Draft
For discussion and comments

REGIONAL ACCOUNTS OF PAKISTAN: METHODOLOGY AND ESTIMATES 1973-2000

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ACKNOWLEDGEMENTS

This study was initiated as part of the author's Ph.D dissertation when he was at the Applied Economics Research Centre, University of Karachi, Karachi, and completed during his tenure at the Social Policy and Development Centre, Karachi. In the intervening period, the World Bank Islamabad Resident Mission supported a part of the work.

A large number of officials in government ministries, departments, agencies and corporations and private entities provided data and information, without which this task would not have been possible. It is not possible to identify all of them and, in any case, some among them had cooperated on condition of anonymity.

Dr. Hafiz A. Pasha, then Director of Applied Economics Research Centre, University of Karachi, Karachi provided advice and guidance for the dissertation. The World Bank Islamabad Resident Mission provided very useful comments that helped to improve the estimates. Ms Tabinda Areeb provided excellent research assistance.

Ms Najia Siddiqui edited the draft and Mr. Rizwanullah Khan composed the final draft.

The invaluable contribution of all of the above is gratefully acknowledged. All responsibility for errors of omission and commission, of course, rests with the authors.

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1.0 INTRODUCTION

National Income Accounts records the output of goods and services in a country over a specified period of time. It constitutes the principal macro-economic database for any country. In Pakistan, national income accounts are compiled and published on an annual basis and for the country as a whole along the lines of the United Nations System of National Accounts (United Nations, 1993), the international reference on national income accounting methodology.

The annual national estimates are an aggregation of the output or income generated in the various parts of the country. However, the level and rate of change of output or income is not necessarily uniform in all the regions or provinces. While one region may have a primarily agricultural economy, another may be predominantly manufacturing. Even if the economies of the two regions may be similar in terms of activity, the rate of growth between the two may vary. There can also be differences in output mixes, productivity, etc. National estimates do not reflect any such regional or provincial variations.

The development priorities and the parameters of economic management of the various regions may also vary significantly. Decisions regarding the allocation and distribution of resources almost always have a regional dimension. The resources used in the provision of goods and services may come from some region, the productive process may be located in another region, and the goods and services produced may be consumed largely in yet another region. Even with respect to stabilization functions of government, which are considered to have a national rather than regional relevance, the regional dimension is not absent. Regions respond differently to national economic changes, which are manifested by regional variations from the national norm in business cycles, unemployment, price changes, economic growth, etc.

The major sectors constituting the mainstay of the economy of the various provinces in Pakistan are believed to be as follows: mining and fruit farming in Balochistan province, manufacturing in Karachi and central Punjab, crop agriculture in the Indus basin of Sindh and Punjab provinces, forestry in northern parts of NWFP province, and so on. Karachi and central Punjab are stated to be more developed relative to the rest of the country; although in recent years, the rate of growth in central Punjab is believed to be higher than the rest of the country, including Karachi. In these respects, a Provincial Income Accounts within the context of a National Income Accounts can be of immense value.

This study attempts to decompose Pakistan's gross domestic product over the period 1972-1973 to 1999-2000 into its provincial components. It is important to note here that the exercise is limited to decomposing the national income accounts estimates as published officially. No attempt is made to revise the official annual estimates, either through adopting a superior methodology or through obtaining more reliable data sources.

The national base year has now been changed to 1999-00. However, for reasons explained in the Appendix, the study presents gross provincial product estimates in constant values of 1980-81; one reason being the fact that the gross provincial

product series is estimated up to 1999-00 only. In any case, the backward change of the series to 1999-00 base year is unlikely to alter inter-provincial shares, which is the basic objective of the study.

An important point to note is that the provincial product estimates have been derived on the basis of 'income originating' as opposed to 'income accruing'. The implications are significant. It is likely that one province experiences net income outflow – on account of, for example, migrant worker remittances – and the recipient province experiences a net income inflow. In the event, income originating in the first province is likely to be higher than income accruing; correspondingly, income originating is likely to be lower than income accruing in the second province. In other words, the provincial product that is actually available to the province is likely to be overstated in the first province and understated in the second province.

The study is organized as follows. Section 2 reviews the literature on the subject; section 3 details the methodology of decomposition; section 4 presents the gross provincial product by sector for the period 1972-73 to 1999-00, and section 5 offers some general conclusions. .

2.0 REVIEW OF LITERATURE

Regional accounting acquired the status of a discipline in the 1950's, although attempts to identify regional income differences in a country have a long history. In the United States, for example, regional personal incomes have been estimated since 1929. The impetus to the development of regional accounts has been provided by the demands of regional authorities for regional information for a variety of policy and analysis purposes. Considerable attention began to be focused upon the resolution of methodological issues in the construction of regional accounts and the bulk of the literature was produced from the early 1970's to the early 1990's. A review of literature for this period may thus appear to be dated; however, it is still highly relevant for countries like Pakistan that have only just – tentatively – begun the task of constructing regional accounts.

2.1 Importance and Objectives of Regional Accounts

Regional Accounts can prove to be useful on several counts. The main objectives served by regional accounts can be stated as enabling regional authorities to prepare regional plans, assess the impact of their plans, assess the impact of the plans and policies of the central authorities and identify the emerging trends requiring policy responses. It can prove useful in formulation and preparation of regional level budgets and in drawing up federal-regional revenue sharing formulas. It can also serve those who have an interest in the relative performance of the regional economies, i.e., business investors, trade unions, academics, etc. (ABS, 1984; Romans and Graham, 1976; NCBS, 1970).

Regional Accounts can serve a wide range of analytical and research applications, i.e., analysis of interregional differences in economic performance and potential and the specific sectors in which the differences are significant, differences in industrial structure and structural change, differences in productivity and factor shares, disparities in income and consumption levels, etc. Regional data can also be used in input-output analysis and in econometric modeling and forecasting of regional economies (ABS, 1984).

2.2 Defining the 'Region'

The issue of defining the `domestic territory' of the `region' is somewhat complicated. It involves several different, often contradictory, factors relating to homogeneity of regions, allocation of economic activities by region, organization of regional policy measures, etc. It is quite likely that a regional division based on, say, homogeneity of economic activities will comprise separate geographical areas (Hjerpe, Niitamo and Suur-kala, 1987).

Conceptually, the choice of the regional division is a function of the requirements of regional policy. In practice, almost all countries that are in the process of constructing regional accounts have adopted an internal administrative unit, e.g., the

province, as the regional division. (Tiwari, 1971; NCBS, 1970). This conforms with the fact that regional planning and decision-making is generally based on administrative boundaries. The limitation in this case is that economic activities are artificially bounded, since an administrative boundary may cut across a homogeneous area in terms of economic activity. (Hjerpe, Niitamo and Suur-kala, 1987).

Given the adoption of the administrative unit as the 'region', the major part of the 'domestic territory' of the 'region' is clearly defined. However, important boundary problems arise when economic activities involve the territory of more than one region or occur outside of national territory (ABS, 1984).

2.3 Problems in Regionalization of National Accounts

A regional economy is part of the national economy. As such, regional accounts have necessarily to be constructed in the context of the national accounts. Reference to regional accounts, and the problems thereof, is provided in the United Nations System of National Accounts (United Nations, 1968):

> `Any system of national accounts could be sub-divided by region and in recent years a number of countries have been engaged in the construction of regional accounts. This development gives rise to a number of conceptual problems which are only of minor importance, if they exist at all, at the national level and to many new problems of measurement.'

The theoretical bases of national accounting systems are well established, with the United Nations System of National Accounts providing the international standard detailing the concepts and methods. However, the methodology for regional accounting is as yet in the formative stage. There is no internationally accepted standard and methodologies currently in use in various countries are disparate and based on somewhat arbitrary hypotheses (Capron and Thys-Clement, 1992).

In principle, the national accounting system can be applied to the development of a regional accounting system. At the regional level, the allocation of value added in production and factor incomes according to the regions where the production takes place appears appropriate as a general principle.

In practice though, it is rendered inappropriate or difficult to apply national accounting concepts to regions primarily on account of the openness of the regional economies. The problems relate in particular to regionalizing certain heads of accounts and to delineating certain interregional flows. These problems have necessitated the estimation of regional accounts through a breakdown of national accounts by indirect means instead of the construction of autonomous regional accounts. Regionalization of national accounts implies that the regional accounts will not only reflect any errors or biases inherent in the national accounts, but also suffer from a relatively lower degree of accuracy and reliability on account of the particular conceptual and data problems associated with regional accounts. (Capron and

Thys-Clement, 1992; ABS, 1984).

The major problem in the application of national income accounting concepts to regional accounts is that certain flows of factor income and transfer payments which net nationally do not net regionally. This occurs because national accounts are structured to measure inter-institutional and inter-sectoral economic transactions that do not coincide with regional boundaries to the extent they do with national borders. Conceptual and data problems arise, in particular, in determining the economic region of origin of corporation profits, interest, depreciation, exports and imports, investment in inventories, consumer expenditures, central government expenditures, etc. (Romans and Graham, 1976; Graham and Romans, 1971; Adler, 1970).

Economic transactors are defined in terms of ownership interests, operating in a national market under a national monetary system, rather than by regional boundaries. To the extent that the economic activities of these transactors is not confined to a particular region, serious problems of regional allocation arise about the transactors to be included, about the classification of these transactors into regions, and about the type of transactors to be covered by the regional accounts (Hochwald, 1957).

Regional accounts require the application of uniform concepts, definitions and classifications in statistical systems and establishment of accounting conventions for regional income analysis. A regional accounts framework has also to be adapted to the conditions, structure and requirements of a specific region, i.e., the size of the region, the extent of devolution of power and functions, etc. (Hjerpe, Niitamo and Suur-kala, 1987; Walters, 1987; ABS, 1984; Sourroille, 1976).

The accounting system can range from systems based on single indicators of the level of activity, i.e., regional product, to more detailed and complex systems based on various groupings of economic entities with different aggregations of economic functions. The basic objective in any system is to obtain regional distributions of national aggregates. This requires distribution coefficients that can be used to divide the components of the national accounts by region or, in other words, regionalize the national accounts. (Hjerpe, Niitamo and Suur-kala, 1987; Sourroille, 1976).

The question also arises as to what items of income and expenditure are to be credited or debited to the region's account. One principle in this respect is to account as receipts of the region all flows constituting the national receipts coming from the region and to account as expenditures of the region all flows constituting the national expenditures benefitting the region (Capron and Thys-Clement, 1992).

Most significantly, however, the estimating method has to come to terms with the data availability. There are two choices: attempt a conceptually sound definition of the variable used for regionalization at the cost of some data availability or opt for good data at the cost of conceptual precision. The latter, however, would be a good measure of the wrong variable (Goldberg, 1968).

For example, regional estimates were made using the input-output method in the Groningen and Amsterdam regions of the Netherlands. In the Groningen table,

internal transactions are given in full detail, while transactions with other regions are given in one row, representing purchases, and one column, representing sales. In the Amsterdam table, the columns of the national table have been disaggregated over the regions, i.e., the balance of Amsterdam's transactions with the rest of Netherlands is given in one column. The Amsterdam method is based upon the regional breakdown of the data available for the national accounts, while the Groningen method requires the collection of basic data in addition to that available for the national accounts. The Groningen method is considered conceptually superior but the additional cost of data collection is prohibitive. As such, the Amsterdam method was adopted for the construction of the Netherlands Regional Accounts. (NCBS, 1970).

2.3.1 Regional Price Differentials

Regional accounts estimates are primarily used to draw interregional comparisons of productive efficiency and standards of living. Herewith, it has to be taken into account that prices of factors and products, and changes in prices, are not uniform in all the regions across the country. Regional product or income, valued at national prices, can serve as an indicator of interregional productive efficiency. For comparisons of interregional standard of living differences, however, regional estimates have to be adjusted for interregional differences in the cost of living. The existing differences in per capita regional product or income are likely to change if the estimates are adjusted for interregional price differences. However, interregional cost of living indices are generally not available and their absence constitutes a major deficiency from a distributional point of view (Nair, 1987; Graham and Romans, 1971).

Finland is one of the few countries with reliable cost of living indices at the regional level. An attempt has also been made in India to work out indices of the purchasing power of the rupee, the Indian currency unit. The results between the two countries tend to vary. In Finland, it was found that there was hardly any change in regional income inequality and, further that, interregional price differentials tend to narrow over time. In India, on the other hand, it was found that there was a pronounced interregional differential in the purchasing power of rupee which persisted over time (Nair, 1987; Mazumdar, 1982).

2.4 Data Issues

The conceptual difficulties in developing regional accounts is one side of the coin. The other is data availability. In general, where data is available directly for the region, the regionalization exercise is straightforward. Where national level data are based on economic censuses or a complete set of administrative records, corresponding information for regions can be obtained. The need for theoretical solutions or methodologies for decomposing multi-regional activities can also be minimized by spatial identification of data at the time of collection. (Hjerpe, Niitamo and Suur-kala, 1987; Walters, 1987; ABS, 1984; Hochwald, 1957).

Regional data can also be drawn from national data based on sample surveys;

although the reliability of results based thereon will be lower. This is because a sample adequate for the national universe may be inadequate in terms of the regional universe. Further, data gaps can be filled in nationally by assuming stability in basic relationships among the relevant components. The stability assumptions are less valid for regions, where shifts in particular variables are likely to carry greater relative weight. (Hochwald, 1957).

Taxation statistics are a major data source for national income estimates and can be used for regionalization of the output of non-farm unincorporated enterprises. Taxation statistics are, however, not necessarily appropriate for regionalization of the output of non-farm incorporated enterprises, as the tax returns may relate to productive activity of establishments in more than one region (ABS, 1984).

Where data for the region is not available directly, resort can also be made to the use of indirect allocators or proxy variables. The selected allocator should produce estimates that approximate those that would have been obtained if direct measurement had been possible. In reality, differences in industrial structure and operations between establishments of an enterprise tend to limit the reliability of particular allocators. (ABS, 1984).

As stated earlier, estimating methods has to be reconciled with data availability. An additional factor that has to be taken into account is the feasibility of data collection. This is an important condition given that the exercise requires compiling, on an annual basis and in each region, data with all their appropriate details and definitional consistency, integrating them with national totals and analyzing them in terms of price and volume movements (Tiwari, 1971; Adler, 1970; Hochwald, 1957).

Regional product or income measurement, therefore, emerges as a multi-fold task: assembling data from a multiplicity of sources and adapting them, through estimation, in a "step-by-step build-up". However, the success of regional accounting depends largely on its official adoption. If it is officially planned to produce regional accounts, regional statistics currently not collected, compiled or published can be made available. (Graham and Romans, 1971; Brown and Woodward, 1969).

Needless to say, the data availability situation is considerably superior in the developed countries relative to the developing ones. For example, the United States -- a developed country -- possesses a complete record of the internal migration process and its economic effects. Based on Social Security data, the migrants are classified by age, race, gender, and level of earnings and an assessment is made of the economic effects of migration upon the income distribution of the area from which and to which the migration occurred (Graham and Romans, 1971). By contrast, Indonesia and India – both developing countries -- produce crude estimates of regional income arrived at largely on the basis of indirect allocators, which are selected more for reasons of data availability than conceptual justification. (Nair, 1987; Tiwari, 1971).

2.5 Definitions of Particular Concepts in Regional Accounting

The accounting system is built around economic entities or transactors and economic activities or transactions. There are characteristics of transactors and of transactions which are defined in the context of national accounts, but which need to be redefined and differentiated in the context of regional accounts. The definition of transactor units and transactions appropriate for regional accounting is an essential first step towards regional accounting.

2.5.1 The Supra-Region

The concept of the "supra-region" is referred to as well as the "imaginary region", "extra-territorial sector", etc. The supra-region is assumed to have no resident economic units, i.e., individuals, households or enterprises and its system of accounts includes transactions with other regions. All "national" services, e.g., transport, central government, etc., required by residents in the regions are dealt with through an external transactions account vis-a-vis the supra-region.

2.5.2 Enterprise vs Establishment Units

Among the transactors are firms that have two basic characteristics. On the one hand, they can be described as enterprise or financing units, where decisions regarding financing of transactions are made and, on the other hand, they can be described as establishment or producing units, where production decisions are made. The former is concerned with the flows of finance and the latter with the flows of goods and services. (Walters, 1987; ABS, 1984; and Sourroille, 1976).

In the case of a firm at a single physical location in a single region, it is an enterprise as well as an establishment unit and performs financing as well as production decision-making functions. However, in the case of large organizations with multiple units at multiple locations in more than one region of the country, enterprise and establishment units are separate entities and there exists a functional separation between the financing and production decision-making functions.

In practice, a large majority of enterprise or financing units can be equated with establishment or production units operating from a single physical location. Cases where enterprise and establishment units are located in different regions are relatively fewer, but they contribute a significant part of total national output and value added. Moreover, it is the latter case that present problems with respect to regional accounting in terms of, for example, the regional allocation of corporate profits and gross value generated at the head office.

2.5.3 Income Originating vs Income Accruing

In a national context, income originating from transactions taking place within the national territory also accrues to transactors residing within the national territory. Gross domestic product of a country approximates as both, a measure of productive efficiency of national resources, as well as the standard of living of the population of the country.

In the regional context, this nexus does not hold. Income originating from transactions taking place in one region may accrue to transactors in another region; primarily on account of the openness of the regional economies, resulting in the absence of interregional barriers to product and factor market movements. Income originating reflects the aggregation of all productive factors in the region and,

therefore, serves as a measure of productive efficiency of regional resource endowments. Income accruing reflects the aggregation of the owners of productive factors in the region and, therefore, serves as a measure of the standard of living of the population of the regions. The question is also important from the point of view of the criteria for allocating labour and entrepreneurial income to regions. The allocation criteria can be either place of work or place of residence. The former would reflect income originating and the latter would reflect income accruing. The difference between income originating and income accruing can be significant and has been estimated at 15 percent in the United States and 29 percent in India. (Nair, 1987; Graham and Romans, 1971; Hochwald, 1957).

An instance of the significance of the difference between income originating and income accruing can be found in the case of construction; given that a part of the construction industry capital and work force is mobile. Value added can be defined as the sum of the value of all construction projects carried out in the region or as the sum of the value of the current income of all construction enterprises resident in the region. The first is a measure of income originating and the second of income accruing. The sources of data for obtaining the two measures are also different. In the first case, detailed region-wise information on construction projects will be required. In the second case, details will be required of construction works carried out in the region by resident as well as non-resident construction enterprises (Sourroille, 1976).

Another instance in this respect is the allocation of contributions for social security. In different countries different economic agents are responsible for the contributions. In Italy, the employer bears the total cost of the contributions; in Belgium, it is the employee; and in Canada and USA, it is the consumer. Irrespective of who bears the cost, the contributions in all cases are deposited by the employer. However, that procedure is primarily a function of administrative convenience. Effectively, the social security contribution in all cases is linked to the employee's salary. As such, the logical point of allocation appears to be the employee's place or work, if the objective is to determine income originating, or the place of residence, if the objective is to determine income accruing (Capron and Thys-Clement, 1992).

2.5.4 Income Earned but not Received vs Income Earned and Received

There are income components that are earned when received, while there are income components that are earned at one time and received at another time. In the national context, the issue is merely of timing but not of location as the income recipient is resident within the country at both the time periods. In the regional context, the issue can be one of timing as well as location. In the event that the income recipient has earned the income while located in one region and has received the income while located in another region, there arises the question as to in which region to credit the receipt (Romans and Graham, 1976).

An instance of the significance of the difference between income earned and received and income earned but not received can be found in the case of life insurance and pension funds. Interest on life insurance and pension fund investments is imputed to personal income when earned and employer contributions are credited to household personal income also when earned. However, life

insurance and pension fund interest is actually received subsequently in the form of survivor or retirement benefits. There is another aspect of life insurance and pension fund transfers which net nationally but not regionally. Nationally, premiums paid by employers represent consumption expenditure on life insurance and pensions. Regionally, the equation does not hold unless premium payers and benefit receivers reside in the same region (Romans and Graham, 1976).

2.5.5 Accretion Income vs Flow Income

The treatment of capital gains raises the question as to whether accretion income or flow income is the better measure of economic welfare or purchasing power. Accretion income is defined as consumption plus change in net worth or maximum consumption possible in a time period with net worth remaining constant. Flow income is simply a measure of cash flow and excludes many items included in accretion income, i.e, capital gains. Accretion income is judged to be a more appropriate measure of regional income. (Romans and Graham, 1976).

2.6 Issues in Regionalization of National Accounts

Where producers operate across international borders, the United Nations System of National Accounts recommends allocation of production and factor incomes to the country in which production takes place. This principle can also be applied to the allocation of production and factor incomes in the case of national producers operating across regional boundaries. However, while international product and factor flows are well documented in terms of origin and destination, interregional product and factor flows are not. This gives rise to several issues that require the development of conceptually sound and internationally accepted regional accounting conventions. (Walters, 1987; ABS, 1984).

The main problem in regionalization of national accounts relate to supra-regional or national entities and activities that extend to several regions or throughout the nation and/or operate in several economic sectors. The issues herewith relate to treatment of the central government output and consumption, taxes and expenditures and the national public debt; national and multi-national corporations; mobile factors of production, etc.

2.6.1 National Public Administration

Gross product of national public administration or central government constitutes a prime case of indivisibles. It is also unique in the sense that government output is almost wholly consumed by itself and is not marketed. Gross product, therefore, comprises of wages, salaries and supplements plus depreciation.

Gross product of the public administration sector constitutes a significant part of the national as well as regional economies. It is, therefore, pertinent to measure the regional incidence of government revenues and expenditures and record the regional income distribution effect of taxes, transfers and expenditures (Graham and Romans, 1971).

Government gross product comprises of production, consumption and capital

formation activities. Given that central government activities and the basis of decision making are national and not regional in character, e.g., defence, fiscal and monetary policy, etc., one solution can be to treat all aspects of national public administration product as part of the supra-region or the extra-territorial sector. (ABS, 1984; Sourroille, 1976).

However, a significant part of national public administration production and capital formation actually occurs through government establishments located across the regions. There is, therefore, a general consensus that central government production and capital formation be allocated to the regions according to the `base of operations' or, in other words, according to where particular government establishments are located (ABS, 1984; Sourroille, 1976).

As regards central government consumption, there are three alternatives. One, since the final consuming unit is the national public administration and not any of the regions, government consumption can be allocated to the supra-region. Two, the central government, in its role as a consumer, can be regarded as a resident of all states; and three, the regions can be regarded as the final consumers of central government expenditure. In the latter two cases, central government final consumption expenditure can be attributed to regions according to expenditures actually incurred in each region or on a "where incurred" basis. (ABS, 1984).

The allocation of taxes according to the location of the source bearing the burden is widely accepted. With regard to direct taxes on individuals and indirect taxes on goods and services, the source bearing the burden is unambiguously the taxpayers and the consumers, respectively. In the case of corporate taxes, the source can be identified variously as enterprises, stockholders or even the consumers. However, if the source bearing the burden is accepted as the effective point of incidence, enterprises emerge as the logical criteria for allocation, provided it is based on the location of the operating unit and not of the head office (Capron and Thys-Clement, 1992).

The allocation of expenditures according to the location of the beneficiary is also generally accepted. The problem, however, arises in defining the beneficiary. The beneficiary has been defined in different ways as either the user of the public property or facility, the economic agent receiving the payment or region of location of the property or facility. Herewith, the indivisibility characteristic of some public goods introduces an element of arbitrariness in allocating the expenditure aggregates. As such, either the entire expenditure is allocated to the supra-region or the extra-territorial sector or indirect allocators like population, beneficiary residence, etc., are applied. (Capron and Thys-Clement, 1992).

Allocation of the public debt interest, contracted as part of the national economic management policy, is also problematic. Two indirect approaches are used: the stockholder approach and the beneficiary approach. The former is unfavourable to regions that finance the public deficit but does not necessarily benefit from it, whereas the latter approach forces a region to accept debt charges incurred in the context of a national macroeconomic policy. (Capron and Thys-Clement, 1992).

2.6.2 National-level Corporations

Allocating corporate profits is not problematic if a corporation is located entirely in one region and operates only within the region. Problems, however, arise where a corporation is a multi-regional, national enterprise with branch establishments operating in more than one region. The problem relates specifically to the regional

allocation of corporate profits.

One approach is to treat the corporation as a supra-regional entity and allocate corporate profits to the supra-regional domain. Alternatively, corporate profits can be allocated to the regions in accordance with some criterion or combination of criteria. Several criteria can be identified. Corporate profits can be allocated according to the residence of the equity owners, according to the location of the head office or according to the share of output of the branch establishment located in a region. It can also be allocated on the basis of certain ratios, i.e., the corporation's capital equipment in the region to its total capital equipment in the country, the corporation's payroll in the region to its total payroll in the country, the corporation's sales in the region to its total sales in the country, etc., (Hjerpe, Niitamo and Suur-kala, 1987; Goldberg, 1968).

The supra-regional approach is consistent with corporate decision-making behaviour and analytically useful. However, the empirical problem of determining the value of a corporation's factor contribution in a region remains unresolved. Allocation according to equity ownership does not accord with reality since it implies that output is a function of ownership of capital equipment rather than from the equipment itself. Allocation according to the location of head office also does not accord with reality since it implies that the head office is the key determinant of output and ignores the factor contribution by branch establishments in the regions. Allocation according to the share of output of the branch establishment, on the other hand, ignores the role of the head office and, by implication, the role of the corporation itself by treating each of the branch establishments independently. The role of the corporate entity cannot be ignored since it serves as the institutional super-structure for the production and value addition process. Allocation according to the corporation's regional shares of capital, labour sales, etc., implies that profit is a function of capital or labour employed or of sales, etc. (Goldberg, 1968).

The choice of a criterion or set of criteria has a significant impact on the regional distribution of national product and income, as highlighted by the following hypothetical case. Assume a corporation with its head office in Region A, production facility in Region B, most of its sales in Region C, and most of its stockholders in Region D. Corporate profits would be allocated to Region A under the head office location criteria, to Region B under the output share criteria, to Region C under the sales share criteria and to Region D under the equity ownership criteria. (Goldberg, 1968).

An even more difficult area, herewith, is the allocation of the value of inter-firm, interregional exchange of goods and services that do not enter the market, since corporations do not maintain internal records on a regional basis. (Graham and Romans, 1971; Hochwald, 1957).

Two instances of the regional decomposition of corporate profits are available in the case of the states of California and Illinois in the United States of America. (Goldberg, 1968).

In California, the state's share of corporate profits is derived as follows:

$$\pi_c = [\{(P_c/P_u) + (K_c/K_u) + (S_c/S_u)\}*(1/3)]$$

where, π_c = corporate profits in California

P_c = corporate payroll in California

P_u = corporate payroll in USA

K_c = corporate property in California

K_u = corporate property in USA

S_c = corporate sales in California

S_u = corporate sales in USA

The above equation derives California's share of the national corporate profits based on the unweighted arithmetic average of the corporation's (1) state payrolls to total payroll (2) state property to total property, and (3) state sales to total sales.

This approach implies that profit is a return for the corporation's labour use, capital use, and sales activity. The approach is criticized on the grounds that it appears to be based on statistical expediency rather than on theoretical rationale.

The Illinois method is conceptually somewhat more defensible and is in line with data availability. Value added data is available by industry for incorporated and for unincorporated firms for USA and for Illinois. Net income data for incorporated firms is available for USA only and not for Illinois. Net income data for unincorporated firms is available for USA and for Illinois. It is assumed that incorporated firms operate on a multi-state basis, while unincorporated firms operate with the state only.

Based on the available data and the assumptions outlined above, the following estimation methodology has been adopted:

$$NYVA_{kxi} = NYVA_{jxi} * (NYVA_{jxu}/NYVA_{kxu}) \quad (1)$$

and $$CY_{xi} = CVA_i * NYVA_{ki} \quad (2)$$

where, $NYVA_{kxi}$ = ratio of net income to value added for incorporated firm k in industry x in Illinois

$NYVA_{jxi}$ = ratio of net income to value added for unincorporated firm j in industry x in Illinois

$NYVA_{jxu}$ = ratio of net income to value added for incorporated firm in industry x in USA

$NYVA_{kxu}$ = ratio of net income to value added for incorporated firm in industry x in USA

CY_{xi} = corporate income in industry x in Illinois

and CVA_i = corporate value added in Illinois

Equation (1) states that the ratio of 'net income to value added' for incorporated firms in Illinois is a product of the ratio for unincorporated firms, adjusted for the difference between the ratios for incorporated and unincorporated firms. Equation (2) states that corporate income in Illinois is a product of corporate value added in Illinois adjusted for the `net income to value added' for incorporated firms in Illinois, as obtained in Equation (1).

The above methodology implies that:

- net income is directly related to value added and represents the return to the corporate entity for its factor contribution to the value added process
- ratio of net income to value added can vary by industry, by business form and by regional location
- differences in ratios due to form of business organization or due to size are the same irrespective of region
- differences in ratios due to advantages or disadvantages of producing in a region are unrelated to the form of business organization and, therefore, apply equally to both forms in the region

In Canada, corporate profits have been allocated on the basis of regional census value added data in the case of commodity producing industries and on the basis of arbitrary allocators, like the ratio of regional wages and salaries and sales to the national totals, in the case of other industries (Adler, 1970).

2.6.3 Mobile Factors of Production

Regionalization of national accounts by definition hinges upon the identification of the location of economic activities. Generally, this is not problematic since most economic entities have a well-defined location. There are, however, significant exceptions caused by the existence of entities without a specific location and mobile factors of production, i.e., capital and labour. Mobile capital, also referred to as transportable fixed assets, include ships, aircraft, vehicles, off-shore oil and natural gas platforms, etc. This problem is paramount in transport, communications, fishing and construction sectors (ABS, 1984; NCBS, 1970).

The national accounting convention is to treat non-financial mobile capital assets of a nation as part of the domestic territory of that nation. These include ships and aircraft operated by resident enterprises predominantly between two or more countries, fishing fleets and vessels, floating platforms operated by resident

enterprises wholly or mainly in international waters, etc. Activities in waters or air space over which a country exercises jurisdiction are also attributed to that country. The justification for the inclusion of these assets as part of the domestic territory of the nation is provided on the grounds that their operation will be subject to the laws and regulations of that country and their production more closely linked to the country's economy (ABS, 1984).

For the purpose of regional accounting, a number of estimation approaches are available. One method consists of allocating the output of such sectors, e.g., transport, to the supra-regional account. This method is analytically simple, but does not reflect the economic activity that takes place in the sector in the regions. Another method consists of allocating output by location of head office of the enterprise for the production and capital formation accounts and by branch establishments for the income, expenditure and capital financing accounts. This method is also considered inappropriate, as it does not reflect the utilization or location of capital assets (Sourroille, 1976).

Yet another method follows the lines of national accounting. The concept of "base of operations", analogous to that of a single physical location, is used to allocate activities associated with mobile capital and work force, even though most of its economic activity does not take place within the confines of that location. The gross product of administrative offices and ancillary units is, however, allocated to the region in which they are located. An activity in an area closely associated with the economy of a region or subject to the laws and regulations of a region is attributed to that region (Walters, 1987; ABS, 1984).

The issues relating to mobile capital are particularly relevant to the transport and communications sector and are highlighted as follows. The productive activity of a transport enterprise which is a resident of only one region but operates aircraft or ships between two or more regions, i.e., single-state establishments with multi-state activity, is treated as part of the domestic territory of the region of residence of the enterprise. The productive activity of an enterprise with multi-state establishments is attributed to ‘notional producer units’ at the regional level, for the delineation of which appropriate conventions need to be established on the basis of individual loading/unloading and services premises; whereby, revenues and expenses of en route activities can be allocated back to individual ‘producer units’. Value added in respect to these ‘producer units’ can be derived through the use of indirect allocators. These may include the use of numbers of passengers or tonnes of freight carried or passenger-kilometres and tonne-kilometres (Walters, 1987; ABS, 1984).

Specifically, multi-location road freight output and the in-flight/en route element of production arising from a flight or passage of a national airline or shipping carrier can be allocated to the region involved in the operation, i.e., the points of departure and arrival. Offshore oil and natural gas rigs and platforms can be allocated to the adjacent region since they are likely to be subject to the laws and regulations of that region and are likely to be closely linked to the economy of that region. Based on the same principle, under-sea cables can be allocated to the region to which they first connect, while satellites can be allocated to the region where the associated earth station is located (Walters, 1987; ABS, 1984).

All communications industry activity relates to multi-state establishment units. The existing norm is to allocate value added to the point of origin of the activity, i.e., letter, phone call, telex, etc. Conceptually, however, it appears logical to allocate value added more widely as facilities and labour are employed throughout the network (Walters, 1987; ABS, 1984).

The issue of mobile capital is also relevant to the fishing sector. Herewith, production and value added of fishing fleets can be allocated to the region of base of operations, regardless of whether other regions may be responsible for the administration of fishing grounds or whether fishing is being conducted in international waters (Walters, 1987; ABS, 1984).

2.6.4 Returns to Capital as a Function of Returns to Labour

In a large number of cases, the regional allocation of national estimates of capital based income variables is carried out on the basis of wage shares. This method constitutes an improvisation dictated by data availability conditions, but rests on an implicit assumption that the income share accruing to capital in each industry, obtained as a product of the rate of return to capital and the quantity of capital used, is a constant function of the income share accruing to labour in that industry. This amounts to a further assumption that the industry's Cobb-Douglas production function is defined without reference to its location and regional differences in income shares and productivity are a function of industry mix alone (Graham and Romans, 1971).

A study measuring gross product originating by manufacturing industries by states in the United States was undertaken to ascertain the validity of some of the proxies used to estimate regional product. The results were mixed. A high correlation was found between labour income and gross regional product. However, on a per worker basis, correlation was generally low and even insignificant in eleven out of eighteen industries (Graham and Romans, 1971).

2.6.5 Input-Output Analysis

The most complex problem in the make up of a regional accounting system is the evaluation of interregional flows. Diverse methods have been devised, such as specific investigations of businesses, sales statistics of enterprises by destination, transport statistics, etc. An alternative course of action consists in basing the system upon multi-regional input-output tables. The input-output approach requires information on the origin of purchases and destination of sales of enterprises in the region to users inside and outside the region (Capron and Thys-Clement, 1992).

There are, however, limitations to the application of the input-output approach. The data problems are in itself serious given that producers do not maintain information on the basis required. Conceptually, regional input-output studies have been based on national input-output tables broken down by region; thereby assuming the same production function for each field of activity in every region. By using regional data derived from national parameters, the researcher is still on the level of a macro description to problems of the regional economy (Hjerpe, Niitamo and Suur-kala, 1987).

2.7 Methods of Regionalization

Of the three methods of national income accounting, the income approach is adopted to a large extent in the developed countries, while a combination of the production, income and expenditure approaches are followed in most of the developing countries. In the Netherlands, regional accounts are derived through regional input-output tables as a sub-set of the national input-output tables. Other developed countries are also resorting increasingly to the use of input-output methodology for the derivation of regional accounts.

In Australia, a developed country, regional accounts are prepared by a combination of what is called the taxation approach and the economic census approach. The former uses taxation statistics as the principal data source to produce an income-based measure of gross regional product. The use of taxation statistics, however, involves an accuracy problem, since the tax returns of an enterprise, headquartered in one region, may relate to the productive activity of establishments located in another region or regions. In order to overcome this problem, region-of-assessment based estimates are converted to a region-of-residence basis, using limited additional taxation statistics classified by region of residence. The latter uses economic censuses to allocate to regions the income-based national level estimates of gross domestic product. Broad allocators include wages and salaries, turnover, etc. The two measures result in discrepancies on account of differences in reporting bases, industry classifications, coverage, definitional and timing differences and statistical vagaries. These discrepancies are allocated to regions on a pro rata basis (ABS, 1984).

In the United Kingdom, an attempt was made initially to develop regional accounts by the production method, taking national estimates of GDP by industry and distributing each industry total between regions according to "reasonable bases". It was, however, found that except for manufacturing, mining, gas and electricity, the results were unreliable; given that they were based on the sweeping assumption that net output per capita is uniform for all regions or that it varies between regions in proportion to some index of regional personal incomes from employment and self-employment. Alternatively, therefore, the income method was adopted for estimating regional GDP. The Inland Revenue Surveys of Personal Incomes provides regional totals of wages and salaries and of self-employment incomes, which formed the basis of the regional allocation procedure. The task has been facilitated on account of the fact that the region of assessment generally coincides with the region of work (Brown and Woodward, 1969).

In Canada, the historical regional product has been constructed primarily on the basis of regional personal incomes, based on regional data on labour income and net income of unincorporated enterprises. Regional income at factor cost has derived from regional personal income to which has been added estimates for regional capital consumption allowances and indirect taxes less subsidies to obtain gross regional product. Estimates for capital consumption allowances has been derived by applying a ten year average ratio of regional to national capital formation to the total national consumption allowances (Adler, 1970).

Among developing countries, in Indonesia, regional estimates of GDP in the primary and secondary sectors are arrived at through direct production information; while in the tertiary sectors, national totals are allocated to regions on the basis of indirect allocators, such as occupational distribution of the labour force, distribution of household expenditure, etc. (Arndt, 1973).

In India, regional estimates of GDP in sectors like agriculture, manufacturing, transport and storage, trade, ownership of dwellings, local public administration, and services are arrived at on the basis of direct region specific data. In sectors like railways, communications, banking and insurance, and central public administration the regional product is arrived at by allocation of national totals by combined indices for each sector or by indirect allocators (Tiwari, 1971).

A sector by sector outline review of the allocation methods and procedures in selected countries is given below:

2.7.1 Agriculture

In Australia, regional gross product in the farm sector is derived, using a parallel methodology for estimation at the national level. Gross value of farm production and production costs associated with sheep and wheat production are directly estimated on the basis of data available by region. Other costs are estimated at the national level and subsequently allocated to regions on a pro rata basis, based on data for livestock numbers and agricultural area sown, as appropriate (ABS, 1984).

In the Netherlands, all information required for the regional allocation of output and income in agriculture is available by region. Thus the regional calculations are a repetition of the procedure for the national calculations (NCBS, 1970).

In the UK, a variety of methods are used. Agricultural production is first partitioned between regions, product by product, on the basis of crop acreage, weighted by crop yields and livestock numbers. Income from self-employment is calculated by distributing gross output by product according to crop and livestock statistics and making allowances for regional variations between gross and net outputs. Agricultural rent is distributed between regions on the basis of Agricultural Land Service surveys and Ministry of Agriculture data (Brown and Woodward, 1969).

In Indonesia, agricultural output statistics are used together with retail price data to estimate gross value of production at retail prices, after deducting varying percentages for different regions for distribution mark-ups at producer prices. Gross value added is then obtained by deducting estimated intermediate costs (Arndt, 1973).

In India, agricultural gross product is allocated between regions on the basis of an Agricultural Index, which is based on (a) cultivated area, (b) population occupied in exploitation of land, (c) total yield of principal crops and (d) livestock population. Since no specific weighting procedure is indicated, it can be assumed that an arithmetic average is applied (Tiwari, 1971).

2.7.2 Fishing and Forestry

In Australia, estimates of fishing and forestry GOS at the national level is allocated to regions on a pro rata basis according to estimates of GOS for non-farm primary unincorporated enterprises derived from taxation data (ABS, 1984).

In the Netherlands, all information required for the regional allocation of output and income in fishing and forestry is available by region. Thus the regional calculations are a repetition of the procedure for the national calculations (NCBS, 1970).

2.7.3 Mining

In Australia, regional estimates of mining GOS are derived from economic census data and from minerals exploration data. Taxation data is not used herewith as the unincorporated enterprises proportion of total mining GOS is negligible (ABS, 1970).

In the UK, regional net product in mining is obtained directly from the statistics of the relevant nationalized industries (Brown and Woodward, 1969).

2.7.4 Manufacturing

In Australia, national level estimates of manufacturing GOS are allocated to regions based on taxation data for the unincorporated enterprise sector and supplemented by economic census data for the allocation of the incorporated enterprise sector (ABS, 1984).

In the Netherlands, the unit of observation for manufacturing, as well as in mining, electricity and water, is ‘kind of activity’ and not the establishment. Many ‘kinds of activity’ can be allocated to one of the regions. `Kind of activity' units with establishments in more than one region have been divided into two categories: those with vertically integrated production processes and those with independent production processes. Except in the more important cases where additional information is obtained from the enterprises concerned, estimates are made using the production structure of similar enterprises (NCBS, 1970).

In the UK, a variety of methods and sources are used. The Census of Production is used as the allocation basis in a census year; for other years, the change in regional shares of employment in each industry is used to extrapolate from the last census. The Census of Production is also used to allocate gross trading profits of manufacturing companies to the region of production by making use of the data, therein, on net value of output minus wages and salaries and making adjustments, industry by industry, for the purchase of inputs from outside the manufacturing sector. The contribution to production of head office staff not located at or near the firm's manufacturing establishments is ignored. However, a comparison of the numbers employed in the manufacturing establishments covered by the Census of Production with statistics of total employment in manufacturing industry suggests that the regional bias introduced by allocating profits according to the Census of Production data is insignificant (Brown and Woodward, 1969).

In Indonesia, sample survey data are used to extrapolate the results of the last national industrial census (Arndt, 1973).

In India, separate ratios are worked out for organized and unorganized industries on the basis of the number of persons employed in them. At the same time, a combined Industrial Index is also used, with the organized sector receiving a higher weightage than the unorganized sector. However, the exact weighting pattern adopted is not indicated (Tiwari, 1971).

2.7.5 Construction

In Australia, regional estimates for construction GOS are derived by aggregating separate regional estimates for each institutional sector, i.e, unincorporated enterprises, incorporated enterprises and public enterprise. For unincorporated enterprises, taxation data is used to provide regional estimates for all years, consistent with national level estimates. For incorporated and public enterprises the Construction Industry Survey is used to provide a bench mark regional split of national estimates. For the remaining years, regional estimates are derived using a two-stage procedure. First, the survey based regional estimates of GOS are extrapolated to the remaining years using the percentage movements in unincorporated enterprise construction GOS. These estimates are then used to distribute the national level estimates between the regions (ABS, 1984).

In the Netherlands, the methodology used is the same as in manufacturing. An additional source is regionally available quarterly statistics in output of new works, which covers 70 percent of construction output (NCBS, 1970).

In the UK, gross output is distributed according to the regional wage share in the sector. The regional distribution of the wage bill is obtained by weighting the distribution of the labour force in construction by the relevant average weekly earnings and it is assumed that the wage bill forms the same proportion of net output in all regions. Gross profits is distributed in proportion to employment share as provided by the Census of Population (Brown and Woodward, 1969).

In Indonesia, a variety of methods are used: estimates of consumption of building materials, local surveys of contractors, income estimates using data on number of persons employed in the construction sector and Public Works Department data on wages and salaries paid (Arndt, 1973).

2.7.6 Electricity, Gas and Water

In Australia, the supply of electricity, gas and water by public trading enterprises is a regional and local responsibility. Regional estimates of GOS are, therefore, compiled from an analysis of the annual financial statements of individual utility authorities. Output by private companies in other industries is allocated on the basis of economic census data (ABS, 1984).

In the UK, regional net product in mining is obtained directly from the statistics of the relevant nationalized industries (Brown and Woodward, 1969).

2.7.7 Transport

In Australia, regional estimates of road freight GOS is based on data for tonne-kilometres performed in each region as an approximation for the GOS derived at all

of the separate locations within a region. Public transport GOS is allocated on a pro rata basis according to data for annual kilometres performed by region of operation, as an approximation of the `base of operations' approach to allocation. Private sector road passenger transport GOS is allocated on a pro rata basis according to data for numbers of licensed taxis and hire cars by region. Rail transport GOS is allocated on the basis of public finance data. Air transport GOS is obtained on a pro rata basis according to data for passenger embarkations/disembarkations by airline by region. The impact of freight activity is not accounted for in view of the relative insignificance of freight in the generation of scheduled airline revenue and the lack of data allowing the derivation of appropriate weights for passenger and freight activity in the allocator. Water transport GOS is obtained on the basis of data for cargo tonnages loaded and unloaded by all shipping by region (ABS, 1984).

In the Netherlands, output from ocean and coastal water transport and airlines form part of the "supra-region" or the "extra-territorial" sector; with the administrative services of these activities treated as a separate branch and distributed over the regions according to location. Other transport activities are sub-divided into four parts:

- activities of administrative services
- services allied to transport
- transport within the region
- transport between regions

The first three have a clearly defined location and are allocated accordingly. For the fourth, the allocation is carried out on the basis of statistics on the volume of transport taking place on the territory of each region (NCBS, 1970).

In the UK, gross surplus covering fixed capital is regarded as generated in the region of location. With respect to mobile capital, the surplus is distributed in proportion to employment. Gross profits of private transport are distributed in proportion to employment share as provided by the Census of Population (Brown and Woodward, 1969).

2.7.8 Storage

In Australia, storage operations GOS are allocated to regions on a pro rata basis according to regional gross value of output of orchard fruits, since orchard fruits are the principal class of commodities stored (ABS, 1984).

In the UK, given the absence of a more suitable indicator, estimated national storage GOS is allocated on the basis of State population ratios (Brown and Woodward, 1969).

2.7.9 Communications

In Australia, the communications sector is dominated by a small number of large enterprises. As such, it is possible to directly estimate GOS at the regional level using communications traffic volume and revenue and expenditure data obtained from the concerned enterprises. The allocation is made on the basis of the region of origin of the communications traffic or region of revenue receipts for communications traffic (ABS, 1984).

In India, the regional breakdown in respect of posts and telegraph and overseas communications sub-sectors are available. Income in the remaining sub-sectors is allocated on the basis of indicators, i.e., regional distribution of balance of revenue over expenditure (Tiwari, 1971).

2.7.10 Trade

In Australia, regional estimates for wholesale trade and retail trade are calculated separately because of differences in institutional sector shares and in data availability for the two sub-sectors. Given that the Wholesale Trade Census data is available sporadically, regional estimates for wholesale GOS are derived using data on wages, salaries and supplements (WSS) as an allocator. Regional estimates for retail trade GOS are derived by aggregating separate estimates for unincorporated, incorporated and public enterprises. For unincorporated enterprises, regional estimates of retail trade GOS are derived for all years on the basis of taxation data. For incorporated and public enterprises, economic census data are used to provide a benchmark split of national level GOS. For the remaining years, regional estimates are derived using the movements in unincorporated enterprise retail GOS for each region. Sales-based indicators are also considered for extrapolation of economic census based benchmark estimates to remaining years (ABS, 1984).

In the Netherlands, the national estimates are itself termed unsatisfactory. As such, regional allocation is made by using personnel figures from the Census of Population and by using the regional distribution of the output of retail trade, obtained as a by-product of the regional distribution of household consumption (NCBS, 1970).

In the UK, gross profits from wholesale trade are distributed regionally in proportion to employment share as provided in the Census of Population. Income from retail trade is distributed regionally in proportion to turnover data provided in the Census of Distribution (Brown and Woodward, 1969).

In Indonesia, the regional contribution of trade is based on rough estimates of marketed surpluses and assumed distribution margins (Arndt, 1973).

2.7.11 Banking and Insurance

In Australia, regional GOS of financial institutions whose activities are confined to a single region is estimated by applying the national methodology on a regional basis. For the remaining institutions, the types of indicators used varies between institutional types. Allocators include volume of lending and/or borrowing activity of the relevant type of institution, gross rent receipts derived from leasing activity, value of property by region, balances outstanding and premiums, etc. Civilian employment data is also considered, where possible, given the high contribution of labour costs to total expenses. Regional estimates for finance and insurance GOS are derived by aggregating separate regional estimates for unincorporated enterprises, incorporated and public enterprises. For unincorporated enterprises, taxation data are used to provide regional estimates for all years. For incorporated and public enterprises, estimates are initially dissected on the basis of economic census data to give national level GOS bench marks and then separately allocated to regions using indirect indicators, i.e., regional employment data. Regional estimates are extrapolated to other years on the basis of movement in the unincorporated sector

GOS (ABS, 1984).

In the Netherlands, the regional distribution of personnel in the sector is used as the allocation criteria (NCBS, 1970).

In India, regional data on wages and salaries is separately available; rent is allocated on the basis of employment share; and operating surplus allocated on the basis of regional shares of bank credit and net premium income for banking and insurance, respectively (Tiwari, 1971).

2.7.12 Ownership of Dwellings

In the Netherlands, a regional breakdown of rents, including imputed rents is available. Inputs are allocated on the basis of national figures (NCBS, 1970).

In the UK, income from ownership of dwellings is allocated on the basis of assessments for owner occupied dwellings and the Family Expenditure Survey for rented dwellings. Rent and imputed rent of dwellings is distributed on the basis of number of dwellings, weighted by average rateable value per dwellings derived from Family Expenditure Survey. Business rent paid is assumed to be proportional to rateable value of all non-domestic buildings (Brown and Woodward, 1969).

2.7.13 Services

In Australia, regionalization of the services sector is arrived at separately for community services and for personal and entertainment services. Further, regional estimates of GOS are obtained by aggregating separately derived regional estimates for unincorporated enterprises, incorporated and public, consistent with national level estimates. As regards community services establishments, regional estimates of GOS of unincorporated enterprises are based on taxation data. Regional estimates of GOS for establishments of incorporated and public enterprises are obtained by allocating national estimates on a pro rata basis, according to the unincorporated sector data. As regards personal and entertainment services establishments, for unincorporated enterprise sector GOS, regional estimates for all years are based on taxation data. For incorporated and public enterprises, national level taxation and public finance data and economic census data are used variously to provide a benchmark split and then allocated to regions based on employment data. For the remaining years, estimates are based on movements in the unincorporated enterprise GOS for each region (ABS, 1984).

In the Netherlands, for about half of output of many sub-sectors of the services sector, the basic statistics are broken down regionally. For the rest, personnel data from the Population Census is used (NCBS, 1970).

In India, the services sector is allocated on the basis of an index, obtained by weighting the distribution of employment in the various sub-sectors with the relevant average income (Tiwari, 1971).

2.7.14 Exports and Imports

In Canada, an attempt to regionalize exports and imports has been made through the use of "Locational Quotients". Industries are divided into those producing final

goods for households, those producing intermediate goods for specified industries and those producing intermediate goods for many industries. Where, for instance in the case of consumer goods, the ratio of regional output of a final commodity to regional personal income exceeds the ratio of total national domestic consumption of that final commodity to national personal income, the excess is considered to represent regional exports; and vice versa for imports. Similar "Quotients" are also established for intermediate goods producing industries (Adler, 1970).

2.8 Applications to the Pakistan Case

Pakistan is a large country with a non-homogeneous economy, in terms of regional differences in industry mix, level of activity, productivity, etc. As such, the importance and the objectives of the development of regional income accounts outlined above (ABS, 1984; Romans and Graham, 1976; Graham and Romans, 1971; NCBS, 1970) also holds for Pakistan. However, efforts to construct a regional accounts system have only just begun. There has been one effort to estimate the regional income of Sindh province (Ahmad and Jamal, 1986) and another to estimate the regional income of the metropolitan area of Karachi (Bengali, 1988). NWFP has also produced a draft report on the province's gross domestic product (GoNWFP, 2000), which is largely a collection of available province-specific data. The success of the regional accounting exercise depends on its official adoption (Brown and Woodward, 1969). In Pakistan, on the contrary, regional analysis and publication of regionally disaggregated data has been officially discouraged; rendering the present task all the more difficult.

The issues, problems and methods of regional accounting, as highlighted in the international literature reviewed earlier, can serve as a basis for undertaking a regional accounting exercise in Pakistan; although its application is likely to be constrained by the following two factors.

One, the major part of the development of regional accounts has occurred in the developed countries and is juxtaposed with the availability, therein, of an extensive disaggregated data-base comprising economic censuses, taxation and public finance statistics, social security data and sectoral and regional data on sales, employment, wages and salaries, etc.

Two, the major thrust of the accounting exercise in developed countries is income estimation -- personal, quarterly, national or regional. As such, the conceptual and methodological discussion in the literature has centred largely on the problems of allocation of factor incomes like corporate profits, public debt interest, wages and salaries, and wage and salary supplements, like insurance and pension fund benefits, etc.

In developing countries the database is generally inadequate even in terms of national aggregates. The result is that personal income estimation, for example, is not possible even at the national level. In Pakistan, region specific data is deficient as far as official publications are concerned. The estimation of regional personal incomes is, as such, not possible either. This is because government departments,

public agencies and commercial corporations maintain their accounts in terms of aggregate centralized accounting conventions.

Given the state of affairs, national income and, consequently regional income, in developing countries like Indonesia and India is measured in product terms, instead of in terms of income. The choice of the accounting "technology" is also constrained. Accounting systems range from those based on single indicators of the level of activity, e.g., regional product, to more detailed and complex systems, e.g., the regional input-output model (Capron and Thys-Clement, 1992; Hjerpe, Niitamo and Suur-kala, 1987). Given the data situation in Pakistan, the present study remains a modest effort and is limited to estimation of provincial product on the basis of indirect allocators, e.g., output share, revenue share, employment share, etc. The concepts relating to regional accounting and the experience of other countries, as highlighted in the literature, are applicable to Pakistan in some respects but in other respects they are not applicable on account of data deficiencies.

One aspect where the present study has followed the international practice is the definition of the economic region of the regional accounts framework. In line with the international convention, the present study has adopted the politico-administrative divisions, i.e., the provinces, as the unit of analysis (Hjerpe, Niitamo and Suur-kala, 1987; Tiwari, 1971; NCBS, 1970). The conceptual problems associated with this approach, as detailed in the literature, are valid. However, in defence of adopting the politico-administrative unit as a regional division, it may be said that in Pakistan as in most other countries, politico-administrative units have a political, historical, cultural or ethnic character and it is the very purpose of the regional accounting exercise to establish the regional gross output or regional income of the politico-administrative unit.

Another aspect of applicability of the general international practice to Pakistan is the estimation of regional accounts through a breakdown of national accounts by indirect means instead of the construction of autonomous regional accounts (Capron and Thys-Clement, 1992; ABS, 1984). This also implies that the regional accounts will not only reflect any errors or biases inherent in the national accounts, but also suffer from a relatively lower degree of accuracy and reliability. In fact, these problems are likely to be even more compounded given the poor data availability position, which more often than not does not even permit the use of indirect data for drawing inferences. With respect to this study, therefore, it is clear that the estimating method has to come to terms with data availability.

With regard to allocating methods, the concepts and approaches in use in a number of countries can be applied in some of the cases in Pakistan. One such case is mobile factors of production (Walters, 1987; ABS, 1984; NCBS, 1970). The phenomenon of mobile factors of production occurs in sectors like fishing, construction, transport and communications. These sectors together account for about 15 percent of the national gross domestic product. The general allocating principle used here is base of operations or point of origin of traffic or point of accrual of revenue. With the exception of the construction sector, the same principle is applied for the present study.

In the construction sector, one method in use is to allocate factor incomes accruing from fixed capital on the basis of the base of operations and factor incomes accruing to mobile capital and labour on the basis of region of residence of the firm and/or labour. Given that data on income accruing is not available and the regional accounting exercise is confined to estimating regional product, the issues relating to mobile capital and labour in the construction sector is not applicable to Pakistan.

Aspects where the international practice is either not applicable or relevant to Pakistan on account of the indivisibility factor and data deficiencies include:

a) allocating corporate profits (Hjerpe, Niitamo and Suur-kala, 1987; Graham and Romans, 1971; Adler, 1970; Goldberg, 1968; Hochwald, 1957), government revenues and expenditures (Capron and Thys-Clement, 1992; ABS, 1984; Sourroille, 1976; Graham and Romans, 1971), public debt interest (Capron and Thys-Clement, 1992), etc.

b) estimating differentiated heads of accounts like "income originating" as opposed to "income accruing" (Capron and Thys-Clement, 1992; Nair, 1987; Sourroille, 1976; Graham and Romans, 1971; Hochwald, 1957), "income earned but not received" as opposed to "income earned and received" Romans and Graham, 1976), etc.

c) constructing regional accounts adjusted for regional price differentials (Nair, 1987; Mazumdar, 1982; Graham and Romans, 1971).

The corporate sector of Pakistan is small relative to the national economy. Nevertheless, allocating corporate sector profits, however, presents the same problems as discussed earlier. A number of corporations are multi-establishment enterprises with establishments branched out in more than one province. As a consequence, while the head office is located in one province the manufacturing or service facilities are located in other provinces. This fact is borne out in the case of Pakistan by taxation and other data.

The analysis of a sample of 250 corporations for which data was available shows that about 60 percent of corporations, in terms of paid-up capital, have their registered offices in the province of Sindh. The province accounts for 67 percent of total corporate income tax collection, but 45 percent of large-scale manufacturing value added and 20 percent of excise duty and sales tax collections from domestic production of goods and services. While the former reflects the concentration of corporate registered offices in Sindh, the latter reflects the dispersed location of establishments/branches.

The distribution of equity ownership may not, however, be as skewed as it is possible for residents of one province to own stocks in corporations registered in another province. To the extent that equity in a corporation is owned or controlled by the Federal government, its share of profits is appropriated by the Federal government at Islamabad.

An attempt to allocate corporate profits in terms of regional product or income originating, would require data on output by establishment and a mechanism to allocate head office output to the establishments. An attempt to allocate corporate profits in terms of regional income or, income accruing, would require information on

residence or domicile of all equity holders. In both cases, data is not available; thus, precluding the possibility of regionally allocating corporate profits in the case of Pakistan. However, given that the present study is limited to estimating regional products, the matter of allocating corporate profits does not emerge as a binding priority.

The public administration and defence sector is significantly larger and accounts for 7 percent of the national gross domestic product. Government sector output is measured in terms of factor incomes and consists largely of wages and salaries. Government sector consumption is measured in terms of the purchase of goods and services for internal use. A major expenditure head of the government sector is public debt interest. Government outlays on development projects constitute the bulk of capital expenditures.

All expenditures, whether for payment of wages and salaries, purchase of goods and services, debt servicing or capital investments, have a regional dimension. Identifying the regional dimension, however, requires data on the province of posting and/or domicile of government employees, including defence personnel, sources of purchase of goods and services and location of development projects. With the exception of data on the place of posting of federal civilian employees, none of the above stated data are available. Allocating project related expenditures appears to be theoretically possible, subject to the release of regionally disaggregated data. Allocating programme expenditure would, however, be conceptually problematic. Allocating public interest debt is also faced with as yet unresolved conceptual issues.

Government revenues accrue from tax and non-tax sources and can be allocated to regions, subject to the release of province-wise tax receipts data. Limited province-wise collection data for certain taxes is available; for example, income tax deducted at source, excise duty, sales tax, etc. Nevertheless, allocating corporate income tax and customs duty remains problematic. Province-wise data on a number of revenue heads and almost all expenditure heads is, however, not available; thus precluding the possibility of allocating government revenues and expenditures to provinces. However, given that the present study is limited to estimating regional product at factor cost, the matter of allocating taxes, expenditures and public debt interest does not emerge as a binding priority.

At the national level, national product approximates national income since income originating from transactions within national territory also accrue to transactors within the same national territory. External transactions are duly recorded. At the regional level, however, the approximation does not hold. Income originating from transactions taking place in one region may accrue to transactors in another region and such interregional transactions are not recorded. The question of identifying income originating and income accruing, therefore, assumes an added significance in the case of Pakistan, given the significant levels of inter-provincial transfers of labour, corporate and public enterprise incomes and the uneven inter-provincial distribution of the incidence of government revenues and expenditures. The task of estimating income accruing is, however, confronted with serious data availability problems and has not been attempted in this study.

The matter of a difference in income earned and received and income earned and not received is a factor that occurs in selected sectors of the economy. One sector where it occurs is insurance and relates to pension funds, provident funds, old age benefit schemes, etc. The problem arises on account of the fact that while a payment becomes due during the course of employment or assurance, it is not paid till the retirement or death of the employee or assured person. In the national context, the problem of allocation does not arise since in most likelihood the employee or assured person is a resident of the country during the term of her/his employment or assurance as well as during her/his retirement/death. In the regional context, the region of residence of the employee or assured person is likely to be different between the two stages.

The insurance sector and the sector's total premium income from life and general insurance each account for less than one percent of the national gross domestic product. Old-age benefit schemes are applicable to formal sector organized labour only, which account for less than 5 percent of the total employed civilian non-agricultural labour force. Provident fund schemes are quite extensive, given that they cover employees in government, semi-government and autonomous departments, agencies, corporations and organizations as well as employees in formal private sector corporations, companies and organizations.

In the case of Pakistan, the major problem with attempting to regionally allocate insurance, pension, old-age benefit or provident funds is the absence of adequate migration data dealing with migratory behaviour of retired persons. However, it can also be stated on the basis of subjective information that while migration of young workers is high, the extent of post-retirement migration is not likely to be high in Pakistan. This assertion can be made on the basis of the widespread prevalence of the joint family system; which implies that even if an elderly member of the family has retired, her/his working family members would continue to reside at the same location and the retired elder of the family continues to remain with the rest of the family. The task of allocating insurance components is not considered as yet relevant to Pakistan and has not been attempted in this study.

Pakistan is a large country with a varied economy. As such, regional price differentials can affect regional income or product levels and have a significant bearing on inter-provincial income distribution analyses. For example, the relationship between input and output prices may differ between provinces and, as such, the value addition per unit of output for the same activity may vary between provinces. This can be reasonably assumed to be the case in Pakistan. However, in the absence of regional price indices or data, no attempt has been made in this study to estimate regional accounts adjusted for regional price differentials.

A sector by sector description of the methods of allocation are detailed in the following section.

3.0 DECOMPOSITION METHODOLOGY

The methodology of provincialization of national gross domestic product rests primarily on the use of indirect allocators or proxy variables reflecting the regional level of activity in the various sectors and sub-sectors of the national economy. The exercise is devoted to measuring income originating as opposed to income accruing. In other words, inter-provincial transfers of income, which may be substantial, are not taken into account

The decomposition of the commodity producing sectors is based largely on the output approach; whereby, provincial sectoral/sub-sectoral output data is converted into provincial sectoral/sub-sectoral output shares and applied to the total national sectoral/sub-sectoral value added. The decomposition of the non-commodity producing sectors is based largely on the income approach; whereby, provincial sectoral/sub-sectoral income related data, e.g., revenues, is converted into provincial sectoral/sub-sectoral income shares and applied to the total national sectoral/sub-sectoral value added[1].

There are exceptions, though, conditioned by data availability and constraints. Provincial value added data is used directly where available, i.e., in large-scale manufacturing. Activity indicators like deposit and credit disbursal in the case of banking, employment in the case of public administration, etc., have been used as allocators where revenue or income data is either not available or not applicable.

Formally: $VA_{sr} = VA_{sn} * (A_{sr}/A_{sn})$

where, VA_{sr} = value added in sector s in province r

VA_{sn} = value added in sector s nationally

A_{sr} = value of allocator in sector s in province r

A_{sn} = value of allocator in sector s nationally

The use of output, income or employment as a basis of allocation constitutes a second best measure. A first best measure would be to estimate the value added of each of the sectors by province on the basis of provincial output and price data. Such an approach would take into account the province specific productivity and price factors for the same goods or services. Given that such data is not available, the provincial allocation of national value added has been made on the basis of provincial output, revenue or employment shares. This implies that the ratio of output, revenue or employment to value added for all goods and services is the same for all provinces. The assumption is not highly realistic, but has been retained

[1] The national GDP sector aggregates, as reported in the Economic Surveys, includes FATA. However, the decomposition exercise covers the four provinces and excludes FATA on account of data deficiencies, particularly non-availability of consistent data for all the variables. As such, the provincial estimates carry an upward bias. Given, however, that the FATA economy is very small relative to other provinces, this bias is likely to be small.

as a second best measure, given the data deficiencies.

Needless to say, variations in the general methodology outlined above have had to be introduced in many of the sectors as necessitated by specific requirements of the sector and by data conditions. The methodology adopted in estimating provincial product in each sector is detailed below. A summarized presentation of allocators used in each sector and sub-sector is given in Table 3.1.

TABLE 3.1
SUMMARY PROFILE OF INDIRECT ALLOCATORS

Sectors	**Principal Allocators**
Major Crops	Crop output by province
Minor Crops	Crop output by province
Livestock	Per capita milk and meat consumption by province
Fishing	Fish catch by province
Forestry	Forest out-turn (revenues) by province
Mining and Quarrying	Output of natural gas, petroleum and other minerals by province
Manufacturing Large Scale	Large-scale manufacturing census value added by province
Manufacturing Small Scale	Small-scale manufacturing census value added by province
Construction	Housing stock by type Value added in manufacturing, trade, banking, insurance and services sectors Development expenditures in provincial Annual Development Plans Cement production by province
Electricity and Gas	Electricity consumption by province Gas consumption by province
Road Transport	Gasoline sales by province
Rail Transport	Railway passenger and goods revenues by province
Air Transport	Number of passengers and quantity of cargo by province of origin
Shipping	Location of ports by province
Storage	Subsumed in transport sectors
Postal Communications	Postal revenue receipts by province
Telecommunications	Amount billed by province
Trade	Trading value added by province Employment in wholesale and retail trade sector by province
Banking	Bank advances and deposits by province
Insurance	Life insurance premium income by province Value added in large-scale manufacturing, trade, banking and services by province
Ownership of Dwellings	Rental value of housing units by province
Public Administration and Defence	Federal civil service employment by province Current Expenditure by province

Services	Employment in services sector by province

3.1 Major and Minor Crops

The estimation of provincial value added in the major and minor crops sector is based on a sample of 21 crops, 12 major and 9 minor. Crop-wise value added data is not available. As such, the choice of the crops has been determined by availability of national crop-wise gross value data and province-wise crop production data. The selected crops account for about 90 percent of the total value of crop production in the country.

The crop value added provincialization has been undertaken as follows. Firstly, the gross value of each selected crop has been disaggregated into provincial estimates on the basis of the provincial output share of the crop. Secondly, the provincial crop-wise gross value estimates are aggregated by province to obtain the provincial crop gross value. And thirdly, the aggregate provincial gross crop value shares are applied to the national crop value added estimates to obtain the provincial crop value added estimates.

Formally: $$VA_{c1r} = VA_{c1n} * \sum_{c1=1}^{12} \left[\frac{GV_{c1n} * (Q_{c1r} / Q_{c1n})}{GV_{c1n}} \right] \quad (1)$$

where, VA_{c1r} = value added of major crops c1 in province r

VA_{c1n} = value added of major crops c1 nationally

GV_{c1n} = gross value of major crops c1 nationally

Q_{c1r} = output of major crops c1 in province r

Q_{c1n} = output of major crops c1 nationally

and $$VA_{c2r} = VA_{c2n} * \sum_{c2=1}^{9} \left[\frac{GV_{c2n} * (Q_{c2r} / Q_{c2n})}{GV_{c2n}} \right] \quad (2)$$

where, VA_{c2r} = value added of major crops c2 in province r

VA_{c2n} = value added of major crops c2 nationally

GV_{c2n} = gross value of major crops c2 nationally

Q_{c2r} = output of major crops c2 in province r

Q_{c2n} = output of major crops c2 nationally

where r ranges from 1 to 4, representing the 4 provinces of Pakistan, i.e., Balochistan, NWFP, Punjab and Sindh; c1 ranges from 1 to 12; and c2 ranges from 1 to 9.

3.2 Livestock

Livestock value added is derived from incomes from the sale of livestock products, i.e., milk, meat, poultry and eggs and by-products, i.e., skin, bones, hair, offal, etc., of cows, buffaloes, goats, sheep, camels, donkeys, poultry, etc. Data on province-wise generation of value added in the livestock sector is not available. Even at the national level, data on livestock population is limited to the Livestock Censuses carried out in 1976, 1986 and 1996. Province-wise data on the number of goats, sheep, cows and buffaloes slaughtered is available, but is highly erratic and unreliable. As such, provincialization of national livestock value added has been effected on the basis of province-wise milk and meat consumption data, as per the Household Income and Expenditure Surveys (HIES), duly weighted by the respective shares of milk and meat in livestock value added. Provincial meat consumption is assumed to reflect the distribution of livestock by-products as well. HIES data is unfortunately available for the years 1985-88 and intermittently from 1990-91 to 2001-02; thus, necessitating extrapolation of the series backwards to 1971-72 and interpolation/extrapolation for the missing years between 1987-88 and 1999-00.

Formally: $VA_{lvr} = VA_{lvn} * [[\{(C_{mlvr} * P_{vr}) + (C_{mlur} * P_{ur})\} * wml] + [\{(C_{mtvr} * P_{ur}) + (C_{mtur} * P_{ur})\} * wmt]] / [[\{(C_{mlvn} * P_{vn}) + (C_{mlun} * P_{un})\} * wml] + [\{(C_{mtvn} * P_{vn}) + (C_{mtun} * P_{un})\} * wmt]]$

where,

VA_{lvr} = value added in livestock sector lv in province r

VA_{lvn} = value added in livestock sector lv nationally

C_{mlvr} = per capita consumption of milk in rural areas v in province r

C_{mlur} = per capita consumption of milk in urban areas u in province r

C_{mtvr} = per capita consumption of meat in rural areas v in province r

C_{mtur} = per capita consumption of meat in urban areas u in province r

C_{mlvn} = per capita consumption of milk in rural areas nationally

C_{mlun} = per capita consumption of milk in urban areas nationally

C_{mtvn} = per capita consumption of meat in rural areas nationally

C_{mtun} = per capita consumption of meat in urban areas nationally

P_{vr} = rural population in province r

P_{ur} = urban population in province r

wml = weight of milk in national livestock sector value added

and wmt = weight of meat in national livestock sector value added

3.3 Fishing

Fishing value added is derived from commercial fishing in the sea and in inland waters of the country and is provincialized on the basis of marine and inland fish production by province.

Formally: $VA_{fsr} = VA_{fsn} * (Q_{fsr}/Q_{fsn})$

where, VA_{fsr} = value added in fishing sector fs in province r

VA_{fsn} = value added in fishing sector fs nationally

Q_{fsr} = production of fish in province r

and Q_{fsn} = production of fish nationally

3.4 Forestry

The principal forest product is timber, which is used in construction and in the manufacture of furniture, etc. Wood and other forest products like shrubs, twigs, etc., are also used as firewood for cooking and for heating purposes in winter. Forestry value added has been provincialized on the basis of provincial out-turn of forests or revenue yields from forestry.

Formally: $VA_{frr} = VA_{frn} * (R_{frr}/R_{frn})$

where, VA_{frr} = value added in forestry sector fr in province r

VA_{frn} = value added in forestry sector fr nationally

R_{frr} = revenue yield of forests in province r

and R_{frn} = revenue yield of forests nationally

3.5 Mining and Quarrying

Mining and quarrying includes the extraction of oil, natural gas and minerals like coal, limestone, marble, etc. Province-wise value added in mining and quarrying is available in the Census of Mining Industries published intermittently for eight years from 1976 to 1988. This presents the problem of estimating value added for the missing years. A greater problem, however, is the change in the methodology in 1980-81 with the result that the estimates according to the old and new methodology are structurally and significantly different. The difference in the estimates according to old and new methodology is shown in Tables 3.2 and 3.3.

According to the new methodology, the national sectoral value added in 1980-81 is 18 percent higher than the estimate according to the old methodology. From 1983 onwards, a reversal can be discerned with the result that the 1987-88 estimate according to the new methodology is 57 percent lower than the estimate according to the old methodology. Further the value added contribution of various minerals has also undergone a significant change. According to the old methodology, coal, oil and gas account for 47, 7 and 42 percent, respectively, of mining and quarrying sector value added in 1987-88; according to the new methodology, the shares stand at 33, 27 and 13 percent, respectively. Limestone and marble account for 2.5 and zero percent according to the old methodology and 9 and 8 percent according to the new methodology.

TABLE 3.2
NATIONAL VALUE ADDED IN MINING & QUARRYING

Years	According to Old Methodology[1]	According to New Methodology[2]
1980-81	895	1053
1982-83	1860	1342
1983-84	2026	1599
1985-86	6975	3281
1986-87	8391	3681
1987-88	8457	4811

Sources:
1. Census of Mining Industries, Federal Bureau of Statistics.
2. National Income Accounts, Federal Bureau of Pakistan.

TABLE 3.3
PERCENTAGE CONTRIBUTION OF DIFFERENT MINERALS TO MINING & QUARRYING VALUE ADDED

Minerals	According to Old Methodology[1]		According to New Methodology[2]	
	1980-81	1987-88	1980-81	1987-88
Coal	34.2	47.1	37.1	33.0
Crude Oil	16.4	6.9	11.5	27.1
Limestone	8.2	2.5	7.9	9.0
Marble	1.9	0	8.1	8.2
Natural Gas	26.6	41.5	17.6	13.1
Others	12.7	1.9	17.7	9.7
Total	100.0	100.0	100.0	100.0

Sources:
1. Census of Mining Industries, 1980-81 & 1987-88, Federal Bureau of Statistics.
2. National Income Accounts, 1989-90, Federal Bureau of Statistics.

Given the above problems, provincial value added in mining and quarrying has been derived on the basis of the province-wise output of three types of minerals: oil, natural gas and other minerals. Other minerals include 37 types of minerals. Since the unit of measurement of the three classes of output are different, the three shares are combined by applying weights based on the respective value added shares to obtain the weighted average provincial share of mining and quarrying output.

Formally: $VA_{mqr} = VA_{mqn} * [\{wo(Q_{or}/Q_{on})\} + \{wg(Q_{gr}/Q_{gn})\} + \{wm(Q_{mr}/Q_{mn})]$

where, VA_{mqr} = value added in mining & quarrying sector mq in province r

VA_{mq} = value added in mining & quarrying sector mq nationally

Q_{or} = output of oil in province r

Q_{on} = output of oil nationally

Q_{gr} = output of natural gas in province r

Q_{gn} = output of natural gas nationally

Q_{mr} = output of other minerals in province r

Q_{mn} = output of other minerals nationally

wo = weight for share of value added for oil

wg = weight for share of value added for natural gas

and wm = weight for share of value added for other minerals

3.6 Manufacturing: Large-Scale

Large-scale manufacturing value added by province is available directly from the Census of Manufacturing Industries (CMI). There are two problems, however. One, due to the officially acknowledged non-response factor in the CMI, there is significant under-estimation of large-scale manufacturing value added as reported in the CMIs compared to that as reported in the National Income Accounts. This under-estimation is reported to vary from year to year, industry to industry and province to province. However, the quantum of variations is not known. And two, the CMIs have been published intermittently for the period 1971-72 to 2000-01. Estimates for missing years have been obtained through interpolation.

As such, assuming that the degree of under-estimation is the same across all provinces, the CMI-based provincial shares in large-scale manufacturing have been applied to the estimates reported in the National Income Accounts to obtain the provincial value added in large-scale manufacturing.

Formally: $VA_{mlr} = VA_{mln} * (CVA_{mlp}/CVA_{mln})$

where, VA_{mlr} = value added in large-scale manufacturing sector ml in province r

VA_{mln} = value added in large-scale manufacturing sector ml nationally

CVA_{mlr} = CMI-based value added in large-scale manufacturing in province r

and CVA_{mln} = CMI-based value added in large-scale manufacturing

nationally

3.7 Manufacturing: Small-Scale

Small-scale manufacturing value added by province is available from the benchmark Surveys of Small and Household Manufacturing Industries (SSHMI) carried out in 1976-77, 1983-84, 1987-88 and 1996-97. Estimates for the missing years are obtained on the basis of end-point interpolation/extrapolation. The provincial shares have been applied to the national small-scale manufacturing value added to obtain the provincial small-scale manufacturing value added.

Formally: $VA_{msr} = VA_{msn} * (SVA_{msr}/SVA_{msn})$

where, VA_{msr} = value added in small-scale manufacturing sector ms in province r

VA_{msn} = value added in small-scale manufacturing sector ms nationally

SVA_{msr} = SSHMI-based value added in small-scale manufacturing in province r

and SVA_{msn} = SSHMI-based value added in small-scale manufacturing nationally

3.8 Construction

Value added in construction in National Income Accounts is estimated through the Expenditure Approach. However, provincial data on expenditure on construction is not available. Given that cement constitutes the major input in construction, cement sales by province can be used to allocate construction activity to provinces. Such data is, however, not available either. Data on cement production by province is available; however, the location of production does not reflect provincial construction activity on account of extensive inter-provincial movement of cement. Data on inter-provincial trading of cement is not available as well.

Another possible allocator could be employment by province in the construction sector, available from the Labour Force Surveys. Given that construction is a labour intensive activity, using employment as an allocator appears to be conceptually justified. Ofcourse, given the absence of relevant information, inter-provincial labour productivity will have to be assumed to be the same across provinces. However, a perusal of the construction employment data shows that the Labour Force Surveys do not adequately reflect the changes in construction sector employment. This is perhaps on account of the fact that construction labour is generally not on the regular payroll of construction firms, is mobile and unorganized and, as such, fail to be fully enumerated.

Given the problems in identifying a single allocator, the provincial disaggregation of national construction sector value added has been undertaken separately for

residential buildings, non-residential buildings and public works. These account for 26, 38 and 36 percent, respectively, of total construction value added.

Formally: $VA_{cnr} = VA_{cnn} * [\{(\Delta RH_r/\Delta RH_n)*wrs\} + \{(\Delta NRH_r/\Delta NRH_n)*wnr\} + \{(\Delta ADP_r / \sum_{r=1}^{4} \Delta ADP_r)*wpw\}]$

where,

	VA_{cnr}	=	value added in construction sector cn in province r
	VA_{cnn}	=	value added in construction sector cn nationally
	ΔRH_r	=	change in quality adjusted residential housing stock in province r
	ΔRH_n	=	change in quality adjusted residential housing stock nationally
	ΔNRH_r	=	change in non-residential housing stock in province r
	ΔNRH_n	=	change in non-residential housing stock nationally
	ΔADP_r	=	change in development expenditures in Annual Development Plans of province r
	$\Delta \sum ADP_r$	=	change in development expenditures in Annual Development Plans of all four provinces
	wrs	=	weight of residential housing component in construction value added
	wnr	=	weight of non-residential housing component in construction value added
and	wpw	=	weight of public works component in construction value added

Residential buildings component of construction has been allocated on the basis of the provincial distribution of quality adjusted housing stock. The data on housing stock by construction quality, i.e., pucca, semi-pucca and katcha status, is available for the benchmark years 1973, 1980, 1989 and 1998. The quality adjustment has been effected through multiplying the magnitude of provincial housing stock by construction quality for each of the four years by the rental value of each type of construction quality. Sample estimates of rental value are available for 1973 and 1998. The values of other years have been obtained through interpolation/extrapolation.

Formally: $RH_r = \sum_{i=1}^{3} \sum_{r=1}^{4} (H_{ir} * R_{ir})$

and $RH_n = \sum_{i=1}^{3} \sum_{r=1}^{4} (H_{in} * R_{in})$

where, RHr = quality adjusted number of housing units in province r

H_{ir} = number of housing units of construction quality i in province r

R_{ir} = rental value per housing unit of construction quality i in province r

RH_n = quality adjusted number of housing units nationally

H_{in} = number of housing units of construction quality i nationally

and R_{in} = rental value per housing unit of construction quality i nationally

Construction of non-residential buildings, it has been assumed, is a function of the level of activity in the manufacturing, trading, finance and service sectors. As such the non-residential component of construction has been allocated on the basis of the change in combined provincial shares of manufacturing, wholesale and retail trade, banking and insurance and service sectors.

Public works construction include construction and repair and maintenance of highways, roads, street, bridges, tunnels, utility lines, transport tracks, runways, canals, dams and barrages, harbour facilities, etc. The public works component of construction has been allocated on the basis of the respective provincial share of the aggregate provincial development expenditure.

3.9 Electricity and Gas Distribution

National value added in electricity and gas is estimated on the basis of electricity and natural gas consumption. Accordingly, provincial estimates of value added in the electricity and gas sector have been obtained on the basis of electricity and gas consumed by province. Given that electricity and natural gas are measured in different units, provincial shares for electricity and gas are first obtained separately and then combined on the basis of respective value added shares to obtain the weighted provincial shares for electricity and gas.

Formally: $VA_{egr} = VA_{egn} * [\{we(Q_{ep}/Q_{en})\} + \{wg(Q_{gp}/Q_{gn})\}]$

where, VA_{egr} = value added in electricity and gas sector eg in province r

VA_{egn} = value added in electricity and gas sector eg nationally

Q_{er} = consumption of electricity in province r

Q_{en} = consumption of electricity nationally

Q_{gr} = consumption of natural gas in province r

Q_{gn} = consumption of natural gas nationally

we = weight for electricity

and wg = weight for natural gas

3.10 Transport, Storage and Communications

The transport, storage and communications sector comprises a total of nine sub-sectors, four each in transport and communications and one in storage. The transport sub-sector comprises of road, rail, air and sea transportation and communications sub-sector comprises of post, telecommunications, radio and television. Different allocators are used for different sub-sectors; subject to the rules of international practice, whereby, national value added in transport and communications is allocated to provinces on a "where originates" basis. It may not be out of place to restate here the conceptual problem with this approach; whereby, the value addition on account of staff and facilities employed at the point of destination or points en route of the transport and communications traffic stands ignored. Data deficiencies, however, enforce the resort to the second best approach of limiting the allocation according to the point of origin of the traffic.

3.10.1 Road Transport

National value added in road transport has in various countries been provincialized on the basis of road kilometre, vehicle registration, taxation, etc., data. These allocators do not appear to be applicable or appropriate in the case of Pakistan for the following reasons.

Road kilometre data is not available. Motor vehicles tax will require adjustments for inter-provincial tax differentials and frequent rate changes; even then it is likely to reflect the registration pattern itself. The presumptive income tax on commercial transport has been only recently introduced and suffers from a low base and limited coverage to be representative of the road transport sector activity as a whole.

Vehicle registration reflects the existence and not use of the capital. And there is no correlation between place of registration and place of operation of the vehicle. This is true for freight vehicles operating inter-provincially and, to some extent, for private vehicles as well. Vehicles ‘on road’ can be a more useful variable; however, consistent data on vehicle registration or vehicles ‘on road’ is not available for all the provinces or for all the years. Given the above problems, gasoline consumption appears to be a superior allocator and has been used to provincialize road transport sub-sector value added. Gasoline broadly consists of diesel and petrol. About two-

thirds of gasoline use consists of diesel and the rest petrol. The gasoline series has been weighted accordingly.

Formally: $VA_{rdr} = VA_{rdn} * (Q_{gr}/Q_{gn})$

where VA_{rdr} = value added in road transport sub-sector rd in province r

V_{rdn} = value added in road transport sub-sector rd nationally

Q_{gr} = gasoline consumption in province r

and Q_{gn} = gasoline consumption nationally

3.10.2 Rail Transport

National value added in rail transport sub-sector has been provincialized on the basis of provincial revenue receipts, representing passenger and goods traffic. The allocation has been made to the point of accrual of the revenue; thereby, reflecting the point of origin of the passenger or goods traffic.

Formally: $VA_{rlr} = VA_{rln} * (R_{rlr}/R_{rln})$

where, VA_{rlr} = value added in rail transport sub-sector rl in province r

VA_{rln} = value added in rail transport sub-sector rl nationally

R_{rlr} = railway revenues in province r

and R_{rl} = railway revenues nationally

3.10.3 Air Transport

National value added in air transport sub-sector has been provincialized on the basis of passenger and cargo volume by province of embarkation/loading; thereby, reflecting the point of origin of the passenger or cargo traffic.

Formally: $VA_{arr} = VA_{arn} * [\{wp(Q_{pr}/Q_{pn})\} + \{wf(Q_{cr}/Q_{cn})\}]$

where VA_{arr} = value added in air transport sub-sector ar in province r

VA_{arn} = value added in air transport sub-sector ar nationally

Q_{pr} = number of passengers embarking in province r

Q_{pn} = number of passengers embarking nationally

Q_{cr} = quantity of cargo loaded in province r

Q_{cn} = quantity of cargo loaded nationally

wp = weight for share of passenger traffic revenue in total revenue

and wc = weight for share of cargo traffic revenue in total revenue

3.10.4 Shipping

The shipping sub-sector constitutes oceangoing, coastal as well as river shipping. In Pakistan, the contribution of river shipping to shipping sub-sector value added is negligible, while that of coastal shipping is marginal. The bulk of the value added in the shipping sub-sector is generated by oceangoing vessels. Given that there are only two sea-ports in the country, Karachi and Bin Qasim, and both are located in Sindh province, the entire shipping sub-sector value added has been allocated to Sindh province.

3.10.5 Communications

Communications include postal, telecommunications, radio and television services. National value added in communications is provincialized on the basis of revenue receipts of the component corporations; thereby, reflecting the point of origin of the communications traffic. In the case of telecommunications, the allocator consists of amount billed instead of revenue receipts; on account of the fact that the latter does not accurately reflect use of the facility caused by a significant incidence of non-payment.

Formally: $VA_{cmr} = VA_{cmn} * \{(R_{ptr}/R_{ptn}) + (R_{tcr}/R_{tcn}) + (R_{rdr}/R_{rdn}) + (R_{tvr}/R_{tvn})\}$

where, VA_{cmr} = value added in communications sub-sector cm in province r

VA_{cmn} = value added in communications sub-sector cm nationally

R_{ptr} = revenue receipts of postal services in province r

R_{ptn} = revenue receipts of postal services nationally

R_{tcr} = amount billed by telecommunications services in province r

R_{tcn} = amount billed by telecommunications services nationally

R_{rdr} = revenue receipts of radio services in province r

R_{rdn} = revenue receipts of radio services nationally

R_{tvr} = revenue receipts of television services in province r

and R_{tvn} = revenue receipts of television services nationally

3.11 Wholesale and Retail Trade

Value added in wholesale and retail trading in National Income Accounts is estimated through the application of trading margins to gross value/value added of

agricultural and manufacturing output and of imports. The estimation of provincial trading value added as a measure of provincial output is, however, not tenable on the following grounds. Given the open economies of the provinces, it cannot be assumed that the output of any one province is consumed and traded in that province only. If data on inter-provincial exports and imports were available, it would have been possible to apply trading margins to provincial output adjusted for inter-provincial exports and imports. Such data is, however, not available.

An alternative, herewith, may be to estimate provincial trading value added as a measure of provincial consumption, as the latter is likely to better reflect trading volumes than production. However, trading activity occurs at the point of production as well, at least at the wholesale level. Data in these respects is not available as well.

Province-wise data on wholesale and retail trading margins is available for 1975-76 and 1984-85. The former is, however, limited to urban areas only. The Survey of Distributive Trades and Services of 1984-85 is, on the other hand, fairly comprehensive in that it covers over one million establishments and accounts for over 90 percent of national trading sector value added. The provincial share for 1984-85 has, therefore, been obtained from the above Survey. Estimates for the remaining years have been obtained on the basis of the growth rate in employment in the wholesale and retail trade sector. Employment constitutes a reasonable basis for estimating provincial growth in trading, given that trading is largely a labour intensive activity. However, an implicit assumption has to be made that the rate of change in labour productivity in trading is constant across provinces.

Wholesale and retail trade employment estimates have been obtained on the basis of Labour Force Survey data, available intermittently for the years 1974-75 to 2001-02. Estimates for missing years have been obtained through interpolation/extrapolation.

Formally:

$$VA_{tdr} = Vaitdr + VA_{jtdr}$$

$$VA_{itdr} = VA85_{tdr}*\{1/(1+g_{ntdr})\} \quad (1)$$

$$VA_{jtdr} = VA85_{tdr}*(1+g_{ntdr}) \quad (2)$$

s.t.: $$VA_{tdn} - \sum_{R=1}^{4} VA_{tdr} = 0$$

where,

VA_{itdr} = value added in wholesale & retail trade sector in province r for the period i, viz. 1971-72 to 1984-85

VA_{jtdr} = value added in wholesale & retail trade sector in province r for the period j, viz. 1985-86 to 1999-00

$VA85_{tdr}$ = value added in wholesale & retail trade sector in province r in the year 1984-85

g_{ntdr} = growth rate in employment in wholesale & retail trade sector in province r

VAtdn = value added in wholesale & retail trade sector nationally

and VAtdr = value added in wholesale & retail trade sector in province r

3.12 Banking and Insurance

Profits and employee remuneration account for the bulk of value added in Banking and Insurance. However, data on factor incomes by province is not available. Provincial banking activity is reflected by the volume of deposits mobilization and credit disbursal by province, while provincial insurance activity is reflected by premium income by province.

As such, national banking value added has been provincialized on the basis of provincial deposit mobilization and credit disbursal. The insurance sector comprises of life and general insurance business. Information from insurance business sources indicate that life and general insurance comprise one-third and two-third shares of insurance business, respectively. Data on life insurance premium income by province is available, but similar data on general insurance is not available. As such, provincial distribution of general insurance business is assumed to follow the distribution of four `modern' sectors of the economy: large-scale manufacturing, wholesale and retail trade, banking and services. National insurance value added is thus provincialized on the basis of the provincial distribution of life insurance premium income and the provincial distribution of the four `modern' sectors as defined above.

Formally: $VA_{bir} = \{VA_{bkn} * (V_{dcr}/V_{dcn})\} + [\{VA_{inn} * \{(V_{lfr}/V_{lfn}*0.33) + (V_{mdr}/_{vmdn}*0.67)\}]$

where, VA_{bir} = value added in banking and insurnace sub-sector bi in province r

VA_{bkn} = value added in banking sub-sector bk nationally

V_{dcr} = value of deposits mobilized and credit disbursed in province r

V_{dcn} = value of deposits mobilized and credit disbursed nationally

VA_{inn} = value added in insurance sub-sector nationally

V_{lfr} = value of life insurance premium income in province r

V_{lfn} = value of life insurance premium income nationally

V_{mdr} = value added of `modern' sectors in province r

V_{mdn} = value added of `modern' sectors nationally

3.13 Ownership of Dwellings

National value added in ownership of dwellings sector is derived from the actual and

imputed rental values of rented and owner occupied dwellings. National ownership of dwellings value added has been provincialized on the basis of provincial rental expenditure shares.

Provincial rental expenditure data is obtained from the Household Income and Expenditure Surveys published intermittently for the years 1978-79 to 1998-99. Given that the HIES sample does not reflect the urban-rural population distribution, data has been obtained separately for urban and rural households and then weighted for the respective shares of urban and rural households. Urban and rural households have been estimated by applying household size, reported in HIES, to provincial population estimates. Estimates for the remaining years has been obtained on the basis of interpolation/extrapolation.

Formally: $VA_{dwr} = VA_{dwn} * \{(R_{ur}*H_{ur}) + (R_{vr}*H_{vr})\}/ \{(R_{un}*H_{un}) + (R_{vn}*H_{vn})\}$

where, VA_{dwr} = value added in ownership of dwellings sector dw in province r

VA_{dwn} = value added in ownership of dwellings sector dw nationally

R_{ur} = weighted average urban rent in province r

H_{ur} = number of urban households in province r

R_{vr} = weighted average rural rent in province r

H_{vr} = number of rural households in province r

Run = weighted average urban rent nationally

Hun = number of urban household nationally

Rvn = weighted average rural rent nationally

and Hvn = number of rural household nationally

3.14 Public Administration and Defence

Public administration encompasses federal and provincial governments, while defence is entirely federal. Federal incomes and expenditures relating to public administration and defence are not available by province. Data on provincial government incomes and expenditures is available.

With respect to the federal component of public administration, the number of federal civil service employees by province of posting is available at 3-year intervals. Estimating for missing years through interpolation provides a continuous series. Similar data on defence services personnel is not available.

With respect to the provincial component of public administration, provincial current account expenditure has been used as a proxy for the respective size of public administration in each province. The methodology applied assumes that the

relationship between (1) the number of employees, (2) government expenditure on wages, salary and supplements and (3) total current expenditure is constant across provinces.

The shares of federal government employment by province and current expenditure by province have been weighted by the shares of federal and aggregate provincial current expenditure, respectively. The provincial distribution of value added in defence is assumed to be the same as that of public administration.

Formally: $VA_{pdr} = VA_{pdn} * (((N_{fr}/N_{fn})*wfx) + ((C_r/C_n)*wpx))$

where,
- VA_{pdr} = value added in public administration and defence sector pd in province r
- VA_{pdn} = value added in public administration and defence sector pd nationally
- N_{fr} = number of federal government employees posted in province r
- N_{fn} = total number of federal government employees
- C_r = current expenditure of province r
- C_n = aggregate current expenditure of all the provinces
- wfx = weight of federal current expenditure in total federal and provincial current expenditure
- wpx = weight of provincial current expenditure in total federal and provincial current expenditure

3.15 Services

Data on output and value added in services is not available by province. Moreover, given that the sector comprises of a large variety of services, no one appropriate proxy variable or indirect allocator can be used to provincialize the services sector. As such, provincial value added in services has been estimated on the basis of provincial shares of employment in services.

Employment constitutes a reasonable proxy or allocator on account of the fact that services is largely a labour intensive sector. However, an implicit assumption has to be made that the rate of change in labour productivity in services is constant across provinces.

Services sector employment estimates have been obtained on the basis of Labour Force Survey data, available for the years 1974-75 to 2001-02. Estimates for missing years have been obtained through interpolation/extrapolation.

Formally: $VA_{svr} = VA_{svn} * (N_{svr}/N_{svn})$

where,
- VA_{svr} = value added in services sector sv in province r
- VA_{svn} = value added in services sector sv nationally
- N_{svr} = employment in services sector in province r

and
- N_{svn} = employment in services nationally

4.0 DATA AND ESTIMATES

The construction of national or regional accounts, by its very nature, creates an extensive as well as an intensive demand for data. It is extensive in the sense that data on a very large number of variables is required. It is intensive in the sense that the data is required in a regionally disaggregated form. In some of the sectors, like crop agriculture and manufacturing, the required data is available from varied secondary sources. In most of the other sectors, however, regionally disaggregated data on the required variables is not published. Such data has had to be collected from primary sources, i.e., agencies, departments, corporations and organizations. The data sources for the variables or indirect allocations are given in Table 4.1.

Data on variables or indirect allocators, even where available, is generally not provided continuously for the entire period 1973-00; thereby, necessitating the estimation of the missing values. Where the gaps are of one or two years only, the missing values have been estimated on the basis of straight line interpolation. Where the gaps are more substantial, however, the missing values have been estimated on the basis of growth rates generated by regressing the lg of the variable against time, subject to the constraint that the provincial totals equal the national sum; i.e.,

$$\text{Log } X_t = a + bT_t; \text{ s.t. } X_t - \sum_{r=1}^{4} 1X_t = 0$$

TABLE 4.1
DATA SOURCES FOR PROVINCIAL DECOMPOSITION OF NATIONAL ACCOUNTS

National Sectoral GDP	Government of Pakistan, Ministry of Finance, Pakistan Economic Survey, 1993-94.
Gross Value of Crops	Government of Pakistan, Federal Bureau of Statistics, National Accounts of Pakistan, 1970-71 to 1992-93.
Crop Output	Government of Pakistan, Ministry of Food, Agriculture and Cooperatives, Agricultural Statistics of Pakistan, Islamabad; 1983 and 1989-90.
Milk and Meat Consumption	Government of Pakistan, Federal Bureau of Statistics, Household Income and Expenditure Survey, 1985-88.
Forest Out-Turn	Government of Punjab, Punjab Development Statistics, Lahore; 1973-91.
Large-Scale Manufacturing Value Added	Government of Pakistan, Federal Bureau of Statistics, Census of Manufacturing Industries, 1970-71 and 1975-76 to 1987-88.
Small-Scale Manufacturing Value Added	Government of Pakistan, Federal Bureau of Statistics, Survey of Small and Household Manufacturing Industries, 1975-76, 1983-84 and 1987-88.
Housing Stock	• Government of Pakistan, Ministry of Interior, Housing Economic and Demographic Survey, 1973. • Government of Pakistan, Statistics Division, Population Census Organization, Housing Census Report, 1980. • Government of Pakistan, Federal Bureau of Statistics, Survey of Housing and Housing Facilities in Pakistan, 1989.
Annual Development Expenditure	• Government of Punjab, Finance Division. • Government of Sindh, Finance Division. • Government of NWFP, Finance Division. • Government of Balochistan, Finance Division.
Electricity Generation	• Water and Power Development Authority, Lahore. • Karachi Electricity Supply Corporation, Karachi.
Natural Gas Production	• Government of Pakistan, Ministry of Natural Resources, Energy Wing. • Sui Southern Gas Company Ltd., Karachi.
Gasoline Sales	Oil Companies Advisory Committee, Karachi.
Railway Revenues	Pakistan Railways, Lahore.
Airline Route Kilometres	Pakistan International Airlines Corporation, Karachi.
Postal Revenues	Pakistan Postal Corporation, Islamabad.
Telecommunications Amount Billed	Pakistan Telecommunication Corporation, Islamabad.
Trading Values	Government of Pakistan, Federal Bureau of Statistics, Survey of Distributive Trades and Services (Rural and Urban), 1984-85.
Bank Advances and Deposits	Source Confidential
Life Insurance Premiums	Pakistan State Life Insurance Corporation.
Rental Values	• Government of Pakistan, Federal Bureau of Statistics, Survey of Rent in Selected Urban Center of Pakistan, 1981. • Government of Pakistan, Federal Bureau of Statistics, Survey of Rent in District Headquarters of Pakistan, 1986. • Government of Pakistan, Ministry of Interior, Housing Economic and Demographic Survey, 1973. • Government of Pakistan, Statistics Division, Population Census Organization, Housing Census Report, 1980. • Government of Pakistan, Federal Bureau of Statistics, Survey of Housing and Housing Facilities in Pakistan, 1989. • Government of Pakistan Federal Bureau of Statistics, Rent Survey of Dwellings 1998.
Federal Government Employment	Government of Pakistan, O&M Division, Census of Federal Government Employees.
Provincial Annual Recurring Expenditure	Government of Pakistan Finance Division, Public Finance Statistics.
Services	Government of Pakistan, Federal Bureau of Statistics, Labour Force Surveys.

GROSS DOMESTIC PRODUCT BY PROVINCE
At Constant Factor Cost of 1980-81

GROSS DOMESTIC PRODUCT

Years	Punjab		Sindh		NWFP		Balochistan		Pakistan
	Value Added	Share	Value Added	Share	Value Added	Share	Value Added	Share	Value Added
1972-73	93222	52.7	54871	31.0	20745	11.7	7965	4.5	176803
1973-74	97225	52.7	57389	31.1	21430	11.6	8385	4.5	184429
1974-75	99677	53.0	56951	30.3	22863	12.1	8685	4.6	188176
1975-76	102914	53.6	57557	30.0	22198	11.6	9381	4.9	192050
1976-77	105577	54.1	59234	30.3	21680	11.1	8807	4.5	195298
1977-78	112689	53.8	63626	30.4	23638	11.3	9576	4.6	209529
1978-79	117742	53.5	68314	31.0	25203	11.5	8850	4.0	220109
1979-80	125053	53.5	72295	30.9	27122	11.6	9235	4.0	233705
1980-81	130362	52.6	78406	31.6	29156	11.8	9906	4.0	247830
1981-82	140915	52.9	84359	31.6	30942	11.6	10355	3.9	266571
1982-83	149168	52.4	90463	31.8	33311	11.7	11725	4.1	284667
1983-84	154612	52.2	96311	32.5	33006	11.2	12050	4.1	295979
1984-85	169282	52.6	104632	32.5	35382	11.0	12457	3.9	321753
1985-86	181386	53.0	109451	32.0	38377	11.2	13011	3.8	342225
1986-87	190661	52.7	113846	31.4	43879	12.1	13725	3.8	362111
1987-88	199589	51.8	125373	32.5	45534	11.8	14916	3.9	385412
1988-89	210107	52.0	132154	32.7	46256	11.5	15429	3.8	403946
1989-90	222769	52.7	135472	32.1	47147	11.2	17092	4.0	422480
1990-91	238991	53.6	140398	31.5	47729	10.7	18884	4.2	446002
1991-92	256203	53.3	154410	32.1	50442	10.5	19356	4.0	480411
1992-93	260433	53.4	153389	31.4	53743	11.0	20218	4.1	487783
1993-94	271160	53.3	158554	31.1	58087	11.4	21295	4.2	509096
1994-95	287414	53.7	163325	30.5	61978	11.6	22143	4.1	534860
1995-96	309109	54.2	171366	30.1	66320	11.6	23361	4.1	570156
1996-97	310411	53.5	178756	30.8	67596	11.7	23103	4.0	579866
1997-98	321867	53.6	184724	30.8	69817	11.6	23717	4.0	600125
1998-99	337578	54.0	190820	30.5	72419	11.6	24415	3.9	625232
1999-00	355641	54.7	196240	30.2	73878	11.4	23894	3.7	649653

Note:
Value Added in million Rs.; Share in percentage.

GROSS DOMESTIC PRODUCT BY PROVINCE
At Constant Factor Cost of 1980-81

PER CAPITA GDP

Years	Punjab	Sindh	NWFP	Balochistan	Pakistan
1972-73	2401	3875	2472	3280	2771
1973-74	2441	3901	2464	3209	2801
1974-75	2439	3727	2537	3087	2768
1975-76	2455	3625	2376	3098	2737
1976-77	2455	3591	2239	2702	2696
1977-78	2554	3713	2356	2730	2801
1978-79	2601	3837	2424	2344	2850
1979-80	2693	3909	2517	2272	2930
1980-81	2737	4080	2610	2264	3008
1981-82	2882	4270	2694	2310	3150
1982-83	2972	4454	2821	2552	3275
1983-84	3000	4613	2718	2560	3316
1984-85	3200	4875	2904	2582	3521
1985-86	3340	4961	2989	2632	3635
1986-87	3420	5019	3324	2710	3745
1987-88	3487	5377	3354	2874	3880
1988-89	3576	5514	3315	2901	3960
1989-90	3693	5498	3286	3137	4033
1990-91	3859	5543	3235	3382	4145
1991-92	4030	5930	3325	3383	4347
1992-93	3990	5730	3447	3448	4298
1993-94	4047	5762	3624	3544	4368
1994-95	4178	5773	3761	3596	4468
1995-96	4377	5893	3914	3703	4637
1996-97	4282	5979	3880	3574	4592
1997-98	4325	6011	3898	3578	4627
1998-99	4418	6041	3932	3595	4694
1999-00	4534	6043	3901	3433	4749

GROSS DOMESTIC PRODUCT BY PROVINCE
At Constant Factor Cost of 1980-81

AGRICULTURE

(Million Rs.)

Years	Punjab		Sindh		NWFP		Balochistan		Pakistan
	Value Added	Share	Value Added	Share	Value Added	Share	Value Added	Share	Value Added
1972-73	36589	57.6	15669	24.7	7997	12.6	3288	5.2	63543
1973-74	36871	57.9	15427	24.2	7882	12.4	3541	5.6	63721
1974-75	37076	59.4	13339	21.4	8597	13.8	3370	5.4	62382
1975-76	38488	60.0	14046	21.9	7404	11.5	4187	6.5	64125
1976-77	39890	61.5	14322	22.1	7182	11.1	3480	5.4	64874
1977-78	40779	60.6	15209	22.6	7533	11.2	3786	5.6	67307
1978-79	42152	60.6	16492	23.7	8212	11.8	2739	3.9	69595
1979-80	45061	61.2	17403	23.6	8262	11.2	2921	4.0	73647
1980-81	44548	58.3	19365	25.3	9408	12.3	3077	4.0	76398
1981-82	48587	60.7	19334	24.2	8839	11.0	3248	4.1	80008
1982-83	49497	59.3	20650	24.7	9541	11.4	3844	4.6	83532
1983-84	47001	59.1	19396	24.4	9156	11.5	3949	5.0	79502
1984-85	52364	59.4	21731	24.6	9988	11.3	4105	4.7	88188
1985-86	55394	59.3	23094	24.7	10658	11.4	4288	4.6	93434
1986-87	56352	58.4	24202	25.1	11327	11.7	4593	4.8	96474
1987-88	56946	57.5	25510	25.7	11978	12.1	4669	4.7	99103
1988-89	59942	56.6	28646	27.0	12248	11.6	5082	4.8	105918
1989-90	62165	57.0	28891	26.5	12418	11.4	5647	5.2	109121
1990-91	65911	57.5	30065	26.2	12798	11.2	5766	5.0	114540
1991-92	73842	58.9	32229	25.7	12981	10.3	6372	5.1	125424
1992-93	69187	58.2	29895	25.2	12784	10.8	6930	5.8	118796
1993-94	71506	57.2	32346	25.9	13410	10.7	7742	6.2	125004
1994-95	77882	58.5	33627	25.2	13720	10.3	7985	6.0	133214
1995-96	87060	58.5	37887	25.5	14678	9.9	9207	6.2	148832
1996-97	84249	56.5	41204	27.7	14720	9.9	8844	5.9	149017
1997-98	87444	56.1	42710	27.4	15982	10.3	9613	6.2	155749
1998-99	89052	56.1	43111	27.2	17234	10.9	9385	5.9	158782
1999-00	95793	56.9	46412	27.6	18019	10.7	8235	4.9	168459

Note:
Value Added in million Rs.; Share in percentage.

GROSS DOMESTIC PRODUCT BY PROVINCE
At Constant Factor Cost of 1980-81

MAJOR CROPS

Years	Punjab		Sindh		NWFP		Balochistan		Pakistan
	Value Added	Share	Value Added	Share	Value Added	Share	Value Added	Share	Value Added
1972-73	20779	68.0	5445	17.8	4182	13.7	171	0.6	30576
1973-74	21859	67.8	6000	18.6	4122	12.8	247	0.8	32228
1974-75	21126	68.7	4941	16.1	4461	14.5	205	0.7	30734
1975-76	22604	69.8	5502	17.0	4071	12.6	189	0.6	32366
1976-77	23450	71.3	5500	16.7	3766	11.5	169	0.5	32884
1977-78	23845	70.7	5774	17.1	3868	11.5	218	0.6	33704
1978-79	23990	69.3	6340	18.3	3999	11.6	269	0.8	34597
1979-80	26084	68.6	7381	19.4	4201	11.1	333	0.9	38000
1980-81	25003	63.1	8946	22.6	5247	13.2	430	1.1	39626
1981-82	27548	66.4	8970	21.6	4439	10.7	539	1.3	41496
1982-83	27466	64.1	9738	22.7	4839	11.3	794	1.9	42837
1983-84	23877	65.0	8070	22.0	4120	11.2	643	1.8	36710
1984-85	28184	65.0	9783	22.5	4682	10.8	741	1.7	43390
1985-86	29579	64.0	10803	23.4	5104	11.0	726	1.6	46212
1986-87	29338	62.5	11591	24.7	5181	11.0	855	1.8	46965
1987-88	29700	61.3	12646	26.1	5430	11.2	676	1.4	48452
1988-89	29958	57.8	15361	29.6	5689	11.0	833	1.6	51842
1989-90	30162	58.2	14765	28.5	5973	11.5	894	1.7	51795
1990-91	32290	59.0	15406	28.1	6100	11.1	944	1.7	54741
1991-92	38375	60.7	17333	27.4	6505	10.3	1000	1.6	63213
1992-93	31635	59.3	14376	26.9	6226	11.7	1117	2.1	53354
1993-94	30935	57.3	15622	28.9	6361	11.8	1099	2.0	54018
1994-95	34665	59.0	16512	28.1	6492	11.1	1045	1.8	58714
1995-96	35781	57.5	18943	30.4	6169	9.9	1318	2.1	62211
1996-97	32259	54.2	20135	33.8	5946	10.0	1179	2.0	59518
1997-98	35055	54.4	21244	33.0	6811	10.6	1330	2.1	64439
1998-99	34960	54.3	21334	33.1	6954	10.8	1179	1.8	64426
1999-00	41612	56.0	24199	32.5	7300	9.8	1248	1.7	74359

Note:
Value Added in million Rs.; Share in percentage.

GROSS DOMESTIC PRODUCT BY PROVINCE
At Constant Factor Cost of 1980-81

MINOR CROPS

Years	Punjab		Sindh		NWFP		Balochistan		Pakistan
	Value Added	Share	Value Added	Share	Value Added	Share	Value Added	Share	Value Added
1972-73	6930	58.9	2957	25.2	967	8.2	903	7.7	11756
1973-74	5894	53.6	3037	27.6	983	8.9	1086	9.9	11000
1974-75	6651	56.7	2536	21.6	1513	12.9	1029	8.8	11728
1975-76	6413	54.4	2635	22.3	852	7.2	1893	16.1	11793
1976-77	6467	56.3	2858	24.9	959	8.4	1194	10.4	11478
1977-78	6533	53.9	3299	27.2	1091	9.0	1208	10.0	12130
1978-79	6858	54.6	3450	27.5	1108	8.8	1138	9.1	12555
1979-80	7120	56.2	3255	25.7	1057	8.3	1245	9.8	12677
1980-81	7305	55.5	3383	25.7	1120	8.5	1353	10.3	13162
1981-82	8641	60.7	3143	22.1	1148	8.1	1297	9.1	14229
1982-83	9180	60.6	3200	21.1	1228	8.1	1548	10.2	15156
1983-84	9636	61.5	3134	20.0	1257	8.0	1641	10.5	15668
1984-85	9931	61.6	3136	19.5	1335	8.3	1708	10.6	16109
1985-86	10516	62.8	3180	19.0	1364	8.1	1682	10.0	16742
1986-87	10550	60.9	3394	19.6	1574	9.1	1799	10.4	17317
1987-88	9996	59.7	3154	18.8	1605	9.6	1997	11.9	16756
1988-89	11459	62.9	3147	17.3	1508	8.3	2092	11.5	18205
1989-90	11765	61.4	3377	17.6	1507	7.9	2494	13.0	19147
1990-91	12166	61.4	3424	17.3	1614	8.1	2615	13.2	19820
1991-92	12503	61.6	3113	15.3	1652	8.1	3022	14.9	20290
1992-93	12912	61.2	3051	14.5	1722	8.2	3408	16.2	21092
1993-94	14302	60.2	3514	14.8	1939	8.2	3999	16.8	23754
1994-95	15229	60.0	3807	15.0	2028	8.0	4331	17.1	25395
1995-96	15293	57.4	4239	15.9	2171	8.2	4933	18.5	26636
1996-97	15734	58.5	4042	15.0	2250	8.4	4860	18.1	26886
1997-98	16964	58.4	4446	15.3	2455	8.4	5206	17.9	29071
1998-99	18778	62.0	4587	15.1	2374	7.8	4560	15.0	30300
1999-00	7282	58.0	2927	23.3	1052	8.4	1301	10.4	12562

Note:
Value Added in million Rs.; Share in percentage.

GROSS DOMESTIC PRODUCT BY PROVINCE
At Constant Factor Cost of 1980-81

LIVESTOCK

Years	Punjab		Sindh		NWFP		Balochistan		Pakistan
	Value Added	Share	Value Added	Share	Value Added	Share	Value Added	Share	Value Added
1972-73	8466	56.6	3152	21.1	2014	13.5	1316	8.8	14948
1973-74	8785	56.6	3277	21.1	2074	13.4	1395	9.0	15531
1974-75	9039	56.5	3390	21.2	2126	13.3	1456	9.1	16011
1975-76	9291	56.3	3500	21.2	2175	13.2	1530	9.3	16496
1976-77	9681	56.2	3668	21.3	2258	13.1	1617	9.4	17224
1977-78	10027	56.0	3831	21.4	2328	13.0	1710	9.6	17896
1978-79	10957	59.1	4275	23.0	2608	14.1	715	3.9	18555
1979-80	11346	58.7	4518	23.4	2706	14.0	770	4.0	19340
1980-81	11796	58.6	4785	23.8	2753	13.7	805	4.0	20139
1981-82	12015	57.8	5024	24.2	2879	13.9	852	4.1	20770
1982-83	12400	57.2	5332	24.6	3015	13.9	917	4.2	21664
1983-84	13000	56.6	5701	24.8	3216	14.0	1039	4.5	22956
1984-85	13755	56.5	6188	25.4	3347	13.7	1066	4.4	24356
1985-86	14760	57.1	6326	24.5	3598	13.9	1182	4.6	25866
1986-87	15891	58.1	6373	23.3	3802	13.9	1285	4.7	27351
1987-88	16748	57.9	6876	23.8	3958	13.7	1323	4.6	28905
1988-89	18008	58.8	7207	23.5	4026	13.2	1374	4.5	30615
1989-90	19549	60.2	7553	23.3	3952	12.2	1426	4.4	32480
1990-91	20820	61.0	7917	23.2	3950	11.6	1419	4.2	34106
1991-92	22386	62.0	8297	23.0	3912	10.8	1537	4.3	36132
1992-93	24071	62.8	8697	22.7	3944	10.3	1596	4.2	38308
1993-94	25529	62.9	9285	22.9	4180	10.3	1605	4.0	40599
1994-95	27155	63.4	9629	22.5	4443	10.4	1620	3.8	42847
1995-96	35225	65.0	11192	20.7	5758	10.6	1997	3.7	54172
1996-97	35566	63.0	13280	23.5	5795	10.3	1828	3.2	56469
1997-98	34785	62.1	12972	23.2	6209	11.1	2058	3.7	56024
1998-99	34612	59.9	12994	22.5	7431	12.9	2771	4.8	57808
1999-00	35833	60.8	13535	23.0	7123	12.1	2414	4.1	58905

Note:
Value Added in million Rs.; Share in percentage.

GROSS DOMESTIC PRODUCT BY PROVINCE
At Constant Factor Cost of 1980-81

FISHING

Years	Punjab		Sindh		NWFP		Balochistan		Pakistan
	Value Added	Share	Value Added	Share	Value Added	Share	Value Added	Share	Value Added
1972-73	76	1.5	3996	80.4	8	0.2	890	17.9	4970
1973-74	90	2.3	2997	76.8	5	0.1	810	20.8	3902
1974-75	85	2.7	2432	76.0	5	0.2	679	21.2	3201
1975-76	87	2.8	2390	78.1	8	0.3	574	18.8	3059
1976-77	73	2.6	2180	79.1	6	0.2	497	18.0	2756
1977-78	80	2.7	2265	75.5	8	0.3	647	21.6	3000
1978-79	93	3.1	2284	76.2	9	0.3	610	20.4	2996
1979-80	110	3.9	2137	75.9	14	0.5	556	19.7	2817
1980-81	113	4.2	2123	78.8	8	0.3	451	16.7	2695
1981-82	124	4.6	2073	76.4	8	0.3	508	18.7	2713
1982-83	151	5.1	2250	75.9	13	0.4	549	18.5	2963
1983-84	175	5.6	2379	76.0	12	0.4	564	18.0	3130
1984-85	197	6.0	2504	76.0	13	0.4	579	17.6	3293
1985-86	207	5.8	2632	74.3	14	0.4	691	19.5	3544
1986-87	251	6.9	2741	75.1	9	0.2	650	17.8	3650
1987-88	284	7.5	2808	74.4	13	0.3	671	17.8	3776
1988-89	329	8.2	2883	72.1	7	0.2	780	19.5	3999
1989-90	358	8.3	3135	72.5	8	0.2	824	19.1	4325
1990-91	361	8.1	3268	73.8	17	0.4	783	17.7	4430
1991-92	379	8.2	3446	74.1	17	0.4	808	17.4	4650
1992-93	357	7.3	3731	76.0	16	0.3	805	16.4	4909
1993-94	507	9.3	3895	71.6	6	0.1	1034	19.0	5442
1994-95	431	8.5	3626	71.8	9	0.2	981	19.4	5047
1995-96	464	9.5	3479	70.9	8	0.2	953	19.4	4904
1996-97	434	8.4	3725	72.5	9	0.2	971	18.9	5139
1997-98	395	7.3	4025	73.9	10	0.2	1013	18.6	5443
1998-99	423	7.7	4174	76.2	10	0.2	870	15.9	5477
1999-00	437	7.3	4358	72.5	11	0.2	1203	20.0	6008

Note:
Value Added in million Rs.; Share in percentage.

GROSS DOMESTIC PRODUCT BY PROVINCE
At Constant Factor Cost of 1980-81

FORESTRY

Years	Punjab		Sindh		NWFP		Balochistan		Pakistan
	Value Added	Share	Value Added	Share	Value Added	Share	Value Added	Share	Value Added
1972-73	338	26.2	119	9.2	826	64.0	8	0.6	1291
1973-74	243	22.9	116	10.9	698	65.8	3	0.3	1060
1974-75	175	24.7	40	5.6	492	69.5	1	0.1	708
1975-76	93	22.6	19	4.6	298	72.5	1	0.2	411
1976-77	219	41.2	116	21.8	193	36.3	3	0.6	531
1977-78	294	51.1	40	7.0	238	41.4	3	0.5	575
1978-79	254	28.5	143	16.0	488	54.7	7	0.8	892
1979-80	401	49.3	112	13.8	284	34.9	17	2.1	814
1980-81	331	42.6	128	16.5	280	36.0	38	4.9	777
1981-82	259	32.4	124	15.5	365	45.6	52	6.5	800
1982-83	300	32.9	130	14.3	446	48.9	36	3.9	912
1983-84	313	30.2	112	10.8	551	53.1	62	6.0	1038
1984-85	297	28.6	120	11.5	611	58.8	11	1.1	1039
1985-86	332	31.0	153	14.3	578	54.0	7	0.7	1070
1986-87	322	27.1	103	8.7	761	63.9	4	0.3	1190
1987-88	218	17.9	26	2.1	972	79.8	2	0.2	1218
1988-89	188	15.0	48	3.8	1018	81.0	3	0.2	1257
1989-90	331	24.0	61	4.4	978	70.9	9	0.7	1379
1990-91	274	18.9	50	3.5	1117	77.2	5	0.3	1446
1991-92	199	17.5	40	3.5	895	78.6	5	0.4	1139
1992-93	212	18.7	40	3.5	876	77.4	4	0.4	1132
1993-94	233	19.5	30	2.5	924	77.5	5	0.4	1192
1994-95	402	33.2	53	4.4	748	61.8	8	0.7	1211
1995-96	297	32.7	34	3.7	572	62.9	6	0.7	909
1996-97	256	25.5	22	2.2	720	71.7	6	0.6	1004
1997-98	245	31.8	23	3.0	497	64.5	6	0.8	771
1998-99	279	36.2	22	2.9	465	60.3	5	0.6	771
1999-00	566	34.5	65	4.0	998	60.8	13	0.8	1642

Note:
Value Added in million Rs.; Share in percentage.

GROSS DOMESTIC PRODUCT BY PROVINCE
At Constant Factor Cost of 1980-81

MINING AND QUARRYING

Years	Punjab		Sindh		NWFP		Balochistan		Pakistan
	Value Added	Share	Value Added	Share	Value Added	Share	Value Added	Share	Value Added
1972-73	194	29.5	245	37.3	11	1.7	207	31.5	657
1973-74	241	33.3	270	37.3	11	1.5	201	27.8	723
1974-75	240	33.5	259	36.2	12	1.7	205	28.6	716
1975-76	234	34.1	242	35.3	26	3.8	184	26.8	686
1976-77	368	46.2	220	27.6	15	1.9	194	24.3	797
1977-78	337	41.1	262	32.0	27	3.3	193	23.6	819
1978-79	282	33.2	312	36.7	35	4.1	221	26.0	850
1979-80	432	45.8	215	22.8	38	4.0	259	27.4	944
1980-81	426	40.5	321	30.5	46	4.4	260	24.7	1053
1981-82	494	42.3	347	29.7	44	3.8	282	24.2	1167
1982-83	487	41.8	382	32.8	36	3.1	259	22.3	1164
1983-84	464	39.3	386	32.7	57	4.8	274	23.2	1181
1984-85	537	40.1	441	32.9	70	5.2	292	21.8	1340
1985-86	705	42.5	570	34.4	106	6.4	276	16.7	1657
1986-87	725	40.7	644	36.1	127	7.1	286	16.0	1782
1987-88	825	40.7	707	34.8	163	8.0	334	16.5	2029
1988-89	785	37.9	756	36.5	186	9.0	344	16.6	2071
1989-90	829	36.5	890	39.2	193	8.5	356	15.7	2269
1990-91	869	34.7	954	38.1	256	10.2	425	17.0	2504
1991-92	672	26.2	1413	55.1	176	6.9	304	11.9	2565
1992-93	660	25.0	1496	56.6	192	7.3	294	11.1	2642
1993-94	647	23.4	1607	58.1	209	7.6	302	10.9	2765
1994-95	648	24.5	1531	57.9	188	7.1	279	10.5	2646
1995-96	699	24.7	1579	55.7	246	8.7	309	10.9	2833
1996-97	720	24.9	1553	53.8	286	9.9	327	11.3	2886
1997-98	676	24.6	1500	54.7	281	10.2	288	10.5	2744
1998-99	650	23.0	1398	49.4	263	9.3	521	18.4	2831
1999-00	823	27.4	1524	50.7	330	11.0	328	10.9	3005

Note:
Value Added in million Rs.; Share in percentage.

GROSS DOMESTIC PRODUCT BY PROVINCE
At Constant Factor Cost of 1980-81

MANUFACTURING

Years	Punjab		Sindh		NWFP		Balochistan		Pakistan
	Value Added	Share	Value Added	Share	Value Added	Share	Value Added	Share	Value Added
1972-73	11333	48.7	9964	42.8	1910	8.2	82	0.4	23289
1973-74	12109	48.9	10459	42.2	2126	8.6	92	0.4	24786
1974-75	12281	49.3	10326	41.4	2219	8.9	100	0.4	24926
1975-76	12539	49.6	10295	40.7	2335	9.2	110	0.4	25279
1976-77	12928	50.2	10900	42.3	1790	7.0	127	0.5	25745
1977-78	14220	50.1	12015	42.3	1965	6.9	185	0.7	28385
1978-79	14940	48.7	13309	43.4	2195	7.2	226	0.7	30670
1979-80	16130	47.7	14752	43.6	2643	7.8	306	0.9	33831
1980-81	17863	47.7	16473	44.0	2838	7.6	272	0.7	37446
1981-82	19697	46.2	19170	45.0	3418	8.0	311	0.7	42596
1982-83	20537	45.0	20395	44.7	4135	9.1	526	1.2	45593
1983-84	21636	44.0	22852	46.5	4139	8.4	560	1.1	49187
1984-85	23612	44.4	24460	46.0	4480	8.4	614	1.2	53166
1985-86	26768	46.8	24421	42.7	5166	9.0	825	1.4	57180
1986-87	27607	44.9	25893	42.1	7203	11.7	781	1.3	61484
1987-88	30041	44.4	29489	43.6	7176	10.6	916	1.4	67622
1988-89	33465	47.6	29852	42.5	5837	8.3	1144	1.6	70298
1989-90	37561	50.5	30345	40.8	4885	6.6	1534	2.1	74325
1990-91	41577	52.6	31070	39.3	4241	5.4	2081	2.6	78969
1991-92	43979	51.5	33880	39.7	5468	6.4	1996	2.3	85323
1992-93	43912	50.9	34217	39.6	6463	7.5	1754	2.0	86346
1993-94	45689	50.6	35066	38.8	7884	8.7	1642	1.8	90281
1994-95	46485	50.2	34936	37.7	9677	10.5	1464	1.6	92562
1995-96	47691	49.7	35252	36.7	11696	12.2	1377	1.4	96016
1996-97	48070	50.1	35555	37.1	10885	11.3	1435	1.5	95945
1997-98	51507	50.2	38694	37.7	10722	10.5	1670	1.6	102593
1998-99	53753	50.3	41105	38.5	10098	9.5	1811	1.7	106767
1999-00	54825	50.6	42204	38.9	9468	8.7	1907	1.8	108404

Note:
Value Added in million Rs.; Share in percentage.

GROSS DOMESTIC PRODUCT BY PROVINCE
At Constant Factor Cost of 1980-81

LARGE-SCALE MANUFACTURING

Years	Punjab		Sindh		NWFP		Balochistan		Pakistan
	Value Added	Share	Value Added	Share	Value Added	Share	Value Added	Share	Value Added
1972-73	8009	43.4	8666	47.0	1724	9.3	42	0.2	18440
1973-74	8500	43.7	8993	46.2	1915	9.8	48	0.2	19456
1974-75	8392	43.9	8681	45.4	1980	10.4	50	0.3	19104
1975-76	8367	44.2	8462	44.7	2067	10.9	55	0.3	18951
1976-77	8450	44.8	8852	46.9	1488	7.9	66	0.4	18856
1977-78	9382	45.0	9714	46.6	1622	7.8	116	0.6	20834
1978-79	9717	43.4	10723	47.9	1807	8.1	149	0.7	22396
1979-80	10476	42.4	11838	47.9	2202	8.9	220	0.9	24735
1980-81	11743	42.8	13193	48.1	2338	8.5	177	0.6	27451
1981-82	13171	41.5	15528	48.9	2856	9.0	206	0.6	31761
1982-83	13578	40.1	16354	48.3	3507	10.4	409	1.2	33847
1983-84	14218	39.0	18370	50.4	3436	9.4	431	1.2	36455
1984-85	15112	38.4	20090	51.0	3694	9.4	469	1.2	39365
1985-86	17086	40.5	20183	47.8	4289	10.2	662	1.6	42220
1986-87	16632	36.7	21805	48.2	6232	13.8	598	1.3	45267
1987-88	17662	35.3	25564	51.1	6105	12.2	712	1.4	50043
1988-89	20036	39.1	25673	50.1	4612	9.0	922	1.8	51244
1989-90	22486	41.9	26351	49.1	3542	6.6	1288	2.4	53667
1990-91	24724	43.7	27270	48.2	2772	4.9	1810	3.2	56577
1991-92	26862	44.0	28816	47.2	3663	6.0	1709	2.8	61051
1992-93	27974	44.0	29436	46.3	4641	7.3	1526	2.4	63577
1993-94	28904	43.6	30031	45.3	5966	9.0	1392	2.1	66294
1994-95	28809	42.8	29886	44.4	7404	11.0	1212	1.8	67310
1995-96	28811	41.5	30199	43.5	9303	13.4	1111	1.6	69424
1996-97	28467	41.9	30234	44.5	8085	11.9	1155	1.7	67941
1997-98	30849	42.2	33261	45.5	7676	10.5	1316	1.8	73102
1998-99	31950	42.2	35281	46.6	7041	9.3	1438	1.9	75710
1999-00	31869	42.1	36108	47.7	6207	8.2	1514	2.0	75699

Note:
Value Added in million Rs.; Share in percentage.

GROSS DOMESTIC PRODUCT BY PROVINCE
At Constant Factor Cost of 1980-81

SMALL-SCALE MANUFACTURING

Years	Punjab		Sindh		NWFP		Balochistan		Pakistan
	Value Added	Share	Value Added	Share	Value Added	Share	Value Added	Share	Value Added
1972-73	3324	68.6	1298	26.8	186	3.8	40	0.8	4848
1973-74	3609	67.7	1466	27.5	211	4.0	44	0.8	5330
1974-75	3889	66.8	1645	28.3	239	4.1	50	0.9	5823
1975-76	4172	65.9	1833	29.0	268	4.2	55	0.9	6328
1976-77	4478	65.0	2048	29.7	302	4.4	61	0.9	6889
1977-78	4838	64.1	2301	30.5	343	4.5	69	0.9	7551
1978-79	5223	63.1	2586	31.3	388	4.7	77	0.9	8274
1979-80	5654	62.2	2914	32.0	441	4.8	86	0.9	9095
1980-81	6120	61.2	3280	32.8	500	5.0	95	1.0	9995
1981-82	6526	60.2	3642	33.6	562	5.2	105	1.0	10835
1982-83	6959	59.3	4041	34.4	628	5.3	117	1.0	11745
1983-84	7418	58.3	4482	35.2	703	5.5	129	1.0	12732
1984-85	8500	61.6	4370	31.7	786	5.7	145	1.1	13801
1985-86	9682	64.7	4238	28.3	877	5.9	163	1.1	14960
1986-87	10975	67.7	4088	25.2	971	6.0	183	1.1	16217
1987-88	12379	70.4	3925	22.3	1071	6.1	204	1.2	17579
1988-89	13429	70.5	4179	21.9	1225	6.4	222	1.2	19056
1989-90	15075	73.0	3994	19.3	1343	6.5	246	1.2	20657
1990-91	16853	75.3	3800	17.0	1469	6.6	271	1.2	22392
1991-92	17117	70.5	5064	20.9	1805	7.4	287	1.2	24273
1992-93	15938	70.0	4781	21.0	1822	8.0	228	1.0	22769
1993-94	16785	70.0	5035	21.0	1918	8.0	250	1.0	23978
1994-95	17676	70.0	5050	20.0	2273	9.0	252	1.0	25251
1995-96	18880	71.0	5053	19.0	2393	9.0	266	1.0	26592
1996-97	19603	70.0	5321	19.0	2800	10.0	280	1.0	28004
1997-98	20658	70.0	5433	18.4	3046	10.3	354	1.2	29491
1998-99	21803	70.2	5824	18.8	3057	9.8	373	1.2	31057
1999-00	22956	70.2	6096	18.6	3261	10.0	393	1.2	32706

Note:
Value Added in million Rs.; Share in percentage.

GROSS DOMESTIC PRODUCT BY PROVINCE
At Constant Factor Cost of 1980-81

CONSTRUCTION

Years	Punjab		Sindh		NWFP		Balochistan		Pakistan
	Value Added	Share	Value Added	Share	Value Added	Share	Value Added	Share	Value Added
1972-73	5803	53.2	3171	29.1	1272	11.7	660	6.1	10909
1973-74	5631	52.8	3305	31.0	1128	10.6	605	5.7	10669
1974-75	5141	49.2	3334	31.9	1272	12.2	709	6.8	10457
1975-76	5662	51.2	3380	30.6	1401	12.7	607	5.5	11049
1976-77	5248	50.2	3307	31.6	1342	12.8	554	5.3	10451
1977-78	5715	53.6	2909	27.3	1405	13.2	625	5.9	10655
1978-79	5443	50.8	3248	30.3	1315	12.3	708	6.6	10714
1979-80	5298	48.4	3077	28.1	1822	16.6	753	6.9	10949
1980-81	6000	51.8	3438	29.7	1477	12.7	672	5.8	11586
1981-82	6262	51.2	3817	31.2	1525	12.5	638	5.2	12242
1982-83	6059	50.9	3655	30.7	1463	12.3	733	6.2	11910
1983-84	6118	50.9	3818	31.8	1359	11.3	730	6.1	12025
1984-85	6616	50.3	4141	31.5	1584	12.0	814	6.2	13155
1985-86	7631	54.4	3851	27.4	1637	11.7	916	6.5	14035
1986-87	8746	55.4	4216	26.7	1977	12.5	846	5.4	15784
1987-88	8832	53.3	4706	28.4	1994	12.0	1031	6.2	16563
1988-89	8918	52.7	5315	31.4	1877	11.1	827	4.9	16937
1989-90	9631	55.1	4766	27.3	2057	11.8	1012	5.8	17466
1990-91	10238	55.5	4712	25.5	2223	12.0	1289	7.0	18462
1991-92	10831	55.4	5074	25.9	2335	11.9	1326	6.8	19566
1992-93	11338	54.8	5452	26.3	2500	12.1	1411	6.8	20701
1993-94	11602	55.1	5628	26.7	2468	11.7	1342	6.4	21040
1994-95	11697	55.0	5772	27.2	2470	11.6	1315	6.2	21253
1995-96	12070	55.0	5968	27.2	2545	11.6	1360	6.2	21944
1996-97	12197	55.0	6121	27.6	2478	11.2	1387	6.3	22183
1997-98	12261	54.6	6229	27.7	2568	11.4	1404	6.3	22462
1998-99	11612	54.4	5979	28.0	2424	11.4	1340	6.3	21356
1999-00	12162.0	54.2	6348	28.3	2531	11.3	1415.0	6.3	22456

Note:
Value Added in million Rs.; Share in percentage.

GROSS DOMESTIC PRODUCT BY PROVINCE
At Constant Factor Cost of 1980-81

ELECTRICITY AND GAS

Years	Punjab		Sindh		NWFP		Balochistan		Pakistan
	Value Added	Share	Value Added	Share	Value Added	Share	Value Added	Share	Value Added
1972-73	1836	58.2	817	25.9	405	12.8	95	3.0	3153
1973-74	2211	59.3	993	26.6	382	10.2	143	3.8	3729
1974-75	1846	55.7	1041	31.4	270	8.1	156	4.7	3313
1975-76	1851	53.8	1061	30.9	315	9.2	212	6.2	3439
1976-77	2063	51.7	1221	30.6	418	10.5	289	7.2	3991
1977-78	2064	47.5	1284	29.6	631	14.5	364	8.4	4343
1978-79	2256	47.3	1358	28.5	730	15.3	426	8.9	4769
1979-80	2511	47.0	1457	27.3	861	16.1	515	9.6	5345
1980-81	2619	44.2	1744	29.4	954	16.1	611	10.3	5928
1981-82	2537	42.1	1921	31.9	968	16.1	597	9.9	6023
1982-83	2692	41.9	1960	30.5	1156	18.0	617	9.6	6425
1983-84	2834	38.8	2286	31.3	1485	20.4	690	9.5	7295
1984-85	2944	39.3	2348	31.4	1452	19.4	742	9.9	7486
1985-86	3329	39.8	2639	31.6	1655	19.8	739	8.8	8362
1986-87	3742	40.6	2918	31.7	1681	18.3	866	9.4	9207
1987-88	4281	40.0	3404	31.8	2120	19.8	906	8.5	10711
1988-89	4912	40.5	3853	31.8	2421	20.0	938	7.7	12125
1989-90	5927	42.7	4445	32.0	2634	19.0	890	6.4	13896
1990-91	6761	43.8	4950	32.1	2364	15.3	1348	8.7	15424
1991-92	7031	41.8	5240	31.1	3115	18.5	1436	8.5	16823
1992-93	7820	43.7	5771	32.2	2870	16.0	1435	8.0	17897
1993-94	8205	44.4	5855	31.7	3166	17.1	1237	6.7	18464
1994-95	10155	47.1	6745	31.3	3308	15.3	1364	6.3	21572
1995-96	11607	48.9	7329	30.8	3422	14.4	1401	5.9	23759
1996-97	10354	44.9	6990	30.3	4471	19.4	1253	5.4	23068
1997-98	11830	47.1	7678	30.6	4348	17.3	1238	4.9	25094
1998-99	15608	53.0	8050	27.3	4501	15.3	1303	4.4	29463
1999-00	16794	58.7	6880	24.1	3798.0	13.3	1118	3.9	28590

Note:
Value Added in million Rs.; Share in percentage.

GROSS DOMESTIC PRODUCT BY PROVINCE
At Constant Factor Cost of 1980-81

TRANSPORT, STORAGE AND COMMUNICATIONS

Years	Punjab		Sindh		NWFP		Balochistan		Pakistan
	Value Added	Share	Value Added	Share	Value Added	Share	Value Added	Share	Value Added
1972-73	10042	50.6	7738	39.0	1375	6.9	678	3.4	19833
1973-74	9910	50.3	7866	39.9	1291	6.6	636	3.2	19703
1974-75	9576	49.2	7887	40.5	1289	6.6	731	3.8	19483
1975-76	9615	50.0	7601	39.5	1358	7.1	662	3.4	19236
1976-77	9221	48.2	7811	40.8	1421	7.4	697	3.6	19150
1977-78	10046	47.8	8643	41.1	1644	7.8	690	3.3	21023
1978-79	10590	48.1	9059	41.1	1697	7.7	678	3.1	22024
1979-80	10880	47.8	9459	41.6	1762	7.7	646	2.8	22747
1980-81	11361	47.5	10031	41.9	1801	7.5	734	3.1	23927
1981-82	12475	48.1	10598	40.9	1996	7.7	841	3.2	25910
1982-83	13581	48.6	11171	39.9	2247	8.0	972	3.5	27971
1983-84	14841	49.0	12240	40.4	2073	6.8	1130	3.7	30284
1984-85	15958	48.8	12642	38.7	2822	8.6	1266	3.9	32688
1985-86	16715	48.7	13323	38.8	2968	8.7	1299	3.8	34305
1986-87	18093	49.2	13959	37.9	3315	9.0	1417	3.9	36784
1987-88	19312	49.1	14658	37.3	3658	9.3	1665	4.2	39293
1988-89	18178	48.2	14383	38.1	3593	9.5	1561	4.1	37715
1989-90	19944	49.6	14577	36.3	3796	9.4	1868	4.6	40185
1990-91	21859	51.2	15014	35.1	3839	9.0	2007	4.7	42719
1991-92	22272	47.2	19535	41.4	3548	7.5	1834	3.9	47189
1992-93	25730	51.1	17537	34.8	4663	9.3	2403	4.8	50333
1993-94	27205	52.1	16794	32.2	5287	10.1	2897	5.6	52183
1994-95	28148	51.8	17051	31.4	5789	10.7	3353	6.2	54341
1995-96	29731	54.3	16570	30.2	5494	10.0	3003	5.5	54798
1996-97	28783	50.6	19454	34.2	5855	10.3	2767	4.9	56859
1997-98	31566	51.8	21077	34.6	5865	9.6	2451	4.0	60959
1998-99	33764	52.7	21603	33.7	6215	9.7	2504	3.9	64086
1999-00	34854	52.5	22746	34.3	6423	9.7	2341.0	3.5	66364

Note:
Value Added in million Rs.; Share in percentage.

GROSS DOMESTIC PRODUCT BY PROVINCE
At Constant Factor Cost of 1980-81

TRANSPORT

Years	Punjab		Sindh		NWFP		Balochistan		Pakistan
	Value Added	Share	Value Added	Share	Value Added	Share	Value Added	Share	Value Added
1972-73	9303	49.6	7410	39.5	1351	7.2	679	3.6	18744
1973-74	9280	49.2	7681	40.7	1279	6.8	638	3.4	18879
1974-75	8741	47.9	7502	41.2	1258	6.9	730	4.0	18230
1975-76	8780	48.7	7251	40.2	1325	7.4	659	3.7	18016
1976-77	8312	46.7	7417	41.7	1384	7.8	690	3.9	17803
1977-78	8879	46.3	8058	42.0	1582	8.2	672	3.5	19191
1978-79	9133	46.4	8281	42.1	1607	8.2	649	3.3	19670
1979-80	9473	46.1	8784	42.7	1684	8.2	617	3.0	20557
1980-81	9817	45.5	9331	43.3	1715	8.0	702	3.3	21565
1981-82	10892	46.5	9846	42.0	1904	8.1	803	3.4	23446
1982-83	11867	46.7	10452	41.1	2158	8.5	937	3.7	25414
1983-84	12968	47.2	11466	41.8	1940	7.1	1085	4.0	27459
1984-85	13731	46.6	11825	40.1	2702	9.2	1211	4.1	29469
1985-86	14470	46.8	12436	40.2	2815	9.1	1219	3.9	30940
1986-87	15547	47.4	12789	39.0	3141	9.6	1334	4.1	32811
1987-88	16576	47.3	13496	38.5	3423	9.8	1581	4.5	35076
1988-89	16015	47.7	12537	37.4	3400	10.1	1596	4.8	33547
1989-90	16764	47.9	12564	35.9	3827	10.9	1834	5.2	34989
1990-91	18117	49.2	12947	35.2	3567	9.7	2193	6.0	36824
1991-92	17941	44.6	17412	43.3	3172	7.9	1679	4.2	40204
1992-93	21888	49.7	15509	35.2	4366	9.9	2289	5.2	44052
1993-94	23189	50.6	14903	32.5	4954	10.8	2786	6.1	45832
1994-95	24366	50.5	15236	31.6	5385	11.2	3233	6.7	48221
1995-96	25901	53.4	14556	30.0	5162	10.6	2870	5.9	48489
1996-97	24773	49.1	17567	34.8	5512	10.9	2642	5.2	50493
1997-98	27345	50.4	19179	35.3	5493	10.1	2282	4.2	54299
1998-99	29541	51.6	19570	34.2	5791	10.1	2340	4.1	57242
1999-00	30351	51.1	20949	35.3	5942	10.0	2181	3.7	59423

Note:
Value Added in million Rs.; Share in percentage.
Storage sub-sector value added is subsumed in the Transport sectors estimates.

GROSS DOMESTIC PRODUCT BY PROVINCE
At Constant Factor Cost of 1980-81

ROAD TRANSPORT

Years	Punjab		Sindh		NWFP		Balochistan		Pakistan
	Value Added	Share	Value Added	Share	Value Added	Share	Value Added	Share	Value Added
1972-73	7876	56.6	4390	31.6	1175	8.4	470	3.4	13911
1973-74	8039	55.6	4846	33.5	1129	7.8	457	3.2	14471
1974-75	7507	55.8	4265	31.7	1122	8.3	555	4.1	13449
1975-76	7665	55.4	4480	32.4	1195	8.6	492	3.6	13832
1976-77	7259	54.7	4228	31.9	1237	9.3	537	4.0	13261
1977-78	7665	53.5	4694	32.8	1443	10.1	530	3.7	14332
1978-79	7915	53.2	4982	33.5	1476	9.9	516	3.5	14889
1979-80	8549	54.2	5171	32.8	1554	9.9	495	3.1	15769
1980-81	9025	54.4	5395	32.5	1588	9.6	587	3.5	16595
1981-82	9803	54.7	5694	31.8	1761	9.8	674	3.8	17932
1982-83	10715	55.1	5942	30.6	1993	10.2	796	4.1	19446
1983-84	11547	55.1	6747	32.2	1749	8.3	923	4.4	20966
1984-85	12333	54.1	6943	30.4	2508	11.0	1032	4.5	22816
1985-86	12971	54.1	7373	30.7	2606	10.9	1044	4.4	23994
1986-87	14073	55.2	7358	28.9	2921	11.5	1145	4.5	25497
1987-88	15059	54.8	7886	28.7	3182	11.6	1372	5.0	27499
1988-89	14839	52.9	8512	30.3	3292	11.7	1406	5.0	28049
1989-90	16016	54.1	8531	28.8	3401	11.5	1637	5.5	29585
1990-91	17005	56.4	8024	26.6	3347	11.1	1755	5.8	30131
1991-92	16451	51.8	10889	34.3	2894	9.1	1518	4.8	31752
1992-93	20096	58.3	8372	24.3	3950	11.5	2059	6.0	34477
1993-94	21730	58.1	8678	23.2	4457	11.9	2514	6.7	37379
1994-95	22791	58.0	8677	22.1	4858	12.4	2936	7.5	39262
1995-96	24085	61.8	7747	19.9	4624	11.9	2540	6.5	38996
1996-97	22479	55.5	10751	26.6	4933	12.2	2319	5.7	40482
1997-98	25130	57.7	11547	26.5	4889	11.2	1960	4.5	43526
1998-99	27066	59.0	11546	25.2	5250	11.4	1995	4.4	45857
1999-00	28046	59.0	12367	26.0	5300	11.1	1839	3.9	47552

Note:
Value Added in million Rs.; Share in percentage.

GROSS DOMESTIC PRODUCT BY PROVINCE
At Constant Factor Cost of 1980-81

RAIL TRANSPORT

Years	Punjab		Sindh		NWFP		Balochistan		Pakistan
	Value Added	Share	Value Added	Share	Value Added	Share	Value Added	Share	Value Added
1972-73	1017	47.7	825	38.7	111	5.2	181	8.5	2134
1973-74	939	47.0	795	39.8	102	5.1	162	8.1	1998
1974-75	813	46.4	715	40.8	89	5.1	136	7.8	1753
1975-76	764	45.8	701	42.0	82	4.9	122	7.3	1669
1976-77	677	45.1	647	43.1	72	4.8	105	7.0	1501
1977-78	721	44.5	718	44.3	76	4.7	107	6.6	1622
1978-79	643	43.7	667	45.4	67	4.6	93	6.3	1470
1979-80	610	43.0	659	46.5	63	4.4	86	6.1	1418
1980-81	525	42.3	591	47.6	55	4.4	71	5.7	1242
1981-82	702	41.6	824	48.8	72	4.3	91	5.4	1689
1982-83	790	40.8	965	49.9	80	4.1	100	5.2	1935
1983-84	893	40.3	1123	50.7	90	4.1	111	5.0	2217
1984-85	878	39.6	1124	50.7	88	4.0	129	5.8	2219
1985-86	888	38.3	1216	52.5	96	4.1	117	5.0	2317
1986-87	893	35.4	1411	55.9	92	3.6	126	5.0	2522
1987-88	942	37.8	1338	53.6	96	3.8	118	4.7	2494
1988-89	-128	37.4	-189	55.3	-13	3.8	-12	3.5	-342
1989-90	-196	35.7	-315	57.4	-18	3.3	-20	3.6	-549
1990-91	167	37.7	245	55.3	14	3.2	17	3.8	443
1991-92	242	34.4	416	59.1	21	3.0	25	3.6	704
1992-93	203	31.0	410	62.6	20	3.1	22	3.4	655
1993-94	146	32.1	282	62.0	11	2.4	16	3.5	455
1994-95	230	35.1	385	58.7	18	2.7	23	3.5	656
1995-96	349	35.1	582	58.5	27	2.7	37	3.7	995
1996-97	401	34.4	692	59.3	31	2.7	43	3.7	1167
1997-98	451	33.7	807	60.3	33	2.5	48	3.6	1339
1998-99	498	33.0	923	61.1	36	2.4	54	3.6	1511
1999-00	543	32.3	1043	62.0	38	2.3	58	3.4	1682

Note:
Value Added in million Rs.; Share in percentage.

GROSS DOMESTIC PRODUCT BY PROVINCE
At Constant Factor Cost of 1980-81

AIR TRANSPORT

Years	Punjab		Sindh		NWFP		Balochistan		Pakistan
	Value Added	Share	Value Added	Share	Value Added	Share	Value Added	Share	Value Added
1972-73	644	40.0	923	57.3	32	2.0	11	0.7	1610
1973-74	549	43.5	694	55.0	15	1.2	3	0.2	1261
1974-75	676	38.9	1028	59.2	13	0.7	19	1.1	1736
1975-76	604	38.6	920	58.9	12	0.8	27	1.7	1563
1976-77	637	32.5	1259	64.2	37	1.9	29	1.5	1962
1977-78	772	34.3	1440	64.0	20	0.9	17	0.8	2249
1978-79	882	37.0	1465	61.4	17	0.7	21	0.9	2385
1979-80	647	26.8	1738	71.9	16	0.7	17	0.7	2418
1980-81	645	23.7	2044	75.0	17	0.6	21	0.8	2727
1981-82	751	27.0	1997	71.9	16	0.6	15	0.5	2779
1982-83	796	26.2	2211	72.9	16	0.5	11	0.4	3034
1983-84	968	28.6	2362	69.7	42	1.2	18	0.5	3390
1984-85	1012	28.7	2481	70.3	22	0.6	12	0.3	3527
1985-86	1134	30.8	2506	68.0	24	0.7	19	0.5	3683
1986-87	1140	30.1	2598	68.7	26	0.7	20	0.5	3784
1987-88	1169	29.1	2769	69.0	35	0.9	40	1.0	4013
1988-89	1293	35.5	2876	78.9	39	1.1	42	1.2	4250
1989-90	1417	33.1	2988	69.7	51	1.2	44	1.0	4500
1990-91	1588	32.9	3104	64.4	83	1.7	46	1.0	4821
1991-92	1991	32.7	3864	63.5	151	2.5	80	1.3	6086
1992-93	2303	32.3	4435	62.2	255	3.6	134	1.9	7127
1993-94	2036	31.7	3892	60.6	328	5.1	167	2.6	6423
1994-95	2100	31.6	4034	60.7	339	5.1	172	2.6	6645
1995-96	2145	31.4	4132	60.4	356	5.2	207	3.0	6840
1996-97	2642	36.9	3934	54.9	387	5.4	203	2.8	7166
1997-98	2549	33.2	4506	58.7	411	5.4	208	2.7	7674
1998-99	2774	34.4	4725	58.6	338	4.2	224	2.8	8061
1999-00	2563	30.7	5118	61.3	440	5.3	224	2.7	8345

Note:
Value Added in million Rs.; Share in percentage.

GROSS DOMESTIC PRODUCT BY PROVINCE
At Constant Factor Cost of 1980-81

SHIPPING

Years	Punjab		Sindh		NWFP		Balochistan		Pakistan
	Value Added	Share	Value Added	Share	Value Added	Share	Value Added	Share	Value Added
1972-73	-	-	1089	100.0	-	-	-	-	1089
1973-74	-	-	1149	100.0	-	-	-	-	1149
1974-75	-	-	1292	100.0	-	-	-	-	1292
1975-76	-	-	952	100.0	-	-	-	-	952
1976-77	-	-	1079	100.0	-	-	-	-	1079
1977-78	-	-	988	100.0	-	-	-	-	988
1978-79	-	-	926	100.0	-	-	-	-	926
1979-80	-	-	952	100.0	-	-	-	-	952
1980-81	-	-	1001	100.0	-	-	-	-	1001
1981-82	-	-	1046	100.0	-	-	-	-	1046
1982-83	-	-	999	100.0	-	-	-	-	999
1983-84	-	-	886	100.0	-	-	-	-	886
1984-85	-	-	907	100.0	-	-	-	-	907
1985-86	-	-	946	100.0	-	-	-	-	946
1986-87	-	-	1008	100.0	-	-	-	-	1008
1987-88	-	-	1070	100.0	-	-	-	-	1070
1988-89	-	-	1590	100.0	-	-	-	-	1590
1989-90	-	-	1453	100.0	-	-	-	-	1453
1990-91	-	-	1429	100.0	-	-	-	-	1429
1991-92	-	-	1662	100.0	-	-	-	-	1662
1992-93	-	-	1793	100.0	-	-	-	-	1793
1993-94	-	-	1575	100.0	-	-	-	-	1575
1994-95	-	-	1658	100.0	-	-	-	-	1658
1995-96	-	-	1658	100.0	-	-	-	-	1658
1996-97	-	-	1678	100.0	-	-	-	-	1678
1997-98	-	-	1760	100.0	-	-	-	-	1760
1998-99	-	-	1813	100.0	-	-	-	-	1813
1999-00	-	-	1844	100.0	-	-	-	-	1844

Note:
Value Added in million Rs.; Share in percentage.

GROSS DOMESTIC PRODUCT BY PROVINCE
At Constant Factor Cost of 1980-81

COMMUNICATIONS

Years	Punjab		Sindh		NWFP		Balochistan		Pakistan
	Value Added	Share	Value Added	Share	Value Added	Share	Value Added	Share	Value Added
1972-73	505	46.4	511	46.9	57	5.2	16	1.5	1089
1973-74	383	46.5	382	46.4	45	5.5	14	1.7	824
1974-75	580	46.3	587	46.8	65	5.2	21	1.7	1253
1975-76	582	47.7	548	44.9	69	5.7	21	1.7	1220
1976-77	648	48.1	598	44.4	75	5.6	26	1.9	1347
1977-78	888	48.5	803	43.8	105	5.7	36	2.0	1832
1978-79	1150	48.8	1019	43.3	137	5.8	48	2.0	2355
1979-80	1074	49.0	939	42.9	129	5.9	48	2.2	2190
1980-81	1166	49.4	1000	42.3	141	6.0	55	2.3	2362
1981-82	1219	49.5	1037	42.1	147	6.0	61	2.5	2464
1982-83	1280	50.1	1054	41.2	158	6.2	65	2.5	2557
1983-84	1433	50.7	1122	39.7	192	6.8	78	2.8	2824
1984-85	1735	53.9	1187	36.9	204	6.3	93	2.9	3219
1985-86	1722	51.2	1282	38.1	242	7.2	119	3.5	3365
1986-87	1987	50.0	1584	39.9	276	6.9	126	3.2	3974
1987-88	2142	50.8	1595	37.8	345	8.2	135	3.2	4217
1988-89	2174	52.1	1594	38.2	275	6.6	125	3.0	4169
1989-90	2707	52.1	1920	37.0	362	7.0	207	4.0	5195
1990-91	3099	52.6	2212	37.5	395	6.7	189	3.2	5895
1991-92	3588	51.4	2704	38.7	482	6.9	211	3.0	6985
1992-93	3128	49.8	2527	40.2	438	7.0	188	3.0	6281
1993-94	3293	51.9	2367	37.3	491	7.7	200	3.1	6351
1994-95	3027	49.5	2297	37.5	574	9.4	222	3.6	6121
1995-96	3152	50.0	2451	38.8	487	7.7	219	3.5	6309
1996-97	3261	51.2	2399	37.7	504	7.9	202	3.2	6366
1997-98	3436	51.6	2457	36.9	532	8.0	235	3.5	6660
1998-99	3426	50.1	2596	37.9	591	8.6	231	3.4	6843
1999-00	3702	53.3	2374	34.2	645	9.3	220	3.2	6941

Note:
Value Added in million Rs.; Share in percentage.

GROSS DOMESTIC PRODUCT BY PROVINCE
At Constant Factor Cost of 1980-81

WHOLESALE AND RETAIL TRADE

Years	Punjab		Sindh		NWFP		Balochistan		Pakistan
	Value Added	Share	Value Added	Share	Value Added	Share	Value Added	Share	Value Added
1972-73	9114	43.0	6501	30.7	4459	21.0	1111	5.2	21185
1973-74	10768	43.7	7596	30.8	5028	20.4	1268	5.1	24660
1974-75	11461	44.3	7983	30.9	5118	19.8	1293	5.0	25855
1975-76	11929	45.0	8217	31.0	5093	19.2	1286	4.8	26524
1976-77	12149	45.6	8279	31.1	4952	18.6	1261	4.7	26641
1977-78	13689	46.3	9207	31.1	5331	18.0	1368	4.6	29596
1978-79	14882	46.9	9901	31.2	5550	17.5	1431	4.5	31764
1979-80	16315	47.3	10921	31.6	5914	17.1	1375	4.0	34524
1980-81	17608	47.2	11882	31.8	6220	16.7	1620	4.3	37330
1981-82	19375	47.3	13169	32.2	6669	16.3	1744	4.3	40957
1982-83	21055	47.4	14400	32.4	7090	16.0	1851	4.2	44397
1983-84	22420	48.3	15624	33.6	6742	14.5	1654	3.6	46440
1984-85	25490	49.1	18044	34.8	6822	13.2	1521	2.9	51876
1985-86	26754	48.3	19298	34.9	7717	13.9	1592	2.9	55361
1986-87	29640	50.5	18976	32.3	8802	15.0	1243	2.1	58661
1987-88	30493	47.7	22787	35.6	9173	14.3	1479	2.3	63932
1988-89	31757	47.2	24176	35.9	9932	14.8	1440	2.1	67305
1989-90	32508	46.7	25201	36.2	10572	15.2	1374	2.0	69655
1990-91	34517	47.0	26228	35.7	11170	15.2	1466	2.0	73380
1991-92	37337	47.4	27808	35.3	12022	15.3	1593	2.0	78760
1992-93	38724	47.8	28270	34.9	12407	15.3	1660	2.0	81061
1993-94	40135	48.1	28719	34.4	12795	15.3	1728	2.1	83377
1994-95	42314	48.5	29678	34.0	13422	15.4	1831	2.1	87245
1995-96	45218	48.9	31086	33.6	14272	15.4	1966	2.1	92542
1996-97	45879	49.2	30916	33.2	14409	15.5	2004	2.2	93208
1997-98	45693	49.6	30180	32.7	14279	15.5	2005	2.2	92157
1998-99	47388	49.9	30679	32.3	14735	15.5	2089	2.2	94891
1999-00	48642	50.3	30867	31.9	15050	15.6	2155	2.2	96713

Note:
Value Added in million Rs.; Share in percentage.

GROSS DOMESTIC PRODUCT BY PROVINCE
At Constant Factor Cost of 1980-81

BANKING AND INSURANCE

Years	Punjab		Sindh		NWFP		Balochistan		Pakistan
	Value Added	Share	Value Added	Share	Value Added	Share	Value Added	Share	Value Added
1972-73	1611	42.1	1937	50.6	236	6.2	45	1.2	3829
1973-74	1738	42.6	2030	49.8	259	6.4	49	1.2	4076
1974-75	2051	44.0	2251	48.3	304	6.5	59	1.3	4665
1975-76	2133	44.3	2302	47.8	319	6.6	62	1.3	4816
1976-77	2324	44.6	2473	47.5	345	6.6	69	1.3	5211
1977-78	2615	44.9	2728	46.9	397	6.8	81	1.4	5821
1978-79	2855	46.1	2817	45.5	436	7.0	90	1.5	6198
1979-80	2811	46.2	2745	45.1	436	7.2	90	1.5	6082
1980-81	2593	46.7	2464	44.4	406	7.3	86	1.5	5549
1981-82	3051	47.0	2856	44.0	481	7.4	103	1.6	6491
1982-83	3559	47.5	3245	43.3	569	7.6	125	1.7	7498
1983-84	4208	48.0	3738	42.6	672	7.7	150	1.7	8768
1984-85	4240	48.5	3678	42.0	680	7.8	153	1.7	8751
1985-86	4424	48.9	3747	41.4	721	8.0	164	1.8	9056
1986-87	4510	49.5	3663	40.2	766	8.4	172	1.9	9111
1987-88	4711	49.8	3751	39.7	799	8.5	191	2.0	9452
1988-89	4900	50.3	3812	39.1	837	8.6	195	2.0	9744
1989-90	4907	50.1	3871	39.5	825	8.4	190	1.9	9793
1990-91	4968	50.1	3920	39.5	810	8.2	214	2.2	9912
1991-92	5203	50.3	4092	39.6	820	7.9	229	2.2	10344
1992-93	5537	50.0	4444	40.2	847	7.7	238	2.2	11066
1993-94	6318	50.0	5085	40.3	953	7.5	272	2.2	12628
1994-95	6704	49.9	5391	40.2	1029	7.7	301	2.2	13425
1995-96	7605	49.8	6184	40.5	1153	7.5	341	2.2	15283
1996-97	8553	50.2	6844	40.2	1261	7.4	381	2.2	17039
1997-98	6586	50.8	5126	39.6	954	7.4	291	2.2	12957
1998-99	7885	51.2	5995	38.9	1168	7.6	355	2.3	15403
1999-00	7661	51.9	5647	38.2	1118	7.6	344	2.3	14770

Note:
Value Added in million Rs.; Share in percentage.

GROSS DOMESTIC PRODUCT BY PROVINCE
At Constant Factor Cost of 1980-81

BANKING

Years	Punjab		Sindh		NWFP		Balochistan		Pakistan
	Value Added	Share	Value Added	Share	Value Added	Share	Value Added	Share	Value Added
1972-73	1421	42.7	1693	50.9	183	5.5	32	1.0	3329
1973-74	1530	43.2	1775	50.1	201	5.7	36	1.0	3541
1974-75	1783	44.0	1987	49.0	240	5.9	44	1.1	4053
1975-76	1857	44.4	2027	48.4	253	6.0	47	1.1	4185
1976-77	2024	44.7	2172	48.0	279	6.2	53	1.2	4528
1977-78	2295	45.4	2376	47.0	324	6.4	63	1.2	5059
1978-79	2474	45.9	2485	46.1	356	6.6	71	1.3	5386
1979-80	2447	46.3	2407	45.6	357	6.8	73	1.4	5284
1980-81	2248	46.7	2162	44.9	333	6.9	70	1.5	4813
1981-82	2699	47.1	2536	44.3	406	7.1	87	1.5	5728
1982-83	3171	47.6	2896	43.5	485	7.3	107	1.6	6659
1983-84	3787	48.0	3375	42.8	589	7.5	133	1.7	7883
1984-85	3775	48.4	3298	42.2	595	7.6	137	1.8	7806
1985-86	3897	48.7	3328	41.6	623	7.8	147	1.8	7996
1986-87	3902	49.3	3222	40.7	638	8.1	154	1.9	7916
1987-88	4289	49.7	3443	39.9	714	8.3	177	2.1	8623
1988-89	3906	49.7	3141	40.0	643	8.2	163	2.1	7852
1989-90	3913	49.6	3197	40.5	625	7.9	161	2.0	7896
1990-91	3987	49.4	3297	40.9	621	7.7	164	2.0	8069
1991-92	4086	49.2	3439	41.4	619	7.4	166	2.0	8310
1992-93	4334	48.8	3733	42.1	635	7.2	174	2.0	8875
1993-94	4685	48.5	4122	42.7	667	6.9	186	1.9	9661
1994-95	4636	48.1	4172	43.3	640	6.6	182	1.9	9631
1995-96	5134	47.8	4729	44.0	687	6.4	200	1.9	10750
1996-97	5638	48.0	5169	44.0	721	6.1	214	1.8	11742
1997-98	4244	48.6	3810	43.6	529	6.1	156	1.8	8739
1998-99	4944	48.7	4383	43.2	646	6.4	184	1.8	10157
1999-00	4734	49.8	3996	42.0	608	6.4	175	1.8	9514

Note:
Value Added in million Rs.; Share in percentage.

GROSS DOMESTIC PRODUCT BY PROVINCE
At Constant Factor Cost of 1980-81

INSURANCE

Years	Punjab		Sindh		NWFP		Balochistan		Pakistan
	Value Added	Share	Value Added	Share	Value Added	Share	Value Added	Share	Value Added
1972-73	190	38.0	244	48.8	53	10.6	13	2.6	500
1973-74	208	39.0	255	47.8	58	10.9	13	2.4	534
1974-75	268	43.9	264	43.2	64	10.5	15	2.5	611
1975-76	276	43.7	275	43.5	66	10.4	15	2.4	632
1976-77	300	43.9	301	44.1	66	9.7	16	2.3	683
1977-78	320	41.9	352	46.1	73	9.6	18	2.4	763
1978-79	381	46.9	332	40.9	80	9.9	19	2.3	812
1979-80	364	45.6	338	42.4	79	9.9	17	2.1	798
1980-81	345	46.9	302	41.0	73	9.9	16	2.2	736
1981-82	352	46.1	320	41.9	75	9.8	16	2.1	763
1982-83	388	46.2	349	41.6	84	10.0	18	2.1	839
1983-84	421	47.6	363	41.1	83	9.4	17	1.9	884
1984-85	465	49.2	380	40.2	85	9.0	16	1.7	946
1985-86	527	49.7	419	39.5	98	9.2	17	1.6	1061
1986-87	608	50.9	441	36.9	128	10.7	18	1.5	1195
1987-88	422	50.9	308	37.2	85	10.3	14	1.7	829
1988-89	994	52.6	671	35.5	194	10.3	32	1.7	1891
1989-90	994	52.4	674	35.5	200	10.5	29	1.5	1897
1990-91	981	53.2	623	33.8	189	10.3	50	2.7	1843
1991-92	1117	54.9	653	32.1	201	9.9	63	3.1	2034
1992-93	1203	54.9	711	32.5	212	9.7	64	2.9	2190
1993-94	1633	55.0	963	32.4	286	9.6	86	2.9	2968
1994-95	2068	54.5	1219	32.1	389	10.3	119	3.1	3795
1995-96	2471	54.5	1455	32.1	466	10.3	141	3.1	4533
1996-97	2915	55.0	1675	31.6	540	10.2	167	3.2	5297
1997-98	2342	55.5	1316	31.2	425	10.1	135	3.2	4219
1998-99	2941	56.1	1612	30.7	522	10.0	171	3.3	5246
1999-00	2927	55.7	1651	31.4	510	9.7	169	3.2	5257

Note:
Value Added in million Rs.; Share in percentage.

GROSS DOMESTIC PRODUCT BY PROVINCE
At Constant Factor Cost of 1980-81

OWNERSHIP OF DWELLINGS

Years	Punjab		Sindh		NWFP		Balochistan		Pakistan
	Value Added	Share	Value Added	Share	Value Added	Share	Value Added	Share	Value Added
1972-73	5787	60.0	2553	26.5	809	8.4	489	5.1	9638
1973-74	5789	59.4	2608	26.8	851	8.7	499	5.1	9747
1974-75	5806	59.0	2670	27.1	884	9.0	482	4.9	9842
1975-76	5872	58.4	2753	27.4	932	9.3	494	4.9	10051
1976-77	5949	58.0	2856	27.8	969	9.4	484	4.7	10258
1977-78	6036	57.4	2952	28.1	1028	9.8	492	4.7	10508
1978-79	6135	56.9	3068	28.5	1081	10.0	492	4.6	10776
1979-80	6214	56.4	3170	28.8	1156	10.5	472	4.3	11012
1980-81	6284	55.9	3172	28.2	1290	11.5	491	4.4	11237
1981-82	6834	55.4	3638	29.5	1342	10.9	527	4.3	12341
1982-83	7743	54.8	4206	29.8	1582	11.2	594	4.2	14125
1983-84	8813	54.4	4863	30.0	1858	11.5	666	4.1	16200
1984-85	9595	53.8	5432	30.4	2107	11.8	715	4.0	17849
1985-86	10359	55.1	5591	29.8	1969	10.5	872	4.6	18791
1986-87	10517	53.2	6042	30.5	2170	11.0	1055	5.3	19784
1987-88	11445	55.0	6287	30.2	1936	9.3	1160	5.6	20828
1988-89	12409	56.6	6232	28.4	2163	9.9	1124	5.1	21928
1989-90	13137	56.9	6532	28.3	2096	9.1	1321	5.7	23086
1990-91	13988	57.6	6739	27.7	2134	8.8	1444	5.9	24305
1991-92	15203	59.4	6891	26.9	2178	8.5	1315	5.1	25587
1992-93	15786	58.6	7511	27.9	2296	8.5	1346	5.0	26939
1993-94	16590	58.5	7953	28.0	2362	8.3	1455	5.1	28360
1994-95	17512	58.7	8318	27.9	2444	8.2	1584	5.3	29858
1995-96	18527	58.9	8652	27.5	2547	8.1	1709	5.4	31435
1996-97	19255	58.2	9396	28.4	2570	7.8	1874	5.7	33095
1997-98	20153	57.8	9782	28.1	2958	8.5	1949	5.6	34842
1998-99	21171	57.7	10229	27.9	3305	9.0	1977	5.4	36682
1999-00	23087	59.8	9631	24.9	3726	9.6	2173	5.6	38617

Note:
Value Added in million Rs.; Share in percentage.

GROSS DOMESTIC PRODUCT BY PROVINCE
At Constant Factor Cost of 1980-81

PUBLIC ADMINISTRATION AND DEFENCE

Years	Punjab		Sindh		NWFP		Balochistan		Pakistan
	Value Added	Share	Value Added	Share	Value Added	Share	Value Added	Share	Value Added
1971-72	3947	51.8	2658	34.9	660	08.7	350	04.6	7615
1972-73	4621	53.2	2920	33.6	717	08.3	430	04.9	8688
1973-74	5288	53.0	3397	34.1	822	08.2	464	04.7	9971
1974-75	7110	53.6	4330	32.6	1146	08.6	690	05.2	13276
1975-76	7032	54.6	4019	31.2	1149	08.9	682	05.3	12882
1976-77	7567	54.7	4182	30.3	1306	09.4	767	05.5	13822
1977-78	8588	55.2	4549	29.2	1550	10.0	879	05.6	15566
1978-79	9037	55.1	4762	29.0	1686	10.3	914	05.6	16399
1979-80	9732	55.9	4937	28.4	1786	10.3	957	05.5	17412
1980-81	10864	56.4	5182	26.9	2085	10.8	1126	05.8	19257
1981-82	10734	55.0	4939	25.3	2789	14.3	1072	05.5	19534
1982-83	12366	57.5	5581	26.0	2360	11.0	1183	05.5	21490
1983-84	13415	57.8	6070	26.2	2461	10.6	1246	05.4	23192
1984-85	13727	57.4	6442	26.9	2490	10.4	1257	05.3	23916
1985-86	14297	56.8	6920	27.5	2625	10.4	1341	05.3	25183
1986-87	15067	56.7	7168	27.0	2874	10.8	1447	05.4	26556
1987-88	15714	56.8	7292	26.4	3146	11.4	1514	05.5	27666
1988-89	16812	56.3	7754	26.0	3584	12.0	1702	05.7	29852
1989-90	17035	55.5	7938	25.9	3898	12.7	1796	05.9	30667
1990-91	17642	55.7	8250	26.0	4077	12.9	1710	05.4	31679
1991-92	18060	55.6	8513	26.2	4233	13.0	1689	05.2	32495
1992-93	18552	55.7	8749	26.3	4362	13.1	1632	04.9	33295
1993-94	18707	55.4	8955	26.5	4510	13.4	1587	04.7	33759
1994-95	19254	55.3	9287	26.7	4706	13.5	1567	04.5	34814
1995-96	19924	55.5	9602	26.7	4880	13.6	1511	04.2	35917
1996-97	20188	55.0	9901	27.0	5081	13.8	1542	04.2	36712
1997-98	20597	55.0	10157	27.1	5245	14.0	1460	03.9	37459
1998-99	21014	54.8	10468	27.3	5440	14.2	1473	03.8	38395
1999-00	23238	55.3	11303	26.9	5942	14.1	1520	03.6	42003

Note:
Value Added in million Rs.; Share in percentage.

GROSS DOMESTIC PRODUCT BY PROVINCE
At Constant Factor Cost of 1980-81

SERVICES

Years	Punjab		Sindh		NWFP		Balochistan		Pakistan
	Value Added	Share	Value Added	Share	Value Added	Share	Value Added	Share	Value Added
1972-73	6292	52.1	3356	27.8	1554	12.9	880	7.3	12082
1973-74	6669	52.7	3438	27.2	1650	13.0	887	7.0	12644
1974-75	7089	53.5	3531	26.6	1752	13.2	890	6.7	13262
1975-76	7559	54.1	3641	26.1	1866	13.4	895	6.4	13960
1976-77	7870	54.8	3663	25.5	1940	13.5	885	6.2	14358
1977-78	8600	55.5	3868	24.9	2127	13.7	913	5.9	15508
1978-79	9170	56.1	3988	24.4	2266	13.9	925	5.7	16349
1979-80	9669	56.2	4159	24.2	2442	14.2	941	5.5	17211
1980-81	10196	56.3	4334	23.9	2631	14.5	957	5.3	18119
1981-82	10869	56.3	4570	23.7	2871	14.9	992	5.1	19302
1982-83	11592	56.4	4818	23.4	3132	15.2	1021	5.0	20563
1983-84	12862	58.7	5038	23.0	3004	13.7	1001	4.6	21905
1984-85	14199	60.8	5273	22.6	2887	12.4	978	4.2	23336
1985-86	15010	60.4	5997	24.1	3155	12.7	699	2.8	24860
1986-87	15662	59.1	6165	23.3	3637	13.7	1019	3.8	26483
1987-88	16989	60.2	6782	24.0	3391	12.0	1051	3.7	28212
1988-89	18029	60.0	7375	24.5	3578	11.9	1072	3.6	30054
1989-90	19125	59.7	8016	25.0	3773	11.8	1104	3.4	32017
1990-91	20661	60.6	8496	24.9	3817	11.2	1134	3.3	34108
1991-92	21773	59.9	9735	26.8	3566	9.8	1262	3.5	36335
1992-93	23187	59.9	10047	26.0	4359	11.3	1115	2.9	38708
1993-94	24556	59.5	10546	25.6	5043	12.2	1091	2.6	41236
1994-95	26615	60.6	10989	25.0	5225	11.9	1100	2.5	43929
1995-96	28977	61.9	11257	24.1	5387	11.5	1177	2.5	46798
1996-97	32163	64.5	10822	21.7	5580	11.2	1289	2.6	49854
1997-98	33554	63.2	11591	21.8	6615	12.5	1348	2.5	53109
1998-99	35681	63.1	12203	21.6	7036	12.4	1657	2.9	56577
1999-00	37762	62.7	12678	21.0	7473	12.4	2358	3.9	60271

Note:
Value Added in million Rs.; Share in percentage.

5.0 GENERAL CONCLUSIONS:

This exercise is limited to decomposing Pakistan's gross domestic product into its provincial components on the basis of UN conventions and international practices and the particular Pakistan-specific constraints, particularly related to data. The study presents the estimates as derived and no attempt is made to analyze the results and explain the factors behind the changes in composition and growth rates.

In any case, interpreting the results of provincial accounts estimates need a considerable degree of caution. Twenty-eight years is a somewhat long period of time and sectoral performance in the provinces has varied over different periods. In the case of Balochistan, the high growth rates may perhaps be on account of extremely low base. The rise or decline in provincial share in sectoral value added may not necessarily imply growth of that sector in the province, but may be due to relatively lower growth in another province or other provinces. And so on. A more detailed analysis of the provincial economies would be necessary to determine the factors behind the changes in the inter-provincial composition of national GDP.

Subject to the above caveats, a perusal of the estimates show that, over the period 1973-2000, Punjab alone has increased its share of national GDP by about 2 percentage points. NWFP has maintained its share, while Sindh and Balochistan have reduced their respective shares by about one percentage points each. The result is corroborated in per capita terms, with per capita GDP in Punjab rising annually by about 2.4 percent. NWFP is close, with its per capita GDP growing at 2.2 percent. Per capita GDP in Sindh is recorded to have grown at 1.7 percent; however, it is not clear as to how the results would emerge if Karachi is excluded from the analysis. Per capita GDP growth in Balochistan is a meager 0.2 percent. The results tend to confirm earlier evidence[2] of an emerging north-south economic divide in the country.

Punjab's share has increased in livestock, fishing, forestry, small-scale manufacturing, construction, road transport, communications, wholesale and retail trade, banking and insurance, public administration and defence, and services. The result is indicative of the diversification of the Punjab economy. The robust growth in livestock and fishing points towards a slight reduction of the dominance of the crop sector in the province's rural economy. In large-scale manufacturing, although its share remains more or less constant, the sector reports a healthy 5 percent plus growth; while strong growth – ranging from 6 to 11 percent annually – is recorded in communications, wholesale and retail trade, banking and insurance, and services. These are indicators towards a potentially strong, modernizing economy.

Sindh's share has increased in major crops, livestock, mining and quarrying, rail transport, air transport, and wholesale and retail trade. The growth in major crops can be attributed partly to significant improvements in yields and partly to the sharp increase in sugarcane output. The growth in the mining and quarrying sector indicates that the province has emerged as depository of gas, oil and coal reserves and is now the energy powerhouse of the country. The increase in rail transport

[2] Social Policy & Development Centre, Social Development in Pakistan, Annual Review 2001, Growth, Inequality and Poverty, 2001.

share is a statistical phenomenon, given the absolute declines in the sector in other provinces. Even in Sindh, the rail sector recorded a less than one percent annual growth over the period under analysis. The air transport sector growth can be attributed to the location of the country's prime international airport at Karachi and the fact that Karachi lies along key international air routes. While Sindh's share in large-scale manufacturing and wholesale and retail trade are more or less constant, both sectors report a 5 percent plus growth. The implication that can perhaps be drawn is that the city of Karachi continues to command comparative advantage on account of the location of the port; although it may be losing its pre-eminent position in the modern tertiary sectors. The rest of Sindh appears to be regressing towards a narrow, primary commodities-centred economic base.

The NWFP and Balochistan economies are small relative to those of Punjab and Sindh and growth rates are somewhat misleading on account of the low base that the two economies commenced from in the early 1970's. NWFP has maintained its share in most of the sectors, implying that provincial sectoral growth has been more or less in line with corresponding national level sectoral growth. While there is a perceptible decline in the wholesale and trade sector, the province's performance in small-scale manufacturing and in (non-fuel) mining and quarrying sectors is significantly better; indicating a modest positive trend towards a diversification of the economy.

Balochistan's share appears to rise by one or two percentage points in a variety of sectors/sub-sectors: major and minor crops, fishing, large and small scale manufacturing, electricity and gas, air transport, communications, banking and insurance, and ownership of dwellings. Livestock, a traditionally important sector, suffered a 5 percentage point decline. Wholesale and retail trade and services sectors also suffered a 3 percentage point decline each. The significant 21 percentage point decline is in mining and quarrying; indicating that Balochistan has lost its pre-eminent position in the sector to Sindh and, to an extent, to NWFP. This has come about on account of the high growth of the sector in Sindh and NWFP as well as sluggish growth in Balochistan. On the whole, Balochistan appears – at best – to remain trapped in a low level equilibrium and – at worst – regressing further into under-development.

Two specific aspects deserve some explanation. One is the performance of the major crops sector in Punjab and Sindh. The sector shows a decline in Punjab's share from 68 percent in 1972-73 to 56 percent in 1999-00 and a corresponding near-doubling of Sindh's share from 18 to 33 percent. During the period, the sector grew annually at over twice the rate in Sindh compared to Punjab. A detailed crop-wise micro-analysis of the major crops sector would be necessary to understand the processes at work in the sector in each of the provinces. However, a casual perusal shows that one factor is sugarcane, the output of which has grown two and a half times faster than in Punjab. The other factor is yields; with rice, cotton and sugarcane yields in Sindh rising significantly faster than in Punjab. The growth of the sector in NWFP is in line with national trends. The high growth in the case of Balochistan can be attributed to the extension of the Pat Feeder canal irrigation system in the province.

The other aspect is that per capita GDP in Balochistan appears to be higher than in NWFP for the years 1973-79, with NWFP per capita GDP exceeding that in Balochistan from 1979-80 onwards. While a more detailed analysis is necessary, one problem could be population statistics. Population Censuses were held in 1972 and in 1981. The 1972 Census is widely believed to have under-estimated the population in Balochistan; given that a significant part of the provincial population is nomadic and the Census was held during months that caused a large part of this population to be missed out. The 1981 Census claimed to have corrected this problem. The change in the population bases could perhaps account for this phenomenon.

In conclusion, it needs to be repeated that the exercise attempts to estimate 'income originating' rather than 'income accruing'. The distinction is crucially important since a higher 'income originating' than 'income accruing' in any one province can indicate resource outflows from that province. Conversely, a higher 'income accruing' than 'income originating' in any one province can indicate resource inflows into that province. The estimation of provincial GDP on the basis of 'income accruing' requires data on inter-provincial resource flows that is currently not available. Nevertheless, provincial GDP estimates based on 'income originating' is also important, since it provides a perspective on the productive capacities of the provinces and the changes that are occurring in each of the sectors/sub-sectors.

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APPENDIX

EXTRAPOLATING NATIONAL INCOME SERIES DERIVED UNDER NEW BASE YEARS

National accounts are periodically re-based. The base year for the national accounts for the years 1972-72 to 1987-88 was 1959-60, which was changed to 1980-81 for the years 1988-89 to 1999-00. Thenceforth, the base has been changed to 1999-00. A consistent series required that the national accounts be updated and presented under one base year. The series can be revised backwards to 1959-60 base or forwards to the 1999-00 base. Given that national accounts estimates in future would be based on the revised methodology, it appears logical to extrapolate backwards.

The national accounts series under the first two base years are provided with an overlap of 8 years; i.e., the series from 1980-81 to 1987-88 are presented for base year 1959-60 as well for base year 1980-81. However, the series from 1999-00 is provided with an overlap for 5 years only – 1999-00 to 2003-04 – of which the last two years are reported as revised and provisional data. There is, thus, insufficient overlap to attempt to regress the series and obtain the necessary coefficients. However, given that the provincialization exercise has been carried out for up to 1999-00 only, the series consistency has been attempted for the first two base year periods only and the provincialized estimates are presented in 1980-81 prices.

The period 1980-81 to 1987-88 provides reasonable common ground for the old and the new series. The first step, therefore, has been to regress the new series in current values as a function of the old series in current values. Namely,

$$\log Y_{1i} = ß_0 + ß_1 \log Y_{0i}$$

where Y_{1i} is the sectoral GDP in sector i in the new series and Y_{0i} is the sectoral GDP in sector i in the old series. B_1 represents the degree of closeness between the two series, i.e., the percentage change in the new series due to a one percent change in the old series. B is used to weigh the rate of change between the years. The year to year weighted growth rate in the old series has then been applied to generate the new series in current values for the period 1971-72 to 1979-80. The regression results are shown in Table 1.1

TABLE 1.1
SUMMARY OF REGRESSION RESULTS

SECTOR	$ß_o$	$ß_1$	R_2	T
Agriculture	0.3637	0.97599	0.9896	23.8470
Major Crops	-0.2464	1.02124	0.9941	31.6690
Minor Crop	3.3672	0.67916	0.7081	3.8147
Livestock	-0.6323	1.07407	0.9981	56.3595
Fishing	5.0716	0.38010	0.4316	2.1345
Forestry	4.3268	0.44401	0.2362	1.3622
Mining & Quarrying	-0.7028	0.94857	0.9931	29.4069
Manufacturing	-0.1116	1.00269	0.9994	101.6010
Manufacturing Large Scale	0.1483	0.97816	0.9989	72.9762
Manufacturing Small Scale	-0.9338	1.08837	0.9910	25.7692
Construction	4.1799	0.55556	0.9478	10.4353
Electricity & Gas	-0.5097	1.05621	0.9794	16.8711
Transport, Storage & Communication	2.3490	0.78462	0.9934	30.1662
Road Transport	3.3843	0.67760	0.9828	18.5140
Rail Transport	1.8606	0.74572	0.9821	18.1664
Air Transport	0.7159	0.91144	0.9864	20.8437
Shipping	2.5333	0.62646	0.7796	4.6071
Storage	-0.541	1.06522	0.9871	21.4546
Communications	-0.3312	1.04235	0.9703	13.9889
Wholesale & Retail Trade	-0.8796	1.07269	0.9879	22.1227
Banking & Insurance	-0.1921	1.02138	0.9981	56.4664
Banking	-0.5963	1.06642	0.9888	22.9809
Insurance	5.33334	0.26658	0.4924	2.4123
Ownership of Dwellings	1.2661	0.89265	0.9993	93.0903
Public Administration & Defence	0.1097	0.98921	0.9997	151.9160
Services	0.1346	0.97143	0.9991	82.8689
GDP (fc)	0.8231	0.93474	0.9980	54.2509

The new series in constant prices for the period 1971-72 to 1979-80 has been obtained as follows. The sectoral GDP Deflator with base year 1959-60 has been used to construct the sectoral GDP Deflator with base year 1980-81, which has been applied to the new series in current values for 1971-72 to 1979-80 to obtain the new series in constant values for the same period. The extended GDP series is shown in Table 1.2 and the GDP sectoral series from 1971-72 to 1989-90 according to the new methodology is presented in Table 1.3.

TABLE 1.2
ALTERNATIVE GDP SERIES

(Rs. Million)

Years	GDP (fc) As per Base Year 1959-60	GDP (fc) As per Base Year 1980-81	Consistent GDP (fc) As per Base Year 1980-81
1971-72	33,495	NA	168,271
1972-73	35,773	NA	176,804
1973-74	38,439	NA	184,427
1974-75	39,930	NA	188,176
1975-76	41,229	NA	192,048
1976-77	42,401	NA	195,300
1977-78	45,679	NA	209,530
1978-79	48,204	NA	220,110
1979-80	51,736	NA	233,705
1980-81	55,048	247,831	247,831
1981-82	59,012	266,571	266,571
1982-83	62,975	284,667	284,667
1983-84	65,968	295,977	295,977
1984-85	72,014	321,751	321,751
1985-86	77,023	342,224	342,224
1986-87	81,427	362,110	362,110
1987-88	86,166	385,416	385,416
1988-89	NA	403,948	403,948
1989-90	NA	422,484	422,484

Note: fc = At factor cost
NA = Not available

TABLE 1.3
Consistent Series
GROSS DOMESTIC PRODUCT
AT CONSTANT FACTOR COST OF 1980-81

Years	Gross Domestic Product	Agriculture	Non-Agriculture Sector	Commodity Producing Sector	Non-Commodity Producing Sector	Major Crop	Minor Crop	Livestock	Fishing	Forestry	Mining & Quarrying
1971-72	168271	63698	104573	98976	69295	29897	12562	14458	5628	1154	659
1972-73	176804	63542	113262	101549	75255	30576	11756	14948	4970	1291	657
1973-74	184427	63722	120705	103628	80799	32228	11000	15532	3902	1060	723
1974-75	188176	62382	125794	101795	86382	30734	11728	16011	3201	708	716
1975-76	192048	64126	127923	104578	87470	32366	11793	16496	3059	411	686
1976-77	195300	64875	130425	105859	89441	32884	11478	17225	2756	531	797
1977-78	209530	67305	142226	111507	98024	33704	12130	17896	3000	575	819
1978-79	220110	69596	150514	116599	103511	34597	12555	18556	2996	892	850
1979-80	233705	73647	160058	124716	108989	38000	12677	19340	2817	814	944
1980-81	247831	76399	171432	132412	115419	39626	13162	20139	2695	777	1053
1981-82	266571	80008	186648	142036	124620	41496	14229	20770	2713	800	1167
1982-83	284667	83532	201103	148623	136012	42837	15156	21664	2963	912	1164
1983-84	295977	79502	216427	149190	146739	36710	15668	22956	3130	1038	1181
1984-85	321751	88187	233492	163334	158345	43390	16109	24356	3293	1039	1340
1985-86	342224	93433	248709	174667	167475	46212	16742	25865	3544	1070	1657
1986-87	362110	96473	265879	184730	177622	46965	17317	28351	3650	1190	1782
1987-88	385416	99108	286283	195973	189358	48452	16756	28906	3776	1218	2029
1988-89	402948	105917	296730	207350	195297	51842	18205	30614	3999	1257	2071
1989-90	422802	109127	312667	217082	204712	51795	19147	32481	4325	1379	2269

TABLE 1.3
Consistent Series
GROSS DOMESTIC PRODUCT
AT CONSTANT FACTOR COST OF 1980-81

Years	Manufacturing	Manufacturing Large-Scale	Manufacturing Small-Scale	Construction	Electricity and Gas	Transport, Storage and Communication	Transport	Road Transport	Rail Transport	Air Transport
1971-72	21383	16964	4419	10512	2723	17977	16554	11991	2073	1145
1972-73	23288	18440	4848	10909	3153	19833	18252	13419	2134	1610
1973-74	24785	19456	5330	10669	3729	19703	18374	13966	1998	1261
1974-75	24927	19104	5823	10457	3313	19483	17706	12926	1753	1736
1975-76	25279	18951	6328	11049	3439	19236	17490	13306	1669	1563
1976-77	25745	18856	6889	10451	3991	19150	17277	12734	1501	1962
1977-78	28385	20834	7551	10655	4343	21023	18622	13763	1622	2249
1978-79	30670	22396	8274	10714	4769	22025	19029	14248	1470	2385
1979-80	33830	24735	9095	10949	5345	22747	19875	15087	1418	2418
1980-81	37446	27451	9995	11586	5928	23927	20796	15826	1242	2727
1981-82	42596	31761	10835	12242	6023	25910	22704	17181	1698	2779
1982-83	45592	33847	11745	11910	6425	27971	24517	18549	1935	3034
1983-84	49187	36455	12732	12025	7295	30283	26538	20045	2217	3390
1984-85	53166	39365	13801	13155	7486	32688	28447	21794	2219	3527
1985-86	57180	42220	14960	14035	8362	34305	29850	22904	2317	3683
1986-87	61484	45267	16217	15784	9207	36785	31620	24306	2522	3784
1987-88	67622	50043	17579	16563	10711	39293	33813	26236	2494	4013
1988-89	70300	51244	19056	16937	12125	37716	30870	24244	1392	3644
1989-90	76324	55667	20657	17466	13896	40184	32454	25670	1449	4286

TABLE 1.3
Consistent Series
GROSS DOMESTIC PRODUCT
AT CONSTANT FACTOR COST OF 1980-81

Years	Shipping	Storage	Communication	Wholesale & Retail Trade	Banking & Insurance	Banking	Insurance	Ownership of Dwellings	Public Admn. & Defence	Services
1971-72	1344	430	994	19804	2916	2577	338	9449	7615	11535
1972-73	1089	491	1089	21185	3829	3329	500	9638	8688	12082
1973-74	1149	505	824	24660	4075	3541	534	9747	9971	12644
1974-75	1292	524	1253	25855	4664	4053	611	9842	13276	13262
1975-76	952	525	1220	26524	4817	4185	632	10051	12882	13961
1976-77	1079	527	1347	26641	5211	4528	683	10258	13822	14358
1977-78	988	569	1832	29596	5822	5059	763	10508	15566	15508
1978-79	926	641	2355	31764	6198	5386	812	10776	16399	16349
1979-80	952	683	2190	34524	6082	5284	798	11012	17412	17211
1980-81	1001	769	2362	37330	5549	4813	736	11237	19257	18119
1981-82	1046	837	2464	40957	6491	5727	764	12341	19534	19302
1982-83	999	897	2557	44397	7498	6655	843	14125	21490	20563
1983-84	886	921	2824	46440	8767	7878	889	16200	23192	21905
1984-85	907	1022	3219	51876	8752	7798	954	17849	23916	23336
1985-86	946	1090	3365	55361	9057	7922	1135	18791	25183	24860
1986-87	1008	1191	3974	58661	9111	7908	1203	19784	26556	26483
1987-88	1070	1263	4217	63932	9452	8621	831	20828	27666	28212
1988-89	1590	1252	4169	67305	9743	7945	1798	21928	29852	30054
1989-90	1049	1349	5195	69655	9793	7852	1941	23086	30667	32017