SOME ASPECTS OF THE TERTIARISATION OF THE URBAN ECONOMY IN INDIA

A CASE STUDY OF METROPOLITAN CENTRES (1961-1971)

Dissertation submitted in partial fulfilment
of the requirements for the Degree of
MASTER OF PHILOSOPHY

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1980

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Certified that the desertation entitled "Some Aspects of the Tertiarisation of the Urban Economy in India - A case study of Metropolitan Centres (1961 - 1971), " submitted by Nirmal Kumar Acharya, in the fullfilment of six credits out of the total requirements of twenty-four credits for the award of the Degree of Master of Philosophy of the University, is a bonafide work to the best of knowledge and may be placed before the examiners for their consideration.

Dr. Atiya Habeeb
(Supervisor)

Dated 11/7/80

Prof. Moonis Raza
(Chairman)

Dated 21.7.80

C O N T E N T S

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APPENDICES

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A C K N O W L E D G M E N T S

I take this Opportunity to express my immense indebtedness to my revered Supervisor, Dr. Atiya Habeeb, for her infectious enthusiasm, meticulous and patient supervision and stimulating interest through out the course of this work.

My sincere gratitude are also due to Professor Moonis Raza, who hasalways taken keen interest in my work, in his characteristically affectionate manner. His comments and counsel helped me to gain a comprehensive picture of 'the role and composition of tertiary sector in the metropolitan cities of India.'

I am equally grateful to Prof. Schwartzberg, Aslam Mehmood and Dr. A. Kundu for their valuable critical comments and suggestions which have given a shape to my dissertation.

I acknowledge with pleasure, the efficient services rendered by the staff of the J.N.U. as well as Registrar General's office libraries.

I am greatly thankful to Sri. Chinmoy Nath, Photo Lab. incharge CSRD, JNU, who has done all the photstat work included in this study.

I owe a debt of gratitude to my parents. They have been a source of love and inspiration.

Being a Sociologist by profession, the invaluable guidance of my 'bhanja' (sister-in-law) Mrs. Nandini Jena, in various spheres of this study can never be acknowledged in such a formal manner.

I am also thankful to two of my seniors, Mr. Pradeep Mohapatra and Mr. Sidheswar Jena, for the interesting and animated discussions on the structure and composition of the tertiary sector.

Lastly my special thanks are due to Mr. S.D.S. Rawat, who has taken much trouble to type this dissertation within a very short time.

Nirmal Kumar Acharya

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1.1 Problem Stated :

The most significant characteristic of the occupational structure of Indian cities is the proliferation of the tertiary sector. A systematic and careful analysis of the role and composition of this sector is therefore necessary in order to arrive at a comprehensive understanding of the structure of the Indian urban economy - without ameliorating which all efforts at urban planning became futile exercises. The present study is an attempt at understanding some aspects of this process of tertiarization of the metropolitan economy in India during the last two decades.

The purpose of this study is two-fold : firstly and specifically it tries to bring into focus the composition and structure of the tertiary sector in the metropolitan centres and secondly it attempts to assess the impact of the growth of this sector on the urban economy in general.

The analysis, because of the constraints of data base is confined to the eleven metropolitan centres (with population more than 10 lakh in 1971) in India (Fig. 1a). The period of analysis is confined to the two census points 1961 and 1971. Though the analysis is restricted to the million cities of India it is assumed that the

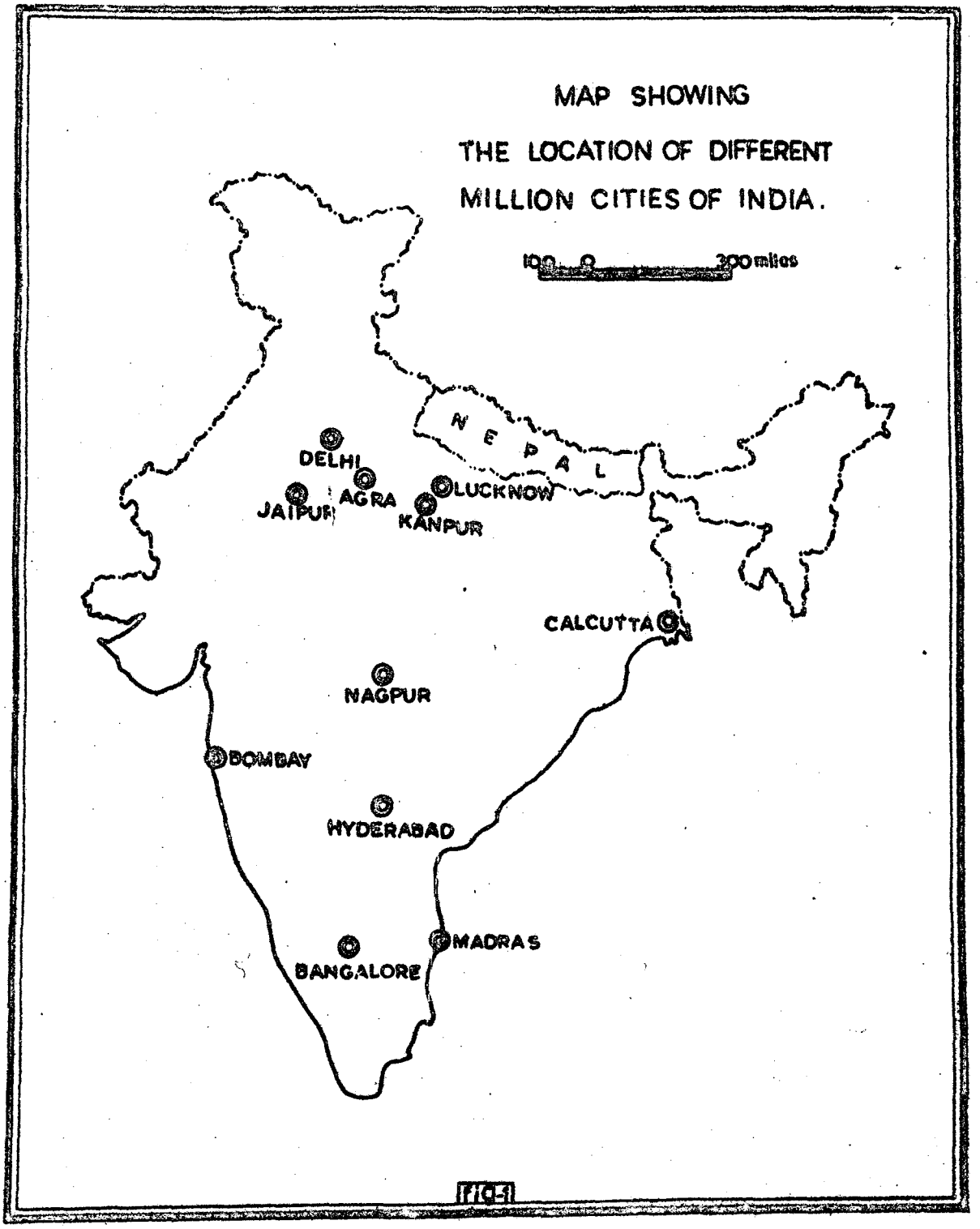
MAP SHOWING
THE LOCATION OF DIFFERENT
MILLION CITIES OF INDIA.
100 0 300 miles
NEPAL
DELHI
AGRA
JAIPUR
LUCKNOW
KANPUR
CALCUTTA
NAGPUR
BOMBAY
HYDERABAD
MADRAS
BANGALORE

FIG-1

study will have wider relevance and will help us in the comprehension of the tertiary sector in the other cities of the country.

The academic dialogue that has emerged in the context of the role of the tertiary sector can be grouped into two schools of thought. One school of thought headed by Colin Clark and F.G. Fisher considers the growth of the tertiary sector as a symptom of economic growth and development while the other school of thought subscribed to by the economists interested in the Third World considers the process of tertiarization as an indication of economic stagnation and decay. Before we review these contradictory interpretations it would be worthwhile to consider the concept of the tertiary sector.

1.2 Concept of the Tertiary Sector :

It is very difficult to define the tertiary sector in precise terms or th indicate its relationship with the other sectors of the urban economy. The search for a well accepted definition of this sector has been attempted by Western economists. According to Lampard (1964)[1] the tertiary sector consists of various activities which

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1. E.C. Lampard, "The History of Cities in Economically Advanced Areas", John Friedmann and William Alonso, Regional Development and Planning : A Reader, 1964, p.340.

produce a "non-material output". Garnier (1966)[2] states that "tertiary occupations include all those activities which are not productive of material goods, and so embraces transport and commerce, banking and insurance, public and private services." In the Marxian[3] (1967) sense, all work performed for the purpose of extending the process of capital accumulation is to be classified as productive labour, while all forms of work which has, as its function the consumption or transfer of revenue is to be classified as unproductive labour. In this scheme most service activities are classified as unproductive.

1.3 Available Studies and Interpretations of the Tertiary Sector :

The pioneering analysis of the tertiary sector was done by Clark (1940)[4] and Fisher (1952).[5] Their studies were limited to some advanced countries of the west and hypothesized that the growth of the tertiary sector was a characteristic feature of the ultimate stage in the

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2. J. Beaujeu Garnier, Geography of Population, (Longmans; Green & Co.Ltd.; 1966).
3. Karl Marx, Theories of Surplus Value, (New York : 1967). part-1, p.157.
4. Colin Clark, The Conditions of Economic Progress, (London; 1940).
5. A.G.B. Fisher, "A Note On Tertiary Production", Economic Journal, Vol. LXII, 1952; pp.820-829.

integral and natural evolution of economies. Fisher[6] (1964), generalised from his studies that, in every progressive economy there has been a "steady shift of employment and investment from the essential "primary" activities, without whose products life in even its most primitive forms would be impossible, to secondary activities of all kinds and to a still greater extent into tertiary production. The shifts of employment towards secondary and tertiary production revealed by the census are the inescapable reflection of economic progress."

Clark[7] (1940) also held that "the economic progress in relation to the economic structure of different countries is always associated with a high average level of real income per head with that of a high proportion of the working population engaged in tertiary activities.... Low real income per head is always associated with a low proportion of the working population engaged in tertiary production and a high per centage in the primary production." He concludes his argument by stating that a "high average real income per head compels a large proportion of producers to engage in tertiary production.

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6. A.G.B. Fisher, Economic Progress and Social Secutiry (London; 1964), pp.6-7.

7. Colin Clark, The Conditions of Economic Progress (London, 1940).

Subsequent work has been done in this regard by Triantis[8] (1953) and Lampard[9] (1954). They fully subscribe to the theory of Clark and Fisher and reiterate their views in their analysis of occupational distribution and industrial growth in economically advanced countries. Triantis states that tertiary production plays a great role in the increasing share of national output in the more advanced countries, where labour production has increased more prominently in primary and secondary rather than tertiary occupations. He points out that the expansion of specialized tertiary employment is a useful index of a progressive economy.[10] Lampard has considered the progressive differentiation of work which underlay urban-industrial growth to be a powerful stimulus to tertiary industries. He is of the opinion that if this transfer would not have occured from primary to secondary to tertiary the worst prophesis of the early machine breakers might have been fulfilled.[11]

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8. S.C. Triantis, "Economic Progress, Occupational Distribution and International Terms of Trade", Economic Journal, LXIII, (1953), pp.627-57.

9. Eric E. Lampard, "The History of Cities in the Economically Advanced Areas", Economic Development and Cultural Change, (1954), Vol.3, pp.81-146.

10. S.C. Triantis, op.cit., fn.8, p.628.

11. E.C. Lampard, op.cit., fn.9, p.99.

But the proposition that the growth of the tertiary sector is symptomatic of development and that per capita income is lowest in primary production, higher in secondary production and the highest in teritary production does not hold good in the all countries.

In several underdeveloped countries, the per centage of workers employed in tertiary occupations is farily high, but it is not accompanied by economic development because of two reasons : (i) In developed countries tertiary occupations emerge out of a high level of incomes in other sectors whereas (ii) in underdeveloped countries its growth is only marginally related to the level of incomes.

Keeping the above statement in mind, Lewis's[12] (1958) argument is quite valid. According to him, "Petty retail trading is ... enormously expanded in overpopulated economies; each trader makes only a few sales; markets are crowded with stalls, and if the number of stalls were greatly reduced the consumers would be no whit worse off."

Datta's[13] (1960) findings also lend support to

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12. A. Arthur Lewis, "Economic Development with Unlimited Supplies of Labour", A.N. Agarwala and S.P. Singh (ed.), The Economic of Underdevelopment, p.402.

13. Bhadotosh Datta, The Economic of Industrialisation (Calcutta; 1960), p.129.

the findings of Lewis. He has distinguished between the low income type of tertiary employment and the high income types, i.e., between service occupations, that are poverty induced and those that are prosperity induced. An over-populated agricultural country requires not only a shift in its occupation structure from primary employment to secondary and tertiary, but also from low income varieties of secondary and tertiary employment to high income types.

As studies started trickling in from the Third World countries the Clark-Fisher, hypothesis was extensively questioned in the empirical findings of Bauer and Yamey[14] (1951) in Nigeria, Hauser[15] (1956) in South-East Asia, Mehta[16] (1961) in Burma, Frank[17] (1969) in Chile and Carvalho[18] (1977) in Bahia.

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14. P.T. Bauer & B.S. Yamey, "Economic Progress and Occupational Distribution", Economic Journal, Vol. 61, p.747.

15. Philim M. Hauser, Urbanization in Asia and Far East (Calcutta: UNESCO; 1956), p.7.

16. S.K. Mehta, "A Comparative Analysis of the Industrial Structure of Urban Labour Force of Burma and the United States", Economic Development and Cultural Change (1961), Vol.9, no.2, p.165.

17. A. Gunder Frank, Capitalism and Underdevelopment in Latin America, (1969), Pelican (1971 ed.), pp.135-142.

18. I.M.M. Carvalho, "Urban Employment: A Case Study of Bahia", Antipode (1977), Vol.9, no.3, Dec. 1974-86.

Bauer and Yamey criticised the view that a high proportion of labour in tertiary production was an index of high standard of living. Hauser, concluded that "the preponderance of tertiary activities in urban areas does not represent the evolution of these economies from a secondary to a tertiary basis, a movement identified as progressive in the long run, but signifies the growth of marginal employment and low productive service industries, specially in retail trade."[19]

Frank has described the proliferation of workers in the tertiary sector in Chilean cities as a symptom of its structural underdevelopment. He states that 60 percent of the employed, not to speak of the unemployed and underemployment, work in activities that do not produce goods in a society that obviously in a high degree, lacks goods.[20]

Amin,[21] (1974) after a comprehensive analysis of some underdeveloped countries of West Asia and Africa concludes that the vertical shift of the agricultural population in the third world countries has been straight into the tertiary sector and not into it through the secondary sector.

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19. P.M. Hauser, op.cit., fn.15, p.8.
20. A.G. Frank, op.cit., fn.17, p.135.
21. Samir Amin, "Accumulation on a World Scale", (New York: Monthly Review; 1974), ch.2.

Carvalho[22] (1977) in his study of "Urban employment" (a case study of Bahia) has verified by a sample survey that, the number of workers is less in modern and productive sectors and more in those occupations which are performing activities requiring lower qualifications, receiving lower pay and having little productivity in the Urban economy. The examples of these are domestic servants, retail traders and traditional artisans. The scarcity of stable jobs also creates an accomulation of a large number of workers in the tertiary labour market. He concludes by linking the process of development with that of the occupational patterns. In this regard the negative character of the so-called primitive tertiary sectors of low productivity hasbeen high lighted. To the author this sector represents on "archaic quality, a survival of the part which the process of development would tend to eliminate. Their existence would prove dysfunctional for the above mentioned process in the sense that they would consume part of the economic surplus and could not contribute favourably to the formation of the social product."[23]

Other studies conducted in the Third World also highlight the labour intensiveness and dysfunctionalities of the tertiary sector in underdeveloped countries.

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22. I.M. Carvalho, op.cit., fn.18, p.81.
23. I.M.M. Carvalho (1977), op.cit., fn.18, p.81.

McGee[24] (1971) working with the model given by Geertz for Indonesia towns divides the tertiary sector into two parts : a firm centred economy which is capital intensive and where trade occurs mostly through a set of impersonally-defined social institutions which organise a variety of specialized occupations with respect to some particular distributive ends. The second part is made up of the bazzar economy which is labour intensive and is based on the independent activities of a set of highly competitive commodity traders who relate to one another, mainly by means of an incredible volume of adhoc acts of exchange.

Santos[25] (1977) has also divided the urban economy in underdeveloped countries, into mainly two circuits — the upper circuit and the lower circuit. According to him in the upper circuit the technology is capital intensive, investment is abundant and work is limited, on the other hand in the lower circuit has labour intensive, capital scarce and abundant work. Most of the tertiary activities fall under the lower circuit. In economic terms, in all the under developed countries, the dialectics

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24. I.G. McGee, The Urbanization Process in the Third World, (London: G.Bell & Sons; 1971), p.68.

25. Milton Santos (1977) "Spatial Dialects: The Two Circuits of Urban Economy in Underdeveloped Countries", Antipode, Vol.9, no.3, Dec. pp.49-59.

between the upper and lower circuit means that the expansion of the former takes place at the price of the concentration of the latter.

Subsequently Breman[26] (1976) and Joshi[27] (1980) have put forward a similar classification of the urban economy in terms of the formal and the informal sectors. According to them most of the service industries come under the informal sector.

A very systematic analysis of the growth of employment in the service sector is given by Yves Sabolo[28] (1975). He presents a new approach to the interpretation of the role of the tertiary sector. According to him, the growth of employment in service sector, is of an essentially residual character which depends on population pressure and on rural-urban migration. He has hypothesized that the growth of tertiary sector primarily is due to the fact that the techniques employed in it require much labour and that there is less scope in it for choosing more capital intensive techniques. The individuals, he points out, prefer to enter the tertiary sector, not only because the constraints in that sector are less compelling but also because their purpose of

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26. Jan Breman (1976) " Dualistic Labour System", Economic & Political Weekly, Vol.XI, no.48, 1976. Nov.27, pp.1870-76.

27. Heather Joshi (1980),"The Informal Urban Economy and Its Boundaries", EPW, Vol.XV, no.13, Mar.29, 1980, pp.638-644.

maximisation of their own welfare leads them towards the service industries. He has also tried to highlight that the growth of employment results from an increasingly pronounced preference for employment in the tertiary sector, especially among young people and women which is due to the system of education. He has further added that the influx of labour into these occupations is due to the increasing participation of women in economic life and to the existence of more numerous "feminine occupations" in the tertiary than in the secondary sector. He concludes by stating that the ultimate aim of employment policy should be to reduce underemployment and to improve incomes in the traditional services.

The work of J.S. Gulati[29] (1975) is also very useful for further research. His work presents an analytical picture of the occupational structure in India. Starting with the philosophical and historical foundations which have, through the ages, marked the attitude to work in India, he has analysed the various factors which should govern occupational choice in the 1970's without getting bogged down by the technical complexities involved in the projection of demand and supply of manpower.

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29. J.S. Gulati (1975), The Changing Occupational Pattern (NCERT Publication).

Bhattacharya[30] (1970) analyses the tertiary sector in the context of "urbanisation and employment" and suggests that the growth of employment in the tertiary sector is influenced by a number of factors which include growth in the secondary sector, income levels, expenditure pattern, habits of people, availability of transportation, services, etc.

On the basis of the studies in the Third World outlined above we can conclude that high levels of tertiary employment in their cities cannot be regarded as indicative of economic growth. It has been suggested by McGee that this 'gross inflation of the tertiary sector' will have disastrous repercussions on the stability of the society largely because it leads to the creation of an "impoverished and explosive lumpenproletariat."

This brief survey of the existing literature on the tertiary sector suggests that much remains to be done in the field of service industries in Indian cities. Attempts are made in this study to fill part of this lacunae and analyse some aspects of the process of tertiarization of the Indian economy. The theoretical framework within which this analysis will be made is discussed in the following pages.

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30. A. Bhattacharya, "Urbanisation and Employment Trends", Economic and Political Weekly, 1970, Vol.5, pp.345-47.

1.4 Analytical Frame Work :

The tertiary sector, like the secondary sector, goes through a process of transformation in almost all countries of the world. It is usually held, specifically by economists working in the Western countries that the growth of the secondary sector, invariably marks the consolidation of the economic potential of a region, and the growth of tertiary activities, indicates a real transformation of the internal economy. But we can not take this view while working with the underdeveloped countries. One basic reason for this is that a very wide contrast exists in the component activities of the tertiary sector. It includes such varied activities as banking on the one hand and domestic services on the other, activities which in terms of their economic significance are poles apart. The former is the expression of vast financial and social organisation which can profoundly influence national affairs, the latter the most elementary occupation, found even in the least developed countries. Similarly we can draw another distinction between the manual workers and the "white collar" workers.

We must therefore distinguish at least two varieties of the tertiary group, before we assess whether it is conducive to development or not. These groups may be called the traditional and the modern. The former is

characteristic of underdeveloped countries and those in early stages of development while the later consists of the newly emerging activities such as banking, insurance, recreation services, etc. Our theoretical model of the tertiary sector pivots around this classification.

We can cite several examples of traditional tertiary activities which are non-conducive to economic development, such as domestic service and commerce. We find that these activities abound in the underdeveloped countries and they usually are the major component of this sector. For example, in Brazil in 1950,[31] the number of domestic servants represented 1/5th of all employment in the tertiary group.

The same holds for certain types of commerce, because within this class, are included not only the organized traders, but also the petty shop-keepers who dole out a bundle of bidis or a packet of cigarettes or a kilogram of sugar to their customers. This group also makes up a high proportion in the total employment of the "tertiary" sector. Moreover, in commerce, there is a kind of internal mutation; the proliferation of petty traders who barely make both ends meet, give way to the development of chain

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31. G. Mortara (1945), Population of Brazil; U.N.O., pp.631-635.

stores with their numerous ancillary businesses such as warehousing and controlled storage. Here the total number of employed may not greatly alter but the character of employment changes.

On the basis of this discussion we can state that in any theoretical framework for the analysis of the tertiary sector we should give primary emphasis to a classification of the tertiary activities so that the role and significance of this sector in economic development can be adequately assessed.

Let us now consider some of the modern tertiary activities and their significance in the advanced and underdeveloped countries.

It hasbeen rightly pointed out that in the advanced countries by the end of the century the proportion of factory workers in the labour force may be as small asthe proportion of farmers today. Indeed, the entire area of blue-collar work may have diminished so greatly that the term will lose its sociological meaning, as new categories such as white collar, personnel, are established.

The modern society is based on services where not raw muscle power or energy, but information is counted. The central person is the professional, for he is equipped by his education and training, to provide the kinds of

skill which are increasingly demanded in the modern society. If in an industrial society the quantity of goods mark the standard of living, in the post industrial society the quality of life, as measured by the services and amenities, health, education, recreation, etc. determines the levels of development.

The word "services" disguises different things and in the transformation of industiral to post industrial society there are different stages.[32]

i) In the early stages when industry is developing there is a necessary expansion of transportation and of public utilities as auxilary services in the movement of goods and the increasing use of energy, and an increase in the non-manufacturing but still blue-collar force.

ii) As mass consumption of goods increases and the population grows there is an increase in distributive activities (wholesale and retail), finance, real estate and insurance, i.e., the centres of white collar employment.[33]

iii) As national incomes rise, one finds that the proportion of money devoted to food at home begin to drop,

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32. Karl Marx, (1848) Capital, Vol.I, p.837.

33. C.W. Mills (1951), White Collar: The American Middle Classes, (London: OUP), p.47.

and the marginal increments are used for durables (clothing, housing, automobiles) and then for luxury items, recreation, and the like. Thus a third sector that of personal services, begins to grow. Resturants, hotels, auto-services, travel, entertainment, sports, etc. emerge as important activities as the peoples' horizon expand and new wants and tastes develop.[34]

iv) The growth of technical requirements and professional skills gives education a higher place in the modern society, hence there is a growth of a new intelligentsia as the process of development proceeds.

v) Finally the claims for more services, which determine the quality of life, i.e., better health and environment, lead to the growth of the government, particularly at the state and local level.

It is important in our theoretical model to outline the relationship between tertiary sector and economic developments.

In a historical perspective, the shift of employment to services does not represent any sudden departure from

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34. Mills (Edwin.S)(1972), Studies in the Structure in the Urban Economy (London).

previous long-run trends. As Victor Fuchs[35] (1968) points out that, "Far, as long as we have records on the industrial distribution of labour force, we find a secular tendency for the percentage accounted for, by the service sector to rise. The change over to a post-industrial society is signified not only by the change in sector distribution - the place where people work, but in the pattern of occupations, the kind of work they do." But there is evidence that the simple growth in tertiary sector is not conducive to economic development. It would be worthwhile to pinpoint the tertiary activities which are geared to economic growth and which are not. This will give us a classification based on the role of the tertiary activities, e.g., we can have a group of those activities which are considered important in the process of economic growth and development and secondly we can have those activities which are recognized as the obvious symptoms of economic stagnation.

We can also have a classification which groups tertiary activities in their relationship with industries, e.g., (i) those which are directly auxilary to industry such astransportation and utilities; (ii) those which handle distribution and trade as well as finance and insurance; (iii) those which derive from leisure demands

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35. Victor R. Fuchs (1969), Production and Productivity in Service Industries (New York; 1969).

such astravel, entertainment, sports, recreation including the media, and finally (iv) those which deal with community services particularly health, education and government.

We can also broadly divide this sector into divisions based on profit and non-profit consideration. It has been found that growth has been mainly taking place in the non-profit activities of this sector. The heart of the non-profit sector is health, education and research. It has been stated that the profit sector of tertiary activities is the expression of progress along three lines.

- The first is the improvement of the basic services of transport, water supply and electricity which permits the progress of industry and the development of new land and resources.

- Secondly, development of trade, commerce and finance which ensures an increase in production and consumption, of demand and supply in a more advanced society in which complex needs emerge with a rising standard of living.

- Last but not least is the extension of public services, representing an increased effort by the state to organise the country and lookafter the welfare of the citizens. There has however been

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no study to group the tertiary activities in terms of this classification.[36]

Tertiary activities can also be divided in term of labour intensiveness. Tertiary occupations in advanced countries are highly capital intensive e.g., transportation, banking, commerce etc. Tertiary occupations in underdeveloped countries, on the other hand, require very small abount of capital but more labour e.g., personal services, retail trading etc. Because of the limited requirements for capital, it is easier for people to enter such occupations.

Personal services form an important part of tertiary employment in underdeveloped countries. This is the result of the gross inequalities in the distribution of wealth and income. Labour being very cheap, rich people have a tendency to keep a whole army of servants, just for prestige purposes. This kind of employment is not possible in developed countries, because of very high wage rates. Distributive services are also an important employer of tertiary labour. This activity has a direct relationship with the primary as well as secondary sector. Increase in primary and secondary production increase the demand for

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36. Andre Gorz (1968), Strategy for Labour (Boston; 1968), pp.104-106.

distributive services. However, the mere existence of a large number of persons in distributive services does not mean prosperity.

1.5 Towards a Model of the Tertiary Sector :

The basic assumptions of this model are that the growth of the tertiary sector, in the economically advanced countries takes place because there is an increase in effective demand for services. On the countrary, it expands in the underdeveloped countries due to the abundant supply of labour resulting from the high growth of population and the inability of the other sectors of the economy to absorb this ever increasing working force.

In the light of these assumptions, the various factors which influence the growth of tertiary sector have been identified. This has been attempted through a hypothetical elementary model of the tertiary sector given in Fig.2.

The model is heavily based on the model given by Sabolo and identifies two sets of factors, viz., the demand and the supply factor which are responsible for the growth of the tertiary sector in the urban economy. The demand factor, operating within the framework of a given economy, determines, (i) the fields in which tertiary employment is generated and (ii) the magnitude that these

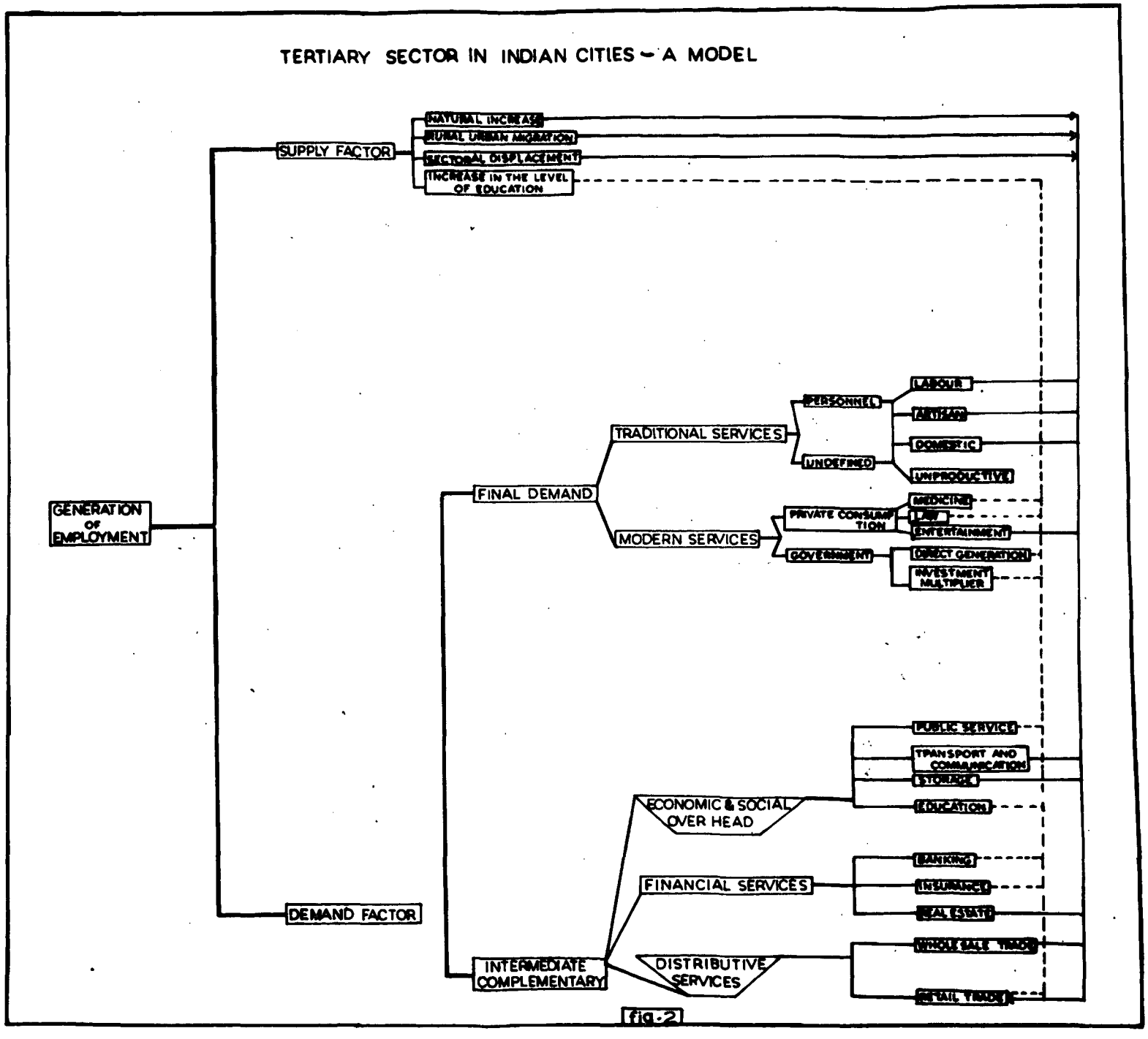
TERTIARY SECTOR IN INDIAN CITIES – A MODEL
GENERATION OF EMPLOYMENT
SUPPLY FACTOR
NATURAL INCREASE
RURAL URBAN MIGRATION
SECTORAL DISPLACEMENT
INCREASE IN THE LEVEL OF EDUCATION
DEMAND FACTOR
FINAL DEMAND
INTERMEDIATE COMPLEMENTARY
TRADITIONAL SERVICES
MODERN SERVICES
PERSONNEL
UNDEFINED
PRIVATE CONSUMPTION
GOVERNMENT
LABOUR
ARTISAN
DOMESTIC
UNPRODUCTIVE
MEDICINE
ENTERTAINMENT
DIRECT GENERATION
INVESTMENT MULTIPLIER
ECONOMIC & SOCIAL OVER HEAD
FINANCIAL SERVICES
DISTRIBUTIVE SERVICES
PUBLIC SERVICE
TRANSPORT AND COMMUNICATION
STORAGE
EDUCATION
BANKING
INSURANCE
REAL ESTATE
WHOLE SALE TRADE
RETAIL TRADE

fig-2

fields acquire through the profitability of undertakings.[37] The supply factor refers to the volume of labour supply that is available for absorption by this sector.[38] These two factors are elucidated in the following pages.

1.5.1 Supply factors :

The supply factor is usually understood to refer to the "ultimate effect of population growth, rural urban migration and also of education on the balance of labour supply and demand.[39] Here the volume of labour supply to the tertiary sector is taken to be a function, not only of natural increase and rural urban migration, but also of the sectoral displacement of workers.

1.5.2 Demand Factor :

Demand for labour in the tertiary sector is normally linked firstly to the changes occuring in the final demand for services and secondly to the demand for manufactured and agricultural goods.[40] This demand is due to :

i) Changes in private consumption of services dependent on income elasticity;

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37. The Analysis of the demand and supply factors is based on the work of Yves Sabola (1975), The Service Industries, ILO, Geneva, pp.30-37.

38. The Analysis is also based on the Work of Atiya Habeeb's (1979), Ph.D. Thesis, pp.222.29.

39. Yves Sabolo, op.cit., fn.38, p.24.

40. Ibid., p.30.

ii) Changes in Government consumption of services which have the direct effect of generating employment in administration, defence and professions;

iii) Changes in industrial production that effect complementary demand for related tertiary services at three levels :

(a) transport of goods;

(b) distribution of goods (trade & commerce)

(c) financing of production of goods and services.

The classifications which hasbeen adopted for the model proposed in this study is based on the schemes of Sabolo, Hortwell[41] and Katouzian.[42] The tertiary sector has been divided into the following broad divisions :

1. Governmental and other Infrastructural Activities
2. Personal Services (Professional and Non-Professional).
3. Community Services
4. Financial Services
5. Distributive Services in whole sale trade
6. Distributive Services in retail trade
7. Unspecified Services.

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41. R.M. Hortwell (1973), "The Service Revolution, the Growth of Services in Modern Economy" in Carlo M. Cippola (ed.), The Fontana Economic History of India.

42. M.A. Katouzian (1970), "The Development of the Service Sector: A New Approach", Oxford Economic Paper, cited in Yves Sabolo, op.cit., no.38, p.40.

1.6 Hypotheses :

On the basis of the above discussion the following hypothesis are put forward for verification concerning the tertiary sector in the urban economy in India.

i) In a newly independent country, committed to planned socio-economic development and national reconstruction the social overhead services tend to grow more than the other tertiary services, which however is not necessarily indicative of economic development.

ii) With economic development urban tertiary activities geared to private consumption and to fulfilling final demand for traditional personal services tend to decrease. They, however, remain a major absorber of tertiary sector workers in larger cities where the influx of migrants is the most and avenues for tertiary employment are not commensurate with the pressure for jobs.

iii) A significant proportion of the tertiary sector workers are semi-skilled or unskilled and are engaged in activities which are labour intensive.

iv) A significant proportion of the tertiary sector workers are still engaged in non-productive unspecified occupations.

1.7 Data Base :

The data for the present study has been taken from the tables entitled "Indian standard industrial classification" (ISIC) and "National Industrial Classification" (NIC), given in the "General Economic Tables", II B(i) and II B(ii) for 1961 and 1971 respectively. For 1961 the ISIC classification has been adopted while for 1971 the NIC classification is considered.

Under ISIC as well as NIC, all the economic activities have been divided into '9' main divisions. Each division has been assigned one digit (permanent number) from 0-9, except manufacturing which has been assigned two digits (2 and 3). Each divisions has been divided into '10' or fewer major groups and these are denoted by 2-digit numbers. Each major group has been sub-divided into '10' or fewer groups and these are denoted by 3 digit numbers. These groups can be further sub-divided into '10' or fewer subgroups which can be denoted by small letters or Roman numericals. Such subdivision depends on the structure of industry, the details required and other related factor. In this three digit classification the first digit shows the division, the first two indicate the major groups and the complete three digit number identifies the group. The group is the ultimate category with reference to which the economic activity of an establish-

ment is determined. In the Indian census, the categories 6, 7, 8, and 9 form the tertiary sector. Table 1.1 given below, shows all the above mentioned divisions. The NIC classification is a slightly modified version of ISIC classification.

This classification has been so developed and arranged that it can be put to wide variety of uses. The statistical commission of the UN[43] states that "the classification... can be used as a whole in connections with censuses of population or other enquiries covering all branches of economic activity, while the relevant sections may be used in more limited surveys obtaining their data from either organizations or individuals, e.g., census of manufacturing, mining, agriculture, etc., as well as surveys of employment, unemployment industrial accidents and similar subjects."

1.8 Occupational Classification Adopted in the Present Study :

In the present study we have used the ISIC as well as NIC classification and have adjusted its groups and subgroups into categories identified for the purposes of

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43. International Standard Industrial Classification (of all Economic Activities) Statistical Commission, U.N. Statistical Papers, Series - M, no.4, p.3.

Table - 1.1 : ISIC DIVISIONS - 1961

Name of the Sector	Divi-sions	Major Groups	Groups
Trade and Commerce	6	60,61,62,63,64, 65,66,67,68 and 69	600 to 699
Transport, Storage and Communication	7	70,71,72 and 73	700 to 732
Financing, Insurance, Business service, etc.	8	80,81,82,83,84, 85,86,87,88,89	800 to 890
Activities Adequately defined	9	90	900

: NIC DIVISIONS - 1971

Name of the Sector	Divi-sions	Major Groups	Groups
Wholesale trade, Retail trade, Resturants and Hotels	6	60,61,62,63,64,65, 66,67,68,69	600 to 691
Transport, Storage and Communication	7	70,71,72,73,74,75	700 to 759
Financing, Insurance, real estate and Business Services	8	80,81,82,83	800 to 830
Public Administration and Defence ervices	9	90,91,92,93,94, 95,96,97,98,99	900 to 990
Activities adequately defined	X0	X0, X1	X00, X10

present study such as personal services, community services, distributive services, etc. The classification that has been adopted is given in the following chart, (Table 1.2)

Table - 1.2
Tertiary Sector

Governmental and other infrastructural activities or (Social Overhead) :	1. Public Services 2. Education 3. Transport 4. Storage 5. Communication
Professional and non-professional services or (Personal Services) :	1. Medicine 2. Law 3. Domestic Services 4. Artisan
Community Services :	1. Religion 2. Culture 3. Co-operative
Financial Activities :	1. Banking 2. Insurance 3. Real-Estate
Distributive Activities in whole sale trade :	1. Wholesale trade in food, food articles and stimulants 2. Wholesale trade in non-food articles and goods for personal consumption 3. Wholesale trade in equipment and machinery
Distributive Services in retail trade :	1. Retail trade in food, food articles and stimulants 2. Retail trade in non-food articles and goods for personal consumption 3. Retail trade in equipment and machinery
Unspecified	

This data at the micro-urban lvel is unfortunately available only for the million cities in India, hence, the study hasbeen limited to these cities only.

1.9 Organization of the Study :

The organization of the work is briefly as follows :

In chapter I, the major themes of the study are discussed. The received theories have been critically reviewed and the need to go beyond these formulations has been stressed. An analytical model for the growth of the tertiary sector has also been given. The basic hypothesis to be verified in this study, concerning the role and composition of tertiary sector, have been proposed. A brief introduction to the universe and period under investigation has also been provided and the data base as well as ISIC and NIC divisions and the classification adopted have been discussed.

Chapter II provides a detailed analysis of characteristics of tertiary sector. In this chapter an attempt is made to highlight the city-wise efficiency ratio i.e., the level of efficiency of the tertiary workers is estimated and their role in the process of economic development of the city is assessed. The relation of the tertiary sector with the other sectors of economy, specially the manufacturing, are also highlighted. Besides, this the

absorptive capacity of this sector as well as the participation rate in content of male and female workers are also pin pointed.

The main object of chapter III is to present a comprehensive idea about the concentration and diversification of the tertiary activities in different metropolitan cities. Here the structure of the tertiary sector has been analysed in detail. The impact of this structural pattern on the process of economic development is also examined. In other words this chapter offers a locational analysis of a particular tertiary activity in different cities as well as all the tertiary activities in a particular city.

In chapter IV, some of the explanatory variables like population growth etc. have been discussed. Attempts here are made to find out the dominant tertiary functions or the first order tertiary functions with the help of factor analysis in the eleven metropolitan cities of India for the year of 1961 and 1971. Lastly, the growth or relative importance of the dominant tertiary functions of 1961 have been compared with those of the 1971.

Conclusions and a summary of the findings of this study are presented in chapter V.

**

C H A P T E R - II

MAGNITUDE, STRUCTURE & CHARACTERISTICS OF THE TERTIARY SECTOR

2.1 Magnitude of the tertiary sector in the Metropolitan cities.

2.2 Structure of tertiary sector in the Metropolitan cities. The hypotheses.

2.2.1 High Absorption of Tertiary Workers by Social and Economic Overhead Services.

2.2.1(i) Other Overhead Services.

2.2.2 Traditional Personal Services

2.2.2(i) Domestic Services
2.2.2(ii) Artisan Services
2.2.2(iii) Law & Medicine

2.2.3 Labour intensity and level of skill

2.2.4 Non-Productive Unspecified Occupations.

2.3 Charactersitics of the Tertiary Sector.

2.3.1 Efficiency Index

2.3.2 Participation Rate - Male/Female.

2.3.3 Hypothetical Input-output Model indicating the relationship between three sectors of urban economy.

2.4 Conclusions

—

In this chapter an attempt will be made to analyse the magnitude, structure and the characteristics of the tertiary sector in the metropolitan centres in India. The discussion will also include a tentative analysis of the efficiency levels in the tertiary sector of the metropolitan centres included in the analysis.

2.1 The magnitude of the tertiary sector in the metropolitan cities :

Primary, secondary and tertiary groups together comprise the urban economy of an urban centre. The first group includes all those branches which are concerned with the exploitation of natural resources, the second group includes activities which bring about a transformation of these resources and the third group includes all those functions which are not concerned with the actual production of material goods.

Table 2.1 gives the relative share of the primary, secondary and tertiary sectors in the economy of the metropolitan centres in India (see also Fig. 3a and 3b & 4a and 4b).

The table indicates that :

i) the sahre of the primary sector in all the cities is very negligible.

SECTORAL DISTRIBUTION OF WORKING POPULATION

IN IHE MILLIONCITIES OF INDIA- 1961

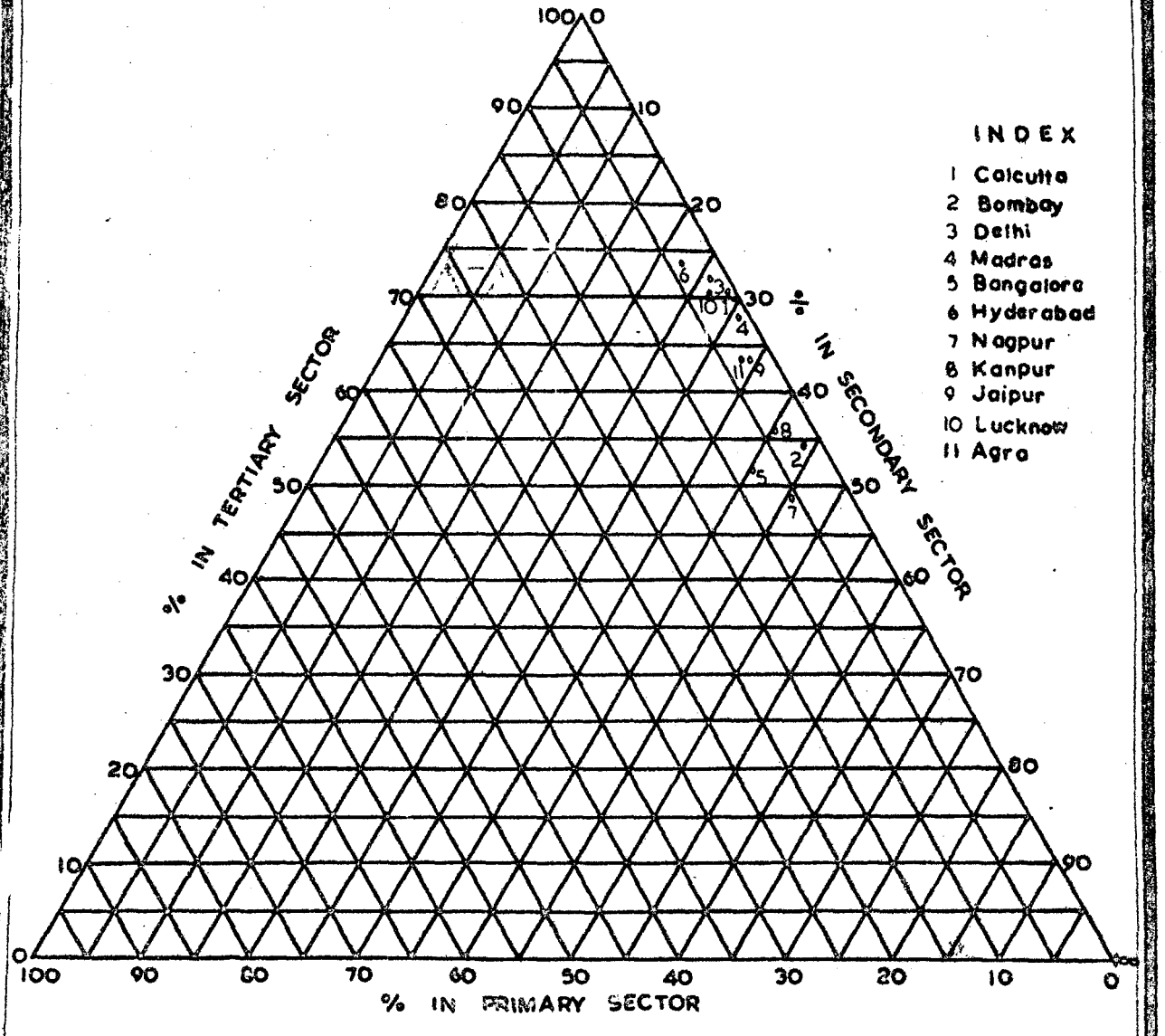

Fig-2c

SECTORAL DISTRIBUTION OF WORKING POPULATION IN MILLION CITIES OF INDIA- 1971

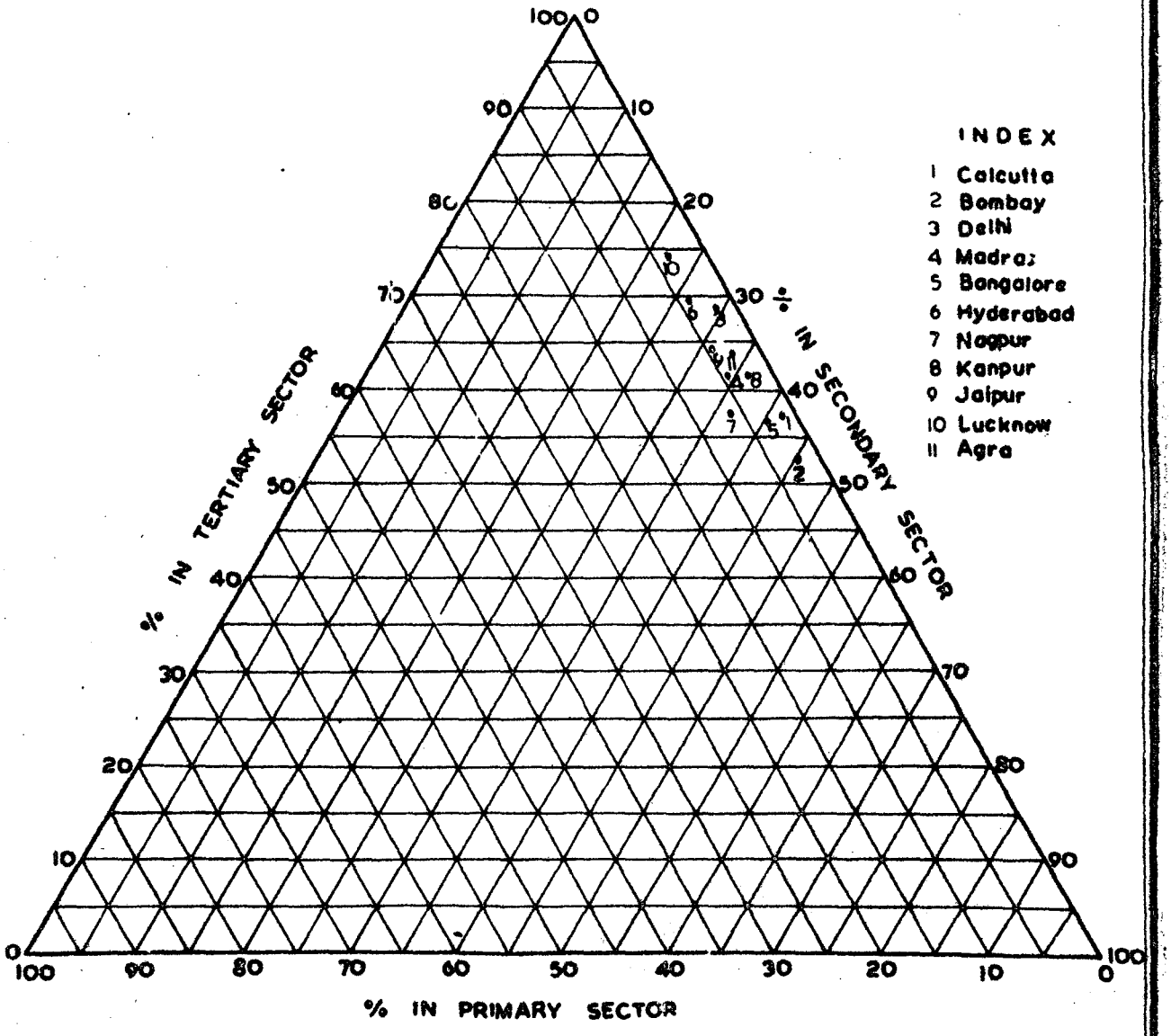

fig-3b

ii) the secondary sector is increasing in the first order metropolitan centres whereas the tertiary sector is increasing in the second order metropolitan centres. In other words, it is the tertiary sector has reached a saturation point in 1961 in the first order metropolises such as Calcutta, Bombay, Delhi and Madras and has subsequently started decreasing.

It is interesting and encouraging to note that the secondary sector is taking a positive trend in the primate cities. On the whole, however, the tertiary sector has occupied the most important place in the urban economy of the Indian cities. The metropolitan average of tertiary functions in 1961 was 62% and increased to 62.7% in 1971.

The very low percentage of workforce engaged in secondary sector in the major cities of India, is generally attributed to the fact that the labour absorption possibilities of the secondary sector have been much reduced because firstly it is not expanding and secondly capital intensive technology is being applied. A direct movement from agriculture to tertiary activities is, therefore, taking place.[1] This situation is compounded by a high rates of growth of the urban labour force.

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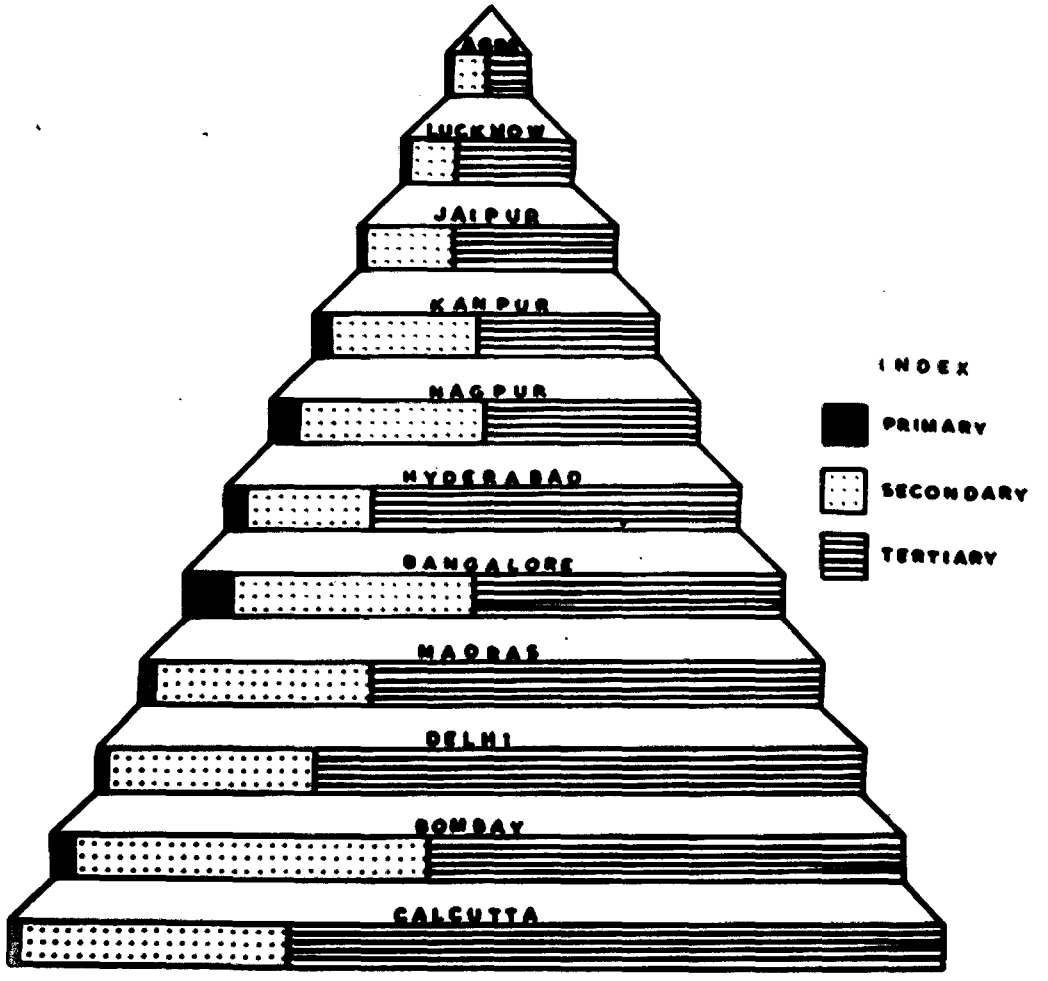
1. Hazel Hoir, Economic Development and Cultural Change, 1976-77, Vol.25, p.123.

DISTRIBUTION OF OCCUPATIONAL STRUCTURE IN ELEVEN MILLION CITIES OF INDIA - 1961



DISTRIBUTION OF OCCUPATIONAL STRUCTURE IN ELEVEN MILLION CITIES OF INDIA-1971

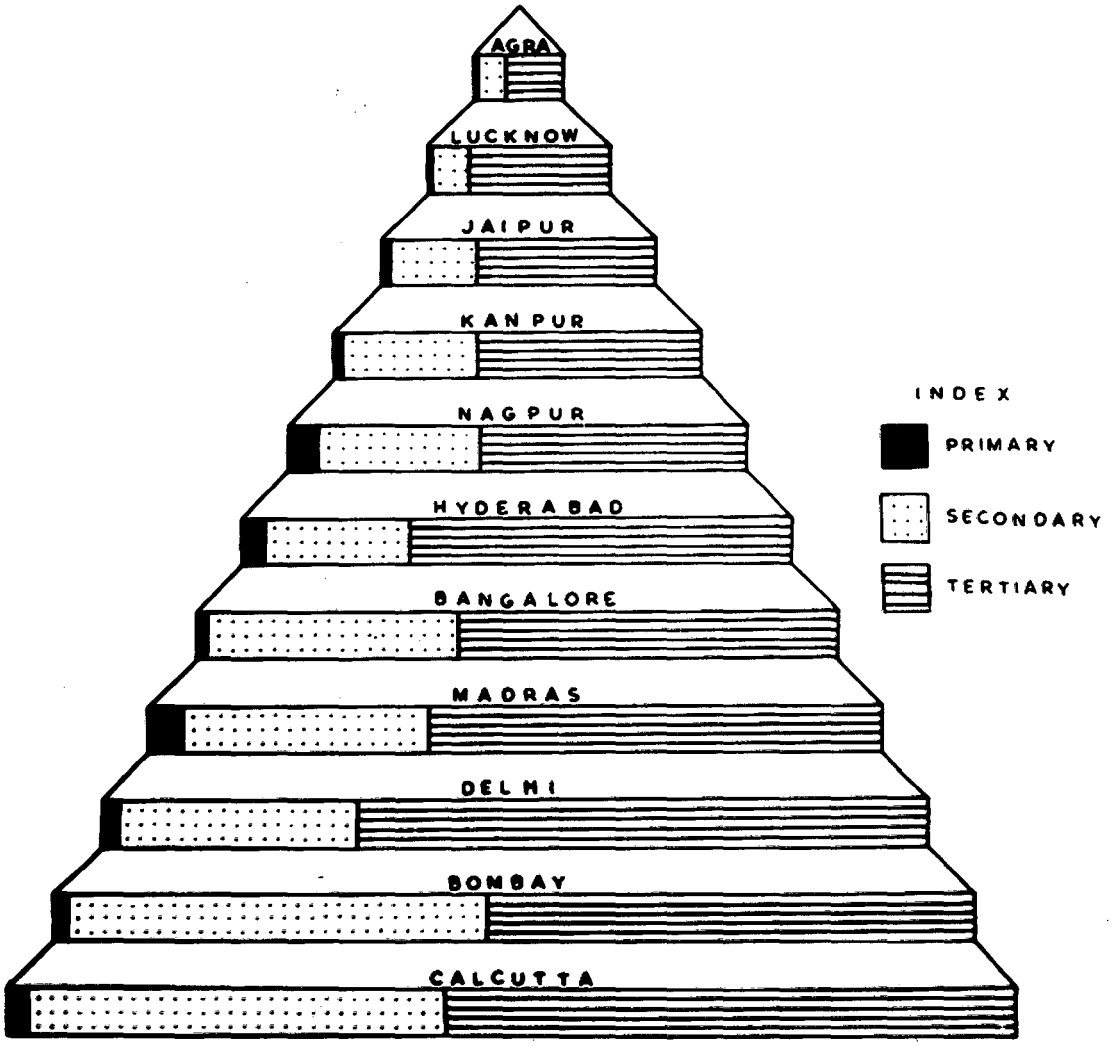


Table 2.1

Percentage Distribution of the Urban Economy of Worker in Different Sectors in the Metropolitan Centres of India - 1971

	Calcutta	Bombay	Delhi	Madras	Bangalore	Hyderabad	Nagpur	Kanpur	Jaipur	Lucknow	Agra
Primary	1.52	1.25	1.6	4.00	2.04	3.75	6.0	2.6	4.9	3.62	2.6
Secondary	41.22	45.33	39.43	34.2	40.01	26.77	36.30	36.03	30.99	22.28	33.60
Tertiary	57.24	53.40	68.91	61.78	57.34	69.46	57.66	61.35	64.1	74.08	63.81

Percentage Distribution of Urban Workers in Different Sectors of Urban Economy in the Metropolitan Centres of India 1961

	Calcutta	Bombay	Delhi	Madras	Bangalore	Hyderabad	Nagpur	Kanpur	Jaipur	Lucknow	Agra
Primary	0.27	1.89	1.6	1.5	7.81	3.3	5.56	4.1	1.64	2.43	2.06
Secondary	29.17	43.5	26.82	31.23	40.1	23.24	45.16	40.23	34.53	27.24	34.52
Tertiary	70.55	54.61	71.57	67.35	52.1	73.44	49.26	55.76	63.81	70.31	63.40

Source: Census of India, (General Population Table) Part-II-A

2.2 The structure of tertiary sector in the metropolitan centres.

2.2.1 Hypothesis one :

In a newly independent country, committed to planned socio-economic development and national reconstruction, the social and economic overhead services tend to grow more than the other tertiary services. This trend, however, is not necessarily indicative of development.

It has been proposed in the model of the tertiary sector that the demand for traditional personal service is considerable during the early stages of development. This has been illustrated in the study of colonial cities by Habeeb[2] (1979), in which she considered ten important centres in northern India during the period 1881-1921. The table 2.2 reproduced from her study gives distribution of the tertiary workers in different types of services and clarifies the statement made above.

It is expected that in the post colonial period when an independent government, committed to national reconstruction takes charge of the developmental activities there would be a change in the relative share of these

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2. A. Habeeb, ... (1979), Ph.D. thesis, Characteristics of Process of Urbanization in Colonial India: A Case study of Calcutta and Its Hinterland (1850-1921), p.235.

Table 2.2

Distribution of Workers in Services and in the other Components of the Tertiary Sector in the Ten Colonial Cities (1881-1921)
(Percentage are interms of total tertiary sector worker)

	Services				Own income	Gen labour	Unproductive
	Over head	Business	Personal	Community			
Calcutta	21.91	18.64	33.71	2.29	1.02	19.98	4.45
Howerah	19.05	18.63	20.92	2.18	3.71	28.26	7.35
Lucknow	18.18	15.4	32.42	2.82	3.73	25.04	2.70
Kanpur	16.40	15.94	31.38	3.64	1.74	20.01	2.89
Banaras	11.64	22.70	27.66	13.19	1.30	16.49	7.02
Allahabad	18.93	14.33	33.53	4.24	2.23	22.82	3.92
Gorakhpur	19.07	19.98	36.58	3.94	0.24	16.25	3.94
Fyzabad	13.18	17.26	27.96	11.10	0.40	20.54	9.56
Mirzapur	11.37	21.98	30.86	7.50	0.06	22.99	5.26
Jaipur	19.24	18.80	32.03	3.57	-	18.89	7.47
Average	16.90	18.14	30.71	5.33	1.44	22.03	5.45

Source: Census of India

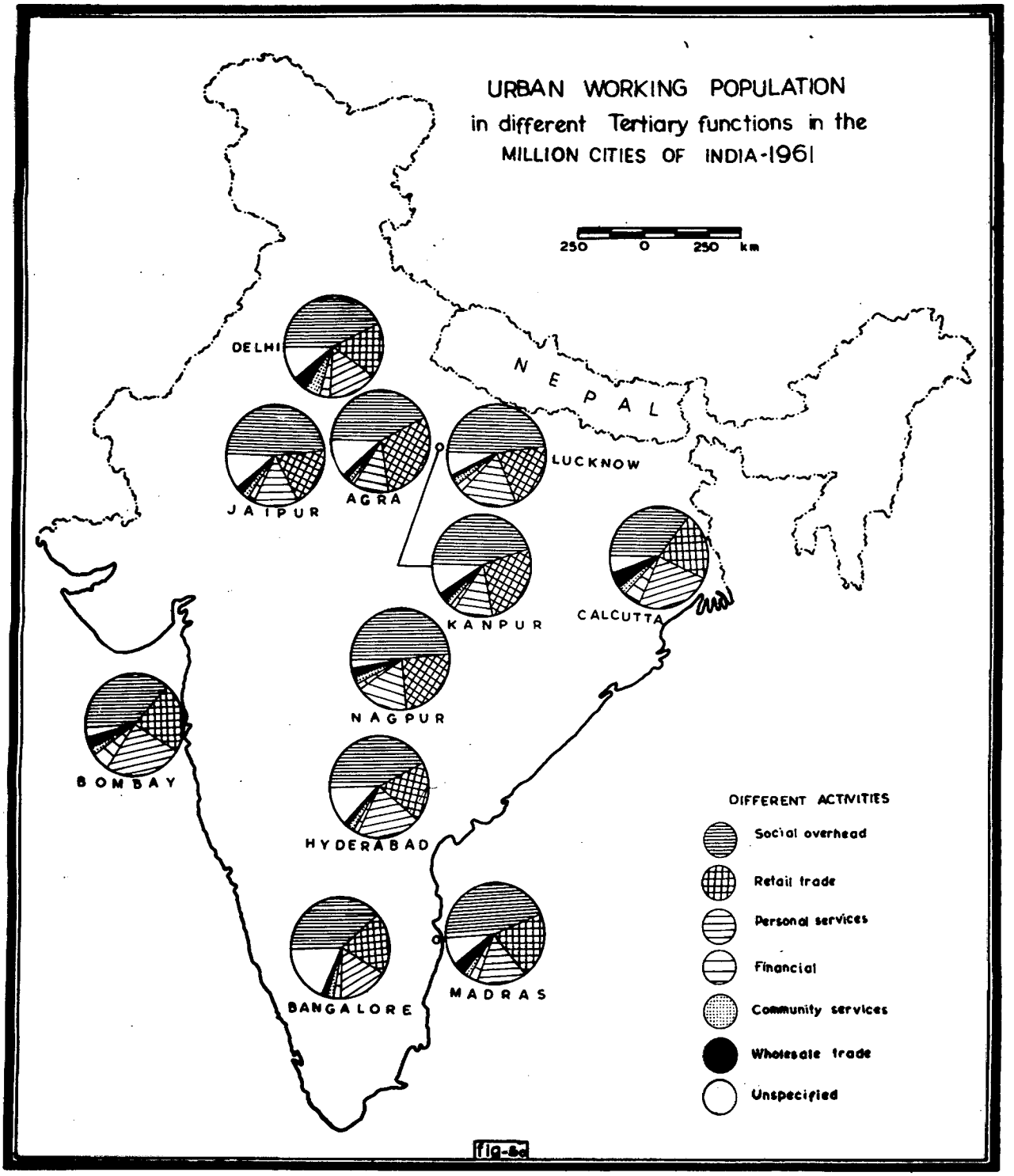
URBAN WORKING POPULATION
in different Tertiary functions in the
MILLION CITIES OF INDIA-1961
250 0 250 km
DELHI
JAIPUR
AGRA
LUCKNOW
NEPAL
KANPUR
CALCUTTA
NAGPUR
BOMBAY
HYDERABAD
BANGALORE
MADRAS
DIFFERENT ACTIVITIES
Social overhead
Retail trade
Personal services
Financial
Community services
Wholesale trade
Unspecified

fig-8a

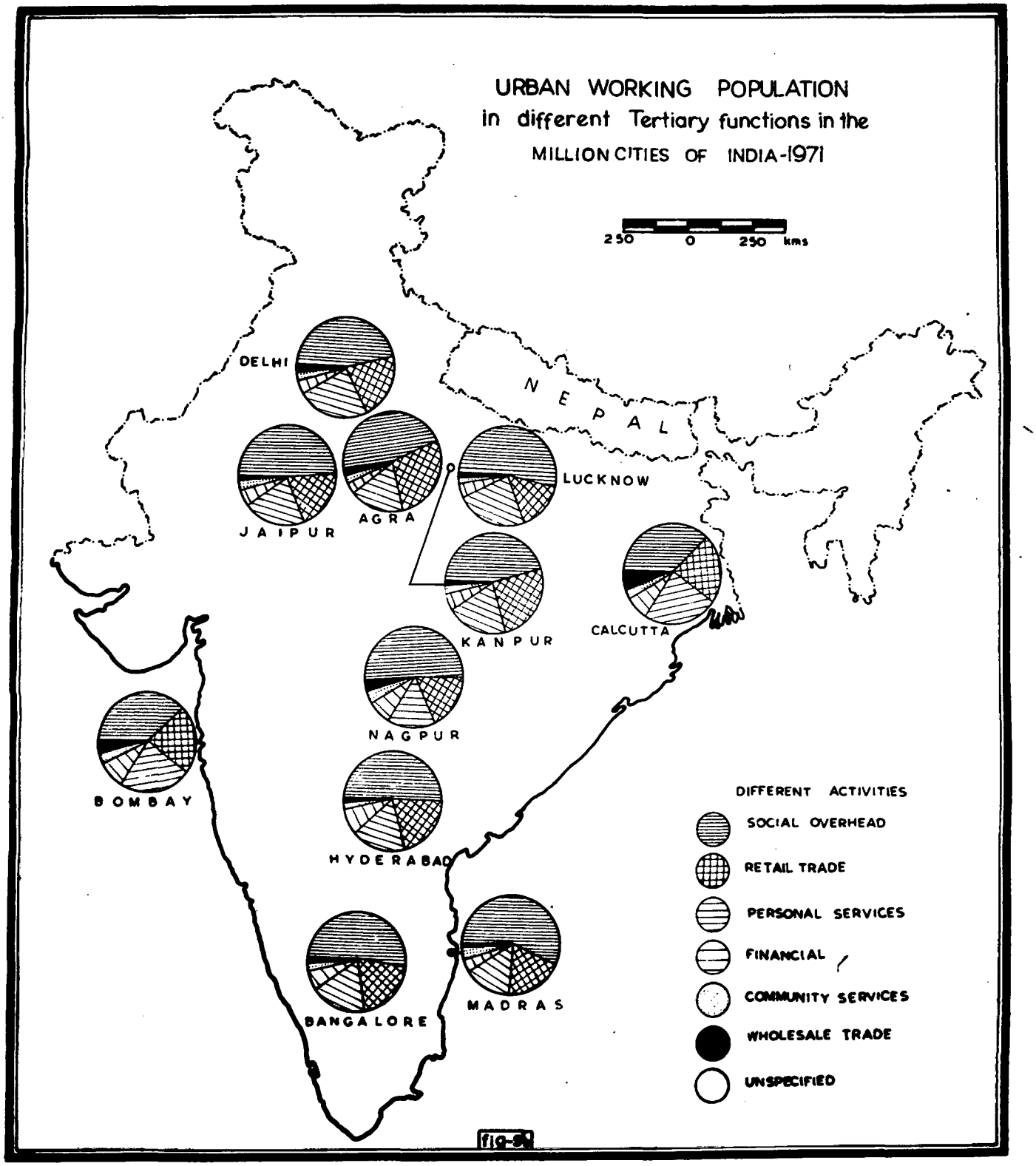
URBAN WORKING POPULATION
in different Tertiary functions in the
MILLION CITIES OF INDIA-1971
250 0 250 kms
DELHI
NEPAL
JAIPUR
AGRA
LUCKNOW
KANPUR
CALCUTTA
NAGPUR
BOMBAY
HYDERABAD
BANGALORE
MADRAS
DIFFERENT ACTIVITIES
SOCIAL OVERHEAD
RETAIL TRADE
PERSONAL SERVICES
FINANCIAL
COMMUNITY SERVICES
WHOLESALE TRADE
UNSPECIFIED

Fig-5

services and the share of social and economic overhead services would increase over the other services. This change is clearly visible in the structure of tertiary occupations (shown in fig. 5a & 5b and Table 2.3) in the metropolitan cities of India.

Table 2.3 indicates that :

1. Social and economic overhead services occupy a major proportion of the tertiary sector workers in all the metropolitan cities.

2. There has been a perceptible increase in the share of these services (between 1961-71) in almost all the cities considered.

3. The share and relative growth of these services has been more in the second order metropolitan centres than in the first order centres.[3]

The growth of social and economic overhead services is, however, not necessarily indicative of development because we find that within the components of this service the public and governmental activities are the most preponderant (see Table 2.4).

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3. Calcutta, Bombay, Delhi and Madras are considered as Ist order metropolis and the rest seven such as Bangalore, Hyderabad, Nagpur, Kanpur, Jaipur, Lucknow and Agra as second order metropolis. This hasbeen considered basing on total population.

Table 2.3

Percentage of Workers Engaged in Different Activities of Tertiary Sector in the Metropolitan Cities of India (1961)
(% in terms of total tertiary workers)

	Social & overhead in %	Personal professional (2a)	Services non-Professional (2b)	Community services in %	Financial Activities in %	Distributive services in wholesale service trade in %	Retail trade in %	Unspecified workers in %
Calcutta	35.5	3.1	22.3	2.5	4.6	4.6	21.7	5.6
Bombay	37.5	3.4	22.2	2.3	5.5	3.6	22.2	3.2
Delhi	44.9	2.9	13.3	2.5	2.9	3.4	20.6	9.3
Madras	36.3	3.7	15.3	4.1	7.1	2.4	17.4	13.4
Bangalore	38.9	3.2	13.4	2.3	2.4	1.2	20.4	18.2
Hyderabad	42.9	3.3	17.3	2.3	1.7	1.1	19.4	12.0
Nagpur	48.4	3.2	13.4	2.7	1.9	2.2	25.5	2.5
Kanpur	44.7 44.7	2.7 2.7	2.6 9.7	17.3 1.7	1.8 1.6	5.5 2.9	2.3 27.4	24.5 9.2
Jaipur	47.9	4.5	10.2	2.4	1.9	2.4	18.9	11.7
Lucknow	47.2	4.1	14.2	2.5	2.3	0.77	21.1	7.8
Agra	42.2	3.4	8.3	1.8	0.7	1.6	30.5	11.7
				: 1971				
Calcutta	35.4	3.1	21.3	2.0	7.5	6.3	24.3	-
Bombay	37.8	3.6	19.3	2.7	10.0	3.5	22.6	0.35
Delhi	46.0	3.5	20.4	2.4	4.5	2.8	21.3	-
Madras	57.0	2.5	12.7	3.4	3.5	1.5	19.0	-
Bangalore	51.9	3.4	14.1	2.4	6.2	2.0	20.0	-
Hyderabad	50.0	3.6	14.0	3.1	8.2	1.6	22.4	-
Nagpur	31.1	3.3	12.7	1.9	4.5	1.2	18.1	0.001
Kanpur	45.4 44.4	2.7 2.6	9.7 17.3	1.7 1.8	1.6 5.5	2.9 2.3	27.4 24.9	9.2 -
Jaipur	58.4	3.9	17.2	3.3	5.9	1.3	19.9	-
Lucknow	52.8	3.4	20.4	1.5	4.4	1.4	15.9	-
Agra	45.3	3.4	18.1	2.8	3.4	2.3	29.0	-

Source: Census of India, Part II-B(i) & II-B(ii)

Table 2.4

Percentage Distribution of Difference Overhead Services in the Metropolitan Cities of India (1961 & 1971) (% in terms of total overhead services)

	Public Service		Education		Transport		Storage		Communication	
	1961	1971	1961	1971	1961	1971	1961	1971	1961	1971
Calcutta	41.5	32.6	7.4	11.8	45.2	50.4	0.48	0.62	5.42	4.58
Bombay	29.6	32.6	8.9	13.5	55.5	47.5	0.63	0.8	5.37	5.6
Delhi	68.6	52.1	11.51	16.8	16.1	24.3	0.28	1.78	3.51	5.52
Madras	32.6	49.6	15.4	13.05	43.7	34.0	0.08	0.05	8.22	3.3
Bangalore	62.2	41.8	12.8	16.3	20.2	38.2	0.1	0.05	4.7	3.65
Hyderabad	49.7	51.9	14.4	14.8	32.3	30.7	0.2	0.03	3.15	2.47
Nagpur	28.7	36.2	16.4	18.8	46.41	40.1	0.28	0.04	8.21	4.46
Kanpur	54.3	55.4	11.2	13.5	32.3	26.7	0.33	1.9	1.87	2.5
Jaipur	52.5	42.4	11.6	13.2	32.4	23.3	0.14	0.06	3.36	3.8
Lucknow	49.2	50.9	11.8	13.1	32.9	33.6	0.06	0.01	6.04	2.5
Agra	46.8	39.6	10.2	12.7	39.6	44.8	0.11	0.02	3.29	2.8

Source: Census of India, Part II-D(i) & II-D(ii)

This growth, to some extent is justified because the transition from a colonial status to a self-governing republic required that jobs be created for the administrative machinary. But most studies pertaining to the white collar workers conclude that jobs in this sector usually multiply without sufficient economic rationale. Here one should quote Parkinson[4] (1954). According to him "work expands to fill the time available for its completion and subordinates multiply at a fixed rate regardless of the amount of work produced." Parkinson further states that as the number of employees increases, the total output of work decreases, each government employee doing less and less. Employing more and more people also means inefficiency of the bulk of the working force. This is precisely what has been happening in India. Table 2.5 is given below to show how this share of workforce engaged in public service per "1000" population is increasing in some cities.[5]

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4. Parkinson, Northeole (1954), Parkinson's Law, Random House, pp.5-6.

5. Mills C.N., (1951), White Collar, MacMillon, "The white-collar people slipped quitely in the modern society. Whatever history they have had is a history without events; whatever common interests they have do not lead to unity; whatever future they have will not be of their own making. Internally, they are split, fragmented; externally, they are dependent on large force. As a group they do not threaten anyone; as individuals, they do not practice an independent way of life." p.2.

Table 2.5

Public Service per "1000" Population in Metropolitan Cities of India

City	Public Services	
	1961	1971
Calcutta	38	13
Bombay	22	26
Delhi	70	49
Madras	22	25
Bangalore	42	39
Hyderabad	48	53
Nagpur	24	30
Kanpur	40	42
Jaipur	51	42
Lucknow	47	55
Agra	38	35

Source: Census of India, Part II-B(i) & II-B(ii)

As Pandit Nehru rightly pointed out that unproductive white collar jobs are multiplying by the million but the average output is correspondingly decreasing.[6] In continuing the recruitment of white collar workers, year after year, the government of India may be said to have maintained the tradition set by the British in the early decades of the East India Company's rule. Nehru further

6. Jawaharlal Nehru (1961), The Discovery of India.

stated that "The British people filled all the high offices but obviously they could not fill the smaller posts and clerkships .... The idea of a clerical job being a better one than the others would ultimately degrade the whole nation".[7] Unfortunately his warning has passed into oblivion, unheeded. The vast army of pen pushers at the present moment are without initiative, do not exercise a sense of responsibility and do not make any effort to do anything constructive.

Obviously, such a faulty system cannot be expected to bring out or encourage the spirit of genuine service and does not inculcate the right devotion to public service or to socialist ideals. It can also, in no way, be treated either as a harbinger or catelyst of socio-economic development.[8]

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7. op.cit.

8. Some examples may be quoted to illustrate the manner of functioning of the elephantine Indian bureaucracy. According to the notorious "conveyer system", a matter of public importance after having been dealt with by the section officer, Under-Secretary, Deputy Secretary, Joint-Secretary, Additional Secretary and Chief Secretary returned to the Section Officer after several weeks of file-passing and file-noting for recommendation and drafting of final orders. These "rites" have become so deeply entrenched into the system that one accepts it as part of the malevolent bureaucratic machinery.

India is the world's most populous democracy and it is believed to have the largest number of white collar workers of various categories, a large number of them being superfluous. Jobs were initially created for them by vested interests which were out to provide political patronage to the maximum degree. It is needless therefore to emphasise that the social overhead sector is labour intensive; it cannot be anything else, India being what it is in respect to population figures.

One may safely conclude, therefore, that the predominance of public services in all the big cities of India is more a symptom of economic under-development than of development.

2.2.1(i) Other Over-head Services :

After the public services transport services are the next most important employer of workers in the over-head services. This is borne out by Table 2.6.

In cities like Calcutta, Bombay and Agra a large proportion of the workforce is engaged in this sector. But this is again indicative of lack of development. In a system in which transport is mechanized and efficient, it tends to become less and less labour intensive. In India, even in the largest of the metropolitan cities we

Table 2.6

Percentage Distribution of Workers in Different Overhead Services in the Metropolitan Cities of India - 1961, 1971
(% are in terms of total tertiary workers)

	Transport in %		Storage in %		Communication in %		Public Service in %		Education in %	
	1961	1971	1961	1971	1961	1971	1961	1971	1961	1971
Calcutta	16.03	17.9	0.17	0.22	1.95	1.7	14.71	11.39	3.63	4.20
Bombay	20.82	17.9	0.24	0.31	2.01	2.08	11.12	12.32	3.34	5.12
Delhi	7.26	11.12	0.06	0.5	1.58	2.6	30.9	23.97	5.58	7.77
Madras	15.87	19.42	0.03	0.03	2.97	1.84	11.82	28.33	5.61	7.45
Bangalore	7.87	19.9	0.001	0.03	1.79	1.82	24.28	21.75	4.98	8.48
Hyderabad	13.03	17.38	0.09	0.02	1.29	1.74	22.65	23.45	5.98	7.43
Nagpur	22.46	20.49	0.14	0.90	3.98	2.28	13.88	18.53	7.93	9.60
Kanpur	14.45	12.58	0.15	0.89	0.80	1.07	24.28	23.77	5.03	7.04
Jaipur	15.56	13.64	0.07	0.04	1.15	2.21	25.19	24.79	5.58	7.70
Lucknow	15.54	17.82	0.03	0.06	2.80	1.31	23.27	26.87	5.60	6.89
Agra	16.69	20.33	0.05	0.07	1.38	1.29	19.73	17.93	4.30	5.74

Source: Census of India, Part II-B(i) & II-B(ii)

find that transport is highly labour intensive. Rickshaws, tongas, cycles, bughies still ply the city streets. Public transport system is efficient only in a few cities of the country.

Storage and communication in almost all the cities considered, are negligible as employers of workers. One reason for this being that these services are less labour intensive.

Educational services are also significant employers of workers and in terms of their relative share, come after transport. This is because there has been a widespread growth of primary education in almost all the metropolitan cities. However higher and technical education is not yet developed sufficiently as is indicated in the table 2.7.

2.2.2. Hypothesis two :

With the economic development urban tertiary activities geared to private consumption and to fulfilling final demand for traditional personal services tend to decrease. They, however, remain a major absorber of tertiary sector workers in cities where avenues for tertiary employment are not commensurate with the pressure for jobs.

Table 2.7

Percentage Distribution of Tertiary Workers in Non-Technical and Technical Education in the Metropolitan Cities of India (1961-1971) (% in terms of total tertiary workers engaged in Education)

City	Technical Education		Non-Technical Education	
	1961	1971	1961	1971
Calcutta	10.04	12.95	89.96	87.05
Bombay	14.76	20.52	85.24	79.48
Delhi	18.80	21.91	81.2	79.09
Madras	15.96	18.33	84.04	89.67
Bangalore	14.77	27.19	85.23	72.81
Hyderabad	9.74	18.81	90.26	81.19
Nagpur	14.52	21.19	85.48	78.81
Kanpur	24.26	30.39	75.74	69.61
Jaipur	6.26	7.53	93.74	92.47
Lucknow	17.51	20.45	82.49	79.55
Agra	5.79	7.70	94.21	92.30

Source: Census of India, Part II-B(i) & II-B(ii)

In the model of the tertiary sector which we have presented in chapter I, it has been shown that the old traditional services occupy a significant proportion of the tertiary workers in the underdeveloped countries. If we take the case of cities in truely underdeveloped economies, as that of colonial India we find that amongst all the personnel services were the largest employer of tertiary workers (refer Table 2.2). The situation has, however, changed in the post-Independence period. From table 2.3 we find that personal services, as employers of tertiary workers, have been relegated to the second position in almost all the metropolitan cities, the first position being captured by overhead services. This trend, is in keeping with the trend, followed by most western countries at the early stages of their development.[9] The table given below (table 2.8) verifies the above statement.

In order to interpret the significance of this change it would be worthwhile to analyse the components of this general group of services. We have divided the personal services into professional and non-professional.

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9. The personal services on the cities of England grew in response to the changing patterns of demand of the emerging industrial bourgoisie, merchants, professional men and bureaucrats.

   Walter Minchinton (1973), "Patterns of Demands" 1750-1914.

Table 2.8

Percentage Distribution of Personal Services in some of the Cities of Western Countries- (1881-1911)

City	1881 ,	1891	1901	1911
London	21.29	18.70	17.05	15.12
Liverpool	14.39	13.43	12.94	11.95
Leicester	13.55	11.97	10.20	8.67
Cardiff	14.58	12.40	11.60	11.39
Southampton	15.92	14.85	13.97	13.94
Swansea	15.86	12.50	11.79	8.92

Source: Census of England & Wales, Vol.I Part II (Tables)

Under the former are included law and medicine and in the latter miscellaneous artisans and domestic services. Out of these two main components, the non-professional ones account for the largest share i.e., about 80% of the total workers are engaged in personal services. The following table brings this out clearly.

The components of personal services are briefly discussed here in the light of the available information.

Table 2.9

Percentage Distribution of Different Components of Personal Services in the Metropolitan Cities of India for the year of 1961-1971 (% age in terms of total tertiary sector workers)

Name of the City	1 Law in %	9 Medicine in %	6 Domestic Services in %	1 Artisan in %	1 Law in %	9 Medicine in %	7 Domestic Service in %	1 Artisan in %
Calcutta	0.69	2.42	19.33	2.93	0.47	2.56	16.78	4.51
Bombay	0.66	2.77	18.48	3.76	0.43	3.15	13.10	6.20
Delhi	0.45	2.49	10.51	2.78	0.40	3.1	7.67	12.88
Madras	0.49	3.22	12.63	2.78	0.32	2.18	6.96	3.68
Bangalore	0.39	2.78	10.60	2.83	0.36	3.03	9.43	4.65
Hyderabad	0.53	2.78	13.64	3.69	0.40	3.22	7.22	6.78
Nagpur	0.47	2.75	10.65	2.87	0.39	2.98	6.02	6.70
Kanpur	0.67	2.05	6.44	3.32	0.49	2.28	4.95	12.40
Jaipur	0.85	3.73	7.19	3.05	0.51	3.41	10.32	6.92
Lucknow	0.73	2.32	10.56	3.68	0.57	2.89	7.83	12.68
Agra	0.80	2.61	4.76	3.66	0.69	2.77	4.88	9.97

Source: Census of India, Part II-B(i) & Part II-B(ii).

2.2.2.(i) Domestic Service :

This activity which during the colonial period engaged a large section of the working population is today on the decline in almost all the metropolitan cities of India, with the exception of Jaipur where it has increased from 7.19% to 10.3%. The exact reason for this trend is unknown, but one may speculate that the royal families must be employing a large domestic workforce. On the whole the number of domestic servants tends to be more in larger cities, perhaps, because the influx of unskilled migrants to these cities is huge and available job opportunities for them are meagre. However, every city has a small army of menials such as bhangis (sweepers), darwans, bawarchis, etc. It is a common practice among the rich families to employ a large number of servants but this tendency is fast disappearing in recent times. Economic historians who have been concerned with the growth of domestic class hold that the number of servants employed is a significant indicator of the "convenient wealth" of a family.[10] But this interpretation does not hold good in underdeveloped countries where due to the high growth of population and low growth of employment, the luxury of indoor services can be afforded very easily as domestic services are some of the most 'open' forms of employment which do not require any skills and which absorb workers of all ages.

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10. Census of England & Wales (1921) "General Report with appendices", p.99.

2.2.2.(ii) Artisan Services :

It is interesting to note that with urban growth the proportion of artisan workers have also increased substantially in the metropolitan cities. These tertiary artisan services are provided in the Indian cities by the darzi, dhobee (laundryman), barber and the cooks who maintain dhabas. Table 2.9 indicates that in almost all the cities the percentage of artisans has increased, i.e., from an average of 3% in 1961 to 8% in 1971. The cities having a high proportion of artisan workers are Delhi, Kanpur and Lucknow. This indicates that non-technical skills are being increasingly acquired by the urban workers who are without formal education.

2.2.2.(iii) Law and Medicine :

These two services have shown very little change in the last decade in their magnitude and the pattern of their distribution. The proportion of lawyers practising is usually less than 1% whereas the proportion of doctors engaged in medical service varies from 2 to 3% between 1961 to 1971.

If we consider the availability of these professional services per thousand population, we find that both law and medicine are not as developed as they should be because these services in the metropolitan areas are expected to serve the hinterland population also. On an

Table 2.10

Components of personal service per 1000 population in the Metropolitan Cities of India - 1961 and 1971

	Law		Medicine		Domestic		Artisan	
	1961	1971	1961	1971	1961	1971	1961	1971
Calcutta	1.77	0.53	6.0	3	49.0	19	8.0	5
Bombay	1.2	8.84	5.0	6	37.0	26	7	12
Delhi	1.1	0.83	5.0	6	24.0	16	6.0	26.0
Madras	0.9	0.47	6.0	4.0	24.0	9	5.	5
Bangalore	0.66	0.64	5	6.0	19.0	17	5	8
Hyderabad	1.0	0.81	6.0	7	29.0	15	8	14
Nagpur	0.8	0.77	5.0	7	18.0	12	5	13
Kanpur	1.1	0.86	3.0	4	11.0	9	6	22
Jaipur	1.77	0.98	7.0	15.0	20	6	13	-
Lucknow	1.5	1.19	7.0	6	21.0	15	7.0	25
Agra	1.55	1.3	5.0	5	9.0	8	7.0	20

Source: Census of India, Part II-B(i) & Part II-B(ii).

average there is only one lawyer and 5 doctors available per thousand population.

Amongst the non-professional services there has been a tendency for the domestic servants to decrease (from 23/1000 population in 1961 to 14/1000 population in 1971) and for the artisans to increase (from 6/1000 population in 1961 to 15/1000 population in 1971). Table 2.10 shows this trend.

This is an encouraging trend because it indicates that there has been a considerable shift of some tertiary workers from less remunerative and purely non-productive domestic jobs to more remmunerative occupations.

2.2.3 Hypothesis Number Three :

A significant proportion of the tertiary sector workers are unskilled and semi-skilled and are engaged in activities which are labour intensive.

Semi-skilled and unskilled workers form the largest proportion of the total tertiary workers in the metropolitan cities of India. In 1961, on an average 64% of the total workers in tertiary sector were found either in semi-skilled or unskilled type of activities as against 32% in the skilled sector (see Fig. 6). The proportions were more or less the same in the first order and second order

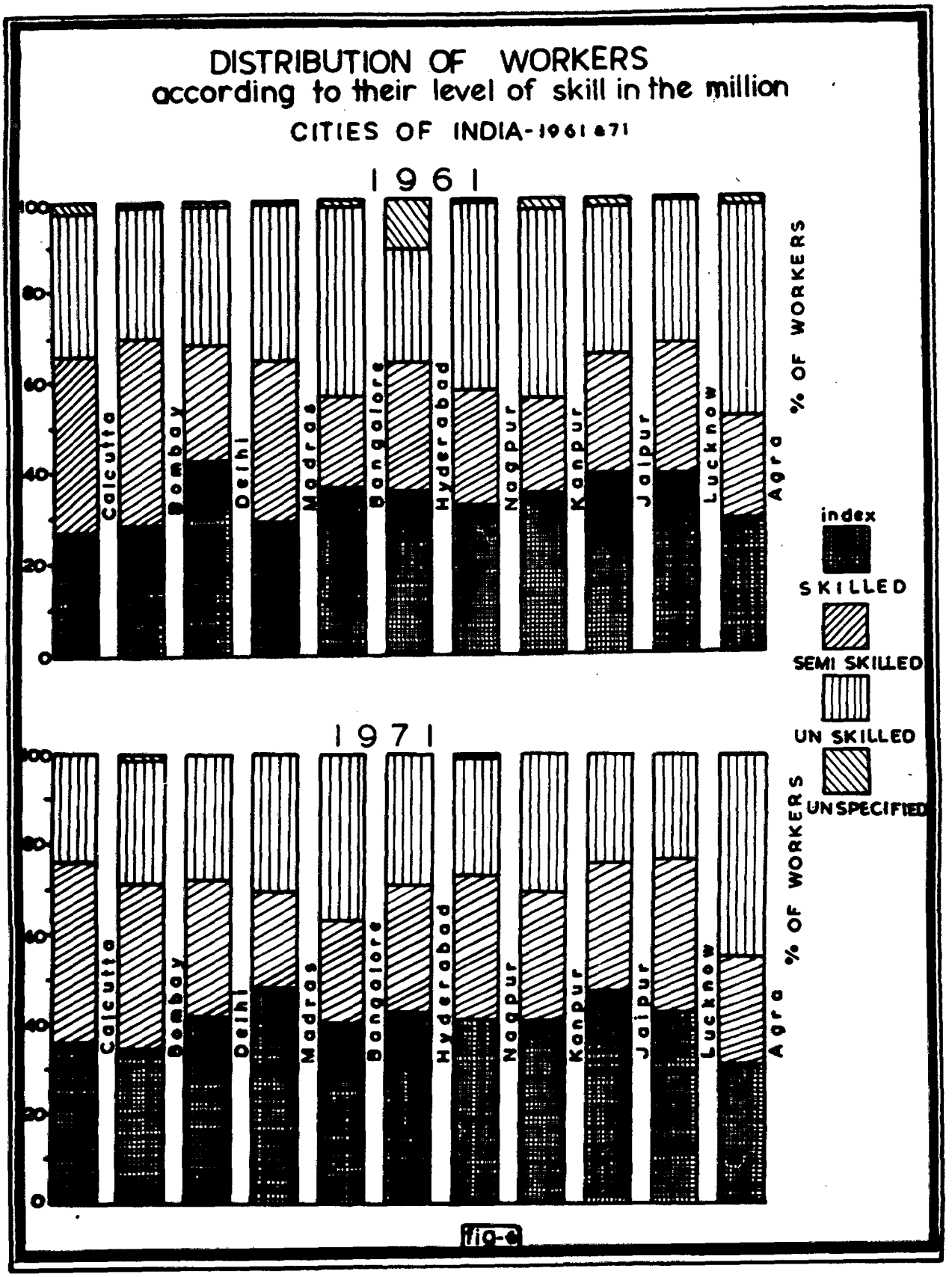
DISTRIBUTION OF WORKERS
according to their level of skill in the million
CITIES OF INDIA-1961 & 71
1961
1971
% OF WORKERS
100
80
60
40
20
0
Calcutta
Bombay
Delhi
Madras
Bangalore
Hyderabad
Nagpur
Kanpur
Jaipur
Lucknow
Agra
index
SKILLED
SEMI SKILLED
UN SKILLED
UNSPECIFIED

fig-6

metropolitan centres. Most of these semi-skilled and unskilled workers were 'concentrated in mainly two sectors viz., distributive services (specially in retail trade) and in non-professional personal services (domestic and artisan). This has been proved by taking the efficiency index into consideration.

The most obvsious reasons for the activities in the retail trade to thrive in the Third World cities are the simplicity and flexibility of its operations. In other words these activities have a large potential for absorbing more and more hands. These activities are flexible to the extent that they offer scope to the persons engaged in them to adapt or even change their business in accordance with the fluctuation of market trends or the seasonal requirements of the customers. Taking for example, the peddlers and hewkers. They require little capital, no previous experience and no specialised skill to enter the job market. The same flexibility characterizes most of the personal services.

In this respect one vivid distinction between trends in the cities of the developed countries and those of the third world is noticiable. In the former, trading and distributive practices absorb a large share of the skilled and semi-skilled workers, but since the purchasing power

of the people is very high, the wholesale trade flourishes leading to positive economic growth and development. This is highlighted in Alexander's studies of the developed cities of the west.[11]

Santos[12] (1977) study of the Third World countries, on the other hand gives an idea that in these cities retail trade absorbs bulk of the semi-skilled and unskilled workers which obviously is an impediment to economic development.

To quote Santos :

> "In Urban areas where the number of wage earners civil servants and professionals is small, modern trade is of very little importance".13

Coming to the distribution of these workers according to their level of skill, it is encouraging to note, however, that within the decade 1961-71, there has been an appreciable increase in the percentage of skilled workers (from 32% to 40%) engaged in the tertiary sector (see Table 2.11).

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11. Alexander, D. (1970), Retailing in England during the Industiral Revolution, London.
12. Milton Santos (1977), Spatial Dialects: The two Circuits of Urban Economy in Underdeveloped Countries, Antipodi, Vol.9, no.3, p.53.
13. Santos, op.cit. fn. 12.

Table 2.11

Level of Skill of Tertiary Sector Workers in the Metropolitan Cities of India for the year 1961 and 1971
(%age in terms of total tertiary industry)

	Skilled		Semi-skilled		un-skilled	
	1961	1971	1961	1971	1961	1971
Calcutta	27.13	35.59	38.76	39.95	32.29	24.46
Bombay	28.60	34.94	41.29	35.44	29.48	29.29
Delhi	43.54	42.34	25.01	30.42	30.58	27.24
Madras	29.61	48.62	35.42	20.97	34.81	30.41
Bangalore	36.80	40.39	20.33	23.89	41.21	35.72
Hyderabad	35.65	42.95	28.25	27.72	25.79	29.33
Nagpur	32.71	41.24	25.47	32.04	41.819	26.71
Kanpur	35.04	40.76	21.10	28.55	41.66	30.69
Jaipur	39.84	47.61	26.37	27.36	32.63	25.03
Lucknow	39.68	43.09	27.96	34.26	32.22	22.65
Agra	29.67	30.39	22.39	24.92	46.77	44.69

Source : Census of India, Part II-B(1) & Part II-B(11)

We can correlate this growth of level of skill in the tertiary sector with the fact that most scientific and technological changes have a bearing on the occupational structure. In the post-independence period there has been a phenomenal increase in the scientific activities and a steady expansion of educational facilities. This growth of skilled workers hence implies that the white collar jobs have of late, acquired a greater potential for absorbing skilled workers, though, as we have observed earlier, this is not necessarily indicative of economic development. One may, therefore, conclude that the recent trend which indicates an increase in the skilled workers in almost all the metropolitan cities is self-defeating.

2.2.4 Hypothesis Four :

A significant proportion of the tertiary sector workers are engaged in non-productive unspecified occupation.

Unspecified activities, include the activities of such individuals who fail to provide sufficient information about their industrial affiliation to enable them to be classified.

In 1961 a sizeable proportion of the urban tertiary workers were enumerated in activities which could be

considered a garb for unemployment. Friedmann[14] (1974) has rightly defined these activities as the "holding sector" of the urban economy. It is a fluid category which has workers drifting in and out all the time. This category of the Indian census includes a multitude of people performing multiferious kinds of petty occupations. Due to the lack of information about these activities in the census it is assumed that, like in the Imperial Census, the inmates of jails, prostitutes, beggers, general labour etc. are included in this sector.

The table 2.12 given below shows the distribution of unspecified workers in 1961 and 1971.

The table indicates that ;

i) there was a predominance of unspecified workers in 1961 in all the cities except Bombay and Nagpur.

ii) the picture has changed in 1971 and only Bombay and Nagpur continue to have a small share of the unspecified workers. But this reduction in the propositions is more apparent than real because of the change in the census definition.

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14. John Friedmann and Flora Sullivan, (1974), The absorption of labour in the Urban Economy. The Case of Developing Countries, Economic Development and Cultural Change, Vol.22, no.3, p.486.

Table 2.12

Percentage of Unspecified activities to the total tertiary work force in the eleven metropolitan cities of India 1961-1971

	Unspecified workers	
	1961	1971
Calcutta	5.60	-
Bombay	3.15	0.34
Delhi	9.33	-
Madras	13.41	-
Bangalore	18.20	-
Hyderabad	12.07	-
Nagpur	2.53	0.001
Kanpur	9.24	-
Jaipur	11.64	-
Lucknow	7.88	-
Agra	11.74	-

Source: Census of India, Part II-B(i) & II-B(ii)

2.3 Characteristics of Tertiary Sector

2.3.1 Efficiency Index :

This has been calculated for all the tertiary functions in the metropolitan cities in terms of the metropolitan average. The index has been calculated both for 1961 and 1971. The method for calculating the efficiency index is as follows.

i) Suppose the % of skilled, semi-skilled and unskilled workers engaged in a particular metropolis for all metropolis taking together is X,Y and Z.

ii) The crude form of will be, X, X+Y and X+Y+Z (or 100)

iii) 100 is divided by these values to standardise then. The new values will be $\frac{100}{X}, \frac{100}{X+Y}$ and $\frac{100}{X+Y+Z}$ (or 1).

iv) Since a skilled worker can perform the work of a unskilled as well as a semi-skilled, similarly, a semi-skilled worker besidesthe work of semi-skilled, can perform the work of an unskilled. So the crude weightage for

a) skilled workers is = $\frac{100}{X} + \frac{100}{X+Y} + 1$

b) for semi skilled in $\frac{100}{X+Y} + 1$

c) for unskilled = 1

v) The actual weightage for a skilled one now is

$= \frac{100}{X} + \frac{100}{X+Y} + 1 \quad / \quad \frac{100}{X} + \frac{100}{X+Y} + 1 = 1$

for semi-skilled = $\frac{100}{X+Y} + 1 \quad / \quad \frac{100}{X} + \frac{100}{X+Y} + 1$

for unskilled = $1 \quad / \quad \frac{100}{X} + \frac{100}{X+Y} + 1$

vi) These weightages have been a multiplied with the proportions of skilled, unskilled and semi-skilled workers of a particular sector of a given city.

vii) These multiplication values are added together to give an index of efficiency for a particular sector.

The efficiency index varies between 0 to 100[15] value nearest to "100" denotes high efficiency, whereas value nearer to "0" denotes poor efficiency, (fig. no. 7).

The values of the efficiency index are given in table 2.13. On the basis of the table we can conclude that :

i) in 1961 only the social overhead activities were having a very high index of efficiency. Other sectors were showing either a very low value or "100" indicating the dominance of a particular type of skill.

ii) the picture haschanged quite substantially in 1971, though overhead services had a very high index it is closely followed by personal and community services which have a medium efficiency index. Amongst all these, the least values are in the retail trade. In both the decades it had a very low index value.

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15. Sector, where a particular type of skilled workers are predominent, have been given index value as "100".

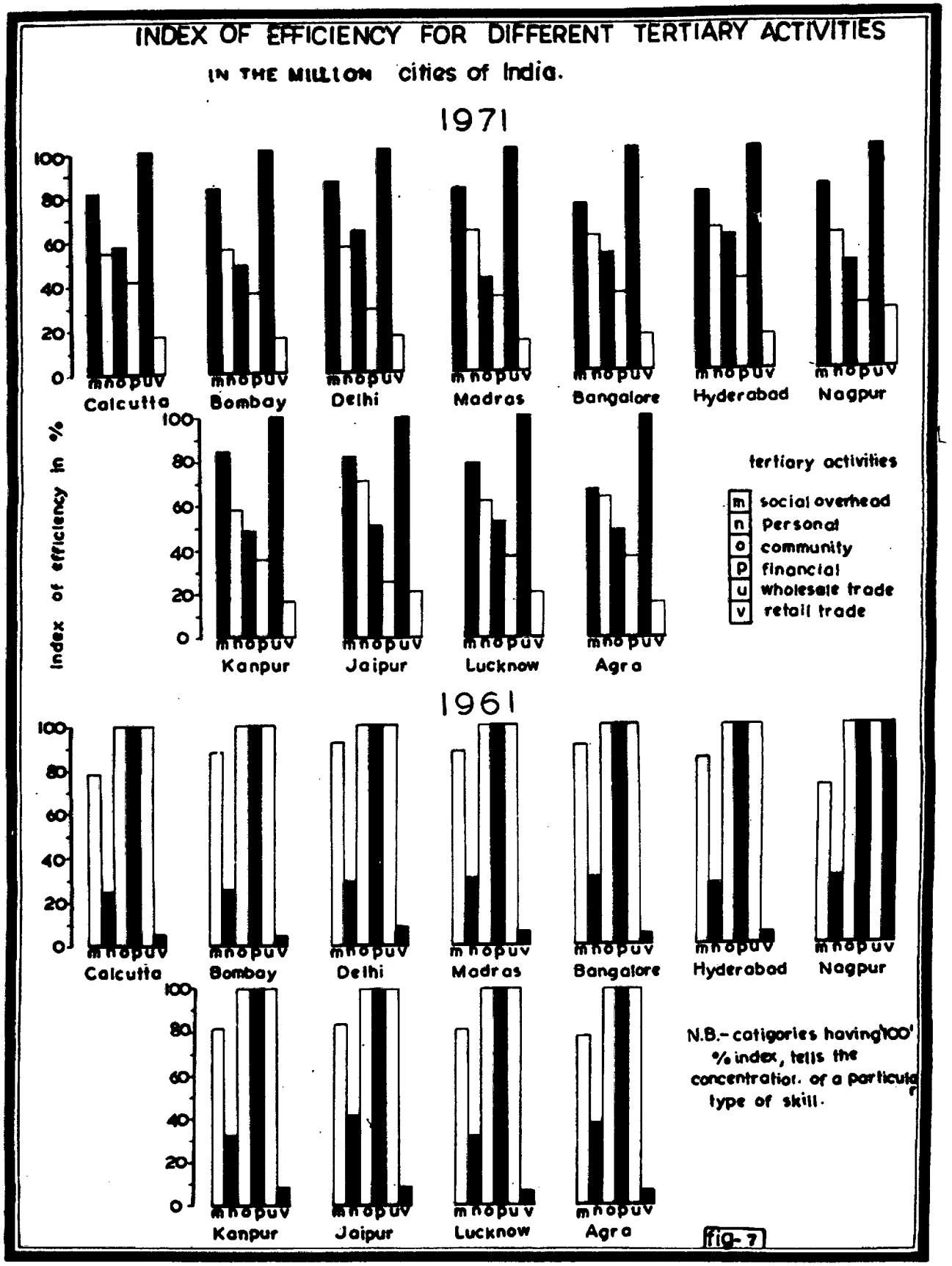

INDEX OF EFFICIENCY FOR DIFFERENT TERTIARY ACTIVITIES
IN THE MILLION cities of India.
1971
1961
Index of efficiency in %
100
80
60
40
20
0
m n o p u v
Calcutta
Bombay
Delhi
Madras
Bangalore
Hyderabad
Nagpur
Kanpur
Jaipur
Lucknow
Agra
tertiary activities
m social overhead
n personal
o community
p financial
u wholesale trade
v retail trade
N.B.- catigories having '100' % index, tells the concentration of a particular type of skill.
fig-7

Table 2.13

Efficiency Index of Different Sectors of Tertiary Occupations in the Metropolitan Cities of India 1961 - 1971

	Social overhead		Personal services		Community Services		Financial Services		Distributive services in whole sale trade		Distribtive services in retail trade	
	1961	1971	1961	1971	1961	1971	1961	1971	1961	1971	1961	1971
Calcutta	78.44	80.24	24.58	55.21	100.0	55.41	100.0	42.46	100.0	100.0	4.82	16.13
Bombay	87.84	82.4	25.26	56.31	100.0	49.78	100.0	35.99	100.0	100.0	4.10	15.10
Delhi	91.99	85.63	29.63	56.06	100.0	64.12	100.0	28.56	100.0	100.0	9.27	16.92
Madras	87.73	82.36	30.02	61.1	100.0	42.31	100.0	34.36	100.0	100.0	7.02	14.92
Bangalore	90.45	75.7	30.08	60.54	100.0	53.53	100.0	34.02	100.0	100.0	4.56	15.42
Hyderabad	84.3	79.9	27.81	63.64	100.0	60.96	100.0	41.36	100.0	100.0	4.67	15.80
Nagpur	73.13	81.9	30.04	60.01	100.0	48.96	100.0	23.85	100.0	100.0	100.0	15.0
Kanpur	81.43	84.39	32.01	57.85	100.0	48.49	100.0	35.04	100.0	100.0	7.85	15.96
Jaipur	84.52	81.83	40.59	70.8	100.0	49.61	100.0	29.1	100.0	100.0	9.40	20.23
Lucknow	82.39	79.26	33.06	60.57	100.0	51.65	100.0	36.17	100.0	100.0	7.13	19.81
Agra	78.66	66.92	38.13	64.96	100.0	48.26	100.0	36.32	100.0	100.0	5.72	15.87

Source: Census of India, Part II-B(i) and Part II-B(ii).

2.3.2 Participation Rate: Male/Female :

The proportion of female participation rate in all the cities in all the activities of tertiary sector is given in table 2.14, and (fig. 8a & 8b). From this table we can conclude that;

i) The average female participation rate in all the tertiary activities is quite low. The only exception is Nagpur, where in personal services, there are 889 females for 1000 working males.

ii) An interesting thing to note is that, all cities except Lucknow have a higher share of female workers in social and economic over head services. The most important is Madras, which has420 females for 1000 working males.

iii) In the case of personnel services the rate of female participation has decreased, except in Bombay and Nagpur, where it has shown an increase.

iv) The rate of female participation in community services has increased except in the city of Madras, Nagpur, Jaipur and Agra.

v) The rate of female participation is not very high in all forms of distributive activities.

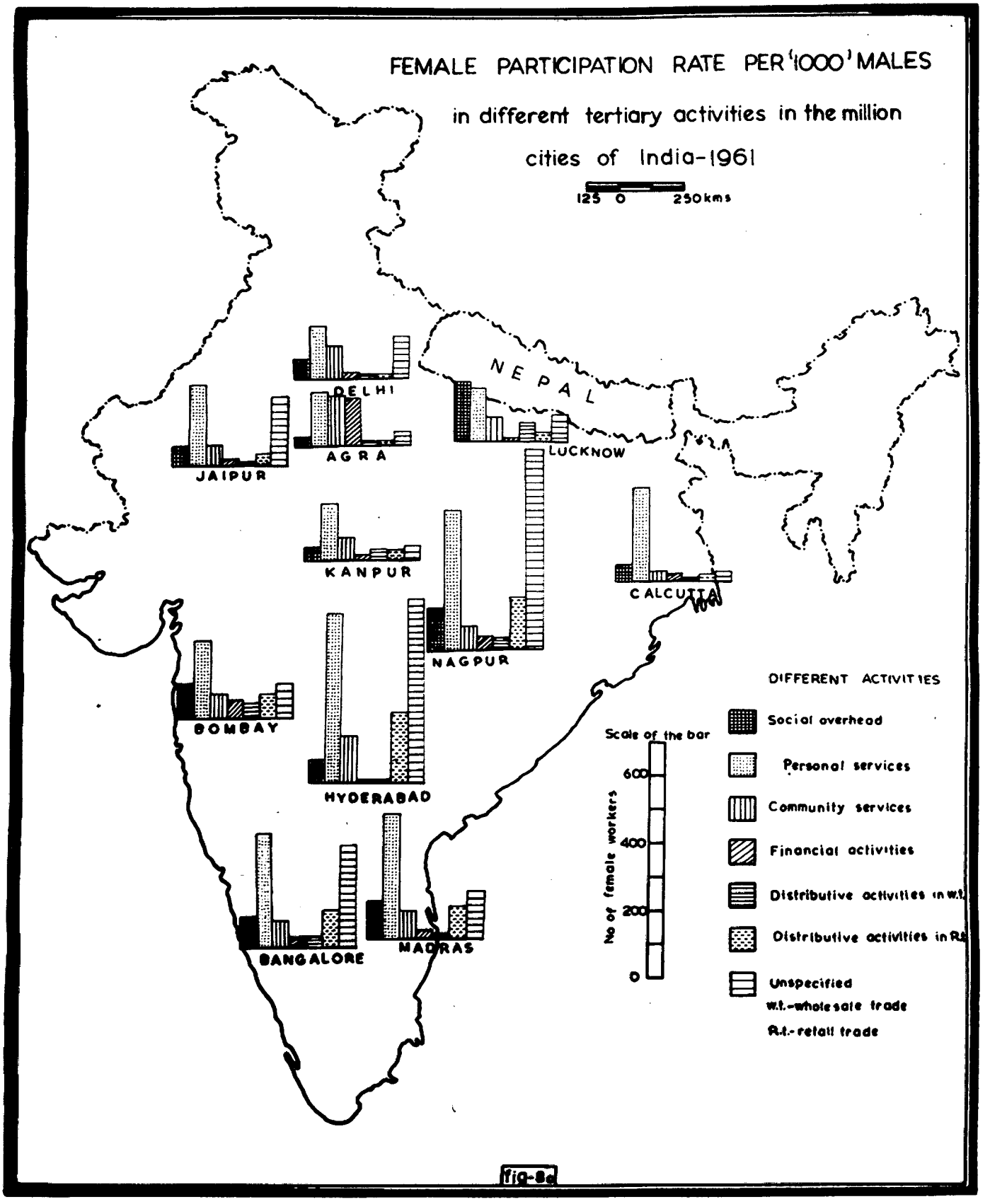

FEMALE PARTICIPATION RATE PER '1000' MALES
in different tertiary activities in the million cities of India-1961
125 0 250kms
NEPAL
DELHI
AGRA
JAIPUR
LUCKNOW
KANPUR
CALCUTTA
NAGPUR
BOMBAY
HYDERABAD
BANGALORE
MADRAS
Scale of the bar
No of female workers
600
400
200
0
DIFFERENT ACTIVITIES
Social overhead
Personal services
Community services
Financial activities
Distributive activities in w.t.
Distributive activities in R.t.
Unspecified
w.t.-wholesale trade
R.t.-retail trade

fig-8a

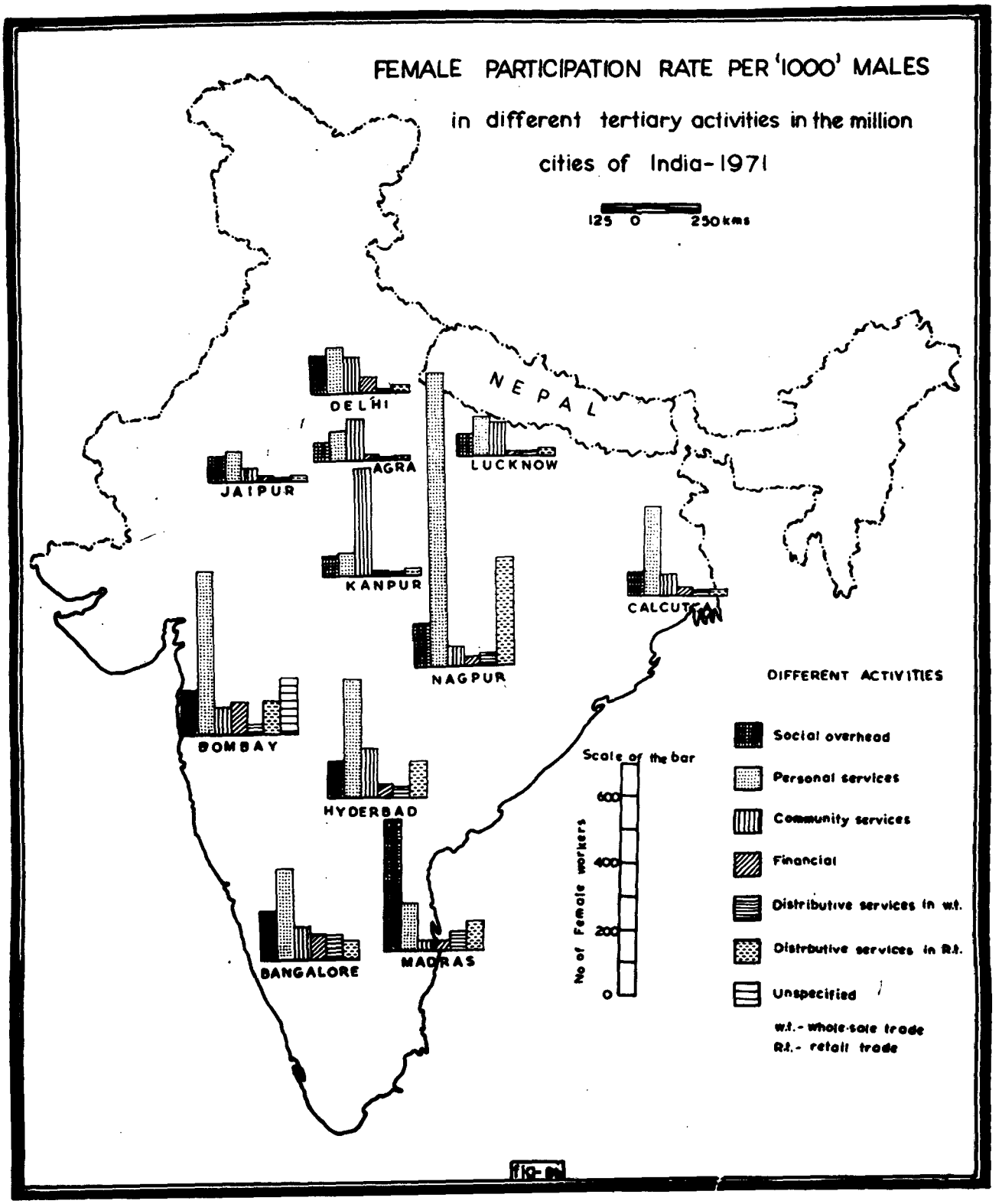

FEMALE PARTICIPATION RATE PER '1000' MALES
in different tertiary activities in the million cities of India-1971
125 0 250kms
NEPAL
DELHI
AGRA
JAIPUR
LUCKNOW
KANPUR
NAGPUR
CALCUTTA
BOMBAY
HYDERBAD
BANGALORE
MADRAS
Scale of the bar
No of Female workers
600
400
200
0
DIFFERENT ACTIVITIES
Social overhead
Personal services
Community services
Financial
Distributive services in w.t.
Distributive services in R.t.
Unspecified
w.t.- whole-sale trade
R.t.- retail trade

Table 2.14

Participation of Female in Different Sectors per 1000 male in the Metropolitan Cities of India 1961 - 1971

	Cal-cutta	Bombay	Delhi	Mad-ras	Banga-lore	Hydera-bad	Nag-pur	Kan-pur	Jai-pur	Luck-now	Agra
Overhead	48	99	64	110	90	75	133	38	54	179	29
Personal	278	229	132	360	342	516	410	179	246	156	161
Community	32	72	98	85	84	140	75	69	56	71	173
Financial	24	54	19	25	330	12	37	10	19	14	165
Wholesale trade	10	37	6	15	32	13	37	27	9	52	12
Retail Trade	17	73	13	95	111	210	163	28	35	32	15
Unspecified	31	103	130	143	301	503	890	442	198	83	44
					1971						
Overhead	67	135	116	420	152	114	135	65	87	72	57
Personal	261	494	138	149	279	363	889	68	91	120	97
Community	60	82	109	33	101	150	66	322	43	101	127
Financial	25	96	51	32	83	38	32	4	18	13	19
Wholesale trade	7	32	15	57	78	30	39	1	6	5	4
Retail trade	15	101	21	92	61	115	332	15	23	27	11
Unspecified	-	171	-	-	-	-	-	-	-	-	-

Source: Census of India, Part II-B(i) & Part II-B(ii).

vi) Coming to the financial activities, the proportion of female to 1000 male is significantly low. On an average, in all the metropolitan centres (except Agra) there were 25 female workers engaged in the financial activities per 1000 males in 1961. In Agra this number was substantially high (165). No significant change has taken place in the situation in 1971. Except for Bombay and Bangalore the average for other 9 centres is the same in 1971 i.e. 25. In Bombay and Bangalore it is 96 and 83 respectively. An interesting thing to note is that the female workforce engaged in financial activities has increased in the first six metropolitan centres whereas it has decreased in the rest. This is due to a large recruitment of women in Banks and allied institutions.

vii) Female work force which was having a larger share in the participation ratio in the unspecified activities has decreased quite substantially or has become almost negligible in all the cities, except Bombay, in the year of 1971.

viii) On the whole, we can conclude that the female participation rate per 1000 males in the tertiary sector is taking a positive trend in the first order

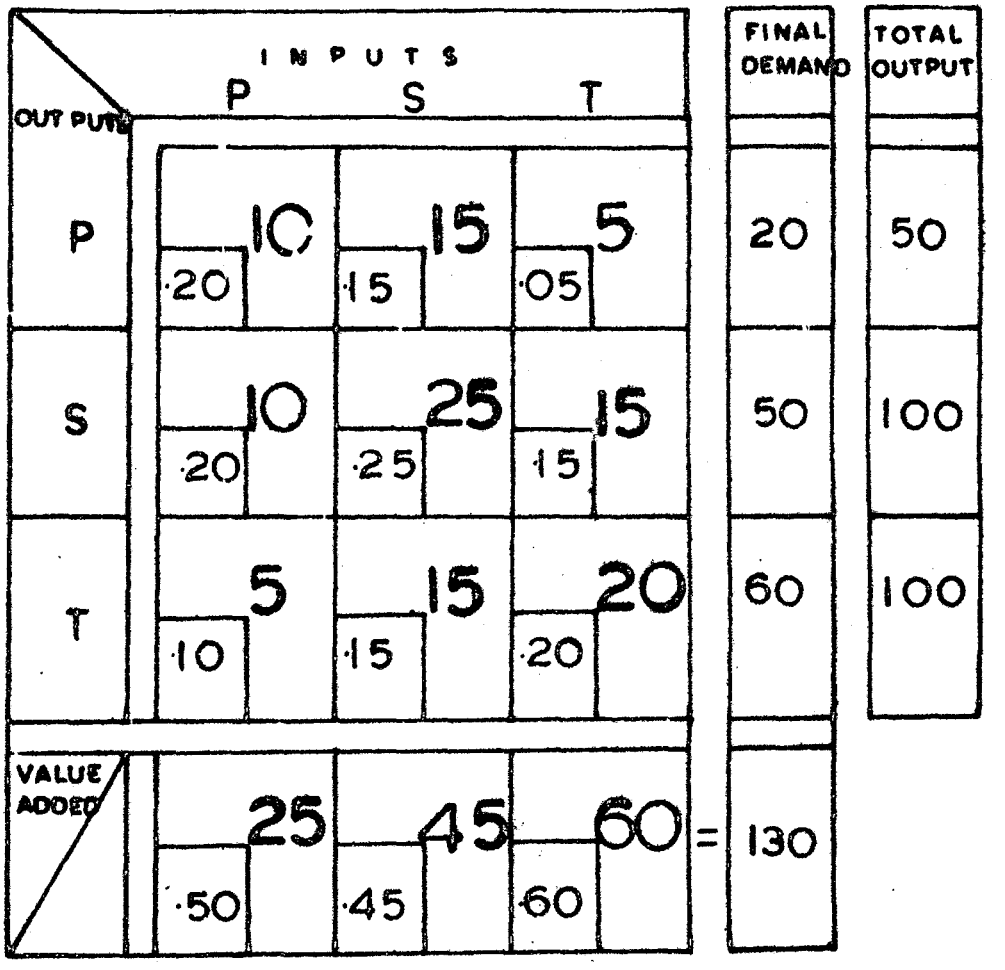
metropolitan centres and is taking a negative trend in the 2nd order metropolitan centre.

2.3.3 Hypothetical Input-output Model Indicating the Relationship Between the three Sectors of the Urban Economy :

A current method evolved for the sectoral analysis of urban centres involves the use of an input-output model which enables us to follow the backward and forward linkages between sectors within a region. It is so called because it constitutes a statement, in a tabular form, of what inputs from any sector in the table are required by another sector to produce a unit of output.

This hypothetical table tells us two things about each sector, namely (i) where each sector obtained its inputs e.g., what inputs the primary sector required from the secondary and tertiary sectors, (ii) and where the outputs of each sector went. For example, how much of the output of the primary sector went as inputs to the secondary and tertiary sector. A hypothetical input-output table is constructed in fig. 9. Here the urban economy has been broken down into a simple three sector system. Figures in big letters are arbitary value units, e.g. crores of rupees. Across each row the figures show where the outputs of a sector go, that is, to its own and to other sectors (called intermediate outputs), plus

SECTOR FLOWS SHOWN IN INTERSECTORAL INPUT OUTPUT CHART



P PRIMARY SECTOR
S SECONDARY SECTOR
T TEPTIARY SECTOR

fig-9

its deliveries of final products. These add upto the sectors total output, given in the last column.

The inputs to each sector from other sectors are shown down each column. These inputs, together with the sector's value added (largely the cost of its labour inputs, wages and profits) must be equal to the value of the sector's total output. The total final demand (130 value units) gives the gross national product of the system, which equals the total of the value-added of all sectors.

Input-output coefficients (small figures in the corner boxes) show the value of inputs required for each per rupee worth of output. These are obtained by calculating the ratio of the value of inputs from any sector to the total output of a given sector. This coefficient must of course, equal to one (1) for each sector.

In the table the first set of information (inputs from) is found by reading the values down the column under the heading "Primary sector." The second set of information (outputs to) is obtained by reading across the row marked "primary sector." Thus the table specifies the relationships between sectors in a quantitative form. For further analysis we need to add a further column on the extreme right of the table "final demand" because the primary industry would also send some of its outputs to consumers for their final use.

One further addition is required. We have in our table inputs to primary sector from secondary sector (e.g. machinery and appliances) and from the tertiary sector (e.g. finance and insurance). However, it requires labour inputs also. Therefore we must add an additional row marked "value added" to tell us the labour inputs to each of the three producing sectors.

This simple table can tell us many things. For example, if we have an increase in the final demand we can obtain, the quantum of increases in employment and expansion in other sectors.

2.4 Conclusion :

The growth of the tertiary sector to a position of dominance within the economy of Indian cities is not associated with economic growth and development, as is the case of advanced countries. Rather it is a symptom of economic stagnation or under development.

On the basis of the analysis in this chapter the following conclusions can be stated.

i) Tertiary sector hascome to a point of crystalization in the Ist order metropolises or the primate cities of India and is declining in these cities whereas it is increasing in the 2nd order metropolitan centres.

ii) Services pertaining to "social over head" have developed significantly in the cities. Next in importance to these are the professional and non-professional services and retail trading activities. Other services such as wholesale trade, financial as well as community services have developed only marginally. This trend is not indicative of development.

iii) The traditional personal services remain a major absorber of tertiary sector workers in the metropolitan centres of India. They are, however, on the decrease and have shown a negative trend in some metropolitan centres between 1961-71.

iv) The level of skill in the tertiary sector is not of a high order. A significant proportion of the tertiary sector workers are unskilled and semi-skilled and are engaged in activities which are labour intensive. Skilled workers are found in significant proportion only in social overhead services. The level of skill has, however, improved with the passage of time.

v) Substantial proportion of the tertiary sector workers are engaged in non-productive and unspecified occupations.

vi) The efficiency index is highest in social overhead services. This is closely followed by personal services and community services.

vii) The female participation rate per 1000 male workers in the tertiary sector is taking a positive trend in the Ist order metropolitan centres whereas it is taking a negative trend in the second order metropolitan centres.

It may therefore be concluded from the above discussion that the process of tertiarization in the metropolitan centres of India is not a sign of adaption to development but is indicative of stagnation and decay associated with under development. This sector may be characterised as a parasite feeding on the host of a distorted and imbalanced urban economy. It's growth remains disfunctional in relation to the process of economic development.

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C H A P T E R - III

CONCENTRATION AND DIVERSIFICATION OF THE TERTIARY ACTIVITIES IN THE METROPOLITAN CITIES OF INDIA

(Intra-city and Inter-city variance)

3.1 Methodology for a functional analysis of the city

3.2 Location Quotients

3.3 The tertiary activities in the metropolitan cities of India

3.4 Intra-city variance in the tertiary activities

- 3.4.1 Calcutta
- 3.4.2 Bombay
- 3.4.3 Delhi
- 3.4.4 Madras
- 3.4.5 Bengalore
- 3.4.6 Hyderabad
- 3.4.7 Nagpur
- 3.4.8 Kanpur
- 3.4.9 Jaipur
- 3.4.10 Lucknow
- 3.4.11 Agra

3.5 Inter-city variance in the tertiary activities

- 3.5.1 Administrative or governmental activities
- 3.5.2 Educational services
- 3.5.3 Transport, storage and communication
- 3.5.4 Professional and non-professional personal services
- 3.5.5 Community Services
- 3.5.6 Financial services
- 3.5.7 Distributive activities
- 3.5.8 Unspecified

3.6 Coefficient of localization

3.7 Conclusions

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The main purpose of this chapter is to study the concentration and diversification of different tertiary functions in different metropolitan centres of India. This has been done with the help several statistical techniques such as location quotient, lorenz curve and localization index of different tertiary functions. The analysis is attempted at two levels. At the first level the tertiary sector of individual metropolitan centres has been analysed; at the second level, the changes in the structure of a particular tertiary function in a particular metropolis hasbeen considered in terms of the other metropolitan centres. This analysis gives us a picture of the inter and intra city variation and changes that are taking place in the tertiary functions of the metropolitan centres.

3.1 Methodology for a functional analysis of the City :

An important field of study in urban geography comprises of the explanation of the distribution and structure of the urban functions. This theme hasbeen investigated within a number of conceptual frameworks including central place theory and the urban economic base. It can be safely stated that the geographical study of urban functions is well accommodated within these two frameworks. At the outset a distinction should be made between quali-

tative and quantitative approaches in order to seperate methods which use precise numerical data from those which are purely descriptive. Out of all the qualitative classification schemes, Aurousseau's[1] is the most systematic. Through a method which must have been a combination, of general observation and logical deduction, Aurousseau postulated six urban functions : administration, defence, culture, production, communication and recreation. He noted that while a combination of these functions were performed by any given city, one function usually tended to overshadow the rest. A similar approach, with a marked emphasis on the evolution oftowns and the importance of physical site factors, has been adopted by several subsequent workers, although Trewartha's[2] discussion of the functions of Chinese cities use fewer categories and Hance's[3] recent study of tropical African cities relates function explicity to location.

The basic weakness of this approach is encountered when one tries to decide, from general observation, whether a particular town belongs in one category or another; but

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1. M. Aurousseau, The distribution of population (a constructive problem), Geographical Review of India, Vol. 11, 1921, pp. 563-92.
2. G.T. Trewartha, Chinese cities: Origins and functions Anns of Asso. of American Geography, Vol.42,1952, pp. 69-93
3. Hance, Tropical African cities, Geographical Review of India, Vol.59, pp.392-407.

in all fairness it should be noted that when precise data are not available there is simply no alternative to this approach.

Studies employing quantitative standards of classification are far more numerous. On the assumption that the occupational or industrial structure of a town's labour force reflects those economic, political and social activities in which the residents of the town engage, industry employment or occupational data have been manipulated in various ways to establish groups of towns with similar functional specializations. "Specialization" implies an amount or proportion of the labour force in a given industrial category which exceeds by a certain margin, some predetermined minimum level.

From different types of studies we can illustrate admirably three different methods of selecting threshold values for a classification, on the basis of

1. the occupational structure of well defined types of cities;
2. arithmatic means or some other statistically defined quantity; or
3. arbitary quantities, often, though not always 50%.

In the first method, functional specialization is identified by a concentration of the labour force in

a particular employment or occupational category. Harris[4] gave certain suggestion in this regard.

The use of arithmatic mean or other statistically defined quantities is appealing because one tends to feel that such quantities supposedly are representative of the "average" or "normal" city and their use is valid beyond dispute. Indeed, in an examination of some essentially structural characteristics of the labour force of the towns in the Netherlands. Steigenga[5] claimed that only the average or total of the whole urban society can be used as a measure of comparision.

Watanable[6] was equally insistent that "an essentially common" or average functional structure of urban settlements should not be assumed. However, many writers have interpreted an above average concentration of the labour force in one industry category as indicative of functional specialization. In some studies, dispersion measures have been employed to identify non significant

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4. C.D. Harris, A functional classification of cities in the United States. Geographical Review, Vol.33, 1943, p.88.

5. Steigenga (1965), Structural characteristics of labour force of the Netherlands. Annals of the Association of American Geographer, No.55, 1965, pp.239-252.

6. Y. Watanable (1961), An analysis of the function of urban settlements based on statistical data (A functional differentiation vertical and lateral). Geography, Vol.10, pp.63-72.

variations above and below the average. This is, of course, a disirable refinement, but deviation measures frequently involve assumptions about the nature of the distribution of the values to which they are applied. Still other classification identify specialization by the use of medians, quartiles or deciles, thus relying more on the rank order of the array of values regardless of their size.

One of the simplest methods of finding out the concentration of functions in a city is to use location quotients.

3.2 Location Quotients :

The relative specialization of a given city in terms of a few selected tertiary activities can be measured by location quotients (L.Q.). Here employment has been chosen as the unit of measure so the workforce in a given activity in a city is related to an aggregate workforce of the same activity (by taking all metropolitan cities together) by means of a simple ratio. The ratios of the city and all cities taken together are compared by means of another ratio. Hence Location Quotients is simply a ratio of ratios.

Location Quotients of different tertiary groups are worked out as follows.

$$\text{Location Quotients} = \frac{ei^d / e^d}{Ei/E}$$

where

ei^d = employment in a given function in the metropolis.

e^d = aggregate functional (given) employment in all the metropolitan cities.

Ei = aggregate employment in a given sector at the all cities level. (all metropolitan cities taking together as the norm).

E = aggregate tertiary employment in all the metropolitan cities.

i = 1 .... n tertiary groups in the city.

d = different metropolitan cities taken (1 .... 11)

The values of L.Q. are interpreted as under :

when

L.Q. > 1 : Then the city is more specialized in that particular activity compared to the average metropolitan structure.

L.Q. < 1 : Then the city is relatively less specialised in a given activity as compared to the average metropolitan structure.

L.Q. = 1 : The city as well as all cities taken together are specialised to an equal degree in the case of a given activity

After the L.Q. value are obtained they are ranked in order to get a comparative picture of a particular activity, at two points of time. The L.Q. values are also used to draw the Lorenz[7] curve so that a more comprehensive understanding of the concentration and diversification of the tertiary activities can be obtained.

3.3 The Tertiary Activities in the Metropolitan cities of India :

The Location Quotient for the tertiary activities in the metropolitan cities of India is shown in table 3.1 and 3.2. The Lorenz curves for the 11 metropolitan centres for the two points of time show a more or less identical pattern.[8]

From Fig. 10a to Fig. 10b we can see that Calcutta has a concentration of certain activities, i.e., it is specializing in these activities, whereas Bombay is more diversified. Out of eleven cities, Delhi and Nagpur do not exhibit any change between 1961 and 1971. Madras, Hyderabad, Kanpur and Lucknow are showing signs of specia-

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7. B.J.L. Berry (1966), Spatial Analysis, Lorenz Curve, pp.129-132.

8. It is well known that as the curve, comes closer towards the diagonal line, it indicates a diversification of the activities. On the contrary, when the curve moves away from the diagonal line, it is indicative of the concentration of certain activities, which means the region is specializing in certain activities.

LORENZ CURVE

Showing the distribution of 'Tertiary activities' in

THE MILLION CITIES OF INDIA - 1961

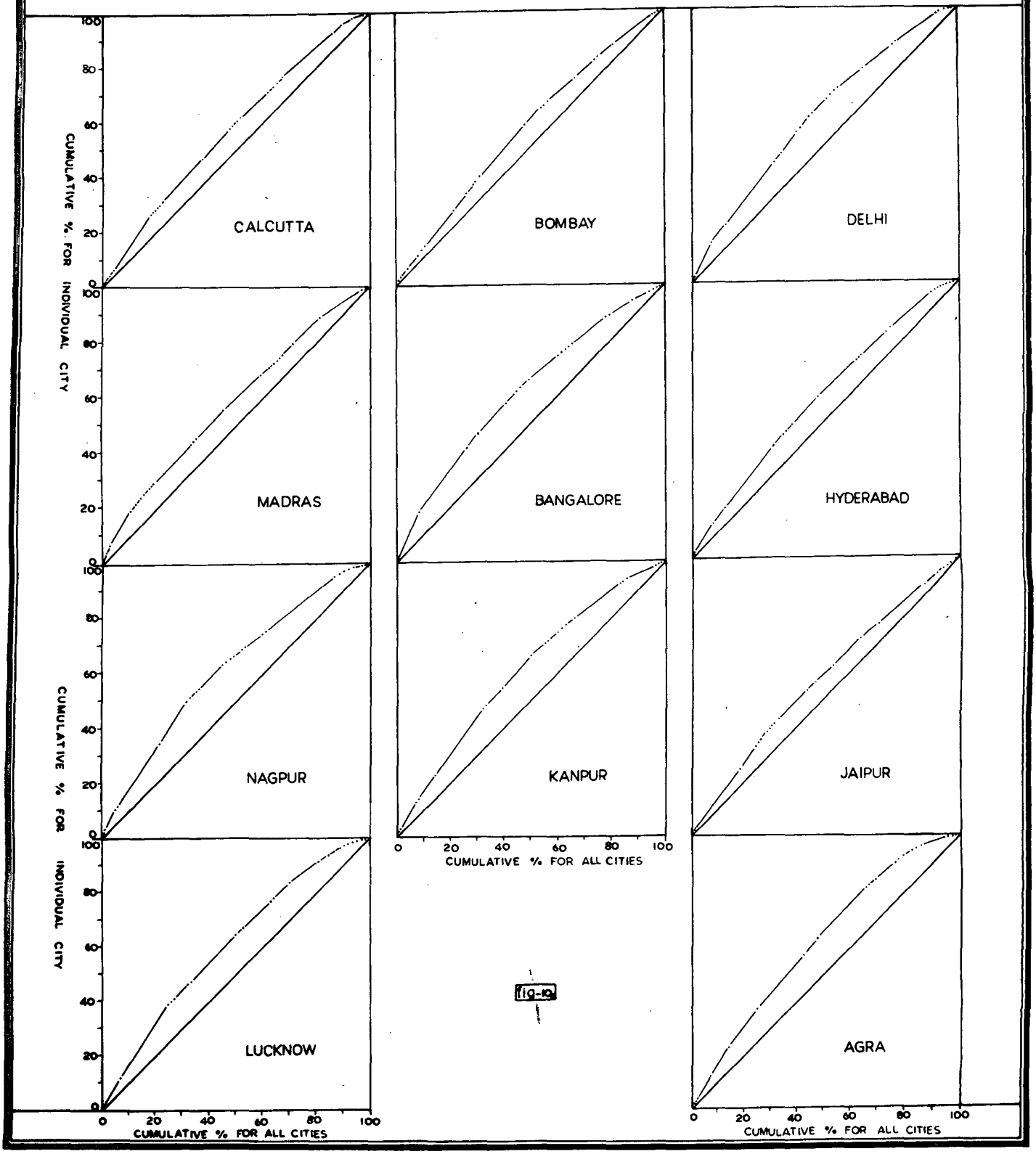
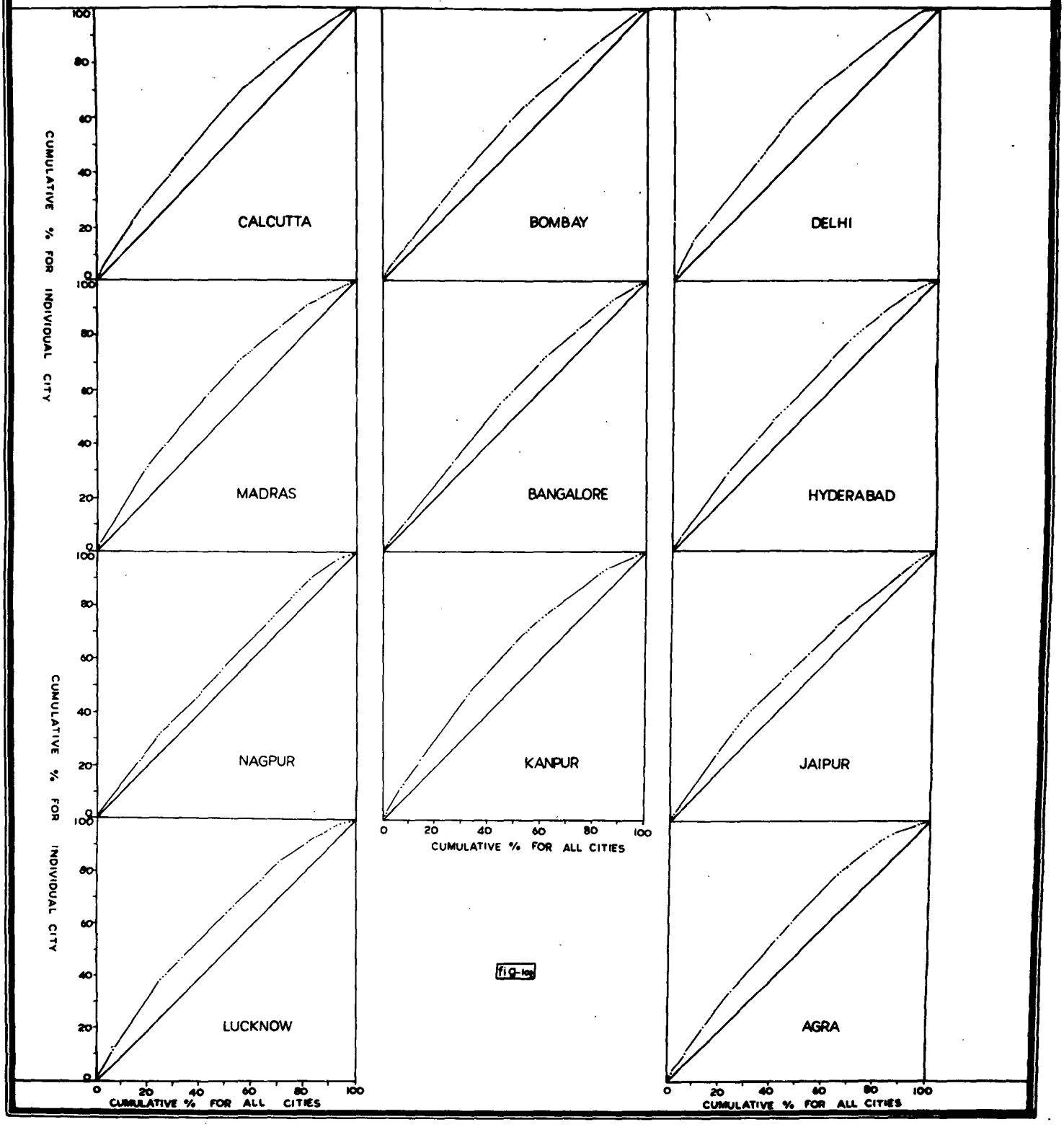


Fig-10

LORENZ CURVE

Showing the distribution of 'Tertiary activities' in

THE MILLION CITIES OF INDIA - 1971



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lization in some tertiary activities. The lower curve for these four cities is hence moving away steadily from the norm. Besidesthese the remaining three cities, viz., Bangalore, Jaipur and Agra are moving towards diversification.

The distribution of several tertiary activities can be well visualized from the value of L.Q. for different sector for different cities. This hasbeen given in table 3.1 and 3.2. The distribution of these activities has been analysed separately for individual cities in the following pages.

3.4 Intra-city variance in tertiary activities :

3.4.1 Calcutta :

Calcutta has a much better position, with respect to all other cities, in terms of the wholesale trade. It has shown a significantly high growth rate both for wholesale trade in machinery and wholesale trade in food stuffs and stimulants in 1971. From the L.Q. values it can be inferred that Calcutta helps to serve a large hinterland in this regard. It can be seen from the table that, both in wholesale as well as retail trade Calcutta has got a very high value in comparision to other cities. The domestic services also show a higher rate of growth compared to all other metropolitan cities, which indicates that, either

Table 3.1

Location Quotient Values for the Metropolitan Centres of India - 1961

	Calcutta L.Q.	Rank	Bombay L.Q.	Rank	Delhi L.Q.	Rank	Madras L.Q.	Rank	Banglore L.Q.	Rank
Public Services	0.80	19	0.60	19	1.68	2	0.64	21	1.32	2
Education	0.60	12	0.76	17	1.18	6	0.72	19.5	1.22	3
Transport	1.05	10	1.35	5	0.47	21	1.05	9	0.55	17
Storage	1.30	5	1.84	1	0.46	22	0.23	22	0.08	22
Communication	0.98	13	1.02	14	0.80	13.5	1.54	4	0.91	7
Law	1.15	7.5	1.10	10.5	0.75	15	0.81	15.5	0.63	16
Medicine	0.89	18	1.01	15	0.91	11	1.19	7	1.08	5
Domestic	1.37	4	1.30	6	0.74	16.5	0.88	13	0.73	15
Artisan	0.92	16	1.17	8	0.80	12	0.86	14	0.88	8
Religion	0.94	14.5	0.72	18	1.00	9	1.26	6	0.85	12
Culture	1.07	9	0.87	16	0.74	16.5	2.50	2	0.97	6
Co-operative	1.02	12	1.11	9	1.24	5	0.94	11	0.86	10.5
Banking	0.69	20.5	1.50	3.5	1.05	8	1.39	5	0.86	10.5
Insurance	0.91	17	1.80	2	0.73	18.5	1.09	8	0.76	14
Real-Estate	1.73	2	1.10	10.5	0.48	20	2.68	1	0.40	18.5
W.T. in one	1.29	6	1.21	7	1.37	4	0.79	17	0.40	18.5
W.T. in two	1.67	3	1.50	3.5	0.73	18.5	0.81	15.5	0.31	20.5
W.T. in three	1.76	1	-	-	1.50	3	0.76	18	0.82	13
R.T. in one	1.04	11	1.04	13	0.80	13.5	0.72	19.5	0.87	9
R.T. in two	0.94	14.5	1.08	12	0.94	10	0.89	12	1.17	4
R.T. in three	1.15	7.5	0.39	20.5	2.15	1	0.99	10	0.31	20.5
Unspecified	0.69	20.5	0.39	20.5	1.16	7	1.66	3	2.26	1

Note : W.T. = Whole sale trade
R.T. = Retail trade
one = food stuffs and stimulants
two = other than food stuffs and personal consumption
three = Equipment and machinery.

Table 3.1

Location Quotient values for the metropolitan cities 1961

Hyder-abad L.Q.	Rank	Nag-pur L.Q.	Rank	Kan-pur L.Q.	J Rank	Jai-pur L.Q.	Rank	Luck-now L.Q.	Rank	Agra L.Q.	Rank
1.23	3	0.75	16.5	1.32	3	1.37	5.5	1.26	4	1.07	8
1.36	2	1.91	2	1.14	7.5	1.33	7	1.34	3	0.98	9
0.84	13	1.46	4	0.93	12	1.01	8	1.01	10	1.08	7
0.69	14	1.00	9	1.15	6	0.53	18.5	0.23	21	0.38	17
0.61	16	2.04	1	0.40	19	0.76	13	1.42	1	0.70	12
0.88	9.5	0.78	15	1.11	9	1.41	4	1.21	6	1.33	4
1.02	6	1.01	8	0.75	15	1.37	5.5	1.22	5	0.95	10
0.94	8	0.74	18	0.44	18	0.50	20	0.74	13	0.33	18
1.14	4	0.89	14	1.03	11	0.93	9	1.14	7	1.13	6
1.10	5	1.25	6	1.23	5	1.42	3	1.36	2	1.16	5
0.67	15	0.93	11	0.61	17	0.71	14.5	0.68	15	0.81	11
0.88	9.5	1.11	7	0.29	21	0.89	11	1.06	8	0.19	20
0.51	17	0.92	12.5	0.65	16	0.65	16	0.65	16	0.48	16
0.40	18	0.75	16.5	0.79	14	0.53	18.5	0.53	17.5	-	-
0.35	19	-	-	-	-	0.31	21	0.53	17.5	-	-
0.85	12	0.46	20	0.84	13	0.18	22	0.11	22	0.27	19
-	-	0.56	19	0.37	20	0.71	14.5	0.24	20	0.66	13
-	-	1.73	3	2.78	1	2.65	1	0.71	14	0.65	14
0.98	7	1.44	5	1.30	4	0.90	10	0.96	12	1.50	1
0.86	11	0.94	10	1.06	10	0.85	12	1.05	9	1.37	3
0.28	20	0.92	12.5	2.51	2	0.61	17	0.35	19	0.64	15
1.49	1	0.32	21	1.14	7.5	1.46	2	0.97	11	1.45	2

Table 3.2

Location Quotient Values for the Metropolitan Centres of India - 1971

	Calcutta L.Q.	Rank	Bombay L.Q.	Rank	Delhi L.Q.	Rank	Madras L.Q.	Rank	Bangalore L.Q.	Rank
Public Services	0.62	19.5	0.67	21	1.32	4.5	1.56	2	1.19	3
Education	0.65	18	0.80	20	1.21	6	1.16	4	1.32	2
Transport	1.04	9	1.05	13	0.65	17	1.13	5	1.15	4
Storage	0.75	17	1.06	11.5	1.03	1	0.10	21	0.10	21
Communication	0.88	12	1.06	11.5	1.32	4.5	0.93	7	0.92	10
Law	1.06	8	0.97	15	0.90	12	0.72	13	0.81	13
Medicine	0.87	13.5	1.07	10	1.05	8	0.74	12	1.03	7
Domestic	1.56	4	1.22	8	0.71	15	0.83	10	0.88	11
Artisan	0.62	19.5	0.85	18	1.77	2	0.50	15	0.64	17
Religion	1.00	11	0.81	19	0.98	10	2.62	1	1.05	6
Culture	0.87	13.5	1.31	6	1.10	7	0.88	9	1.02	8
Co-operative	0.37	21	1.29	7	0.41	20	0.45	16	0.54	19
Banking	0.85	15	1.41	4.5	0.89	13	0.89	8	1.33	1
Insurance	0.82	16	1.57	3	0.67	16	0.44	17	1.10	5
Real-Estate	1.26	5	1.41	4.5	0.45	19	0.36	18	0.53	20
W.T. in one	1.93	2	0.61	22	0.49	18	1.42	3	0.62	18
W.T. in two	1.74	3	1.77	2	0.38	21	0.24	20	0.74	15
W.T. in three	2.47	1	0.96	16	1.04	9	0.33	19	0.67	16
R.T. in one	1.12	6	0.94	17	0.77	14	1.07	6	1.01	9
R.T. in two	1.10	7	1.00	14	0.94	11	0.75	11	0.84	12
R.T. in three	1.03	10	1.18	9	1.34	3	0.57	14	0.77	14
Unspecified	-	-	3.77	1	-	-	-	-	-	-

Note: W.T. = Wholesale Trade
R.T. = Retail Trade
one = food stuffs and stimulants
two = other than food stuffs and personal consumption
three = equipments and machinary

Table 3.2

Location Quotient values for the metropolitan cities - 1971

Hyder-bad L.Q.	Rank	Nag-pur L.Q.	Rank	Kan-pur L.Q.	Rank	Jai-pur L.Q.	Rank	Luck-now L.Q.	Rank	Agara L.Q.	Rank
1.29	2	0.85	11	1.31	6	1.36	2	1.48	2	0.98	9
1.16	4	1.50	3	1.10	8	1.20	3	1.07	5	0.89	12
1.01	8	1.77	1	0.73	16.5	0.79	16	1.03	7	1.18	7
0.06	21	0.68	15	3.06	1	0.13	7	0.20	20	0.03	21
0.88	12	1.16	4	0.54	18	1.12	8	0.66	14	0.65	14
0.90	11	0.88	10	1.11	7	1.15	5.5	1.29	3	1.56	3
1.09	5	1.01	5	0.77	15	1.15	5.5	0.98	8	0.94	11
0.67	15	0.56	18	0.46	19	0.96	11.5	0.73	12	0.38	18
0.93	19.5	0.92	9	1.40	3.5	0.95	13	1.74	1	1.37	5
1.07	7	0.96	7.51	0.83	11	1.07	9	0.85	10	0.96	10
0.93	9.5	0.59	16	0.45	20	1.02	10	0.43	17	0.67	13
0.12	20	1.58	2	2.08	2	4.41	1	1.04	6	3.37	1
0.60	16	0.82	12	0.76	14	0.96	11.5	0.54	16	0.40	17
1.08	6	0.71	14	0.73	16.5	0.70	19	0.61	15	0.33	19
1.55	1	0.48	19	0.81	12.5	0.77	18	0.67	13	0.56	15.5
0.55	17	0.96	7.5	1.40	3.5	1.16	4	1.13	4	2.38	2
0.25	19	0.25	21	0.42	21	0.39	20	0.30	18	0.18	20
0.84	13.5	0.32	20	0.81	12.5	0.25	21	0.28	19	0.56	15.5
1.19	3	0.97	6	1.08	9	0.93	14.5	0.94	9	1.32	6
0.84	13.5	0.79	13	1.39	5	0.93	14.5	0.82	11	1.49	4
0.49	18	0.58	17	0.89	10	0.78	17	0.17	21	1.02	8
-	-	0.01	22	-	-	-	-	-	-	-	-

the member of families with higher incomes have been increasing, employing a large number of domestic servants, or, more and more people are being absorbed in the low wage domestic services.

The co-operative services, the storage services and the services pertaining to real-estate have shown a negative trend. The proportion of workers engaged in real estate had a much higher proportion compared to the metropolitan average in 1961 but in 1971 though it maintains a high rank, the proportion of workers engaged in it has gone down. On the contrary, the community services which in Calcutta were almost equal to the metropolitan average in 1961, has gone down substantially and are much below the average. The storage functions have relatively decreased, but this is due to the fact that the metropolitan average has increased considerably.

Besides these, the other functions have maintained their relative positions in 1971.

3.4.2 Bombay :

Bombay, as opposed to Calcutta, shows marked changes in the trend of the development of the tertiary sector. Storage being one of the most important activities in 1961, reduced to the metropolitan average in 1971. Retail trade has remained equal to the metropolitan average, except in

the case of trade in machinary. Retail trade in machinary in 1961 had a very low proportion but has shown an increase above the metropolitan average in 1971. Wholesale trade in non-food stuffs and in machinary also shows positive growth. The higher increase in the case of wholesale trade in goods for personal consumption indicates that some organization in the trading activities is taking place. The wholesale trade in food stuffs shows a lower growth, compared to the average metropolitan growth. This is mainly due to the fact that there is a considerable shift of these activities towards the satellite towns.

Real-estate in Bombay has taken a positive trend as opposed to the trend in Calcutta. Insurance has however showed a negative growth. But all the three activities viz. Banking, Insurance and Real-estate are significant during both the time points. The cultural activities have taken a sharp positive trend in comparision to the metropolitan average.

Apart from the major tertiary functions of the city, Bombay has been acquiring some other tertiary activities and hence the unspecified activities have shown a considerably important position in 1971 as compared to 1961.

3.4.3 Delhi :

Delhi has traditionally been apurely administrative town but with the passage of time, other activities have

been established to a considerable extent. As a result of this the proportion of workers engaged in public service has gone down in relation to the other metropolitan centres. When we consider the distribtion of different tertiary activities in the city, storage which was non-existence in 1961 has increased tremendously by 1971. Another interesting thing which has happened in this city is the dramatic reduction of wholesale trade as well as retail activities due to the development of satellite towns in the peripheral zone. These towns such as Faridabad, Gaziabad, Najibabad etc. are more or less monopolising the wholesale as well as the retail trade activities. Transport as well as communication have developed to a resonable extent which is indicated by the L.Q. values. As the city population is growing, the proportion of artisan workers is also increasing. In contrast to Bombay and Calcutta the artisan workers have increased tremendously in Delhi.

3.4.4 Madras :

Except for storage, all other components of social and economic over head have shown a very high positive rate of growth in Madras. Communication activities have decreased to some extent. It is due to the fact that, Madras did not have auto exchanges in the sixties and therefore the proportion returned in 1961 census was high. Services related to social overhead have developed signi-

ficantly between 1961-71 due to the growth of the city. Religious activities have also increased substantially whereas cultural activities have shown a decline. Though the proportion of workers engaged in this activity in 1971 is more or less the same as it was in 1961 but due to the development of this activity in other cities, it has lost its position when compared to other metropolitan centres. Financial activities have also decreased in the city to some extent.

3.4.5 Bangalore :

In this city financial as well as transportational activities have increased tremendously between 1961 and 1971. The financial activities have grown because a large number of industries have been located in the city.

Banking and insurance which were having 10 and 14th rank have acquired the 1st and 5th rank respectively in 1971 (table 3.1 and 3.2).

Next in importance to financial activities are the governmental and other infra-structural activities (social and economic overhead). However the proportion in education and public services have remained the same in 1961 and 1971. As the city is growing its infra-structural activities are also developing very rapidly. The most important of these are related to activities of transportation.

The value of L.Q. for transport activities which was 0.55 in 1961 has doubled and its rank has increased from 17 to 4 between 1961 and 1971.

The most noticable thing isthat the proportion of unspecified workers, were the highest in the city in 1961 as compared to the other metropolitan centre. This number has decreased appreciably in 1971. Thishowever can partly be attributed to the changes in definition between 1961 and 1971. Besides this, no significant change has been observed in other activities which have maintained more or less the same position between 1961 and 1971.

3.4.6 Hyderabad :

Hyderabad, as compared to other metropolitan centres has a good proportion of workers, engaged in governmental activities. In educational activities its position has however gone down as compared to other cities. The share of transportation has increased significantly. We can correlate this phenomena with the fact that, as one of the main centres of southern India, its linkages with other important cities of north, west and east have been growing.

The proportion of workers in real-estate has taken a positive trend in the city. Though its position was much below the metropolitan average in 1961, it has occupied the Ist rank in 1971. Hyderabad is most probably the only centre where real-estate has attained the first rank.

Wholesale as well as retail trade hasnot shown any significant change. Only retail trade in food articles and stimulants has shown an increase and has gone above the average. Another noticable trend is that, personal services are decreasing. Though the percentage of population engaged in this service is not decreasing but as compared to the metropolitan average its position is taking a negative trend. like Bangalore, the population engaged in unspecified activities has diminished markedly.

3.4.7 Nagpur :

Nagpur was totally dominated by the activities related to "social and economic overhead" in 1961. It continues to have more or less the same position in 1971. This is the only city where transport hasgot a value which is much above the metropolitan average. The L.Q. value here is 1.77. The value for communication hasdecreased to half. We can relate this aspect with the fact that during 1961, there was no auto-exchange in the city. Therefore the proportion of workers engaged in this activity has decreased.

Nagpur's position in wholesale and retail trade was not high as compared to the metropolitan average in 1961 and it is still losing its position perhaps due to its proximity to Bombay and Hyderabad. Trading activities have been monopolised by these two cities. Similarly cultural activities are also not developing here due to the close location of Bombay and Pune.

The index for personal services shows the sign of development between the two decades. This is a more or less a naturql phenomena, as there is a direct correlation between city growth and growth of personal services. A very insgnificant positive change has occured in case of financial activities during the two decades. Some unspecified form of activities still exist in Nagpur.

3.4.8 Kanpur :

During the decade between 1961 - 1971 certain functions like storage, wholesale trade in food stuffs and stimulants and the co-operative services have substantially improved in the city. But some other functions like wholesale trade in equipment and machinary, retail trade in foodstuffs and stimulants as well as in equipment and machinary have shown a substantial decrease. Here one interesting thing to note is that wholesale trade in food itemshave become more important than in retail trade in the same. It seems Kanpur is exporting large quantity of food stuffs to its hinterland areas. Wholesale trade in food stuffs need large storage facilities and hence storage functions have also multiplied in the city.

The major factor which is contributary towards the development of both these functions in Kanpur is its location in a vast fertile and high yielding agricultural tract. Since the trade in food items mostly involves co-operative

organizations, the same has doubled between 1961-71. A near stagnant industrial structure can be noticed from the low values for retail trade in machinary. Comming to artisan services, its growth is substantial which is due to the demand of the additional population. The other functions do not show any change between 1961-71.

3.4.9 Jaipur :

The most interesting thing to note is that Jaipur which had a very high value in wholesale trade in equipment and machinary than the metropolitan average in 1961, has come down the last position in 1971. The workers engaged in this sector have been decreasing and it's importance as compared to other cities hasalso been reduced. We can ascribe this to the presence of Delhi and other large cities in Jaipur's vicinity. On the contrary, wholesale trade in food stuffs and stimulants hasincreased quite substantially. In co-operative activities the city is suprinsingly the most developed when compared to the other cities in 1971.

On the whole the tertiary sector of Jaipur is dominated by the activities related to social and economic overhead. Other activities such as law, medicine, etc. or the personal service have maintained the same position between 1961-71.

As the city is growing very rapidly into the main city of Rajasthan it's cultural activities are also multiplying. It can be seen from its L.Q. value that in 1971 this is more than one whereas in 1961 it was much lower than one. This shows the specialisation of the city in this particular activity. Financial activities have got a very low value in both the decades in this city.

3.4.10 Lucknow :

Here the pattern of distribution of tertiary activities is more or less identical to that of Jaipur. One noticeable change can be, however, seen in artisan services. This sector hasmultiplied several times in 1971 as compared to 1961. The artisan services which have increased are Laundries hairdressing etc. The activities related to religion have gone down in the city. Like Jaipur, this city is also specialized in activities connected with the infra-structural and governmental sector.

3.4.11 Agra :

Agra specializes in the distributive activities specially in retail trade. Due to its proximity to Delhi and Kanpur which are having very high value in storage, the value for the same in Agra has shown a negative trend between 1961 and 1971. The retail as well as wholesale trade in food stuffs and stimulants has gone up and the activities related to religion have gone down from the

metropolitan average. A peculiar thing to notice is that, services related to social and economic overhead have taken a negative trend here.

3.5 Inter-city variance in various tertiary activities :

3.5.1 Administrative or Governmental activities :

This comprises of all the white collar jobs. In all the eleven metrppolitan centres considered the governmental or public services have got the largest share among all other tertiary activities except in Calcutta, Bombay and Nagpur. A good number of persons (in absolute terms) have been employed in this activity. Being the capital of India, Delhi, has the largest concentration ratio. In Madras the position of Governmental services have altered totally between 1961-71. It's L.Q. value in administrative activities have changed from the lowest to thehighest.

3.5.2 Educational Services :

This service was at a very low level in 1961. Professors and what the census called "teachers of all kinds" constituted a very small proportion of the total tertiary workers in the census of 1961. But by 1971 this service has shown a slight increase in its total share. If we see its percentage distribution we find that it varies from 5 to 7 percent. The L.Q. for this service is also quite high in all the cities except in Bombay and Calcutta. Table 3.3 given below, shows the proportion of workers

engaged in educational service in all the eleven cities.

Table 3.3

Percentage of distribution of Tertiary workers engaged in educational services in different metropolis (1961-71)

City	1961 in %	1971 in %
Calcutta	2.63	4.20
Bombay	3.34	5.12
Delhi	5.18	7.77
Madras	6.61	7.45
Bangalore	4.98	8.48
Hyderabad	5.98	7.43
Nagpur	8.93	9.60
Kanpur	5.03	7.04
Jaipur	5.58	7.70
Lucknow	5.60	6.89
Agra	4.30	5.74

Source : Census of India, Part II-B(i) & II-B(ii)

3.5.3 Transport, storage and communication :

A reasonably high percentage of workers is engaged in this activity. The percentage increased from 17% in 1961 to 19% in 1971. The distribution pattern of transport is however very haphazard and we can not relate it with

the growth of population. There is no direct correlation between transport development and the growth of the cities. If we see the L.Q. value, we find that Bombay and to some extent Nagpur specialize in this activity.

3.5.4 Professional and non-professional personal services :

The professional services include law and medicine whereas thenon-professional include the domestic and artisan services. The distribution of these is very interesting to note. As the city grows, its population requires more medical facilities or medical care and hence "medicine" has shown a positive trend. On the contrary "law" is showing the signs of decline. The same negative trend has been observed in case of "artisan" and domestic service respectively. In 1961, Bombay was specializing in professional and non-professional services personal services. But in 1971, it did not have a value above the metropolitan average.

3.5.5 Community services :

A very interesting picture is emerging from the distribution pattern of community services. It is clearly noticed that the activities related to community services is showing a negative growth trend in the 2nd order metropolises while it is moving forward in the Ist order metropolis. Only Jaipur in 1971 has got L.Q. value which is above the metropolitan average.

3.5.6 Financial services :

These are the most important of the tertiary activities and can be considered as a booster for economic growth; Bombay has shown the highest positive trend among the cities considered. Bombay's growth in tertiary activities is therefore two dimensional, on the one hand there is a growth in the transportational activities and on the other there is a growth of financial activities. The other cities which are showing a positive growth in financial services are Bangalore and Hyderabad.

3.5.7 Distributive activities :

This comprises of two aspects of business activities viz. the wholesale as well as the retail trade. Calcutta is the most specialized city in the distributive activities. It has been reported by several studies of industrialized countries that the share of wholesale and retail trade into the total economic activity increases with economic growth and is positively correlated with a rise in per-capita real income. Contrary to this, trading activities in the metropolitan cities in India, except in Calcutta, have hardly shown a positive trend.

3.5.8 Unspecified :

In almost all the cities except Calcutta, Bombay and Nagpur, the several unspecified form of tertiary acti-

vities had the largest share in 1961. This share however decreased in 1971 due to the application of a more strongest definition in this census. The proportions have decreased appreciably in 1971 in almost all the metropolitan cities considered.

3.6 Coefficient of Localization :

Having examined the distribution of tertiary employment, it is necessary to examine the concentration of tertiary function in different cities. In order to do this the share of a given activity in a city is compared to that of the metropolitan average. This gives an idea of the extent of which an activity is concentrated in a particular metropolis.[9]

Table 3.4

Coefficient of Localization (C.L.) values for the metropolitan centres of India

City	No.	C.L. value for 1961	Rank	C.L. value for 1971	Rank
Calcutta	1	0.094	one	0.133	two
Bombay	2	0.147	two	0.093	one
Delhi	3	0.175	three	0.159	three
Madras	4	0.138	two	0.158	three
Bangalore	5	0.176	three	0.096	one
Hyderabad	6	0.105	two	0.121	two
Nagpur	7	0.182	three	0.17	three
Kanpur	8	0.148	two	0.16	three
Jaipur	9	0.148	two	0.097	one
Lucknow	10	0.095	one	0.155	three
Agra	11	0.167	three	0.145	two

Source : Census of India, Parti II-B(i) & II-B(ii)

9. J.L. Webb, Basic concepts in the analysis of small urban centres, Annals of Association of American Geography 49, 1959, pp.55-72.

Coefficient of localization measures the relative regional concentration of a given activity compared to the total magnitude of the activities. It is in fact, a comparision of the percentage distribution of tertiary employment in a particular city, with that of the coefficient of localization of different tertiary groups of all the cities taken together. The coefficient is worked out as follows :

Coefficient of localization

$$= \pm \sum_{d=1}^{11} \frac{[\% S^d - \% Si^d]}{100}$$

$$\text{or,} \quad \pm \sum_{d=1}^{11} \frac{[\% S^d - \% Si^d]}{200}$$

where,

$\% S^d$ = Employment in a particular tertiary function in a city as percent of an aggregate employment in the total tertiary functions of the city.

$\% S^d$ = An aggregate employment in a particular tertiary function in all the city as percent to the aggregate tertiary functions in all the city.

i = i .... n tertiary groups in the city

d = 1 .... 11 cities (region)

The value of coefficient of localization varies between 0 and 1. If a given city has the mix of tertiary functions identical with metropolitan average, then its value of CL is "zero" or near to zero. In contrast if the tertiary employment of a city is concentrated in a single function, the value of coefficient of localization approaches one. This coefficient, suggests the level of diversification of the tertiary sector.

When we consider the index of localization of the tertiary functions in the metropolitan cities for 1961 and 1971 no definite picture emerges, (fig.11). In 1961 out of the total of 11 cities considered only 2 cities were highly diversified, 5 cities moderately diversified and 4 cities showed significant concentration of tertiary functions. This comparision has been done by taking lower and higher localization index value as the lower and upper limit of the eleven cities.

In contrast to this, in 1971, 3 cities were highly diversified, 3 were moderately diversified and the rest showed concentration in various tertiary activities. Table 3.4 shows the coefficients of localization for different cities in 1961 and 1971.

3.7 Conclusions :

The several explanations about the concentration

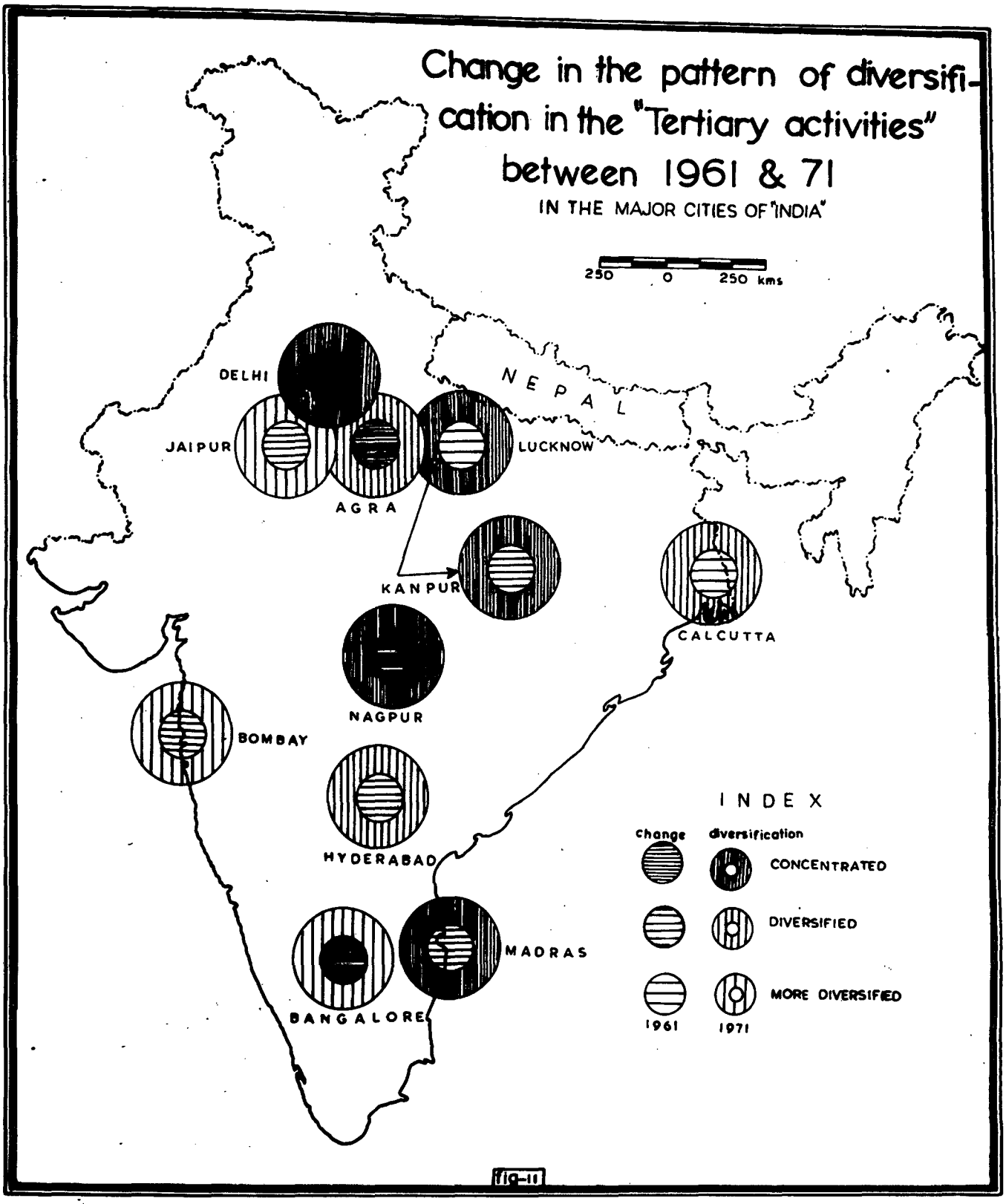
Change in the pattern of diversification in the "Tertiary activities" between 1961 & 71
IN THE MAJOR CITIES OF "INDIA"
250 0 250 kms
NEPAL
DELHI
JAIPUR
AGRA
LUCKNOW
KANPUR
CALCUTTA
NAGPUR
BOMBAY
HYDERABAD
MADRAS
BANGALORE
INDEX
Change
diversification
CONCENTRATED
DIVERSIFIED
MORE DIVERSIFIED
1961
1971

Fig-11

and diversification of tertiary activities in the metropolitan cities of India has led us to the following conclusions.

1. The Lorenz curves for the metropolitan centres, for the two points of time show more or less an identical pattern i.e., the pattern of distribution of tertiary activities, in the metropolitan cities of India has not shown any significant change between 1961 and 1971.

2. From an analysis of Location Quotients the values we find that except for Calcutta and Bombay, other cities are more or less specializing in social and economic over head services. Other functions of the tertiary sector are over shadowed by these services in these cities.

3. Calcutta seems to be specializing in wholesale as well as to some extent in retail trade activities whereas financial activities are concentrated in Bombay.

4. Though personal services are still predominant in the cities in 1971 it is however losing it's relative position, as can be seen from the L.Q. values.

5. The proportions of unspecified activities which were having a high rank in almost all the cities in 1961, have decreased appreciably in 1971.

6. The coefficient of localization values show that in 1961, 2 cities were highly diversified, 5 cities moderately diversified and 4 cities showed some concentration of tertiary functions, but on the contrary to this 3 cities were highly diversified, 3 were moderately diversified and the other 5 cities showed some concentration in tertiary activities in 1971.

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C H A P T E R - IV

DOMINENT METROPOLITAN TERTIARY FUNCTIONS

4.1 Growth of population and its impact on the growth of the tertiary sector.

4.2 Methodology used to determine the dominant tertiary functions.

4.3 The metropolitan tertiary functions - 1961 (based on factor loadings)

4.4 Factor score for the metropolitan cities - 1961

4.5 The metropolitan tertiary functions - 1971 (based on factor loadings)

4.6 Factor scores for 1971 for the metropolitan cities.

4.7 Conclusions.

—

This chapter purports to study the composition of tertiary employment in the Indian cities with the help of factor analysis. It is also attempted to relate the explanatory variable, i.e. population growth to the growth of tertiary employment. It has already been observed in chapter II that the social overhead, personal services and retail trade respectively account for a major part of the tertiary sector. By the method of factor analysis, it is possible not only to study the dominant tertiary functions of a city but also the main components of these three categories which have in turn contributed so significantly to the total tertiary structure. The dominant tertiary functions otherwise known as the first order tertiary functions which are sine qua non for the very existence of a city have also been studied and compared with the second order tertiary functions, during the decade 1961-71. To simplify the analysis, the different cities under study have been grouped together taking into consideration their factor score.

4.1 Growth of Population and its Impact on the Growth of the Tertiary Sector :

The study of population in retrospect is essential in deciphering the nature and trends of population growth and its relation to the growth of different economic activity. It is therefore natural to commence with a reference

to population growth, not only because of the dramatic changes which have taken place in the world population in recent times, but also because human beings serve as ends and means in all economic activity. The analysis covers two census periods, i.e. 1961 and 1971. The following table (table 4.1) shows the average rate of growth of population in the metropolitan cities included in this study.

Table 4.1

Rate of Growth of Population in Percentage in the Metropolis of India - 1961-1971

Calcutta	Bombay	Delhi	Madras	Bangalore	Hyderabad	Nagpur	Kanpur	Jaipur	Lucknow	Agra
84.2	43.79	54.57	83.32	37.02	43.57	34.79	31.32	57.83	24.14	24.75

Source : Census of India Part II-A

From the above table one may conclude that

i) the average rate of growth which is equivalent to 49% though not very high is not very low either in all the eleven cities;

ii) of the eleven cities, four cities have a rate of growth of more than 50 percent, Calcutta having the highest growth rate, i.e. 84 percent, next to it is Madras. These are the only two city where population has more or less doubled over a decade;

iii) the lowest growth rate is observed in the cities of Lucknow, and Agra, it being less than 25 percent;

iv) with the exception of Calcutta and Madras, the other citiesdo not show a very high rate of growth, but if the national average is considered, it is evident that except for Lucknow and Agra other cities have a value higher than the national average.

A more direct relationship between growth ofpopulation and growth of tertiary sector exists in terms of the diverse avenues of employment within the tertiary sector. The following table 4.2 gives the rate of growth of the employment in the different divisions of the tertiary sector over the decade 1961-71.

The above table indicates that the growth of population has more or less a significant impact on growth of tertiary employment. With the change of decade, sectors like education, transport, storage, communication, medicine, artisan, religion, culture, banking, real-estate and lastly wholesale and retail trade show a positive trend in almost all the cities. This positive trend can be attributed to an increase in population. The following table gives the details about tertiary employment in a more concise form. The table 4.3 indicates that the growth rate is higher in the second order metropolises than in the first order metropolises, see also (fig. 12).

GROWTH RATE IN DIFFERENT TERTIARY ACTIVITIES IN

THE MILLION cities of India - 1961-71

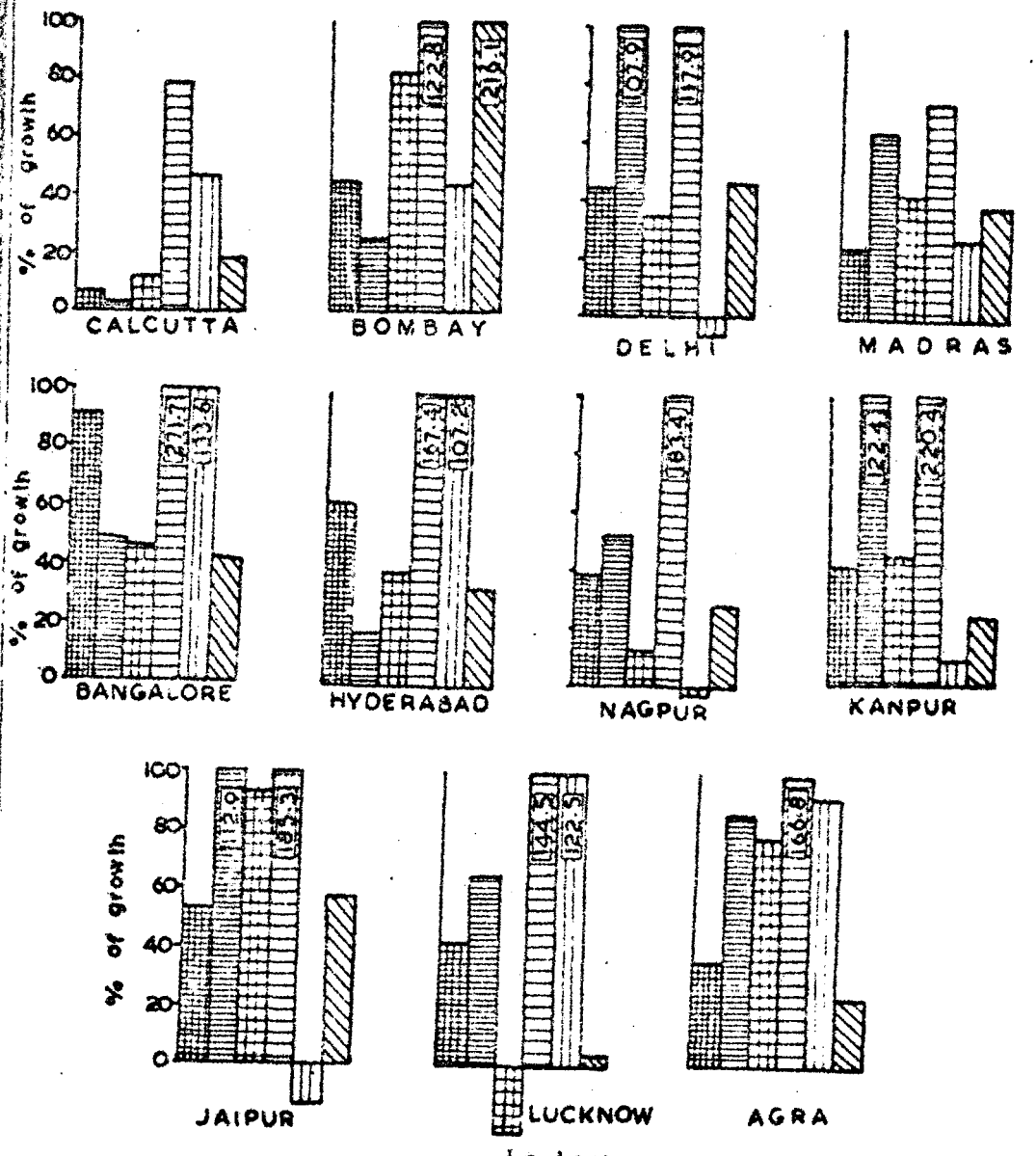

Fig-12

Table 4.2

Rate of growth of different sectors in the metropolitan cities - 1961-1971

Name of the city / Name of the Sector	Calcutta	Bombay	Delhi	Madras	Bangalore	Hyderabad	Nagpur	Kanpur	Jaipur	Lucknow	Agra
Public Service	-17.01	57.60	9.02	-10.44	25.58	42.64	74.83	36.05	46.82	49.96	16.27
Education	71.10	119.90	113.11	38.55	140.61	71.93	90.49	93.58	105.63	56.46	68.92
Transport	19.21	24.80	116.43	43.88	255.57	84.19	7.75	20.42	30.87	43.12	53.83
Storage	39.54	91.19	1202.93	65.81	465.20	-60.69	139.13	724.38	-	139.13	-52.83
Communication	-4.04	48.99	128.93	71.32	43.96	97.88	-9.61	86.68	118.80	-40.36	18.63
Law	-27.4	-5.15	24.24	-15.10	33.25	4.62	29.92	1.56	-9.61	-0.41	10.21
Medicine	13.24	63.11	74.57	43.20	53.90	59.99	70.60	53.79	36.45	10.99	34.65
Domestic	-6.94	-1.09	2.44	-3.26	25.60	-26.81	-11.15	6.01	114.07	-12.99	8.68
Artisan	64.84	136.06	550.09	78.24	132.27	153.84	267.51	415.41	238.70	321.58	244.80
Religion	30.57	84.87	55.15	42.12	98.93	33.71	37.18	6.72	26.72	-8.00	10.69
Culture	26.27	240.83	198.00	111.37	111.52	117.57	45.28	44.67	206.35	15.68	50.19
Co-operative	-88.97	-52.55	-86.57	-67.29	-74.27	-94.32	-37.38	176.16	104.76	-65.32	481.14
Banking	135.27	137.58	108.04	110.85	313.43	189.14	146.58	181.97	280.59	84.46	111.90
Insurance	-9.09	16.71	20.07	-8.24	104.12	247.99	55.78	18.24	80.59	35.38	100.00
Real-Estate	82.94	363.49	213.47	180.47	355.63	1252.70	100.00	100.00	718.70	267.38	100.00
W.T. in food-stuff and stimulant	-25.32	-66.76	-76.96	-45.24	8.33	100.00	45.91	6.06	326.39	444.23	400.80
W.T. in two	-1.08	49.48	-35.77	-33.93	215.17	-58.07	-16.47	39.09	-38.31	38.35	-57.61
W.T. in three	326.94	100.00	165.89	130.29	216.26	100.00	-23.65	1.92	-64.32	42.52	159.44
R.T. in one	13.97	27.44	30.68	26.42	60.09	63.53	4.09	11.65	49.30	13.81	8.78
R.T. in two	-19.60	-16.94	-10.30	-8.92	-29.62	-13.92	-14.56	15.84	3.52	-36.54	-8.97
R.T. in three	330.93	1821.94	290.22	277.83	1766.29	989.26	345.25	119.23	747.64	702.59	840.55
Unspecified	-100.00	-84.51	-100.00	-100.00	-100.00	-100.00	-99.83	-100.00	-100.00	-100.00	-100.00

Source : Census of India, Part II-B(i) and II-B(ii).

Note: W.T.=Wholesale trade
R.T.= Retail Trade
one = Food stuffs and stimulants
two = non-food stuffs and personal consumption
three = Machinery and equipment

Table 4.3

Tertiary Growth rate in different sectors in individual metropolis in %

1961 - 1971

Name of the sector	Calcutta	Bombay	Delhi	Madras	Bangalore	Hyderabad	Nagpur	Kanpur	Jaipur	Lucknow	Agra
Social overheads	6.87	44.80	44.17	24.49	90.17	60.67	39.50	40.70	53.91	41.72	36.58
Personal	3.79	25.31	107.97	63.36	48.71	17.98	51.18	122.42	112.94	65.93	87.62
Community	11.79	82.40	35.82	42.09	47.77	37.49	13.67	45.4	92.4	-22.27	79.55
Financial	78.81	172.81	117.96	74.33	271.76	168.4	183.4	220.41	-88.30	144.5	166.3
Distributive in wholesale trade	46.96	43.49	-5.54	27.71	133.6	107.2	-0.8	9.90	-14.82	122.5	92.12
Distributive in Retail trade	19.90	216.13	45.08	39.44	40.32	33.62	29.10	25.32	57.50	3.05	22.36
Unspecified	-100.0	-84.5	-100.0	-100.0	-100.0	-100.0	-99.83	-100.0	-100.0	-100.0	-100.0

Source: Census of India Part II-B(i) and Part II-B(ii).

Table 4.4

Average growth rate of an individual sector

in metropolis in %

1961 - 1971

	Social overhead	Personal services	Community	Financial	Distributive in U.T.	Distributive in R.T.	Unspecified
Average for all metropolitan cities	43.96	58.76	40.30	162.18	51.32	48.34	-98.6
Average for Ist order metropolises	30.08	50.10	37.13	110.98	28.15	80.28	-96.12
Average for 2nd order metropolises	51.86	63.4	42.18	192.73	64.55	30.36	-99.98

Source : Census of India, Part II-B(1) and II-B(11).

The above table (table 4.4) indicates that :

i) the average growth of individual sector for all cities shows a tremendous increase in financial activity;

ii) the growth rate in other sectors vary from 45 to 55 percent in almost all the cities;

iii) unspecified activity has taken a 100 percent negative trend in all the cities. (This is due to the change in definition of workforce in the 1971 census).

A comparison of the growth rate in employment in the tertiary sector in the first and second orders metropolises indicates that;

I) the sectoral growth of the different units of the tertiary sector of the first order metropolises with the exception of retail trade, hasbeen over-shadowed by the growth rate in the second order metropolises. The average rate of growth in retail trade in the first order metropolises has a higher value than it has in the second order metropolises primarily because of its rampant nature in the city of Bombay which is as high as 216 percent;

ii) distributive services in wholesale trade and financial activities have shown a positive trend in second order metropolises than the other divisions of the tertiary sector.

From these observations, it is evident that the rate of growth of population is directly related to the growth of the tertiary sector in the second order metropolises and indirectly related to tertiary growth in the first order metropolises. In other words,

$$g \propto T_2 \quad \ldots\ldots\ldots\ldots (1)$$

and $$g \propto \frac{1}{T_1} \quad \ldots\ldots\ldots\ldots (2)$$

where

g refers to population growth;

T_2 refers to tertiary growth in second order metropolis; and

T_1 refers to tertiary growth in first order metropolis.

4.2 Methodology used to determine the dominant tertiary functions :

Here, the multifactor approach[2] has been taken into

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2. Stan Czamanski & Luiz Augustodeq - Ablas. Identification of Industrial Clusters and Complexes: A comparison of methods and findings. Urban Studies, Vol.16, no.1, 1979.

consideration to find out the city functions in 1961 as well as in 1971. A comparative study of the tertiary functions has been done in time and space, with the help of "factor scores"[3] and factor loadings".[4] Factor analysis is a general term for a sequence of several processes designed to detect "families" of correlated variables. This method mainly involves two main stages. The first reduces the data to more manageable proportions by extracting from it a relatively small number of factors or components, comprising composite variables which account for a large amount of the variability among the original criteria.[5] It is this kind of multivariate analysis that has already been fairly widely used in studies that would qualify either for a central position or at least for a peripheral position within the subject of geography.

Before proceeding further, some explanation of the different stages involved in factor analysis is necessary:

1) The first step in factor analysis is to find out the mean and standard deviation. The means and standard deviation provide useful preliminary descriptions of the areas concerned in terms of the variable used.

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3. Cole and King, Quantitative Geography, pp.294-305 and 328-333.

4. Leslie J. King, Statistical Analysis in Geography, Principal component and factor analysis in Geographic Research 1969, Prentic Hall, pp.165-194.

5. Smith David M. Patterns in Human Geography, "Multifactor" Arear classification and regionalization. 1975, Peter Hall, pp.314-346.

ii) Based on the values of means and standard deviations the correlation matrix has been found out. It provides the data on which the values of the factors and factor loadings are based.

iii) The eigen value and the cumulative percentage of the eigen value have been found out which explain the extent of supremacy of any one particular factor over the others.

iv) The next step is to find out the factor values which are related to the degree of inter-correlation between the variables. Where the coefficients of correlation are low, there the factors are smaller. Greater the homogenity of the area by way of variation, where the inter-correlations are weak, no one variable can give a good characterisation of the area concerned.

v) Subsequently factor loadings which are the value of correlations coefficients with the axis concerned are found out. The loadings on the different variables play in accounting for the variation within the area.

vi) After the factor or component analysis has been undertaken, the process of areal classification

can be set in motion. This begins with the calculation of factor scores, for each area on each of the major dimensions identified.[6] The factor score gives an overall picture of the tertiary sector in the different metropolises.

One thing to be noted in this method is that the eigen values having a sh-are of more than 5 percent of the total variables, are included.

4.3 The metropolitan tertiary functions 1961 (based on factor loadings) :

In 1961, 77 variables have been taken, and have been clubbed into "four factors." The sum of the square of factor loadings for the individual factor is calculated and that is the eigen value for the respective factors. Eigen value measures the strength of the factor. A table is given below to show each eigen value and the percentage of their variance.

Table 4.5

Percentage of variance accounted for by each eigen value 1961

Eigen value	Actual value	comulative percentage of eigen value
1	37.85	49.17
2.	14.97	68.61
3	8.27	79.15
4.	5.79	86.87

Source: Census of India Part II-B(1)

6. David Smith: op.cit, 5.

The above table demonstrates that the first four factors or components together account for 87 percent of the total variance whereas the first three factors explain nearly 80 percent. But on the whole, the first factor itself account for about 50 percent of the total variance.

The components apparently measure as follows :

i) Component I : Public service, education, transport, storage, communication, medicine, law, domestic, artisan, religion, culture, banking, insurance, and wholesale and retail trade in food stuffs and stimulants.

ii) Component II : Retail trade in non-food stuffs, personal consumption, machinery and equipments.

iii) Component III: Services incidental to transport, viz. packing, carting, travel agency, stock, shares, future etc.

iv) Component IV: Retail trade in animals skins, furs, leather and its products excluding footwear and headgear.

The composition of component I obvously suggests that the most important of city tertiary functions fall under this category. Among the public services, it is necessary to note that those pertaining to quasi and state

governments are more essential and rampant tertiary functions in the cities than those pertaining to central government. Similarly, though, wholesale trade in personal consumption, non-food stuffs, equipment and machinery prevail in the city, the limits of these activity are contained, sometimes even negligible.

There is a high relationship between and among the different units of component I so much so that a change in one invariably leads to a change in the other, or even several others.

It follows therefore that the essential city functions of 1961 were activities comprising of social and economic overhead, personal services, part of community, financial and distributive activities.

The following table gives some of the most predominent metropolitan functions in 1961 alongwith their digital numbers (according to census) and value of factor loadings based on component I.

From the table 4.6, it is evident that when social and economic overhead are treated as a comprehensive entity comprising of diverse units, they also tend to become the most important city tertiary functions; equally obvious is the fact that when these diverse units are treated individually, social and economic overhead functions tend to be

Table 4.6

Essential Metropolitan cities functions - 1961

Sl.No according to weightage	Divital no.according to Census	Name of the functions	Value of factor loadings
1.	880	Services rendered to households such as those by domestic servants, cooks etc.	0.9910
2.	701	Transporting by tramway and busservices	0.9901
3.	840	Legal services rendered by barristar, advocate, munsif etc.	0.9878
4.	884	Hair dressing and other services	0.9822
5.	640	Retail trading in cereals, pulses, vig., fruits, spices, sugar, fishes etc.	0.9657
6.	820	Public health and medical services rendered by various media	0.9638
7.	850	Engineering services rendered by professional organisations and individuals	0.9617
8.	644	Retail trading in tobacco, bidi, cigarettes and other tobacco produces	0.9574
9.	803	Public services in Police	0.9565
10.	730	Postal, telegraphic, wireless, signal communication	0.9541
11.	883	Laundry services rendered by ortanisation and individuals	0.9512
12.	731	Telephone communication	0.9487
13.	809	Public services in administrative department of state government	0.9409
14.	645	Retail trading in fuel viz. coke, coal, firewood, kerosene	0.9328
15.	805	Public services in administrative department of quasi government	0.9290
16.	882	Services rendered by hotels, boarding houses, eating houses etc.	0.9209

Source : Census of India,Part II-B(i)

diluted and their real significance as city tertiary functions is lost in a labrinth of dichotomies.

ii) the most important social and economic overhead functions are transport by tramway and buses, public service in police, quasi and state government, postal, telegraphic, wireless, signal communication and lastly telephone communication;

iii) the professional and non-professional services are the most significant tertiary functions after social and economic overhead functions. Domestic servants, for instance, rank highest as can be seen in the table.

iv) following the professional services is retail trade in food stuffs and stimulants.

Component II pertains to retail trade in goods other than food stuffs and stimulants, central government employees, and traditional mode of transport and although these are not very important, they are nevertheless necessary city functions.

Components III and IV pertain to activities which are neither very important nor essential characteristics of city tertiary functions.

4.4 Factor score for the metropolitan cities - 1961 :

The factor score for any area is obtained by combining the original data in score form in proportions represented by the factor loadings. The basic formula is :

$$F_{jk} = \sum_{i=1}^{m} L_{ik} Z_{ij}$$

where

Fjk is the score of area j on factor k;

i is one of the m original variables,

lik is the loading of factor k on variable i,

and Zij is the original observation (in standard form) for variable i in area j.

For every component, a particular factor score value has been obtained for individual cities. With the help of these factor scores, the process of areal classification has been initiated. Here only component I and the respective factor score value has been taken into consideration.

Thus factor scores establish the position ofeach area in k-dimensional statistical space where k is the number of factors or components in use.[7]

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7. Smith, David. op.cit. 6.

The allocation of areas to classes is generally accomplished by a stepwise grouping prodedure in which the most similar pair of observations are grouped, then the next closest pair and so on until a convenient number of classes has been established. A table is given below to show the factor scores of component I of different cities. These factor score values have been further grouped to find out the cities having similar tertiary functions.

Table 4.7

Factor scores on Factor - 1 for all the metropolises - 1961

Name of the metropolis	Factor - 1 value of factor scores	Group
Calcutta	73.9123	One
Bombay	79.8701	One
Delhi	4.3931	Three
Madras	0.0519	Three
Bangalore	-16.4306	Four
Hyderabad	-10.4335	Four
Nagpur	-21.3740	Four
Kanpur	-26.9247	Four
Jaipur	-29.9786	Four
Lucknow	-22.3274	Four
Agra	-30.7584	Four

Source : Census of India, Part II-B(1)

From the above table, it is evident that :

i) the first order metropolises have positive score values while second order metropolises have negative score values;

ii) among the first order metropolises Calcutta and Bombay account for a high positive value whereas Delhi and Madras have a substantially low positive value;

iii) Similarly, Agra and Jaipur show a high negative score and Hyderabad a low negative value;

iv) a high positive score value in the first order metropolises indicates that the divisions of component I of tertiary sector are more concentrated here than in the second order metropolises;

v) the divisions of component I appear to be more diversified in second order metropolis and those of component II, III and IV seem to be concentrated here.

vi) the cities have been grouped together based on the similarity of factor scores. But the most important characteristic of these factor scores is that they have zero mean and 1 standard deviation. The group-

ing has been done based on the mean and standard deviation value. Accordingly, Calcutta and Bombay fall under group I, Delhi and Madras under group III and the rest under group IV, (see also Fig. 13).

vii) some variables of component I seem to concentrate in the cities having high positive score values.

4.5 The metropolitan tertiary functions - 1971 (based on factor loadings) :

In 1971, a major change has occurred in the character of the tertiary sector of the metropolitan city as compared with that of 1961. Here the first component itself accounts for 75 percent of the total variance. The inclusion of factor II raises the proportion to nearly 85 percent. A table is given below to show the eigen values as well as the cumulative percentage of eigen value.

Table 4.8

Eigen value and comulative percent of eigen value for different metropolitan cities 1971

S.No.	Eigen value	Cumulative percentage
1.	72.73	74.21
2.	12.33	86.80
3.	5.77	92.64

Source : Census of India, Part II-B(ii).

From the above table it may be concluded that :

i) the component I is the most predominent tertiary function in 1971 too since it explains nearly 75 percent of the total variance;

ii) the rest of the variance is more or less explained by component II. Thus, almost all of the tertiary functions of the city fall under either of these two categories;

These two components are identified as ;

Ist component :

All the tertiary functions except wholesale trade in food stuffs other than cereals and pulses, in beverages other than intoxicants, in animals and in skin, leather, fur etc.

2nd component :

Above mentioned four activities which are not included in Ist component.

A comparison between 1961 and 1971 yields two interesting observations :

a) In the first place, in 1961 the concept of "city tertiary functions" was broad enough to include all divisions or units of component I, one of component II and a few of components III and IV. But in 1971, it has come to

be almost equated solely with the divisions or units of component I especially since functions falling under component II are very few and components III and IV do not occur at all. To this extent, tertiary city functions have tended to become more concentrated over a decade;

b) secondly, in 1961, the units or divisions falling under component I were confined to public services and transport, personal services and retail trade. But in 1971, these units have multiplied rapidly and amongst those that have been added are professional and non-professional personal services, financial activities, community activities, social and economic overhead, distributive services etc. Thus, tertiary city functions have tended to become more diversified over a decade.

The following table (table 4.9) gives the dominant city tertiary functions in 1971.

From this table it can be concluded that :

i) of the different divisions of component I, social and economic overhead preponderate as dominant city functions in all the metropolises of India by 1971;

ii) almost correspondingly, retail trade in general and retail trade in food stuffs in particular has also come to dominate the city tertiary scene in 1971;

Table 4.9

Dominant tertiary functions in 1971 for the metropolises

S.No. according to weightage	Digital no. according to Census	Name of the sector	value of the load
1.	830	Legal services viz. by advocates, barriesters etc.	0.9951
2.	610	Wholesale trade in medicine and chemicals	0.9943
3.	660	Retail trade in textiles (non-ready made)	0.9890
4.	903	Public service in State and quasi Govt.	0.9887
5.	750	Postal, telegraphic, wireless and signal	0.9883
6.	651	Retail trade in vegetable and fruit selling	0.9882
7.	659	Retail trade in food and food articles (not elsewhere classified)	0.9861
8.	963	Portrait and commercial photographic studio	0.9804
9.	961	Laundries, laundry services etc.	0.9783
10.	701	Passenger transport by tramway and but services	0.9759
11.	921	Educational services by different non-technical media	0.9748
12.	951	Motion picture distribution and projection	0.9720
13.	930	Medical and health services	0.9712
14.	680	Retail trade in medical shops	0.9675
15.	620	Wholesale trade in petrol, mobil oil and allied products	0.9650
16.	900	Banking	0.9628

Source : Census of India, Part II-B(ii).

iii) another interesting feature that emerges out of the comparison between 1961 and 1971 is that in 1961, while the non-professional personal services like domestic servants, cooks etc. were predominant, in 1971, they are fast disappearing from the city tertiary scene. Professional man like barristers and doctors are on an increase on the other hand.

iv) of the fast disappearing non-professional personal services, the only persevering category in 1971 seems to be that of the laundrymen.

v) while in 1961, tertiary functions like portrait and commercial photography, motion picture distribution and projection and banking were activities with least recognition and significance, in 1971 they have suddenly shot into prominence and have replaced the non-professional personal services in importance.

4.6 Factor scores for 1971 for the metropolitan cities :

The distribution of factors scores for 1971 is more or less similar to that for 1961. Here again, Calcutta, Bombay, Delhi and Madras have substantially high positive score values while the rest of the cities have negative score values. Of the eleven metropolises Bombay has the highest positive score and Agra highest negative score.

The following table gives the factor scores for different metropolises, see also (fig. 13).

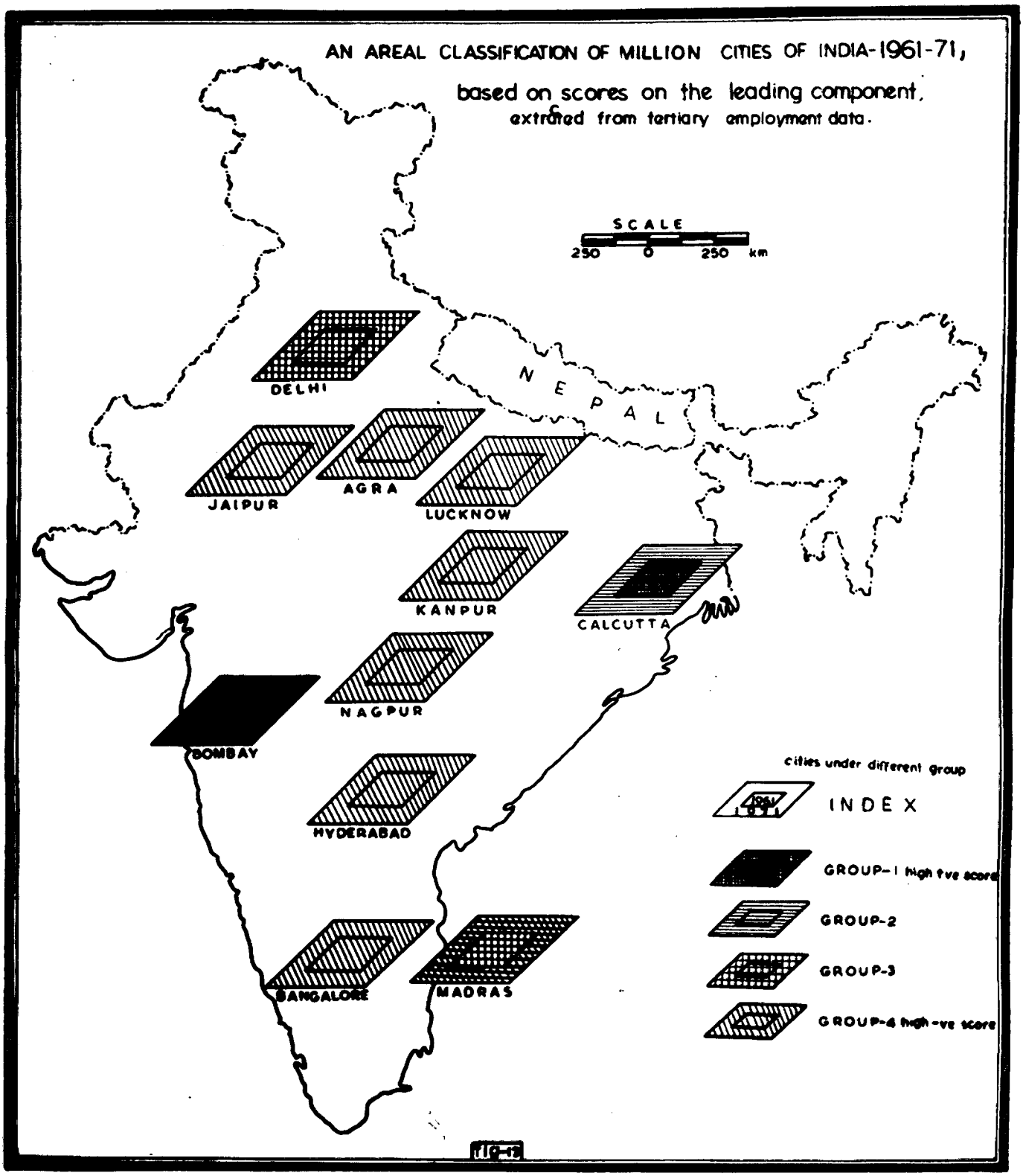
Table 4.10

Factor scores on Factor One for all the metropolises - 1971

Name of the city	Value of factor scores	Group
Calcutta	103.34	two
Bombay	160.13	one
Delhi	52.81	three
Madras	+47.89	three
Bangalore	-27.33	four
Hyderabad	-12.55	four
Nagpur	-46.27	four
Kanpur	-35.03	four
Jaipur	-49.98	four
Lucknow	-46.70	four
Agra	-50.21	four

Source: Census of India, Part II-B(ii).

From the above table, it follows that while the first order metropolises have a high positive score implying a highly concentrated tertiary sector, the second order metropolis have a high negative score suggesting a highly diversified tertiary sector.


AN AREAL CLASSIFICATION OF MILLION CITIES OF INDIA-1961-71,
based on scores on the leading component,
extrated from tertiary employment data.
SCALE
250 0 250 km
DELHI
NEPAL
JAIPUR
AGRA
LUCKNOW
KANPUR
CALCUTTA
NAGPUR
BOMBAY
HYDERABAD
BANGALORE
MADRAS
Cities under different group
INDEX
GROUP-1 high tve score
GROUP-2
GROUP-3
GROUP-4 high -ve score

4.7 Conclusions :

A comparison of the composition of tertiary sectors of the metropolitan cities over two contiguous time periods, i.e. 1961 and 1971 broadly highlights the significant changes that have taken place over a decade. The changes may be briefly summed up thus :

i) public services pertaining to police, quasi and state governments and transport services pertaining to tramways and roadways have remained more or less unchanged in significance between 1961 and 1971;

ii) personal services, on the other hand, have undergone a significant change; the non-professional services consisting of domestic servants, cooks etc. have decreased in importance and professional services consisting of doctors and barristers, have increased in importance between 1961 and 1971;

iii) financial activities which were negligible in 1961 have emerged in 1971 asessential city functions. We may assume that by the next decade, this will be the most dominant of the city functions;

v) the first order metropolises have a high positive score which means that their tertiary functions are concentrated and the second order metropolises have a high negative score which means that their tertiary functions are highly diversified.

C H A P T E R – V

SUMMARY OF FINDINGS AND CONCLUSION

5.1 Summary of findings and conclusion :

1. The growth of the tertiary sector to a position of dominence within the economy of the Indian metropolitan cities is neither a symptom of nor an inducement to economic development, as is observed in the cities of the advanced countries of the west. On the contrary this proliferation, is a symptom of economic stagnation and under-development.

2. This growth of the tertiary sector in the metropoliton cities in India is determined by the supply and not by the demand factor. The sources of supply for the tertiary sector not only lie in natural increase or rural urban migration but also in sectoral displacement from the secondary, as well as the urban primary sectors.

3. The relative share and trends of growth of the three sectors in the economy of the Indian metropoliton centres indicate that the tertiary sector has come to occupy a saturation point in the first order metropoliton cities and hence taking a negative trend. But, it is showing a positive trend in the second order metropolis.

4. Services pertaining to social and economic overhead have developed significantly in the cities. Next in importance to these are the professional and non-professional

1000 male workers in the tertiary sector is taking a positive trend in the Ist order metropolitan centres whereas it is taking a negative trend in the second order metropolitan centres.

10. The Lorenz curves for the metropolitan centres for the two points of time show more or less an identical pattern; i.e. the pattern of distribution of tertiary activities in the metropolitan cities of India, have not shown any significant change between 1961 and 1971.

11. For an analysis of the Location Quotient values we find that except for Calcutta and Bombay, other metropolises are more or less specializing in social and economic overhead services i.e. some forms of the overhead services are having the significant share than the others. Calcutta and Bombay are specializing in wholesale and to some extent retail trade and in financial activities respectively.

12. Though personal services are still predominant in the cities in 1971, it is however losing its relative position which can be seen from the location quotient values.

13. All the metropolitan cities are having very low location coefficient index value in both the time period which is indicative of the diversified nature of the tertiary activities in these metropolises.

services and retail trading activities. Other services such as wholesale trade, financial as well as community services have developed only marginally. But this trend is not indicative of development.

5. The traditional personal services remain a major absorber of tertiary sector workers in the metropolitan cities where avenues for tertiary employment are not commensurate with the pressure for jobs.

6. The level of skill in the tertiary sector is low. A significant proportion of the tertiary workers are semi-skilled or unskilled and are engaged in activities which are labour intensive.

7. A significant proportion of the tertiary sector workers are engaged in activities unspecified and not adequately described, including activities of such individuals who fail to provide sufficient information about their industrial affiliation to enable them to be classified.

8. The efficiency index for social and economic over head services was much above the other services in 1961. Though it has maintained its position in 1971, it is followed closely by personal, community and financial activities.

9. The average rate of participation of the females, in the metropolitan cities of India, in different tertiary functions, is very low. The female participation rate per

14. Overhad service pertaining to police, quasi and state government functions and transport pertaining to tramways and roadways have remained more or less unchanged in significance between 1961 and 1971.

15. Personal services, on the other hand, has undergone a significant change; the non-professional services consisting of domestic servants, cooks etc. have decreased in importance and professional services consisting of doctors and barristers have increased in importance between 1961 and 1971.

16. Retail trade in food stuffs has also assumed tremendous importance between 1961 - 1971.

17. Financial activity which was no where in 1961 has emerged in as an essential city function in 1971.

18. The first order metropolitan cities have a high positive score values on the first component, whereas the second order metropolitan centres are having a high negative score values. This leads us to conclude that the variables of Ist component are concentrated in the Ist order metropolises whereas it is diversified in the second order one.

19. The tertiary sector of the metropolitan cities may be characterized as a parasite feeding on the host of a distorted, imbalanced and inefficient urban economy. Its

growth remains dysfunctional in relation to the process of economic development and, in fact, it further reinforces the crisis of metropolitan cities of India.

One may conclude from this study that the deep seated disequilibrium and asymetrical growth of tertiary sector that characterized the economy of Indian metropolises during the last two decade are displayed in the characteristics and processes of contemporary urbanization in the country.

Though an attempt has been made in this study to analyse the structure and composition of tertiary sector in the metropolitan cities of India, it has not been possible to elucidate comprehensively its role and impact on the economy of the metropolitan cities. Hence a more detailed analysis is called for through which the tertiary functions of the individual metropolis can be examined and analysed accordingly.

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A P P E N D I C E S

A P P E N D I X - I

Definition of metropolitan cities in the Census of India:

Metropolitan areas :

The metropolitan areas in India have been defined in the following manner;[1]

i) a central city with a population of 25,000 as focal point of social and economic integration of the surrounding areas, or;

ii) 2 cities having contiguous or near contiguous boundaries and having a close social and economic relationship with a combined population of at least 250,000, the smaller of which should have a population of at least 50,000 plus;

iii) any contiguous or adjacent administrative unit like taluk, tahasil or village, etc. with at least 65 to 75% of labour force in non-agricultural activity, plus;

iv) such administrative units having 25% of the workers living in this area but working in the central city or 35% of these working in these areas but living in the central city.

1. N.R. Kar, Census of India 1961: An approach to urban studies in India, pp.67-75.

All these are, of course, only major guide lines for the delimitation of metropolitan areas.

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A P P E N D I X - II

Review of the Data Base for the Analysis of the Occupational structure of the Metropolitan areas in India (1961 - 1971) :

The analysis of the occupational structure of the metropolitan areas attempted in chapters II, III and IV is based on the *General Economic Table - Part II-B(i) and Part II-B(ii) for the year 1961 and 1971 respectively. In this appendix the following aspects of this data base are discussed :

i) Classification of Occupation in General

ii) Errors in the Census data

iii) Methods for the Evaluation of Population census data.

i) Classification of Occupations in General :

The classificatory schemes adopted by the census of India during 1961 and 1971 were usually based on the I.S.I.C (International Standard Industrial Classification) scheme. But the classificatory scheme of 1961 was known as Indian Standard Industrial Classification (ISIC) whereas in 1971 it was named as National Industrial classification (NIC).

The UNO evolved a scheme of classification ofall economic activities known as the 'International Standard Industrial Classification Scheme'. The Economic and Social Council of the United Nations recommended the use of this scheme by all member Governments; either by adopting

this system of classification as a national standard, or rearranging their statistical data in accordance with this system for purposes of International Comparability. There were 10 divisions and 44 major groups of economic activities under the ISIC scheme. Now coming to the Indian standard Industrial classificatory and National Industrial classificatory scheme, the tertiary secot was divided as follows :

Tertiary Sector

	Division	Major Group	Group
ISIC	4	24	123
NIC	5	31	124

But under ISIC scheme of 1961, only 77 groups of tertiary activities were visible where as in 1971 were or less all the groups of tertiary sector were found in different metropolitan cities of India.

Unit of Classification :

Under the UNO scheme, the unit of classification was the organized "Establishment". The commodity produced or the service performed as a result of the work of the organised Establishment was the criterion for classifying the establishment. The classification of the establishment was the classification of every member of the establishment.[2]

2. Census of India (1971), General Population table Part II-A, pp.12-15.

But under the present scheme of industrial classification for both the census, the unit of classification was, in every case, the individual. All employers and all independent workers were classified with respect to the commodity produced or service performed by them individually.

As regard 'Employees', all persons, engaged in production, commerce or transport (and not being domestic servants) were categorised under the appropriate sub-divisions with reference to their own activity, and without reference to that of their employer. Domestic servants were classified in one sub-division with respect to the nature of their work.

ii) Errors in the Census data :

Almost all census reports have pointed out that the reporting and the tabulation of the occupations of the people has always been the most unsatisfactory part of the census enumerations. These errors have been stated as follows :

(a) Errors of Coverage :

These errors have a bearing on the total population figure for the country as a whole or for any part of its teritory. This arises when the census enumeration is not done in all the area or it is done twice in the same area. These errors are usually termed as under-enumeration or

over enumeration. It has been found that over enumeration errors seem to be less frequent than under enumeration errors.

Over-enumeration usually occurs when persons who should be included in the census are counted or enumerated more than once either by mistake or deliberately, resulting in an actually enumerated total population figure higher than it should be.

Sometimes it is caused by deliberate false reportion, when for instance, the canvassers are paid on a piece basis or when the heads of the households consider it important to report their families as larger than they actually are.

Under enumeration is caused by the failure to cover all the area which is to be enumerated or failure to enumerate all the people within the area or both.

(b) Enumeration in the wrong area :

These errors are due to the inclusion of the people in the returns for a wrong enumeration area and their exclusion from the right one. This happens when the enumeration is on a residence basis.

(c) Errors in reporting or recording individual or household information :

Errors in reporting and recording consist of

erroneous entries made on the questionnaire which, jeopardize the classification of the total enumerated population by specific characteristics. It is very difficult to detec and to correct the errors in reporting and recording in comparision to coverage errors. The census organization should make every effort to reduce such errors to a minimum. Most important of such errors are found in the data on sex and on economic characteristics.[3]

(d) The system of division of labour in India is very elaborate and do not fit into the classification of occupations in the census. Hunter rightly pointed out that in this country "division of labour, in its literal sense of giving to every man a separate employment has indeed been carried to its utmost length .... On this subject false appearances, and inaccurate names for these appearances have led to many an error. Division of labour as predictable of Indian art or manufacturing means a division of results ... each man performing in the whole of the processes requisite to produce the single results.[4]

iii) Methods for the Evaluation of Population Census data :

In order to make the census data a measable, several adjustments are to be done in the classification

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3. Census of India (1971), Monograph series. Indian census in perspective, Census Centenary Monograph. No.1.

4. W.W. Hunter (1875), "Annals of Rural Bengal," p.139.

schemes of the occupations given in each census. Several methods are used for the evaluation of population census data but they vary with the resources and degree of statistical development. They also vary with the purpose for which the evaluation is made i.e. whether to check errors of coverage only, errors in reporting and recording, or both whether the evaluation is made to correct all or some of the errors, or simply to indicate the limitations of data. The following describe very briefly some of the important methods of evaluating the population census data.

(a) Post enumeration sample checks :

Post evumeration sample checks have been carried out in recent years because of the obvious advantages of the sampling techniques.

(b) Review of census procedures :

A review of census procedures can also be very useful in detecting the main source of errors and in estimating them.[5]

(c) Consitency of census totals with vital statistics and migration statistics :

The procedure consists of a balancing equation, according to which the population count at a previous

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5. op.cit fn.3, p.21.

census plus births and immigration, minus deaths and emigration, should equal the current census count.

(d) Survey of accuracy of census data on specific characteristics of the population :

When the final and detailed returnsof the census are available, it is possible not only to appraise the population totals through the methods described above, but also to evaluate the completeness and accuracy of distributions such aspopulation by age, sex, economic activities etc.[6]

As the census classification of occupation of 1961 and 1971, are more or less based on the same scheme, the errors can be detected and modified by the above mentioned methods.

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6. op.cit. fn.5.

A P P E N D I X - III

Some details about the enumeration of occupational categories (specially tertiary sector) in the census of India (1961 - 1971):

The occupational analysis of the working population of an area has customarily been attempted interms of the three sectors of the economy, namely the primary, secondary and tertiary. It is, therefore, necessary to indicate the urban activities in general and tertiary sector in particular for the purpose of the study. But before discussing all this it is worthwhile to tell something about the economic data in the past and how it has been changed in subsequent census. Besides this, the census enumeration of workers and non-workers have also been discussed.

Approach to economic data in the Past :

Before 1961, economic data used to be collected in Indian census according to what is generally known as the "dependency approach." It meant the enumeration of "gainfully employed persons." In other words the main basis of economic classification was"income." This approach was found to be unsatisfactory for a number of reasons. For one thing, the concepts of earning, self-supporting, earning dependent, dependent etc. adopted in 1931, 1941 and 1951 were too vulnerable to particular social milieus and values, therefore, unreliable and not always usable.

Change in definition "Work" the main basis :

It was in this background that on the eve of the 1961 census, it was decided that, emphasis should be on work or non-work of individuals rather than on their income. This marked a major and significant change in the approach to economic studies. According to the revised concept all persons who are engaged in some economic activity for personal or family gain are treated as workers. Contrarily, even persons in receipt of income are treated as non-workers if they are not actively participating in any economic activity of production of service.[7]

'Workers' defined :

A worker is a person whose main activity is participation in any economically productive work by his physical or mental activity. Work involves not only actual work but effective supervision and direction of work. Where the main activity of a person qualifies him to be treated as a worker, he should be further categorised according to the type of work. So basing on this the workers engaged in different sectors have been defined.

'Non-worker' defined :

Those whose main activity is not engaged in any economically productive work are basically categorised as non-workers.

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7. Census of India, Part II-B(1). General EconomicTable.

Comming to the definition of the urban economic sectors, there is general agreement amongst researchers about the activities that are to be included in theprimary and secondary sectors, but the tertiary sector has usually been considered as a rag-bag into which everything that cannot be conveniently fitted anywhere also has been thrown.

In 1938, Colin Clark,[8] used the term "tertiary" to construct a conceptual frame-work which he thought would be helpful in analysing the fields of activity in terms of consumer demands. According to him tertiary sector was (i) Tertiary sector :"All forms of economic activity not included under primary and secondary."[9] He, however, listed these as distribution, transportion, public administration, domestic services and all other activities producing amon material out-put.[10]

Recently ILO[11] has classified the economic activities intems of two sectors which are stated to be relatively homogennus in their function of production. These are:

i) Primary Sector : agriculture, stock raising and fisheries.

ii) Non-primary sector :

(a) activities inwlving an intensive use of capital and skills, mining, modern industry, water, light and

8. Colin Clark (1938), "A note on tertiary production", Economic Journal, Vol.62, p.822.
9. Loc.cit.
10. Loc.cit.
11. International labour office (1970) "Towards full Employment" pp.375-82.

power, transport.

(b) activities involving little use of capital and skills, construction, handicraft industries, trade and personal services.

(c) activities involving heavy use of skills: banking insurance, finance, government services, community services and business services.

The classification is not suited to the purpose of this study because it does not identify the tertiary sector separately.

For the present study we have adopted the classification given by the United Nations of organisation. But in 1961 we have followed the 'Indian Standard Industrial Classification' whereas in 1971 the 'National Industrial Classifidation' have been taken. These are the slight modified version of the UNO scheme. Under this above maintained two schemes, tertiary sector has been defined as follows.

i) Tertiary sector under ISIC : Wholesale and retail trade and financial activities transport, storage and communication, other services and unspecified activities.

ii) Under NIC : Wholesale and retail trade and resturants and hotels, transport, storage and communicaton,

financing, insurance, real-estate and business services, community, social and personal services and lastly activities adequately defined.

Though there is some minor irregularities ofclassification, still then some meaningful generalizations about the structure of the metropolitan cities can be made. As Fisher has aptly remarked, "If a concept (such as that of the tertiary sector) has an identiable hard core we need not be unduly troubled by a certain vagueness and uncertainty on the periphery."[12]

—

12. A.M.B. Fisher quoted in P.T. Bauer and B.S. Yamey (1951), "Economic Progress and Occupational Distribution", Economic Journal, Vol.61, p.743.

A P P E N D I X - IV

Break up of the Tertiary sector occupations into component parts and their classification into : 1. Skilled worker, 2. semi-skilled workers; 3. unskilled workers; 4. unproductive categories. Before giving the break up, the level of skill hasbeen defined as follows :

1. Workers engaged in jobs which require a certain amount of specialized training.
2. Workers engaged in jobs which require very elementary training and use physical rather than mental process.
3. Workers engaged in jobs which require no training at all.

The break up has been given interms of ISIC as well as NIC schemes.

ISIC Scheme - 1961

Census sub-order and group No. 1961	Sl.No.	Details of tertiary sector group	Category
1	2	3	4
60 Wholesale Trade			
600	1	Wholesale trade in cereals and pulses	2
601	2	Wholesale trade in food-stuffs other than sereals and pulses	2
602	3	Wholesale trade in textile and textile products	2
603	4	Wholesale trade in beverages other than intoxicants	2
604	5	Wholesale trade in intoxicants like wines and liquor	2
605	6	Wholesale trade in intoxicants like opium and ganja etc.	2
606	7	Wholesale trade in tobacco and tobacco products	2
607	8	Wholesale trade in animals	2
608	9	Wholesale trade in fodder	2

contd....

1	2	3	4
61 Wholesale Trade			
610	10	Wholesale trade in medicines and chemicals	2
611	11	Wholesale trade in fuel and lighting products	2
612	12	Wholesale trade in toilets and cosmetics	2
613	13	Wholesale trade in metal porocelain and glass utensils	2
614	14	Wholesale trade in wooden, steel and other metalic furnitures	2
615	15	Wholesale trade in foot wear	2
616	16	Wholesale trade in tyres, tubes and allied products	2
617	17	Wholesale trade in petrol, mobil oil and allied products	2
618	18	Wholesale trade in other household equipment not covered above	2
62 Wholesale Trade			
620	19	Wholesale trade in bricks, tiles and other building materials	2
621	20	Wholesale trade in wood, bamboo, thatches and similar production	2
63 Wholesale Trade			
630	21	Wholesale trade in paper and other stationary goods	2
631	22	Wholesale trade in agal and inal machinery and tools other than electric	2
632	23	Wholesale trade in electrical machinary and equipment like motor, batlary etc.	2
633	24	Wholesale trade in all kinds of transport and storage equipments	2
634	25	Wholesale trade in skins, leather and fur	2
635	26	Wholesale trade in clocks, eye glasses and frames	2
636	27	Wholesale trade in hardware and sanitary equipment	2
637	28	Wholesale trade in scientific, medical and surgical instruments	2
638	29	Wholesale trade in precious metals, stones, gold and jwellary etc.	2
639	30	Wholesale trade in all goods not covered above	2
64 Retail Trade			
640	31	Retail trading in cereals, pulses, veg. fruits, sugar, spices	3
641	32	Retail trading in beverages viz. tea, coffee and aerated water	3
642	33	Retail trading in intoxicants viz. wines, liquors	3
643	34	Retail trading in other intoxicants viz ganga, upium etc.	3
644	35	Retail trading in tobacco, bidi, cigarates and other tobacco products	3
645	36	Retail trading in fuel viz. coke, coal, firewood and kerosene	3

contd.....

1	2	3	4
646	37	Retail trading in food stuffs like sweet meal, cakes, biscuits etc.	3
647	38	Retail trading in animals	3
648	39	Retail trading in straw and fodder	3
65 Retail Trade			
650	40	Retail trading in fibres, yarns, dhoti, saree, cotton, silk, wool products	3
651	41	Retail trading in toilet goods, perfumes and cosemetics	3
652	42	Retail trading in medicines and chemicals	3
653	43	Retail trading in footwear, head gear viz. hat, umbrella, shocks etc.	3
654	44	Retail trading in tyres, tubes and allied rubber products	3
655	45	Retail trading in petrol, mobil oil and allied products	3
66 Retail Trade			
660	46	Retail trading in wooden, steel and other metallic furniture and fittings	3
661	47	Retail trading in stationary goods and papers	3
662	48	Retail trading in metal, porocelain and glass utencils	3
663	49	Retail trading in earthwear and earthen toyes	3
664	50	Retail trading in other household equipments not covered above	3
67 Retail Trade			
670	51	Retail trading in bricks, tiles and other building materials	3
671	52	Retail trading in hardware and other sanitary equipments	3
672	53	Retail trading in wood, bamboo cane and thatches	3
673	54	Retail trading in other building meterials	3
68 Retail Trade			
680	55	Retail trading in Ag and inal machinary equipments tools etc.	3
681	56	Retail trading in transport and storage equipments	3
682	57	Retail trading in electrical goods like electric fan and bulb etc.	2
683	58	Retail trading in skins, leather, furs and their products excluding foot wear and head gear	3
684	59	Retail trading in clock, goglass, watch, frame etc.	2
685	60	Retail trading in scientific, medical and surgical instruments	2

contd....

1	2	3	4
686	61	Retail trading in precious stones and jewellary	2
687	62	Retail trading in musical instruments, gramphone pictures etc.	2
688	63	Retail trading in book selling	2
689	64	Retail trading in goods unspecified	3
		69 Trade and Commerce Miscellaneous	
690	65	Import and exporting of goods and commodities	2
691	66	Real estate and properties	2
692	67	Stock, shares and futures	2
693	68	Profidents and insurance	2
694	69	Money landing (indigenous)	2
695	70	Banking and similar type of financial opperative	2
696	71	Auctioneering	2
697	72	Distribution of motion pictures	2
699	73	All other activities connected with trade and commerce not covered above	2
		70 Transport	
700	74	Transporting by railways	2
701	75	Transporting by tramway and bus services	2
702	76	Transporting by motor vehicles (other than bus)	2
703	77	Transporting by roads by other means of transport viz. carriage, ekka, bullock cart.	3
704	78	Transporting by animals viz. horses, elephant, mule, camel etc.	3
705	79	Transporting by man viz. carrying loggage, hand cart driving, rickshaw puller etc.	3
706	80	Transporting by boat, steamer, ferry etc. by river, channel	2
707	81	Transporting by ship, cargo boat by sea and ocean	1
708	82	Transporting by air	1
709	83	Transporting by other means not covered above	2
		71 Transport	
710	84	Services incidental to transport viz. packing, carting travel agency etc.	2
		72 Storage and ware housing	
720	85	Operation of storage such as ware houses	1
721	86	Operation of storage such as cold storage	1
722	87	Operation of storage of other type	1
		73 Communication	
730	88	Postal, telegraphic, wireless, signal communication	1
731	89	Telephone communication	1
732	90	Information and broadcasting	1

contd....

1	2	3	4
80 Public Services			
803	91	Public services in police	1
804	92	Public services in administrative department and offices of central government	1
805	93	Public services in administrative department and offices of quassi government	1
809	94	Public services in administrative department and offices of state government	1
81 Educational and Scientific Services			
810	95	Education services such as rendered by technical institute	1
811	96	Education services such as rendered by non-technical institute	1
812	97	Scientific services and research institute not capable of classification under any individual group	1
82 Medical and Health services			
820	98	Public health and medical services rendered by various media	1
821	99	Veterinary services rendered by organisation and individuals	1
83 Religious and Welfare services			
830	100	Religious services rendered by religious organisation	1
831	101	Religious and allied services rendered by pandit, prist, fakir etc.	1
832	102	Welfare services rendered by organisation operating on a non-profit basis	1
84 Legal services			
840	103	Legal services rendered by barrister, advocate, munsi etc.	1
841	104	Matrimonials services rendered by organisation and individuals	1
85 Business services			
850	105	Engineering services rendered by professional organisations and individuals	1
851	106	Business services rendered by organisations e.g. accountants, auditors etc.	1
852	107	Business services rendered by professional organisation	1
853	108	Business services rendered by professional organisation by news agency, editors, authors etc.	1
86 Community Services and trade labour association			
860	109	Services rendered by trade association, chambers etc.	1

1	2	3	4
861	110	Services rendered by civic, social and cultural organisation	1
862	111	Community services such as those rendered by public libraries, museums, botanical and zoological gardens	1
		87 Recreational Services	
870	112	Production of motion pictures and allied service viz. processing,editing etc.	1
871	113	Production services rendered by cinema houses by exhibition of motion picutre	1
872	114	Recreation services rendered by organisation such as cinema, circus, dancing parties etc.	1
873	115	Recreation services by indoor and out door sport	1
		88 Personal services	
880	116	Services rendered to households such as those by domestic servants,cooks etc.	2
881	117	Services rendered by tutor, private secretary etc.	2
882	118	Services rendered by hotels, boarding houses, eating houses etc.	2
883	119	Laundry services rendered by organisation and individuals	2
884	120	Hair dressing and other services	2
885	121	Services rendered by portrait and commercial photographic studio.	2
		89 Services not elsewhere classified	
890	122	Services rendered by organisations or individuals not elsewhere classified	3
900	123	Activities unspecified and not adequately described including activities of such individuals who fail to provide sufficient information about their industrial affiliation to enable them to be challified	4

Where,

1 is skilled
2 is semi-skilled
3 is unskilled
4 is unproductive and rentless.

N I C Scheme - 1971

Census sub-order and group no.	Sl.No.	Details of tertiary sector group	Category
1	2	3	4
60 Wholesale trade in food, textiles, live animals and intoxicants :			
600	1	Wholesale trade in cereals and pulses	2
601	2	Wholesale trade in foodstuff other than cereals and pulses	2
602	3	Wholesale trade in textile and textile products	2
603	4	Wholesale trade in beverages other than intoxicants	2
604	5	Wholesale trade in toxicants like wines and liquors	2
605	6	Wholesale trade in intoxicants like opium and ganja etc.	2
606	7	Wholesale trade in tobacco and tobacco products	2
607	8	Wholesale trade in animals	2
608	9	Wholesale trade in straw and fodder	2
61 Wholesale trade in fuel, light chemicals, ceramics, glass etc :			
610	10	Wholesale trade in medicines and chemicals	2
611	11	Wholesale trade in fuel and lighting products	2
612	12	Wholesale trade in toilets and cosmetics	2
613	13	Wholesale trade in metal, porocelain and glass utensils	2
62 Wholesale trade in wood, paper other fabrics and skin and inedible oils			
620	14	Wholesale trade in petrol, mobil oil and allied products	2
621	15	Wholesale trade in wood, cane, bamboo etc.	2
622	16	Wholesale trade in paper and other stationary goods	2
623	17	Wholesale trade in skin leather and fur etc.	2
63 Wholesale trade in all types of machinery, equipment including transport and electrical equipments			
630	18	Wholesale trade in agal and industrial machinery	2
631	19	Wholesale trade in electrical machinery and equipments	2
632	20	Wholesale trade in transport and storage equipments	2

contd....

1	2	3	4
64 Wholesale trade in Miscelleneous manufacturing			
640	21	Wholesale trade in furniture and fixtures	2
641	22	Wholesale trade in rubber and rubber products	2
642	23	Wholesale trade in household and equipment not elsewhere classified	2
643	24	Wholesale trade in building materials	2
644	25	Wholesale trade in clocks, eye glasses	2
645	26	Wholesale trade in hardware and sanitary equipments	2
646	27	Wholesale trade in scientific, medical and surgical	2
647	28	Wholesale trade in precious metals, stones etc.	2
649	29	Wholesale trade in goods not elsewhere classified	2
65 Retail trade in food and food articles, beverage, tobacco and intoxicant			
650	30	Grain and grocery stores	3
651	31	Vegetable and fruit selling	3
652	32	Dealers in meat, fish and poultry	3
653	33	Dealers in sweet meal, diary products and eggs	3
654	34	Pan, biddi and cigarate shops	3
655	35	Dealers in aerated water, soft drinks and icecreame	3
656	36	Wine and liquor shops	3
659	37	Retail trading in food and fod articles not elsewhere classified	3
66 Retail trading in textiles			
660	38	Dealers in textiles (non-ready made)	3
661	39	Dealers in ready made garments	3
67 Retail trading in fuel and other household utilities and durable			
670	40	Dealers in fire wood, coal and kerosine oil	3
671	41	Utensil soaps	2
672	42	Fancy stores	2
673	43	Dealers in electrical and electrenic goods	2
674	44	Furniture soaps	2
675	45	Jewellery soaps	2
676	46	Footware soaps	3
679	47	Retail trade in fuel and other household utilities durable not elsewhere classified	3
68 Retail trade in others			
680	48	Medical shops	2
681	49	Booksellers and stationers	3
682	50	Dealers in building material	3
683	51	Dealers in transport equipment	3
684	52	Petrol fillings stations	3
689	53	Retal trade in others not elsewhere classified	3

contd....

1	2	3	4
69 Resturants and Hotels			
690	54	Resturants, cafes and others eating and drinking places	3
691	55	Hotels, rooming houses, camps and other lodging places	3
70 Land Transport			
700	56	Railway transport	2
701	57	Passenger transport by tramway and bus services	2
702	58	Passenger transport by other motor vehicles	2
703	59	Freight transport by motor vehicles	2
704	60	Hackney carriages bullock carts, ekka, tonga etc.	3
705	61	Transport by animals like horses, elephants etc.	3
706	62	Transport by man	3
707	63	Pipeline transport	2
708	64	Supporting services to land transport,	2
71 Water transport			
710	65	Ocean and coastal water transport	1
711	66	Inland water transport	1
712	67	Supporting services to water transport	1
72 Air transport			
720	68	Air transport carries	1
721	69	Supporting services to air-transport	1
73 Services incidental to transport			
730	70	Such aspacking carting travel agency etc.	2
74 Storage and ware housing			
740	71	Ware housing	1
741	72	Cold storage	1
749	73	Not elsewhere classified	1
75 Communication			
750	74	Postal, telegraphic, wireless and signal	1
751	75	Telephone communication	1
759	76	Communicat on not elsewhere classified	1
80 Banking and similar type of financial institutions			
800	77	Banking	2
801	78	Credit institution other than bank	2
809	79	Other financial institution	2

contd....

1	2	3	4
81 Providents and insurance			
810	80	Provident services	2
811	81	Insurance carriers, life	2
819	82	Insurance carriers other then life	2
82 Real-Estate and business service			
820	83	Purchase, sale, letting and oeerating ofreal-estate	2
821	84	Purchase and sale agents and bookers	2
822	85	Auctioneering	2
823	86	Accounting, auditing and book-keeping services	2
824	87	Data processing and tabulation	1
825	88	Engineering, architectural and technical services	1
826	89	Advertising and publicity services	1
827	90	Machinery and equipment rental and leasing	1
828	91	News agencies e.g. P.T.I, U.N.I.	1
829	92	Business servicesexcept machinery etc.	1
83 Legal services			
830	93	Legal services viz. by advocates, barristers etc.	1
90 Public Administration and defence service			
900	94	Public services in the union government	1
901	95	Public services in the state government police services	1
902	96	Public services in the local bodies departsent	1
903	97	Public services in quasi government bodies	1
91 Sanitary services			
910	98	Sanitation and similar services	3
92 Education, scientific and research services			
920	99	Education,services by different technical media	1
921	100	Educational services by non-technical media	1
922	101	Research and scientific services not classified elsewhere	1
93 Medical and health service			
930	102	Medical and health services	1
931	103	Veterinary services	1
94 Community Services			
940	104	Religious services	2
941	105	Welfare services	2
942	106	Business professional and labour organisation	2

contd....

1	2	3	4
949	107	Community services, not elsewhere classified	2
95 Recreational and cultural services			
950	108	Motion picture production	2
951	109	Motion picture distribution and projection	2
952	110	Theatrical producers and entertainment services	1
953	111	Authors, music composers and other independent artists	1
954	112	Radio and T.V. broadcasting	1
955	113	Operation of circus and race -tracks	1
956	114	Libraries, museums, botanical and zoological gardens, zoo, game etc.	1
959	115	Amusement and recreational services not elsewhere classified	1
96 Personal services			
960	116	Domestic services	3
961	117	Laundries, laundry services etc.	2
962	118	Hair dressing	2
963	119	Portrait and commercial photographic studio	2
969	120	Personal services not elsewhere classified	2
980	121	International and other external territorial bodies	1
990	122	Services not else where classified	2
Division X Activities adequately defined			
Xoo	123	Persons without any affiliation to any particular industry	4
X10	124	Activities not adequately defined (other than those in X0)	4

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Table 6.1

Percentage distribution of workers in different tertiary functions in the metropolitan cities of India - 1961

Name of the functions	Name of the Metropolitan cities										
	Calcutta	Bombay	Delhi	Madras	Bangalore	Hyderabad	Nagpur	Kanpur	Jaipur	Lucknow	Agra
Public service	14.71	11.12	30.90	11.82	24.28	22.65	13.88	24.28	25.19	23.27	19.73
Education	2.63	3.34	5.18	5.61	4.98	5.98	7.93	5.03	5.58	5.60	4.30
Transport	16.03	20.82	7.26	15.87	7.87	13.03	22.46	14.45	15.56	15.54	16.69
Storage	0.17	0.24	0.06	0.03	0.001	0.09	0.14	0.15	0.07	0.03	0.05
Communication	1.95	2.01	1.58	2.97	1.79	1.21	3.98	0.80	1.51	2.80	1.38
Law	0.69	0.66	0.45	0.38	0.49	0.53	0.47	0.67	0.85	0.73	0.80
Medicine	2.42	2.77	2.49	3.22	2.78	2.78	2.75	2.05	3.73	3.32	2.61
Domestic	19.33	18.48	10.51	12.63	10.60	13.64	10.65	6.44	7.19	10.56	4.76
Artisan	2.93	3.76	2.78	2.78	2.83	3.69	2.87	3.32	3.05	3.68	3.66
Religion	0.63	0.49	0.68	0.86	0.58	0.75	0.85	0.84	0.97	0.93	0.79
Culture	1.03	0.85	0.72	2.43	0.95	0.65	0.90	0.60	0.69	0.66	0.79
Co-operative	0.87	0.96	1.07	0.81	0.74	0.76	0.95	0.25	0.77	0.92	0.17
Banking	0.97	2.15	1.51	1.94	1.14	0.73	1.31	0.93	0.94	0.93	0.70
Insurance	0.76	1.52	0.62	0.90	0.60	0.34	0.63	0.67	0.45	0.45	-
Real-Estate	2.85	1.84	0.80	4.35	0.63	0.59	-	-	0.53	0.88	-
W.T. in one	1.64	1.57	1.78	0.98	0.48	1.10	0.61	1.09	0.84	0.15	0.36
W.T. in two	2.19	1.98	0.97	1.06	0.39	-	0.75	0.49	0.94	0.32	0.88
W.T. in three	0.80	-	0.69	0.34	0.35	-	0.79	1.28	1.22	0.30	0.33
R.T. in one	10.94	11.00	8.54	7.58	9.20	10.40	15.08	13.78	9.57	10.20	15.92
R.T. in two	9.36	10.81	9.45	8.66	10.86	8.66	9.34	10.57	8.56	10.50	13.75
R.T. in three	1.40	0.48	2.63	1.19	0.33	0.35	1.12	3.07	0.75	0.43	0.79
Unspecified	5.60	3.15	9.33	13.43	16.20	12.07	2.53	9.24	11.64	7.88	11.74
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source : Census of India, Part II-B(1)

Note:

W.T.. = Wholesale trade
R.T. = Retail trade
one = Food stuffs and stimulants
two = Non-food stuffs and personal consumption
three = Equipments and machinery

Table 6.2

Percentage distribution of workers in different tertiary functions in the metropolitan cities of India - 1971

Name of the functions	Name of the metropolitan cities										
	Calcutta	bombay	Delhi	Madras	Bangalore	Hydera-bad	Nagpur	Kanpur	Jaipur	Lucknow	Agra
Public services	11.39	12.32	23.97	28.33	21.75	23.45	18.539	23.79	24.79	26.87	17.93
Education	4.20	5.12	7.77	7.45	6.48	7.43	9.60	7.04	7.70	6.89	5.74
Transport	17.86	17.95	11.17	19.42	19.85	17.38	20.49	12.58	13.64	17.82	20.33
Storage	0.22	0.39	0.81	0.03	0.03	0.02	0.20	0.89	0.04	0.06	0.01
Communication	1.74	2.08	2.59	1.84	1.82	1.74	2.28	1.07	2.21	1.31	1.29
Law	0.47	0.43	0.40	0.32	0.36	0.40	0.39	0.49	0.51	0.57	0.69
Medicine	2.56	3.15	3.10	2.18	3.03	3.22	2.98	2.28	3.41	2.89	2.77
Domestics	16.78	13.10	7.67	8.96	9.43	7.42	6.02	4.95	10.32	7.83	4.08
Artisan	4.51	6.20	12.88	3.68	4.65	6.78	6.70	12.40	6.92	12.68	9.97
Religion	0.77	0.63	0.76	2.02	0.81	0.83	0.74	0.64	0.83	0.66	0.74
Culture	1.22	1.83	1.53	1.23	1.42	1.30	0.83	0.63	1.42	0.60	0.94
Co-operative	0.09	0.31	0.10	0.11	0.13	0.03	0.38	0.50	1.06	0.25	0.81
Banking	2.14	3.56	2.24	2.25	3.34	1.53	2.06	1.91	2.41	1.36	1.02
Insurance	0.64	1.23	0.53	0.35	0.87	0.85	0.56	0.57	0.55	0.48	0.26
Real-Estate	4.75	5.30	1.71	1.38	2.02	5.83	1.82	3.05	2.91	2.54	2.12
W.T. in one	1.14	0.36	0.29	0.84	0.37	0.33	0.57	0.83	0.69	0.67	1.41
W.T. in two	2.02	2.06	0.45	0.28	0.86	0.29	0.29	0.49	0.39	0.35	0.21
W.T. in three	3.19	1.12	1.34	0.39	0.78	0.98	0.38	0.94	0.29	0.33	0.66
R.T. in one	11.67	9.78	7.97	11.09	10.43	12.31	9.93	11.23	9.68	9.73	13.67
R.T. in two	7.02	6.37	6.03	4.82	5.39	5.39	5.07	8.85	5.94	5.24	9.48
R.T. in three	5.62	6.45	7.32	3.13	4.20	2.69	3.18	4.87	4.29	0.97	5.87
Unspecified	-	0.34	-	-	-	-	0.001	-	-	-	-
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.001	100.00	100.00	100.00	100.00

Source : Census of India, Part II-B(ii)

Note :

W.T. = Wholesale trade
R.T. = Retail trade
one = Food stuffs and stimulants
two = Non-food stuffs and personal consumption
three = Equipments and machinery

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