4812	4254	16697
2007-08	2920	3722	4189	3703	14534
2008-09	2831	3609	4062	3591	14094
2009-10	2894	3689	4151	3670	14404

Gross Value Added of Industry - Quarterly

(1999-2000 prices)   (Rs Millions)

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	184516	223680	222827	199840	830863
2000-01	201834	212577	229531	221254	865196
2001-02	214400	214535	230355	229249	888539
2002-03	211024	220866	250551	243742	926183
2003-04	242604	260501	289265	284439	1076808
2004-05	269031	297285	329424	311528	1207268
2005-06	287049	302711	335352	331715	1256827
2006-07	321990	326136	360230	359176	1367532
2007-08	329948	334712	365099	357358	1387117
2008-09	341416	332955	354347	356950	1385669
2009-10	346718	356219	387304	379869	1470110

Gross Value Added of Mining – Quarterly

(1999-2000 prices)   (Rs Millions)

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	19269	20742	20624	20415	81050
2000-01	20387	22526	20983	21632	85528
2001-02	22596	22354	22039	23442	90431
2002-03	22980	23618	24405	25414	96418
2003-04	25186	27491	29462	29334	111473
2004-05	27769	28774	36531	29547	122621
2005-06	29771	32441	32880	33197	128288
2006-07	31931	32972	33647	33703	132254
2007-08	31239	41512	30680	34616	138047
2008-09	36928	30400	33199	36820	137348
2009-10	36123	33170	33764	37357	140415

Gross Value Added of Large scale manufacturing - Quarterly

(1999-2000 prices)   (Rs Millions)

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	71196	93278	95970	78158	338602
2000-01	85298	92230	103563	94596	375687
2001-02	90511	92789	105441	100117	388859
2002-03	92118	98223	117961	108653	416955
2003-04	105999	118615	138233	129785	492632
2004-05	126004	146204	162364	156187	590759
2005-06	143252	152044	172298	171992	639585
2006-07	161160	163081	184889	186358	695489
2007-08	172459	166832	195391	188944	723626
2008-09	162631	160994	171578	170082	665285
2009-10	161899	167997	186973	180279	697148

Gross Value Added of Small scale manufacturing- Quarterly

(1999-2000 prices)   (Rs Millions)

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	38730	50743	52208	42518	184199
2000-01	44426	48036	53939	49268	195670
2001-02	48410	49629	56395	53548	207982
2002-03	48845	52082	62548	57613	221089
2003-04	50523	56536	65887	61860	234807
2004-05	40551	47052	52253	50265	190121
2005-06	46286	49127	55671	55572	206656
2006-07	51759	52376	59380	59851	223365
2007-08	57231	55364	64842	62702	240139
2008-09	63111	62476	66583	66003	258173
2009-10	64458	66886	74441	71776	277562

Gross Value Added of Slaughtering - Quarterly

(1999-2000 prices)   (Rs Millions)

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	n.a	n.a	n.a	n.a	n.a
2000-01	n.a	n.a	n.a	n.a	n.a
2001-02	n.a	n.a	n.a	n.a	n.a
2002-03	n.a	n.a	n.a	n.a	n.a
2003-04	n.a	n.a	n.a	n.a	n.a
2004-05	10685	14841	20777	13060	59363
2005-06	12008	16678	23349	14677	66712
2006-07	12500	17362	24306	15278	69447
2007-08	13020	18084	25318	15914	72336
2008-09	13570	18847	26386	16585	75388
2009-10	14157	19663	27528	17303	78652

Gross Value Added of Construction - Quarterly

(1999-2000 prices) (Rs Millions)

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	21070	24513	21464	20338	87386
2000-01	22173	20102	22954	22618	87846
2001-02	25402	22160	20354	21324	89241
2002-03	22812	22566	22566	24845	92789
2003-04	22855	19647	19518	20798	82818
2004-05	28155	24388	23402	22246	98190
2005-06	29389	25961	26111	26734	108195
2006-07	37058	32640	31786	33052	134536
2007-08	34929	31756	28839	31553	127076
2008-09	31670	26582	24748	29883	112884
2009-10	34509	32772	30782	33261	131324

Gross Value Added of Electricity, Gas & Water Supply - Quarterly

(1999-2000 prices) (Rs Millions)

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	34250	34404	32561	38411	139626
2000-01	29550	29683	28092	33140	120465
2001-02	27480	27603	26124	30818	112026
2002-03	24268	24377	23071	27216	98932
2003-04	38041	38211	36164	42662	155078
2004-05	35866	36027	34097	40223	146214
2005-06	26343	26461	25044	29543	107391
2006-07	27582	27705	26221	30933	112441
2007-08	21070	21164	20030	23629	85893
2008-09	33506	33656	31853	37576	136591
2009-10	35571	35730	33816	39892	145009

Gross Value Added of Services - Quarterly

(1999-2000 prices) (Rs Millions)

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	407832	477396	452086	470232	1807546
2000-01	429812	485951	471211	476422	1863396
2001-02	439307	517587	484719	510533	1952146
2002-03	466053	541520	513461	532945	2053979
2003-04	490145	575408	540834	567560	2173947
2004-05	517821	633867	576981	629890	2358559
2005-06	542189	680408	604794	684160	2511551
2006-07	577118	730272	643979	735771	2687140
2007-08	613069	771265	681185	781525	2847044
2008-09	618587	787841	687293	801324	2895045
2009-10	650603	796995	716022	807461	2971081

Gross Value Added of Wholesale and Retail Trade - Quarterly

(1999-2000 prices)   (Rs Millions)

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	128205	176072	159197	158367	621842
2000-01	134188	183512	166211	165653	649564
2001-02	137834	188739	170856	170187	667615
2002-03	146223	199877	181068	180498	707665
2003-04	158800	215967	196052	195874	766693
2004-05	178612	240724	219342	220017	858695
2005-06	176235	232227	213590	216375	838426
2006-07	186640	245558	225997	229099	887294
2007-08	198667	255249	237279	243035	934231
2008-09	196882	250284	233717	240492	921375
2009-10	206049	261018	244107	251565	962739

Gross Value Added of Transport, Storage and Communication -Quarterly

(1999-2000 prices)   (Rs Millions)

Years\Quarter	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	97621	99653	101287	102421	400983
2000-01	103893	105547	106389	106367	422195
2001-02	106068	106108	106856	108264	427296
2002-03	109725	110910	111998	112919	445552
2003-04	113837	114809	115820	116810	461276
2004-05	117735	118658	119771	121006	477171
2005-06	122147	123224	124578	126124	496073
2006-07	127746	129274	130657	131809	519486
2007-08	132971	134207	135462	136657	539297
2008-09	137936	139223	140337	141207	558703
2009-10	141055	142170	142890	143169	569285

Gross Value Added of Finance and Insurance- Quarterly

(1999-2000 prices)   (Rs Millions)

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	22710	40579	26290	42874	132454
2000-01	25545	29523	26847	30540	112455
2001-02	18292	43626	23166	46677	131761
2002-03	21466	40417	25305	42893	130081
2003-04	20571	46253	25555	49389	141768
2004-05	17087	68488	26111	73815	185501
2005-06	21965	100059	35278	107754	265056
2006-07	24971	115288	40217	124037	304514
2007-08	29798	126723	45956	135909	338386
2008-09	15401	126488	33916	137012	312818
2009-10	19446	106354	34159	114816	274774

Gross Value Added of Ownership of Dwelling- Quarterly

(1999-2000 prices)   (Rs Millions)

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	27109	27487	27800	28028	110425
2000-01	28260	28521	28783	29029	114593
2001-02	29277	29529	29781	30017	118604
2002-03	30244	30475	30736	31011	122466
2003-04	31284	31547	31827	32106	126764
2004-05	32382	32655	32944	33233	131214
2005-06	33519	33801	34101	34400	135820
2006-07	34695	34987	35298	35607	140587
2007-08	35913	36215	36536	36857	145521
2008-09	37173	37486	37819	38150	150629
2009-10	38534	38915	39173	39294	155916

Gross Value Added of Public Administration & Defense - Quarterly

(1999-2000 prices)   (Rs Millions)

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	53751	53751	56394	56394	220291
2000-01	54937	54937	57639	57639	225152
2001-02	58703	58703	61590	61590	240585
2002-03	63232	63232	66342	66342	259148
2003-04	65226	65226	68434	68434	267321
2004-05	65594	65594	68819	68819	268826
2005-06	72214	72214	75766	75766	295959
2006-07	77327	77327	81130	81130	316915
2007-08	78218	78218	82065	82065	320565
2008-09	81034	81034	85020	85020	332108
2009-10	83076	83076	87162	87162	340475

Gross Value Added of Social, Community & Personal Services- Quarterly

(1999-2000 prices)   (Rs Millions)

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	78435	79853	81116	82147	321551
2000-01	82990	83910	85342	87195	339437
2001-02	89133	90883	92471	93798	366285
2002-03	95161	96610	98013	99282	389067
2003-04	100426	101607	103145	104946	410125
2004-05	106411	107750	109992	112999	437152
2005-06	116110	118884	121482	123742	480217
2006-07	125738	127838	130680	134088	518344
2007-08	137502	140653	143887	147003	569044
2008-09	150160	153325	156485	159443	619412
2009-10	162443	165462	168530	171456	667892

Appendix B: Quarterly GDP – Production Side (Nominal) for 1999-00 to 2009-10

Gross Domestic Product- Quarterly

(Rs Millions)

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	752872	972126	876959	960062	3562020
2000-01	858723	1052407	985406	1026708	3923244
2001-02	915904	1116714	1011817	1101731	4146167
2002-03	981429	1194742	1137084	1220964	4534218
2003-04	1100526	1405117	1305277	1439606	5250527
2004-05	1276699	1637207	1523176	1685485	6122568
2005-06	1502955	1940036	1765202	1950334	7158527
2006-07	1744215	2220823	2010941	2259121	8235099
2007-08	1987710	2618319	2482126	2833429	9921584
2008-09	2587647	3275210	2876880	3370725	12110462
2009-10	2862297	3694812	3465574	4010946	14033629

Gross Value Added of Agriculture – Quarterly

(Rs Millions)

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	175479	279932	198873	269325	923609
2000-01	183355	292216	208156	261574	945301
2001-02	189155	300403	216762	261971	968291
2002-03	201405	323052	235086	299773	1059316
2003-04	208485	362362	259131	334773	1164751
2004-05	241824	412531	279071	380808	1314234
2005-06	282642	455823	320981	397776	1457222
2006-07	314781	515696	379287	475476	1685240
2007-08	361656	620153	460817	574556	2017181
2008-09	450764	826252	564749	769761	2611526
2009-10	513755	916303	655694	886908	2972660

Gross Value Added of Major Crops - Quarterly

(Rs Millions)

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	34126	115664	42550	149860	342200
2000-01	32694	117460	39366	136059	325579
2001-02	31184	114176	42173	129324	316857
2002-03	35918	127878	49984	156337	370117
2003-04	37467	144955	57213	172201	411836
2004-05	51762	179087	58421	208286	497556
2005-06	49479	168842	53573	192382	464276
2006-07	51055	185323	70491	239549	546418
2007-08	58148	231874	93143	288209	671374
2008-09	93519	346525	114927	424178	979148
2009-10	100250	364943	131363	475608	1072164

Gross Value Added of Minor Crops- Quarterly

(Rs Millions)

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	48747	24455	28301	24176	125679
2000-01	51267	25246	30648	23517	130679
2001-02	53842	26727	27654	24913	133136
2002-03	53867	26458	26998	23127	130450
2003-04	48546	26568	27302	23955	126372
2004-05	60210	31096	33054	29858	154218
2005-06	68771	33210	37032	29448	168461
2006-07	73453	38789	40474	31405	184121
2007-08	82213	43350	47288	38703	211553
2008-09	91782	50548	51925	43280	237536
2009-10	103120	53578	58757	51064	266519

Gross Value Added of Live Stocks - Quarterly

(Rs Millions)

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	85862	129669	116435	85154	417120
2000-01	91806	138146	125242	90864	446058
2001-02	96725	148282	134410	96893	476310
2002-03	103546	156758	144338	108335	512976
2003-04	114343	178045	160016	125814	578218
2004-05	122792	191670	175239	131470	621170
2005-06	154947	238455	212532	160514	766448
2006-07	178560	271944	246413	184890	881806
2007-08	208091	322454	295079	225818	1051442
2008-09	251236	403590	368428	276611	1299865
2009-10	294921	470870	434549	333381	1533721

Gross Value Added of Fishing - Quarterly

(Rs Millions)

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	2089	4194	4805	4076	15163
2000-01	2372	4645	5243	4286	16546
2001-02	2246	4671	5132	4328	16377
2002-03	2323	4569	5340	4393	16625
2003-04	2510	5031	5156	4031	16728
2004-05	2378	4663	5445	5004	17490
2005-06	4216	8477	9692	8106	30492
2006-07	6008	12087	13053	11520	42668
2007-08	7413	15030	16402	13547	52391
2008-09	7471	16614	19098	16331	59514
2009-10	7661	16781	19493	16428	60363

Gross Value Added of Forestry - Quarterly

(Rs Millions)

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	4655	5951	6782	6059	23447
2000-01	5215	6719	7658	6847	26439
2001-02	5159	6547	7393	6512	25611
2002-03	5752	7389	8427	7580	29148
2003-04	5618	7762	9444	8773	31597
2004-05	4682	6015	6912	6191	23800
2005-06	5228	6839	8152	7326	27545
2006-07	5706	7553	8857	8111	30227
2007-08	5791	7445	8904	8281	30421
2008-09	6756	8975	10370	9361	35463
2009-10	7804	10130	11533	10427	39893

Gross Value Added of Industry - Quarterly

(Rs Millions)

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	181020	224055	223080	202710	830865
2000-01	213634	231442	251363	245824	942263
2001-02	241772	237582	253554	256441	989349
2002-03	242957	254607	295086	291264	1083914
2003-04	304347	337948	388182	386509	1416986
2004-05	364281	402605	458363	434037	1659285
2005-06	429815	457148	519201	517535	1923698
2006-07	521141	527599	582348	583523	2214612
2007-08	602964	623270	704524	727447	2658205
2008-09	760148	718332	749155	767340	2994975
2009-10	784351	828566	966565	989737	3569218

Gross Value Added of Mining – Quarterly

(Rs Millions)

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	17635	21290	21169	20958	81052
2000-01	23527	27065	26331	29447	106370
2001-02	29289	28891	28526	30247	116952
2002-03	32372	33446	34885	36341	137044
2003-04	46854	51495	55107	54833	208290
2004-05	39833	41362	55173	45683	182051
2005-06	47401	51888	59989	60404	219682
2006-07	63575	65728	62720	60518	252541
2007-08	66588	88262	68876	77743	301469
2008-09	91780	75401	84551	94680	346412
2009-10	104237	95132	113158	125372	437899

Gross Value Added of Large scale manufacturing - Quarterly

(Rs Millions)

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	70705	93807	95613	78476	338602
2000-01	91413	100882	114046	104538	410879
2001-02	99882	100833	114142	109232	424089
2002-03	104214	111193	136961	129006	481374
2003-04	126107	147891	178801	169100	621899
2004-05	173550	198651	225110	217345	814657
2005-06	221245	236366	271364	274086	1003062
2006-07	266035	267057	304425	312056	1149573
2007-08	336136	329133	399694	402262	1467225
2008-09	373121	364676	380511	384570	1502879
2009-10	386216	419343	496617	504900	1807076

Gross Value Added of Small scale manufacturing- Quarterly

(Rs Millions)

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	38464	51031	52013	42691	184199
2000-01	43885	48431	54751	50186	197253
2001-02	51523	52014	58879	56346	218761
2002-03	52837	56376	69440	65407	244060
2003-04	56897	66725	80671	76294	280587
2004-05	47331	54177	61393	59275	222176
2005-06	54252	57960	66542	67209	245962
2006-07	64785	65033	74133	75992	279943
2007-08	76658	75061	91153	91738	334610
2008-09	98068	95849	100011	101077	395005
2009-10	96162	104410	123650	125712	449933

Gross Value Added of Slaughtering - Quarterly

(Rs Millions)

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	n.a	n.a	n.a	n.a	n.a
2000-01	n.a	n.a	n.a	n.a	n.a
2001-02	n.a	n.a	n.a	n.a	n.a
2002-03	n.a	n.a	n.a	n.a	n.a
2003-04	n.a	n.a	n.a	n.a	n.a
2004-05	17964	24950	34930	21956	99801
2005-06	21918	30442	42619	26789	121769
2006-07	24803	34449	48229	30315	137797
2007-08	26764	37172	52040	32711	148687
2008-09	30888	42900	60059	37752	171598
2009-10	40984	56923	79692	50092	227690

Gross Value Added of Construction - Quarterly

(Rs Millions)

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	20996	24311	21546	20533	87386
2000-01	23759	21796	24663	24453	94670
2001-02	27147	23592	21624	22833	95197
2002-03	24405	24055	24604	27816	100880
2003-04	30089	25624	28526	31258	115497
2004-05	43167	38481	37105	34581	153333
2005-06	49051	43160	42356	45318	179885
2006-07	60438	53439	54187	57175	225239
2007-08	65155	59775	59131	76279	260340
2008-09	88337	72158	62480	72015	294990
2009-10	82598	74405	74189	88123	319315

Gross Value Added of Electricity, Gas & Water Supply - Quarterly

(Rs Millions)

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	33221	33616	32738	40052	139626
2000-01	31051	33267	31573	37200	133091
2001-02	33931	32252	30384	37783	134350
2002-03	29129	29537	29195	32694	120556
2003-04	44400	46212	45077	55024	190713
2004-05	42436	44984	44651	55196	187267
2005-06	35947	37333	36330	43728	153338
2006-07	41504	41893	38654	47467	169519
2007-08	31663	33867	33630	46714	145874
2008-09	77955	67349	61543	77245	284091
2009-10	74154	78354	79259	95537	327305

Gross Value Added of Services - Quarterly

(Rs Millions)

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	396372	468139	455007	488027	1807546
2000-01	461734	528749	525886	519310	2035680
2001-02	484977	578730	541501	583319	2188527
2002-03	537067	617082	606912	629927	2390988
2003-04	587694	704808	657964	718324	2668790
2004-05	670594	822072	785743	870640	3149049
2005-06	790498	1027065	925020	1035023	3777607
2006-07	908292	1177528	1049306	1200122	4335247
2007-08	1023090	1374896	1316786	1531426	5246198
2008-09	1376734	1730626	1562977	1833624	6503961
2009-10	1564191	1949942	1843315	2134302	7491751

Gross Value Added of Wholesale and Retail Trade - Quarterly

<div align="right">(Rs Millions)</div>

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	122265	169994	162458	167125	621842
2000-01	140938	196054	187371	167490	691854
2001-02	140715	207088	183717	189292	720812
2002-03	159276	211947	206122	208431	785776
2003-04	179602	256975	221180	238599	896357
2004-05	217469	296205	289738	289702	1093114
2005-06	250832	360825	329483	320861	1262001
2006-07	277214	402347	373469	388756	1441786
2007-08	316915	495769	520759	496501	1829944
2008-09	424932	552944	550281	576179	2104337
2009-10	490049	650998	638826	683767	2463640

Gross Value Added of Transport, Storage and Communication -Quarterly

<div align="right">(Rs Millions)</div>

Years\Quarter	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	94220	97036	100546	109181	400983
2000-01	121688	126111	129737	135461	512997
2001-02	135498	132293	134382	140656	542828
2002-03	148105	150907	156681	154236	609929
2003-04	161541	166211	170982	176888	675623
2004-05	179499	181433	193347	205432	759711
2005-06	214575	226296	230487	237051	908409
2006-07	252543	256368	252308	250987	1012206
2007-08	268272	271513	285635	330454	1155873
2008-09	415335	396263	385309	391028	1587934
2009-10	427134	438797	466069	500760	1832760

Gross Value Added of Finance and Insurance- Quarterly

<div align="right">(Rs Millions)</div>

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	22304	40392	26284	43475	132454
2000-01	26250	30803	27995	31949	116997
2001-02	19525	46896	25036	50967	142424
2002-03	23821	44962	28233	47974	144989
2003-04	23118	53441	29769	58902	165230
2004-05	20916	85597	33245	96496	236254
2005-06	29260	135567	48547	150946	364320
2006-07	35790	167930	58888	184662	447270
2007-08	45141	198481	74674	238382	556679
2008-09	29232	247857	66655	277765	621508
2009-10	40901	229511	76111	263421	609944

Gross Value Added of Ownership of Dwelling- Quarterly

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	26705	27367	27966	28387	110425
2000-01	30360	30886	31329	31784	124359
2001-02	31088	31455	31810	32100	126454
2002-03	33271	33573	33902	34394	135139
2003-04	35064	35893	36970	38337	146264
2004-05	39057	40566	42163	43656	165441
2005-06	44269	45652	46849	48041	184812
2006-07	49759	50900	52071	53436	206166
2007-08	56514	58416	60700	63379	239010
2008-09	68864	72811	76758	80356	298789
2009-10	82428	85464	88040	89827	345760

Gross Value Added of Public Administration & Defense - Quarterly

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	52892	53608	56492	57298	220291
2000-01	56662	57531	60324	60522	235039
2001-02	62771	63216	66683	67371	260042
2002-03	69468	69643	73280	73463	285854
2003-04	73800	75876	80261	82169	312105
2004-05	81116	82821	88522	90889	343348
2005-06	96242	97887	104313	106185	404628
2006-07	111939	113765	119987	121995	467685
2007-08	121186	125295	136379	147213	530074
2008-09	156323	161391	169826	175184	662723
2009-10	176809	181400	196509	202343	757061

Gross Value Added of Social, Community & Personal Services- Quarterly

Years\Quarters	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1999-00	77987	79742	81261	82561	321551
2000-01	85837	87364	89130	92104	354434
2001-02	95380	97781	99873	102933	395967
2002-03	103126	106051	108694	111430	429301
2003-04	114569	116412	118802	123429	473211
2004-05	132537	135451	138728	144466	551181
2005-06	155319	160838	165341	171939	653437
2006-07	181047	186219	192582	200286	760134
2007-08	215061	225422	238639	255496	934618
2008-09	282049	299360	314149	333112	1228670
2009-10	346870	363772	377761	394183	1482586

Appendix C: Quarterly GDP (Factor Cost) Proportions (for 1972-73 to 1998-99 based on Arby (2008) and for 1999-00 to 2009-10 based on this study)

Years\Quarters	Based on Current Prices				Based on Constant Prices (1999-2000)			
	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun
1972-73	0.211510	0.257763	0.246528	0.284199	0.223577	0.268569	0.245659	0.262194
1973-74	0.202822	0.266895	0.240065	0.290219	0.218210	0.272411	0.240242	0.269138
1974-75	0.199264	0.267642	0.251219	0.281876	0.208931	0.274164	0.250081	0.266825
1975-76	0.213130	0.264931	0.251225	0.270714	0.218286	0.268025	0.251315	0.262374
1976-77	0.214478	0.262414	0.253655	0.269453	0.219222	0.265568	0.250809	0.264401
1977-78	0.219465	0.266958	0.249522	0.264054	0.215715	0.270684	0.249207	0.264394
1978-79	0.213691	0.259202	0.251990	0.275117	0.214725	0.264362	0.252276	0.268637
1979-80	0.209680	0.264648	0.249537	0.276135	0.209649	0.271386	0.251175	0.267790
1980-81	0.208401	0.263086	0.251203	0.277309	0.214918	0.268137	0.251222	0.265723
1981-82	0.211528	0.270192	0.254347	0.263933	0.211710	0.273384	0.254452	0.260454
1982-83	0.215890	0.262967	0.253011	0.268132	0.217331	0.266233	0.253272	0.263163
1983-84	0.215986	0.259303	0.264476	0.260235	0.219536	0.263999	0.259239	0.257226
1984-85	0.217258	0.266643	0.256634	0.259465	0.214509	0.268704	0.258126	0.258660
1985-86	0.222873	0.264456	0.251204	0.261468	0.221787	0.266791	0.249989	0.261433
1986-87	0.220312	0.264124	0.254586	0.260979	0.223766	0.268435	0.252619	0.255180
1987-88	0.220121	0.263520	0.258525	0.257833	0.219754	0.268230	0.257989	0.254027
1988-89	0.219984	0.260004	0.256738	0.263273	0.219848	0.265161	0.256860	0.258131
1989-90	0.220852	0.266523	0.251610	0.261015	0.221335	0.271521	0.251531	0.255613
1990-91	0.216607	0.263496	0.255291	0.264606	0.221298	0.269805	0.252588	0.256309
1991-92	0.218910	0.266775	0.252339	0.261976	0.220194	0.271636	0.251483	0.256688
1992-93	0.222154	0.259050	0.256146	0.262650	0.224320	0.263396	0.254263	0.258021
1993-94	0.209786	0.255068	0.259653	0.275492	0.220786	0.265342	0.256591	0.257280
1994-95	0.209401	0.259193	0.263969	0.267437	0.217909	0.263157	0.259162	0.259773
1995-96	0.211150	0.263230	0.257978	0.267643	0.219349	0.267920	0.254506	0.258225
1996-97	0.211879	0.264120	0.258478	0.265523	0.222053	0.270294	0.251934	0.255718
1997-98	0.213540	0.266491	0.256743	0.263226	0.218103	0.266756	0.256312	0.258829
1998-99	0.203781	0.255982	0.238425	0.301813	0.219107	0.270836	0.249486	0.260571
1999-00	0.211361	0.272914	0.246197	0.269527	0.215866	0.276049	0.245310	0.262775
2000-01	0.218881	0.268249	0.251171	0.261699	0.222314	0.269131	0.247221	0.261333
2001-02	0.220904	0.269337	0.244037	0.265723	0.221481	0.270096	0.244959	0.263464
2002-03	0.216449	0.263495	0.250778	0.269278	0.218717	0.267850	0.248467	0.264965
2003-04	0.209603	0.267615	0.248599	0.274183	0.218020	0.268714	0.248096	0.265170
2004-05	0.208523	0.267405	0.248781	0.275291	0.214118	0.273612	0.244763	0.267507
2005-06	0.209953	0.271011	0.246587	0.272449	0.214284	0.273842	0.242179	0.269695
2006-07	0.211803	0.269678	0.244191	0.274328	0.214550	0.271633	0.241804	0.272013
2007-08	0.200342	0.263901	0.250174	0.285582	0.216333	0.272586	0.243375	0.267707
2008-09	0.213670	0.270445	0.237553	0.278332	0.216820	0.272600	0.238201	0.272379
2009-10	0.203960	0.263283	0.246948	0.285810	0.217574	0.271826	0.242748	0.267852

Appendix D: Quarterly GDP (Factor Cost) based on proportion in Appendix C

(Rs Millions)

Years\Quarters	Based on Current Prices				Based on Constant Prices (1999-2000)			
	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun
1972-73	15675	19103	18271	21062	200136	240411	219903	234705
1973-74	19889	26172	23541	28459	209030	260951	230136	257817
1974-75	25418	34141	32046	35956	206662	271187	247366	263928
1975-76	31546	39214	37185	40070	223186	274041	256956	268264
1976-77	35476	43405	41956	44569	230440	279157	263644	277931
1977-78	42049	51149	47808	50592	244529	306841	282494	299711
1978-79	49249	59738	58076	63406	256960	316361	301898	321476
1979-80	54338	68583	64667	71560	268228	347216	321357	342614
1980-81	62961	79483	75892	83780	292040	364355	341371	361075
1981-82	75335	96228	90585	93999	309434	399576	371905	380677
1982-83	86431	105278	101292	107346	339285	415627	395393	410835
1983-84	98564	118332	120693	118758	356268	428424	420698	417432
1984-85	112577	138167	132980	134447	378424	474032	455371	456313
1985-86	126695	150333	142800	148634	416159	500605	469077	490552
1986-87	138429	165957	159964	163981	444271	532958	501556	506640
1987-88	161277	193074	189415	188908	464386	566827	545185	536813
1988-89	183197	216525	213804	219247	486924	587283	568899	571714
1989-90	204572	246877	233064	241775	512711	628966	582659	592115
1990-91	239859	291781	282695	293010	541167	659785	617682	626782
1991-92	287660	350557	331588	344251	576804	711558	658767	672403
1992-93	322633	376216	371999	381445	599940	704445	680020	690071
1993-94	358254	435583	443412	470461	616283	740654	716225	718150
1994-95	426804	528289	538024	545091	639041	771735	760021	761811
1995-96	496754	619278	606923	629660	685715	837553	795620	807245
1996-97	575103	716898	701583	720707	705988	859363	800989	813021
1997-98	645808	805949	776468	796072	717656	877747	843381	851662
1998-99	679655	853756	795199	1006615	751122	928457	855266	893266
1999-00	752872	972126	876959	960062	768920	983290	873797	936010
2000-01	858723	1052407	985406	1026708	807466	977510	897929	949186
2001-02	915904	1116714	1011817	1101731	829474	1011540	917400	986704
2002-03	981429	1194742	1137084	1220964	857833	1050535	974514	1039222
2003-04	1100526	1405117	1305277	1439606	919079	1132786	1045871	1117846
2004-05	1276699	1637207	1523176	1685485	983493	1256764	1124251	1228723
2005-06	1502955	1940036	1765202	1950334	1041520	1331002	1177106	1310848
2006-07	1744215	2220823	2010941	2259121	1113882	1410238	1255378	1412211
2007-08	1987710	2618319	2482126	2833429	1164522	1467331	1310092	1441067
2008-09	2587647	3275210	2876880	3370725	1187247	1492680	1304320	1491470
2009-10	2862297	3694812	3465574	4010946	1227898	1534075	1369976	1511653

Appendix E1: Quarterly Total Consumption

(Rs Millions)

Years\Quarters	Based on Current Prices				Based on Constant Prices (1999-2000)			
	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun
1972-73	14551	17989	17111	19345	179425	220284	198887	205072
1973-74	20374	24259	23333	26178	200857	248502	212826	225505
1974-75	23910	33074	31571	36103	179833	248307	225637	244232
1975-76	29618	38617	35833	38590	205251	265742	249372	255071
1976-77	34824	42043	41825	42654	224424	272600	262522	261041
1977-78	41314	51281	49258	49448	235807	313265	283525	298585
1978-79	46111	59413	56569	58846	265950	340735	320230	329384
1979-80	55119	69866	62325	78036	279099	369656	338517	355302
1980-81	64204	80454	73264	84629	289202	378956	345536	372184
1981-82	72935	100785	90093	92333	293359	411267	373577	375749
1982-83	88740	108264	102806	98764	329885	415135	392669	395190
1983-84	98561	115577	127738	120453	347941	432102	437549	420056
1984-85	120339	135159	134356	138315	380395	477345	461504	456826
1985-86	125932	143210	136885	139018	397605	476846	443868	461546
1986-87	129729	157379	146308	151238	418837	502679	466069	476851
1987-88	157926	180282	176727	182649	451991	547980	522121	517461
1988-89	169593	203630	207562	209640	454492	553720	546300	553509
1989-90	193805	235505	216937	227893	475205	592944	547200	563038
1990-91	226690	269044	244673	255210	490221	588987	530295	542510
1991-92	269706	319447	297250	306379	527351	643784	593548	603177
1992-93	295357	341458	351625	360787	545374	640384	638435	638778
1993-94	325736	396735	392079	429920	546116	663339	636115	657142
1994-95	383544	478521	509969	497875	577010	694731	703913	698976
1995-96	455976	586345	547138	565188	625335	785655	721824	731316
1996-97	527932	675667	642935	663698	657288	806543	731567	746566
1997-98	554664	736382	682132	686359	649189	802256	772155	780552
1998-99	585708	776001	710109	952700	691214	864851	786003	837833
1999-00	687954	851970	823615	851173	694194	892360	787287	840870
2000-01	801207	916138	907825	913486	718169	869092	781288	843268
2001-02	824737	947370	929864	1016335	704927	878188	819284	896956
2002-03	889309	1031272	1062753	1046318	724194	902274	844666	866279
2003-04	959871	1213007	1207871	1266431	746038	991414	929160	975653
2004-05	1150348	1450116	1406962	1503938	873539	1139317	977796	1076914
2005-06	1374896	1738558	1637109	1793962	894997	1199235	1045950	1156467
2006-07	1606927	1923168	1795826	2014126	959517	1208396	1068757	1178367
2007-08	1758252	2318800	2384945	2651744	952273	1253181	1126485	1186443
2008-09	2619087	2971323	2642053	3134795	1011449	1290351	1136662	1307954
2009-10	2781032	3434389	3345596	3806611	1050725	1351803	1192932	1305628

Appendix E2: Quarterly Private Consumption

(Rs Millions)

Years\Quarters	Based on Current Prices				Based on Constant Prices (1999-2000)			
	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun
1972-73	13335	16628	14512	17256	164639	204039	169353	182364
1973-74	19809	21356	21120	23829	193740	214793	187221	199601
1974-75	21688	30629	27768	33336	159770	227293	194365	222654
1975-76	26142	36341	32298	34386	178874	248795	222992	224193
1976-77	33151	37786	38057	37478	212015	242276	236387	225337
1977-78	38306	46844	45096	44148	214663	282348	254573	262074
1978-79	40574	56143	53143	53079	224690	316398	294806	287216
1979-80	50755	64134	55850	73798	248662	329212	293575	326818
1980-81	57078	74798	67146	76937	252750	350621	315094	334745
1981-82	60448	98071	83114	82986	235845	398942	341695	333223
1982-83	80686	97716	94309	86733	294194	369013	355645	343770
1983-84	88164	101136	120652	104656	305224	374744	409245	357402
1984-85	112477	119715	120097	122155	349927	418288	407538	396376
1985-86	112642	126713	124151	119786	348930	416844	397673	392026
1986-87	112041	143326	127471	128946	356225	453802	400121	400187
1987-88	136861	158643	149581	153982	394140	489276	448664	442299
1988-89	141785	173549	179664	173918	379967	474377	472979	461409
1989-90	171090	201969	181381	197852	416275	507182	456809	488947
1990-91	198885	236547	198919	224359	425283	515205	428149	475750
1991-92	239825	280242	261037	265373	467497	566758	523646	526538
1992-93	259999	299333	312738	312875	471524	553784	559498	544414
1993-94	287706	366470	341702	370747	479168	611501	551441	560938
1994-95	332743	435580	467664	427842	495129	628268	640261	594929
1995-96	390568	523284	482965	505693	534907	700450	636908	654313
1996-97	460495	601003	581928	595186	576648	720318	663671	671970
1997-98	435413	728607	627330	584530	507167	793140	708607	664795
1998-99	497189	723075	644682	873276	594918	807991	716062	753369
1999-00	566804	792367	742692	782158	571410	832761	706722	773128
2000-01	730082	848823	804232	827955	649563	805142	682814	762228
2001-02	745347	860559	828130	895825	630687	797580	725326	786794
2002-03	787994	926594	952990	933386	632874	808160	746266	765289
2003-04	852913	1082562	1112647	1136596	652862	880885	849131	869070
2004-05	1039708	1312878	1285613	1363300	784558	1031217	883969	971004
2005-06	1198813	1516544	1459623	1545245	765883	1039177	919972	983042
2006-07	1476165	1709145	1604013	1754520	870194	1064544	940507	1007646
2007-08	1511062	2018948	2112066	2193235	798444	1072699	968166	940002
2008-09	2424718	2721764	2367052	2824567	912310	1167059	1001199	1159812
2009-10	2524041	3171076	3062381	3431398	883438	1184737	1018897	1081709

Appendix E3: Quarterly Government Consumption

(Rs Millions)

Years\Quarters	Based on Current Prices				Based on Constant Prices (1999-2000)			
	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun
1972-73	1216	1360	2599	2089	14786	16245	29534	22708
1973-74	565	2903	2213	2349	7117	33709	25604	25904
1974-75	2223	2446	3803	2767	20063	21014	31273	21577
1975-76	3476	2275	3535	4204	26377	16947	26380	30878
1976-77	1673	4258	3768	5176	12409	30324	26135	35705
1977-78	3008	4437	4162	5300	21144	30918	28952	36511
1978-79	5537	3270	3426	5767	41260	24337	25425	42168
1979-80	4365	5733	6475	4238	30436	40443	44941	28484
1980-81	7126	5656	6118	7692	36452	28334	30442	37438
1981-82	12487	2713	6979	9347	57514	12326	31881	42526
1982-83	8054	10548	8497	12031	35692	46122	37024	51420
1983-84	10397	14441	7085	15797	42717	57358	28305	62654
1984-85	7862	15444	14259	16161	30467	59058	53966	60450
1985-86	13289	16497	12735	19232	48675	60003	46195	69520
1986-87	17688	14053	18837	22291	62612	48877	65948	76664
1987-88	21066	21639	27146	28667	57851	58704	73457	75163
1988-89	27808	30081	27898	35723	74525	79344	73322	92100
1989-90	22715	33536	35556	30041	58930	85762	90391	74091
1990-91	27806	32498	45754	30851	64938	73782	102146	66760
1991-92	29881	39206	36212	41006	59854	77026	69901	76639
1992-93	35357	42125	38887	47911	73850	86599	78937	94364
1993-94	38030	30265	50377	59172	66948	51839	84674	96204
1994-95	50801	42941	42305	70033	81881	66463	63652	104047
1995-96	65408	63061	64173	59495	90428	85204	84916	77003
1996-97	67437	74664	61007	68512	80639	86225	67896	74596
1997-98	119252	7776	54802	101829	142021	9116	63549	115756
1998-99	88519	52926	65427	79424	96295	56860	69941	84464
1999-00	121151	59602	80923	69015	122784	59599	80565	67743
2000-01	71124	67314	103592	85531	68605	63950	98474	81040
2001-02	79390	86811	101734	120510	74240	80608	93958	110162
2002-03	101315	104678	109763	112933	91320	94115	98400	100990
2003-04	106958	130445	95224	129835	93177	110530	80029	106583
2004-05	110640	137238	121348	140639	88981	108100	93827	105910
2005-06	176083	222014	177486	248717	129114	160058	125978	173425
2006-07	130762	214023	191812	259606	89323	143852	128250	170721
2007-08	247190	299852	272879	458510	153829	180482	158319	246441
2008-09	194368	249559	275001	310228	99139	123292	135463	148142
2009-10	256990	263314	283215	375213	167288	167066	174034	223919

Appendix E4: Quarterly Total Gross Fixed Capital Formation

(Rs Millions)

Years\Quarters	Based on Current Prices				Based on Constant Prices (1999-2000)			
	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun
1972-73	1960	2223	2313	2910	45316	50079	49733	62703
1973-74	2217	2605	3239	4518	43983	47700	56780	71532
1974-75	3698	4856	4900	5427	54301	60485	56563	60686
1975-76	6706	7131	7026	8639	63572	71961	66558	77878
1976-77	7432	8566	8230	10038	67973	77636	74593	90853
1977-78	8311	8840	9679	10951	71271	72876	80215	84714
1978-79	8635	9884	10357	12012	65241	74848	78328	89804
1979-80	10567	12033	12556	16038	66856	74308	76105	98089
1980-81	13471	14614	15720	16484	81900	83725	89064	90859
1981-82	14847	16394	17285	19761	84024	89030	90883	100596
1982-83	16493	19450	19862	22059	93469	102559	105055	113218
1983-84	19472	21212	23077	24789	103027	106696	110253	117874
1984-85	21240	24239	24945	29046	105770	116537	118596	132686
1985-86	22728	27854	29050	31172	104431	122287	127795	137935
1986-87	27334	31956	33077	33875	111997	120807	124088	124908
1987-88	30536	34394	36479	39945	102819	113342	119903	130479
1988-89	37046	42918	44761	45676	116006	129852	134207	130897
1989-90	41962	49438	50133	52583	123224	140564	141375	140528
1990-91	47007	58521	59929	62448	123575	144087	147528	153148
1991-92	66152	73810	72405	75253	154921	163911	163065	165932
1992-93	69342	82086	80532	94107	146889	165685	162114	187677
1993-94	85437	89495	92177	92560	170518	168288	164265	160137
1994-95	85286	97430	105214	112195	140177	155568	166706	175486
1995-96	103537	113157	117398	125445	157877	164949	169259	180106
1996-97	106856	128344	128753	133219	152133	165942	162471	170633
1997-98	118773	134135	123580	133646	142379	162937	145708	153733
1998-99	114158	129573	133188	147452	138333	146204	150766	166389
1999-00	141656	151312	150228	164292	145665	152465	148838	160441
2000-01	145829	166340	168550	178607	140249	158640	163060	172474
2001-02	151982	169909	167421	191062	139672	161525	157215	173720
2002-03	162288	184380	181886	207882	146288	165570	159624	186587
2003-04	171519	201301	199335	272680	129975	154387	144273	189096
2004-05	230115	266160	303575	335092	135569	169779	185452	210593
2005-06	344601	390741	398214	432283	195821	212608	209288	223260
2006-07	411571	463617	459692	479740	210124	249974	240410	254633
2007-08	470101	522339	506616	595687	226145	263280	238197	264096
2008-09	515435	566279	517993	604425	202314	234098	200324	236392
2009-10	454558	519942	529267	563179	178396	211874	199429	224934

Appendix E5: Quarterly Private Gross Fixed Capital Formation

(Rs Millions)

Years\Quarters	Based on Current Prices				Based on Constant Prices (1999-2000)			
	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun
1972-73	1032	945	965	978	n.a	n.a	n.a	n.a
1973-74	1847	1586	1716	1627	n.a	n.a	n.a	n.a
1974-75	3058	2602	2494	2855	n.a	n.a	n.a	n.a
1975-76	4308	3822	4126	4031	n.a	n.a	n.a	n.a
1976-77	4769	4680	4613	4581	n.a	n.a	n.a	n.a
1977-78	4980	5043	5074	5155	n.a	n.a	n.a	n.a
1978-79	5556	5365	5474	5462	n.a	n.a	n.a	n.a
1979-80	6631	6514	6802	6474	n.a	n.a	n.a	n.a
1980-81	6342	6481	6706	6442	36826	39939	44017	48269
1981-82	7914	7882	7681	7707	34722	41372	45560	56029
1982-83	9195	8588	8584	8582	36202	51471	53723	62917
1983-84	9392	9377	9481	9493	48148	54181	59500	67003
1984-85	10365	10576	10577	10487	51118	62374	64958	81213
1985-86	11795	11901	11952	11867	47242	66566	71618	81628
1986-87	14149	14163	13845	13971	51076	64097	68932	70165
1987-88	14975	14904	14936	15030	49409	60968	67406	77776
1988-89	17233	17759	17822	16899	58184	71877	76433	78335
1989-90	18072	18604	18063	18621	67012	84218	87024	87395
1990-91	20747	21338	21746	22276	65537	87685	90048	94446
1991-92	26080	25962	27302	26844	91078	103453	98711	103885
1992-93	29874	29856	31047	31036	81671	103355	97548	123542
1993-94	30993	32318	33475	33607	107330	106206	103327	100742
1994-95	39161	38319	38116	39397	72481	90809	102593	109998
1995-96	43277	43724	43152	44972	88813	98075	103883	112207
1996-97	42374	41754	41227	40630	86133	106219	104872	112876
1997-98	34453	36109	35577	35240	97737	115411	100354	109783
1998-99	42606	42960	46635	45610	79150	90090	89924	106496
1999-00	51375	53155	54163	53967	92859	98928	95199	107762
2000-01	58240	58005	57677	62306	83977	103042	106979	112005
2001-02	47001	46878	43379	46650	96097	116548	116095	130894
2002-03	49310	47671	46836	47514	101542	122457	118227	143623
2003-04	60870	63468	51550	52434	83343	105144	106492	152234
2004-05	62213	70424	77182	72698	97761	123428	136781	163355
2005-06	51158	78192	76537	162210	165107	167811	166912	136062
2006-07	74473	90292	104840	209166	170129	198807	182906	139708
2007-08	136340	135378	130120	153258	157573	191797	174097	192908
2008-09	69865	93188	136321	253158	174087	194485	146294	135450
2009-10	92707	98389	104451	226220	145168	175316	163511	140601

Appendix E6: Quarterly Government Gross Fixed Capital Formation

(Rs Millions)

Years\Quarters	Based on Current Prices				Based on Constant Prices (1999-2000)			
	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun
1972-73	928	1278	1347	1932	n.a	n.a	n.a	n.a
1973-74	370	1019	1523	2891	n.a	n.a	n.a	n.a
1974-75	639	2254	2406	2572	n.a	n.a	n.a	n.a
1975-76	2398	3308	2901	4608	n.a	n.a	n.a	n.a
1976-77	2663	3886	3618	5457	n.a	n.a	n.a	n.a
1977-78	3332	3797	4605	5796	n.a	n.a	n.a	n.a
1978-79	3078	4519	4883	6550	n.a	n.a	n.a	n.a
1979-80	3937	5520	5754	9564	n.a	n.a	n.a	n.a
1980-81	7128	8132	9014	10043	45074	43786	45047	42591
1981-82	6933	8512	9604	12054	49302	47658	45323	44567
1982-83	7297	10862	11278	13476	57266	51088	51332	50301
1983-84	10080	11835	13597	15296	54879	52515	50753	50871
1984-85	10875	13663	14369	18560	54652	54163	53638	51474
1985-86	10933	15953	17098	19304	57189	55721	56177	56307
1986-87	13185	17793	19233	19904	60921	56710	55156	54743
1987-88	15561	19490	21543	24915	53410	52374	52497	52702
1988-89	19814	25158	26940	28777	57822	57974	57774	52562
1989-90	23890	30834	32071	33963	56211	56346	54350	53132
1990-91	26260	37182	38184	40172	58038	56402	57481	58702
1991-92	40072	47848	45103	48409	63843	60458	64354	62046
1992-93	39468	52230	49486	63071	65218	62330	64566	64135
1993-94	54445	57177	58702	58953	63188	62082	60938	59395
1994-95	46125	59111	67098	72798	67696	64759	64113	65488
1995-96	60260	69433	74246	80473	69064	66874	65375	67899
1996-97	64482	86591	87526	92590	66000	59723	57600	57757
1997-98	84320	98026	88002	98405	44643	47526	45354	43950
1998-99	71552	86612	86553	101842	59183	56114	60843	59892
1999-00	90281	98157	96065	110325	52807	53537	53639	52678
2000-01	87588	108335	110873	116302	56271	55598	56081	60468
2001-02	104981	123030	124041	144411	43575	44977	41121	42826
2002-03	112978	136709	135050	160367	44746	43113	41397	42964
2003-04	110649	137833	147785	220246	46632	49243	37781	36862
2004-05	167901	195736	226393	262394	37808	46350	48670	47238
2005-06	293442	312549	321676	270073	30714	44796	42376	87198
2006-07	337098	373325	354852	270575	39995	51167	57504	114925
2007-08	333762	386961	376496	442429	68572	71483	64100	71188
2008-09	445570	473091	381673	351267	28226	39614	54030	100943
2009-10	361852	421553	424816	336959	33228	36557	35918	84333

Appendix E7: Quarterly Changes in Stock

(Rs Millions)

Years\Quarters	Based on Current Prices				Based on Constant Prices (1999-2000)			
	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun
1972-73	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
1973-74	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
1974-75	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
1975-76	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
1976-77	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
1977-78	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
1978-79	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
1979-80	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
1980-81	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
1981-82	1708	1887	1989	2274	4932	5086	5440	5614
1982-83	1419	1674	1709	1898	7772	8329	8570	9601
1983-84	1647	1794	1952	2096	6108	6880	7063	7688
1984-85	1836	2096	2157	2511	6557	6846	7120	7656
1985-86	1846	2262	2360	2532	6820	7559	7704	8682
1986-87	2057	2405	2489	2549	6459	7644	8003	8669
1987-88	2247	2531	2684	2939	7136	7758	7990	8048
1988-89	2696	3123	3257	3324	6731	7470	7925	8657
1989-90	3026	3566	3616	3792	7542	8500	8804	8620
1990-91	3259	4057	4155	4329	7908	9073	9140	9091
1991-92	4301	4799	4708	4893	7678	9032	9250	9609
1992-93	4487	5312	5211	6090	9700	10295	10223	10418
1993-94	5844	6121	6305	6331	8974	10159	9928	11528
1994-95	6011	6867	7415	7907	10576	10439	10188	9932
1995-96	7737	8455	8772	9374	8850	9884	10623	11195
1996-97	8226	9881	9912	10256	10481	10978	11282	12014
1997-98	16624	18774	17297	18705	10214	11266	11040	11622
1998-99	10450	11861	12192	13497	18162	20834	18591	19670
1999-00	12056	12877	12785	13982	11143	11893	12211	13606
2000-01	12430	14179	14367	15224	12398	12977	12669	13656
2001-02	12956	14484	14272	16288	11694	13232	13602	14386
2002-03	17768	20187	19914	22760	11813	13667	13305	14705
2003-04	18322	21504	21294	29129	15788	17877	17235	20152
2004-05	21350	24694	28165	31089	15486	18407	17218	22592
2005-06	26843	30437	31019	33673	15272	19130	20905	23778
2006-07	31474	35454	35154	36687	19418	21011	20694	21811
2007-08	36779	40866	39636	46604	19383	23039	22111	23115
2008-09	47608	52304	47844	55828	20273	23649	21399	23725
2009-10	52089	59582	60650	64537	21457	24804	21154	24833

Appendix E8: Quarterly Exports of Goods and Services

(Rs Millions)

Years\Quarters	Based on Current Prices				Based on Constant Prices (1999-2000)			
	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun
1972-73	2076	2343	2449	3090	36412	39741	35584	38428
1973-74	2263	2804	2314	4576	29580	32911	23725	49436
1974-75	3175	3195	3133	3488	25928	28038	29079	32193
1975-76	3083	3185	3795	3815	27204	29116	34300	32148
1976-77	2921	3313	3631	4123	23304	26352	27176	28695
1977-78	2959	3817	4352	5497	21407	28938	29581	39039
1978-79	3614	4823	6360	6727	22144	27967	36835	36780
1979-80	5479	6948	9692	7359	30196	37679	50350	38587
1980-81	6251	8478	11359	9612	32183	43693	57032	46464
1981-82	7124	7729	8403	9771	34415	37551	43367	53304
1982-83	7372	9112	10656	17246	34159	42364	51472	82080
1983-84	9981	13687	11708	12449	44225	57815	48835	51444
1984-85	9270	14219	12880	13509	33345	55634	56222	56389
1985-86	12216	16428	16781	17829	55257	70612	68859	73001
1986-87	17029	17768	20729	23513	66430	67879	77741	88693
1987-88	18280	24495	24142	26664	58282	75124	72445	81048
1988-89	22198	25473	28140	32484	62283	77764	85444	100926
1989-90	24149	30106	35511	36791	65790	76939	90385	96977
1990-91	33025	42921	42917	53913	83301	104519	112154	140581
1991-92	42821	48699	52867	64783	99567	116628	124945	160305
1992-93	48685	58963	53487	56191	113079	137259	124512	133201
1993-94	58400	61051	62883	71798	119133	130351	130213	144157
1994-95	65514	76745	73358	96112	115252	134874	111515	146104
1995-96	66878	77771	99294	114356	92740	112635	144593	167905
1996-97	90025	100128	97491	102794	101544	129201	122558	130721
1997-98	103339	118751	107433	111789	103031	122071	112276	118912
1998-99	106991	114451	108485	121122	102719	109301	105648	125615
1999-00	116496	131286	124249	142249	110183	132534	126332	145231
2000-01	152474	154150	155536	154988	135959	144927	147647	148404
2001-02	179550	168774	154322	175210	167050	159156	145363	162830
2002-03	189061	190570	194183	241343	194564	200101	194594	225166
2003-04	218256	210731	218702	236015	210466	191990	192748	206779
2004-05	244846	228945	259538	286455	210963	201750	225216	240967
2005-06	281873	277037	279246	323101	236432	232840	234462	262128
2006-07	284179	311341	295121	340019	231617	248631	238198	269718
2007-08	286796	289905	341900	397838	222404	210891	236003	266005
2008-09	436203	397946	375639	426407	227736	219394	207991	249254
2009-10	444305	472102	499133	593924	246611	250485	263203	286107

Appendix E9: Quarterly Imports of Goods and Services

(Rs Millions)

Years\Quarters	Based on Current Prices				Based on Constant Prices (1999-2000)			
	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun
1972-73	1965	2152	2501	2925	37014	39513	40087	45858
1973-74	3042	2858	3788	5428	50294	44460	48560	53232
1974-75	4416	5411	6335	6722	34365	40771	44231	48350
1975-76	5586	5455	5698	6981	52669	61228	54822	76535
1976-77	5590	6466	6800	7731	54661	60864	67043	72772
1977-78	6145	7420	9306	9542	53800	67131	82499	82122
1978-79	8573	10424	11336	11952	77984	89096	94610	96782
1979-80	10662	12569	12899	18135	81319	90250	87159	117194
1980-81	14806	14934	15559	16472	91667	83774	85776	90668
1981-82	16173	17302	15918	18713	80359	85461	81275	103125
1982-83	18024	21566	20496	21460	81528	99170	99201	109221
1983-84	20172	21724	24746	25050	95655	99934	111292	110383
1984-85	25326	24336	25290	31163	101663	104563	111557	136685
1985-86	23993	26140	25936	26810	99140	108218	111178	124746
1986-87	23821	26336	27750	30737	112110	106168	112312	121523
1987-88	28993	30560	31771	39118	96412	102472	106003	131831
1988-89	31818	38300	42901	42722	98640	115805	132552	126066
1989-90	35341	45489	45899	45567	94496	118363	124137	119512
1990-91	39837	50677	47121	49959	91474	105020	104980	121266
1991-92	57793	62640	60396	65159	134400	133842	139994	144889
1992-93	64898	73714	72786	86027	141528	147714	158986	187006
1993-94	74135	69665	71262	80532	147791	134749	133855	150301
1994-95	74452	80473	96830	108574	125992	132851	157811	172539
1995-96	99977	110682	118460	122557	145700	162427	175065	186093
1996-97	112712	131857	124344	132552	149237	166012	154446	174257
1997-98	121798	130561	107007	107244	137725	171042	149828	149159
1998-99	110020	119470	118273	147907	138273	134564	133022	169066
1999-00	132339	134514	142035	153102	139495	138018	137989	146487
2000-01	168333	164307	163066	165749	138626	141736	143880	149888
2001-02	165141	156387	163515	196837	137042	141229	149050	164281
2002-03	178653	193708	208599	205263	159010	163861	166808	168304
2003-04	165712	186312	209897	263478	128659	141163	150672	181065
2004-05	266208	297289	339928	368180	193353	200946	216195	234650
2005-06	407699	440632	438245	483810	237373	258039	252723	254918
2006-07	448999	461258	455299	485532	234200	254509	245272	234060
2007-08	483315	543267	661045	758381	223540	245193	265430	267889
2008-09	768070	647656	524687	656767	205243	206761	197558	241137
2009-10	623741	709127	745148	799227	197875	222655	227953	239204

Appendix E10: Quarterly Indirect Taxes

(Rs Millions)

Years\Quarters	Based on Current Prices				Based on Constant Prices (1999-2000)			
	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun
1972-73	1456	1821	2040	2283	21108	25937	27653	29595
1973-74	2092	2617	2932	3281	24442	28172	31452	33546
1974-75	2550	3189	3574	3998	23571	28065	30097	31931
1975-76	3009	3764	4217	4718	23499	28849	32388	35662
1976-77	3452	4318	4838	5413	24825	29823	32548	36212
1977-78	4324	5409	6060	6780	27744	34396	38469	42624
1978-79	3101	3878	4346	4862	31789	39712	44376	48912
1979-80	6691	8369	9377	10491	35767	45259	49896	54059
1980-81	7844	9811	10994	12299	37743	46232	51457	56310
1981-82	8258	10329	11574	12949	36351	44845	50530	56301
1982-83	9592	11998	13444	15040	40455	49926	55742	61175
1983-84	11813	14776	16557	18523	45628	55175	62180	69069
1984-85	12440	15559	17434	19505	45423	56062	62172	68745
1985-86	12839	16058	17993	20131	44259	54973	61433	68491
1986-87	16882	17670	18500	21128	55809	57397	60486	67860
1987-88	21359	21537	24695	29701	64522	64269	73504	85659
1988-89	22209	25228	30450	36524	61208	68434	82302	96839
1989-90	24273	29461	33637	37725	62534	74817	84916	92393
1990-91	32764	35706	33561	40103	76682	81242	75086	86965
1991-92	39183	37334	40372	49862	83497	78032	82907	99140
1992-93	32503	41920	46581	53213	64374	81717	89660	99380
1993-94	46751	46692	45447	56047	81350	79052	75505	90070
1994-95	46825	53803	59071	71221	70904	78236	83499	99409
1995-96	47096	58649	56823	72449	63666	77481	73519	91684
1996-97	54764	71058	58197	63158	66413	83223	65686	69741
1997-98	56098	59605	54250	72254	62161	65018	58531	76422
1998-99	50462	61485	61047	81131	52107	62701	61944	81897
1999-00	64904	74327	71137	85447	66006	74580	71067	84162
2000-01	69838	78278	79241	93312	66582	73502	74451	87386
2001-02	71845	73104	80298	114016	67063	67758	74026	104038
2002-03	87189	95288	99155	121588	77163	84120	87280	106760
2003-04	87692	117738	113379	136740	74071	96729	92390	108839
2004-05	96676	115272	112471	144155	76551	89398	85622	106884
2005-06	121015	134826	136930	176306	86413	94659	94650	119719
2006-07	127383	130518	131636	167337	84457	85147	85428	106809
2007-08	137612	153750	163529	212712	82380	89023	91268	109980
2008-09	185200	180711	174736	222854	90533	85565	82493	101992
2009-10	188091	202581	207017	245211	82501	86608	85718	98605

Appendix E11: Quarterly Subsidies

(Rs Millions)

Years\Quarters	Based on Current Prices				Based on Constant Prices (1999-2000)			
	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun
1972-73	87	98	187	150	1270	1395	2536	1950
1973-74	216	1111	847	899	2550	12079	9175	9282
1974-75	778	856	1331	969	7173	7513	11181	7715
1975-76	777	508	790	939	6059	3893	6059	7093
1976-77	212	539	477	656	1530	3739	3223	4403
1977-78	553	816	766	975	3548	5189	4859	6127
1978-79	2149	1269	1330	2239	12870	7591	7930	13153
1979-80	1344	1765	1993	1305	7155	9508	10565	6696
1980-81	1393	1105	1196	1503	6686	5197	5584	6867
1981-82	2152	468	1203	1611	9449	2025	5238	6987
1982-83	1546	2025	1631	2310	6519	8424	6762	9392
1983-84	1766	2452	1203	2683	6818	9155	4518	10001
1984-85	1361	2674	2469	2798	4972	9637	8806	9864
1985-86	2150	2669	2061	3112	7411	9135	7033	10584
1986-87	1790	1422	1906	2256	5917	4619	6232	7245
1987-88	2166	2225	2791	2948	6541	6637	8305	8498
1988-89	2919	3157	2928	3750	8034	8554	7904	9929
1989-90	2339	3454	3662	3094	6016	8756	9228	7564
1990-91	2277	2661	3747	2526	5328	6053	8380	5477
1991-92	2323	3048	2815	3188	4948	6368	5779	6336
1992-93	2109	2513	2320	2858	4171	4892	4459	5330
1993-94	1937	1541	2565	3013	3383	2620	4279	4862
1994-95	1627	1375	1355	2243	2458	1995	1911	3123
1995-96	3585	3456	3517	3261	4700	4429	4414	4002
1996-97	3210	3555	2904	3262	3888	4157	3273	3596
1997-98	5707	372	2622	4873	6313	405	2825	5146
1998-99	5646	3376	4173	5066	5819	3436	4226	5104
1999-00	11622	5718	7763	6621	11779	5717	7729	6499
2000-01	7391	6995	10765	8888	7046	6568	10113	8323
2001-02	6699	7325	8584	10168	6251	6788	7912	9276
2002-03	14604	15088	15821	16278	12921	13317	13923	14290
2003-04	15148	18474	13486	18388	12769	15147	10967	14606
2004-05	19825	24591	21744	25200	15672	19039	16525	18653
2005-06	22301	28118	22479	31500	15914	19728	15527	21376
2006-07	19538	31979	28660	38789	12690	20437	18220	24254
2007-08	66976	81244	73936	124233	39606	46469	40762	63451
2008-09	28325	36368	40075	45209	13876	17257	18961	20735
2009-10	15889	16280	17510	23198	6185	6177	6434	8278

Appendix E12: Quarterly Net Factor Income from Abroad

(Rs Millions)

Years\Quarters	Based on Current Prices				Based on Constant Prices (1999-2000)			
	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun
1972-73	126	122	121	126	1725	1677	1657	1726
1973-74	162	149	151	197	1678	1544	1570	2039
1974-75	263	269	331	361	2160	2211	2722	2966
1975-76	674	728	918	876	6325	6835	8616	8229
1976-77	1022	1214	1705	1912	9731	11567	16237	18210
1977-78	2837	2904	3468	3755	25503	26107	31178	33756
1978-79	3530	3791	4122	4077	30417	32662	35510	35128
1979-80	4114	4384	5642	5493	28791	30686	39485	38445
1980-81	6033	6066	6144	5990	30478	30643	31040	30262
1981-82	5921	6367	7298	7485	26973	29007	33247	34098
1982-83	9156	10599	11691	10626	38865	44994	49627	45107
1983-84	10778	10753	11196	9558	43589	43489	45278	38653
1984-85	10116	10357	10609	9833	38422	39336	40293	37347
1985-86	11077	10916	12018	10157	42324	41707	45920	38810
1986-87	9617	9670	10556	9007	35361	35554	38811	33116
1987-88	7392	8337	8411	6933	21599	24359	24575	20256
1988-89	6181	7449	8912	7365	16284	19624	23478	19401
1989-90	9697	9993	10726	8991	22359	23040	24730	20730
1990-91	7740	6351	5912	5529	14699	12063	11228	10502
1991-92	3251	3231	3442	3465	5724	5688	6060	6101
1992-93	2896	2587	2422	2732	4587	4098	3836	4326
1993-94	902	1097	1157	1103	734	893	942	898
1994-95	3845	3941	3585	3626	4647	4763	4333	4382
1995-96	-2062	-2121	-1811	-1628	-3887	-3999	-3414	-3070
1996-97	-4167	-4836	-5547	-6114	-5679	-6591	-7560	-8332
1997-98	-8422	-7295	-4813	-5489	-11307	-9795	-6461	-7369
1998-99	-7741	-7208	-5818	-6516	-9391	-8744	-7057	-7905
1999-00	-10517	-14714	-10427	-12299	-10517	-14714	-10427	-12299
2000-01	-18340	-12204	-12307	-11631	-15917	-10592	-10681	-10095
2001-02	3368	6362	6382	7552	3216	6074	6093	7211
2002-03	37726	39228	38784	36074	31573	32829	32458	30190
2003-04	29145	31101	32199	32033	21241	22667	23467	23346
2004-05	31711	31060	35621	36069	20930	20501	23511	23807
2005-06	32673	34299	38224	44706	18384	19298	21507	25154
2006-07	35396	38289	39274	44672	18510	20024	20539	23361
2007-08	48616	50683	53823	55793	19916	20763	22050	22857
2008-09	83334	78028	89460	95459	27296	25558	29303	31267
2009-10	148239	139794	128475	149738	45735	43129	39637	46197

47

Appendix F: Quarterly GDP (Market Price)

(Rs Millions)

Years\Quarters	Based on Current Prices				Based on Constant Prices (1999-2000)			
	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun
1972-73	17064	20855	20148	23233	220533	265499	244838	262079
1973-74	21781	27513	25543	30753	229855	277345	250972	280734
1974-75	27095	36374	34113	38902	222342	291240	265270	286671
1975-76	33694	42463	40577	43800	240946	299037	282393	295575
1976-77	38767	47190	46370	49366	254074	305851	292655	309114
1977-78	45828	55728	53146	56428	269108	336662	315363	335141
1978-79	49777	62128	60890	65646	276933	349234	335788	353815
1979-80	59621	75086	71968	80856	296861	383196	359543	388357
1980-81	69379	88282	85840	94711	323616	406035	386452	409396
1981-82	81233	106304	101097	105457	337167	443169	416445	428446
1982-83	94445	115198	113228	120127	373714	457692	443286	461030
1983-84	108623	130630	136383	134731	395729	475213	477606	474746
1984-85	123750	150968	148025	151274	419205	521172	507973	513369
1985-86	137292	163634	158905	165702	453730	547027	522271	546618
1986-87	153701	182435	176745	183101	493951	586920	555956	566360
1987-88	180757	212584	211580	216171	522205	626162	610487	612333
1988-89	202599	238735	241814	252656	540927	648894	642784	656188
1989-90	226801	273114	263494	277188	570188	696437	657656	675476
1990-91	271032	325453	312807	331484	612049	736026	685507	707968
1991-92	325425	385318	369891	392086	654765	785857	736900	764282
1992-93	353511	416399	417350	433117	662442	783018	765227	782843
1993-94	404288	481826	487074	524696	693765	818909	789335	803402
1994-95	473106	581990	597285	616081	708580	850120	843028	857792
1995-96	540772	675317	660994	700479	745592	911821	865879	894203
1996-97	627460	785655	757593	781469	768766	938516	864709	880172
1997-98	696346	866241	828450	864275	773372	943612	900684	922533
1998-99	724224	912252	852422	1083383	798212	989004	913677	968882
1999-00	825807	1012909	968823	1018573	823134	1052168	937137	1013673
2000-01	943606	1086499	1083212	1096556	866994	1044356	962229	1028381
2001-02	1004083	1144150	1102364	1202057	890269	1072369	983486	1081653
2002-03	1079773	1232700	1250135	1313039	922036	1121099	1047836	1132004
2003-04	1202259	1460233	1437308	1540780	977922	1214689	1131431	1210081
2004-05	1380450	1672626	1658311	1788395	1044344	1326862	1193302	1317288
2005-06	1620514	1996141	1907342	2099208	1112084	1405257	1256276	1409754
2006-07	1885152	2272322	2130494	2385040	1186184	1474373	1322498	1494893
2007-08	2068613	2628642	2612053	2933492	1207582	1509385	1361161	1487247
2008-09	2829154	3316500	3038236	3540098	1264745	1560331	1367522	1572873
2009-10	3108243	3776883	3689496	4229028	1304265	1614339	1449048	1602307

Appendix G: Quarterly GNP (Factor Cost)

(Rs Millions)

Years\Quarters	Based on Current Prices				Based on Constant Prices (1999-2000)			
	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun
1972-73	15801	19225	18391	21188	201860	242088	221560	236431
1973-74	20051	26321	23692	28656	210708	262495	231706	259856
1974-75	25681	34410	32377	36317	208822	273398	250088	266894
1975-76	32220	39941	38103	40946	229511	280876	265572	276493
1976-77	36498	44619	43661	46481	240171	290724	279881	296141
1977-78	44886	54053	51276	54347	270032	332948	313672	333467
1978-79	52780	63529	62197	67483	287377	349023	337408	356604
1979-80	58452	72967	70308	77053	297019	377902	360842	381059
1980-81	68994	85548	82037	89770	322518	394998	372411	391337
1981-82	81256	102595	97883	101484	336406	428583	405152	414774
1982-83	95587	115877	112983	117972	378150	460621	445020	455941
1983-84	109343	129085	131888	128315	399857	471913	465976	456085
1984-85	122692	148523	143589	144280	416846	513368	495664	493660
1985-86	137772	161249	154818	158792	458483	542312	514997	529361
1986-87	148046	175627	170520	172988	479632	568512	540367	539756
1987-88	168669	201411	197825	195840	485985	591185	569760	557069
1988-89	189378	223974	222716	226611	503208	606907	592377	591115
1989-90	214270	256870	243790	250766	535070	652006	607390	612846
1990-91	247598	298133	288607	298539	555866	671848	628910	637284
1991-92	290910	353788	335030	347716	582528	717246	664827	678504
1992-93	325529	378803	374421	384176	604527	708543	683856	694398
1993-94	359156	436680	444570	471564	617017	741547	717167	719048
1994-95	430649	532230	541609	548717	643688	776498	764354	766193
1995-96	494692	617157	605112	628032	681828	833554	792206	804175
1996-97	570935	712061	696036	714594	700309	852772	793429	804689
1997-98	637386	798654	771655	790583	706349	867952	836920	844293
1998-99	671913	846548	789382	1000098	741731	919713	848209	885361
1999-00	762008	929586	895022	927448	758404	968577	863371	923712
2000-01	862820	1003012	1002429	1000501	791549	966918	887248	939091
2001-02	942305	1084732	1037032	1105762	832690	1017614	923493	993915
2002-03	1044914	1191728	1205585	1243803	889406	1083364	1006972	1069412
2003-04	1158859	1392071	1369614	1454461	938282	1155987	1073361	1138673
2004-05	1335310	1613006	1603204	1705509	1004423	1277265	1147762	1252530
2005-06	1554473	1923732	1831114	1999109	1059904	1350300	1198613	1336002
2006-07	1812703	2212071	2066791	2301165	1132392	1430262	1275917	1435572
2007-08	2046593	2606819	2576283	2900806	1184438	1488094	1332142	1463924
2008-09	2755613	3250185	2993036	3457911	1214543	1518238	1333622	1522737
2009-10	3084281	3730376	3628465	4156754	1273358	1577445	1409378	1558118

Appendix H: Quarterly GNP (Market Price)

(Rs Millions)

Years\Quarters	Based on Current Prices				Based on Constant Prices (1999-2000)			
	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun
1972-73	17189	20977	20269	23359	222258	267175	246495	263805
1973-74	21943	27662	25695	30949	231532	278889	252542	282773
1974-75	27358	36644	34445	39263	224502	293451	267991	289637
1975-76	34367	43191	41494	44677	247271	305872	291010	303804
1976-77	39788	48405	48075	51278	263804	317418	308892	327324
1977-78	48665	58632	56614	60183	294611	362769	346540	368896
1978-79	53307	65919	65012	69723	307350	381896	371298	388944
1979-80	63735	79471	77610	86349	325652	413882	399028	426802
1980-81	75412	94348	91985	100701	354094	436678	417492	439658
1981-82	87154	112672	108395	112941	364140	472177	449692	462544
1982-83	103600	125797	124919	130753	412579	502686	492912	506137
1983-84	119401	141383	147579	144289	439317	518702	522884	513399
1984-85	133866	161325	158633	161106	457627	560509	548267	550716
1985-86	148369	174550	170923	175860	496054	588735	568191	585428
1986-87	163318	192104	187301	192107	529313	622474	594767	599475
1987-88	188149	220921	219991	223103	543803	650520	635062	632589
1988-89	208781	246184	250726	260020	557211	668518	666261	675588
1989-90	236499	283107	274220	286179	592547	719477	682386	696206
1990-91	278772	331805	318719	337013	626748	748089	696735	718469
1991-92	328675	388548	373333	395552	660489	791545	742960	770383
1992-93	356407	418987	419772	435849	667029	787115	769063	787170
1993-94	405190	482923	488231	525799	694499	819802	790276	804299
1994-95	476951	585931	600870	619707	713228	854883	847361	862174
1995-96	538711	673197	659184	698851	741705	907823	862465	891133
1996-97	623292	780818	752046	775356	763087	931924	857149	871840
1997-98	687924	858946	823637	858785	762064	933818	894222	915164
1998-99	716483	905044	846605	1076867	788821	980260	906620	960978
1999-00	815290	998195	958396	1006275	812617	1037453	926710	1001375
2000-01	925266	1074295	1070905	1084924	851078	1033764	951548	1018286
2001-02	1007452	1150512	1108746	1209609	893485	1078443	989579	1088864
2002-03	1117500	1271928	1288919	1349113	953609	1153928	1080294	1162194
2003-04	1231403	1491334	1469507	1572813	999163	1237356	1154898	1233427
2004-05	1412161	1703687	1693931	1824464	1065274	1347364	1216813	1341095
2005-06	1653186	2030440	1945566	2143914	1130468	1424555	1277783	1434908
2006-07	1920547	2310611	2169768	2429712	1204694	1494397	1343036	1518255
2007-08	2117229	2679325	2665876	2989286	1227499	1530148	1383211	1510103
2008-09	2912488	3394528	3127696	3635557	1292041	1585888	1396825	1604140
2009-10	3256483	3916677	3817972	4378766	1350000	1657468	1488685	1648504

Appendix I

Table I1: Quarterly GDP (Factor Cost) Proportions (Period Averages)

Period	Based on Current Prices				Based Constant Prices (1999-2000)			
	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun
FY73-FY75	20.45	26.41	24.59	28.54	21.69	27.17	24.53	26.61
FY76-FY80	21.41	26.36	25.12	27.11	21.55	26.8	25.1	26.55
FY81-FY85	21.38	26.44	25.59	26.58	21.56	26.81	25.53	26.1
FY86-FY90	22.08	26.37	25.45	26.09	22.13	26.8	25.38	25.69
FY91-FY95	21.54	26.07	25.75	26.64	22.09	26.67	25.48	25.76
FY96-FY00	21.14	26.3	25.32	27.24	21.89	27.04	25.15	25.92
FY01-FY05	22.03	25.81	25.51	26.66	21.88	26.99	24.69	26.44
FY06-FY10	21.19	26.07	24.8	27.94	21.59	27.25	24.17	26.99
FY00-FY10	**21.14**	**26.79**	**24.68**	**27.38**	**21.73**	**27.16**	**24.43**	**26.68**
FY73-FY10	**21.32**	**26.45**	**25.16**	**27.07**	**21.81**	**26.93**	**25.03**	**26.24**

Table I2: Quarterly Shares (%) and Dispersion (Period Averages for 1999-00 to 2009-10)

Sector/Subsector	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Standard Deviation
Agriculture	19.22	31.15	22.05	27.58	5.37
Major Crops	10.29	35.93	12.41	41.37	15.94
Minor Crops	39.66	19.60	22.58	18.16	9.94
Livestock	20.50	31.00	28.00	20.50	5.34
Fishing	13.88	28.35	31.58	26.18	7.74
Forestry	20.09	25.61	28.82	25.48	3.62
Industry	23.24	24.42	26.52	25.82	1.46
Mining and Quarrying	24.02	25.03	25.22	25.73	0.71
Manufacturing					
Large-scale	22.64	24.27	27.27	25.82	2.00
Small-scale	22.64	24.27	27.27	25.82	2.00
Slaughtering	18	25	35	22	7.26
Construction	26.84	24.58	23.73	24.85	1.31
Electricity & Gas Distribution	24.53	24.64	23.32	27.51	1.78
Services	22.11	26.74	24.48	26.67	2.20
Transport Storage & Communication	24.64	24.89	25.13	25.33	0.30
Wholesale & Retail Trade	20.93	27.84	25.50	25.73	2.91
Finance and Insurance	11.93	34.80	16.02	37.24	12.88
Ownership of Dwellings	24.67	24.89	25.12	25.32	0.28
Public Administration & Defence	24.40	24.40	25.60	25.60	0.69
Social and Community Services	24.33	24.75	25.22	25.70	0.59
GDP (Factor Cost)	21.73	27.16	24.43	26.68	2.49

Table I3: Moments Comparison for Annual and Quarterised Data (FY1973 to FY2010)

	Annual	Quarterised
Variance of cyclical component Real Consumption	0.00076	0.00080
Variance of cyclical component Real Investment	0.00515	0.00397
Variance of cyclical component Real Income	0.00038	0.00023
Correlation between the cyclical components of Real Consumption and Income	0.57	0.60
Correlation between the cyclical components of Real Investment and Income	0.40	0.08

Source: Authors' calculations

Appendix J
Table J1: Classification of Quarterly GDP According to Quarterisation Method -Summary

Section	Components of GDP	% Share in GDP (FY2000-FY2010)	Basis of Quarterisation	Formulae/ Quarterly Proportion	References
3.1	**Agriculture**	23			
3.1.1	Major Crops (MC)	8	Constant Quarterly Proportions (Harvest Calendar)	$VAMC_t^q(c)$ $= VAMC_t(c) * [PRMC_t^q(c) / \sum_{q=1}^{4} PRMC_t^q(c)]$	PBS (2004)
3.1.2	Minor Crops (MC)	2.8	Constant Quarterly Proportions (Harvest Calendar)	$VAMC_t^q(c)$ $= VAMC_t(c) * [PRMC_t^q(c) / \sum_{q=1}^{4} PRMC_t^q(c)]$	PBS (2004)
3.1.3	Livestock (LS)	11.4	Constant Quarterly Proportions	$VALS_{1t} = VALS_{4t} = VALS_t * (0.175 m_t + 0.25(1 - m_t))$ $VALS_{2t} = VALS_t * (0.35 m_t + 0.25(1 - m_t));$ $VALS_{3t} = VALS_t * (0.30 m_t + 0.25(1 - m_t))$ Where m_t=0.6 (share of milk in total livestock).	Kemal and Arby (2004)' and authors' calculations
3.1.4	Fishing	0.3	Constant Quarterly Proportions	Quarterly proportions for marine Fish (which is 30 percent of all) are 0.200, 0.307, 0.284, and 0.255 and Land fish (which is 70 percent of all) are 0.112, 0.274, 0.350 and 0.265	PBS (2002)
3.1.5	Forestry	0.5	Constant Quarterly Proportions	0.201, 0.256, 0.288, and 0.255	Quaidian Economic Consultants (2001)
3.2	**Industry**	25.7			
3.2.1	Mining and Quarrying	2.5	Actual production	Actual production (quarterly) seasonality	PBS MSB
3.2.2	Manufacturing	18.1			
a)	*Large-scale*	11.8	Monthly LSM Index	Actual production (quarterly) seasonality	PBS MSB
b)	*Small-scale*	4.9	Monthly LSM Index	Actual production (quarterly) seasonality of LSM	PBS MSB
c)	*Slaughtering*	1.4	Constant Quarterly Proportions	0.18, 0.25, 0.35 and 0.22	PBS (2002a)
3.2.3	Construction	2.3	Monthly cement production	Actual production (quarterly) seasonality of cement production with lead of one quarter	PBS MSB
3.2.4	Electricity & Gas Distribution	2.8	Constant Quarterly Proportions	0.245, 0.246, 0.233 and 0.275	PBS (2002b)
3.3	**Services**	52			
3.3.1	Wholesale & Retail Trade	17.6	Indirect approach	Seasonal factors of imports and commodity producing sector	PBS (1995)
3.3.2	Transport Storage & Communication	10.7	Lisman and Sandee (1964)		Lisman and Sandee (1964)
3.3.3	Finance and Insurance	4.5	Indirect approach	M2 seasonality, uniform distribution and constant proportions	Kemal and Arby (2004)
3.3.4	Ownership of Dwellings	2.9	Lisman and Sandee (1964)		Lisman and Sandee (1964)
3.3.5	Public Administration & Defense	6.2	Constant Quarterly Proportions	0.244, 0.244, 0.256 and 0.256	Kemal and Arby (2004)
3.3.6	Social and Community Services	10.1	Lisman and Sandee (1964)		Lisman and Sandee (1964)
Overall	**GDP (Factor Cost)**	100			
	Actual data based share used	44	Sections 3.2.1-3, 3.3.1, and 3.3.3		
	Constant quarterly proportions used	32	Sections 3.1, 3.2.2 (c), 3.2.4, 3.3.5		
	Lisman and Sandee (1964)	24	Sections 3.3.2, 3.3.4, 3.3.6		

PBS: Pakistan Bureau of Statistics, MSB: Monthly Statistical Bulletin, VA: Value addition, PR: Province

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