

FORMAL & INFORMAL SECTOR MICRO
ENTERPRISES AND THEIR LINKAGES WITH THE
REST OF THE ECONOMY; A CASE STUDY OF
PESHAWAR URBAN MARKET

By
GHAZALA YASMEEN



DEPARTMENT OF ECONOMICS
UNIVERSITY OF PESHAWAR

DECEMBER 2004

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GHAZALA YASMEEN

*A thesis submitted to the University of Peshawar in partial fulfillment of the
requirements for the Degree of*

**DOCTORATE OF PHILOSOPHY
IN ECONOMICS**

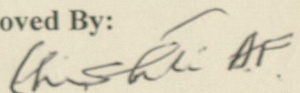
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This is to certify that the present thesis entitled "Formal & Informal Sector Micro Enterprises and their Linkages with Rest of the Economy: A Case Study of Peshawar Urban Market" has been completed by Ms. Ghazala Yasmeen under the supervision of the undersigned in the partial fulfillment for award of the degree of Doctorate of Philosophy in Economics, from the Department of Economics, University of Peshawar.

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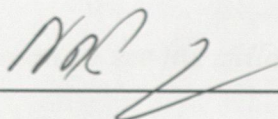
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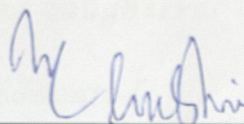
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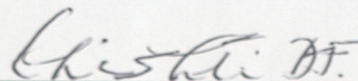
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DEDICATION

I Dedicate This Thesis To My

Father

Dr. Mohammad Shafi (Late)

Who always wanted to see his children

Specially his daughters

Well Educated

Most Merciful and Loving Parents The Most

Gracious and Bewilderingly Holy and

guidance I always solicit at every step

at every moment

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In the name of

ALLAH

*Most Merciful and Compassionate the Most
Gracious and Beneficent whose help and
guidance I always solicit at every step,
at every moment*

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ABBREVIATIONS AND NOMENCLATURES

The following abbreviations and nomenclatures are used through out in this thesis.

Abbreviations Nomenclature

S.d Standard Deviation

Min Minimum

Max Maximum

No. Number

Fig Figure

Rs. Rupees

% Percentage

GHAZALA YASMEEN

ACKNOWLEDGEMENTS

All acclamation and appreciation are for Almighty Allah who bestowed the mankind with knowledge and wisdom, and granted us vigorousness on earth and provided me opportunity and courage to complete this uphill task with his blessing.

The writing of these acknowledgements is a great pleasure for me, since it calls to mind the people whose kindness, attention and hard work helped me to complete this research.

In academia I am highly indebted to my supervisor Prof. Dr. Anwar .F. Chishti whose generous encouragement of new ideas, added with scholarly approach helped me in developing this thesis. He deserves great homage for the devotion of even his personal time in getting the researcher through the crucial last month of the submission of the thesis. He not only supervised intellectually but also provided me moral support to complete this study. I would also like to thank Prof. Dr. Ahmad Khan, Prof. Dr. Aijaz Majid and Prof. Dr. Neemur Rehman Khattak for their valuable suggestions and advice. I express my profound gratitude to my teachers at Economics Department for their support and guidance.

I am also thankful to Arbab Samiullah Khan Research Investigator at Department of Economics, university of Peshawar.

Indeed it give me great pleasure to acknowledge the prayers of my mother, the encouragement and support of my husband, my young children and all my family members when ever I needed their help desperately.

GHAZALA YASMEEN

Abstract

Formal and Informal Sector Micro Enterprises and Their Linkages with Rest of the Economy: A Case of Peshawar Urban Market

This study of 60 cases of micro enterprises, with data for three years (2001-3), found that, on average, a micro enterprise employed 4.54 laborers, with a 70:30 skilled and unskilled labor proportion. A total of Rs.561 thousands were found invested in each micro enterprise with 39:61 capital and non-capital investments. Of the micro enterprises' annual average total purchases of Rs.386 thousands, 15% were made from micro enterprises, 26% from small, 30% from medium and 29% from large businesses. Of the annual average total sale of Rs.1219 thousands, 48% were made to businesses and 52% to final consumers. Of the total sale of Rs.585 thousands to businesses, 19%, 23%, 27% and 31% were made to micro, small, medium and large enterprises, respectively. Micro enterprises, on average, gave rise to Rs.833 thousands per annum as value-addition. Value-addition ranged between Rs.213 thousands and Rs.1908 thousands. It remained fairly stable (CV = 0.4348) over the 2001-2003 period.

Micro enterprise appeared to be the most contributory business medium; first, these provided employment to 4 – 5 persons per micro business and had been found the most labor-intensive businesses compared to small, medium and large enterprises. Second, micro enterprises contributed positively towards capital formation; on average, these increased their total investments by 66.60%, including a 100% increase in fixed capital and 50% increase in working capital. Third, contribution of micro enterprises towards value addition remained the highest (value-addition of Rs.02.19 for every rupee spent on raw-material purchases) compared to other businesses (Rs.01.52, Rs.01.80 and Rs.01.82 for small, medium and large enterprises, respectively). Fourth, micro enterprises contributed, on average, Rs.52 thousands to Rs.59 thousands to family welfare on monthly basis.

Econometric analysis of value addition in micro enterprises suggested that capital investments yielded the greatest positive contribution, followed by training of the entrepreneurs and improvement of skills of the labor engaged. Second, sales to final-consumers accounted for the highest contribution, followed by sales-to-other businesses and sales-to-micro enterprises. Third, purchases (of raw materials), both from other businesses and micro enterprises, being the cost items, were negatively related with value-addition; however, since higher negativity came from purchases-from-other-businesses compared to the purchases-from-micro enterprises, the enhanced purchases from micro enterprises would help increase value-addition. The Leontief Input-Output model helped to estimate the 'extent of backward linkages', namely $bL_j > 1$ for micro enterprises and $bL_j < 1$ for small, medium and large businesses, suggesting that it were only micro enterprises, wherein a unit increase in final demand gave rise to a greater than average impact. The study recommended that establishment and development of micro enterprises be given priority, with special emphasis on more investments in capital goods,

improvement of employees, skills and training of the entrepreneurs. It was further recommended that, without ignoring the importance of sales-to-businesses, sales-to-final-consumers be given special care as well as special emphasis be put on purchases-from-micro enterprises, without ignoring the importance of purchases-from-other businesses.

Chapter 1

Introduction

The term 'urban informal sector' was first introduced by the British anthropologist Keith Hart (1973), when he studied poor city dwellers in Ghana in the early 1970s. Later on, the term was adopted and extensively used by a number of researchers and scholars in their studies of small-scale businesses and micro enterprises, which constituted major part of the urban economies but due to their small sizes, remained unregistered with the government departments for the tax purposes. In the earlier literature, the term was mostly used in negative sense and synonymous to such terms as hidden, black, gray, unreported, illegal and underground economy; but with the passage of time, the researchers started expressing positive attitude towards this sector. Hernando de Soto's 1987 study of the informal sector in Peru was the first one, which made it realized that the informal sector, due to its large size relative to the total economy, could play important role in the development and growth of the economies, specially those of the developing countries.

In fact, the informal sector constitutes a large part (26 to 79% as reported by Todaro 1994; 20 to 60% as reported by Fukuchi 1998) of the developing economies. Pakistan is no exception to this general tendency. There are no direct estimates available; however, Manig (1993) reported that a large majority of the rural loans (approximately 89% in 1972, and 73% in 1985) were obtained from informal sources in Pakistan. Iqbal et al. (1998) investigated into the underground economy and tax evasion in Pakistan and opined that the underground economy expanded from 20% of Pakistan's GDP in 1973 to 51% of the GDP in 1996.

The informal sector mostly consists of very tiny and small businesses, generally referred to as *micro enterprises*. According to Burki and Khan (1990), micro enterprises are business entities employing only 10 or less than 10 workers. Guisinger and Irfan (1980) and Bukri (1990) used this definition for their respective studies. Micro enterprises are also defined on the basis of some peculiar characteristics, such as, ease of entry, family ownership or self employment, personalized relationship, reliance on simple labor intensive technologies and indigenous resources, mixture of full time and part time

apprentice, unpaid family labor; these are some of the special features, which enable micro enterprises to attain considerable degree of flexibility and dynamism to survive in an unregulated but highly competitive market.

It is generally believed that the urban micro enterprises in a developing country can be defined as having high potential to generate employment, create work and entrepreneurial skills and reduce inequality of income due to low cost of production. It is also believed that their fixed costs are low because their production processes involve relatively less capital-intensive technologies and operate at a very small scale of production units. The recent discussion on employment promotion and manpower development in Pakistan is found to have increasingly larger focus on micro enterprises. The emphasis stretches beyond the consideration that micro enterprises absorb an increasingly large segment of the employed. The inability of the medium and large-scale production sectors, to expand its employment base, has led to the need for seeking alternatives productive employment avenues. The fact that labor forces, growing rapidly with over a million and quarter being added annually, have further high lightened this need.

Despite the reported importance and distinguishing characteristics, micro enterprises are largely invisible and neglected. Sufficient information is lacking concerning employment pattern, the nature and extent of its activities and the characteristics of the participants. This lack of data leads to an absence of information on region, and activity specific sub-sectors having employment potential. Moreover, there are unsustainable and mostly irrelevant public sector policies, specifically in trade facilitation and credit provision, which are found to be indifferent towards its promotion. It is no wonder that micro enterprises have developed in an un-coherent and unsystematic manner, which have led to sub-optimal allocation of scarce resources and unproductive employment opportunities. However, this sector is functioning and flourishing despite minimal governmental support. The existing literature does not comprehensively examine the micro enterprise sector of Pakistan. In general, little is known about the size, structure, characteristics, employment and other important functions of these enterprises. An absence of clear and visible information on the size, structure and nature of activities in the micro enterprises has led to the emergence of mushroom activities with no cognizance of market conditions or availability of consumer demand information. Hence,

the number of micro enterprises, facing the risk of failure even at the time of conception, has reportedly increased. Non response of the labor *Market Information System* is the main contributory factor to such failures and act as hindrance to the effective utilization of the employment and income generation potential of the urban micro enterprises. Ghayur (1990) defines labor market information system as an institutional mechanism, facilitating proper development and effective utilization of human resources thereby minimizing, if not eliminating, the imbalance in the demand for and supply of manpower across regions, occupation and genders. It is apparent that future research on micro enterprises in Pakistan would be of no use if it does not cover the stated aspects, including specifically the ones highlighted below.

1. Labor absorption and employment generating capacity of various businesses, specifically that of micro enterprises in comparison with other businesses.
2. Skill development and technology up-gradation in micro enterprises.
3. Linkages of micro enterprises with other businesses and how they affect each other.
4. Contribution of micro enterprises towards total economy, national income, output and family welfare.
5. Growth potential of micro enterprises and specific aspects and areas for intervention.
6. Working conditions, earning potential/earning differential between micro and other enterprises.

Availability of above information seems to be pre-requisite for the preparation of an effective policy for development and growth of the micro enterprises, at both public and private arena. However, in Pakistan, government policies on micro enterprises had reportedly been either improperly formulated or were at variance with the development of this sector. This sector confronted a number of problems, including stagnant technologies, low quality output, low productivity, low and declining vocational technical competence, and absence of micro-micro and micro-other enterprise sectors linkages. It is, however, the opinion of the experts that both formal & informal sector micro enterprises have great potential and capabilities to operate autonomously on the strength of sub contractual relationship with other small, medium and large enterprises. Thus, they

can play a key role in industrial development of the country, provided that they make necessary adjustments and become more competitive and cost efficient.

Development of micro enterprises has special importance for Pakistan, especially in the context of the facts that the Pakistan's economy has been confronted with a number of serious problems for a long time. The ever-increasing foreign debts, incessant budget and trade deficits and similar other economic problems have brought national economy to the brink of collapse. The decade of 1990s and early years of 2000s have specifically been the worst, while we will still have to face the challenges of the globalization and trade liberalization in the remaining period of the current decade. The circumstances warrant that we develop each and every economic sector to rescue our economy from its total collapse and also face the new challenges of the incoming global trade liberalization. Are Pakistan's formal and informal sector micro enterprises ready to play their role? If yes, what role can they play, and how? What are the promising enterprises, and what are the bleak and dismal sub sectors, which need redressal within the informal sector? These are some of the questions, which need to be investigated into through a detailed research study. This piece of research is an attempt towards the stated end.

The formal as well as informal sector is very broad and includes numerous micro-enterprises engaged in heterogeneous economic and business activities. These generally include general and provision stores; vegetable, fruit, milk and bread sellers; sweet makers and bakers; chemists and druggists; tailors and cloth merchants; shoe makers/suppliers; hairdressers/beauty salons; book sellers and publishers; furniture makers and suppliers; electric/gas appliances and electronics goods suppliers; electric/gas appliances and electronics goods repair workshops; motor vehicle spares/lubricants/battery/tyres dealers; motor vehicle repair workshops; motor bargains; real estate/property dealers; paints dealers; steel and other similar house building materials suppliers; cement/bricks/tiles suppliers; tea stalls, food shops and restaurants and the like. Hence, some businesses provide services, some goods and products produced by others, and some are themselves engaged in some type of manufacturing/semi-manufacturing jobs and businesses. The people belonging to this last category seem relatively more important as they possess special skills and also contribute in value addition. Hence, for this study, this researcher specifically selected those formal

and informal sector micro enterprises that contributed in value-addition, and some of such 'value-added' enterprises include:

1. Furniture and Fixture
 - a) Wooden
 - b) Iron/steel
 - c) Fiber glass
 - d) Other materials
2. Manufacturing/Mechanical/Engineering-based Products
 - a) Auto industry spare parts
 - b) Nuts and bolts
 - c) Building materials
 - d) Others
3. Electric/Gas/Electronic Appliances
 - a) Electric appliances
 - b) Gas appliances
 - c) Electronics appliances
 - d) Others

The above stated selected enterprises were studied to pursue the following objectives, using the methodological framework explained in Chapter 3.

Goal and Objectives of the Study

The study was carried out to achieve the following specific objectives.

1. To study the role and contribution of formal and informal sector micro enterprises, particularly in the socio-economic development of the country.
2. To observe linkages between micro enterprises and other/rest-of-the-economy businesses, and evaluate the share and contribution towards each other's value-addition.
3. To assess micro enterprises' contribution towards family's welfare, skill and employment generation and capital formation.

4. To evaluate problems and prospects of informal and formal sector micro enterprises, identify the factors responsible for failures and successes and pinpoint the major areas for improvement/intervention.
5. To suggest policy prescriptions based on the findings of the study.

Importance and Scope of the Study

This study on micro enterprises and their contribution & usefulness had several important aspects. First, like many other developing countries, Pakistan's economy largely depends on formal and informal micro enterprises that not only contribute a great proportion of rural and urban businesses sector, but also affect other small, medium and large businesses through their forward and backward linkages with rest of the economy. The previous research conducted in Pakistan has specially been deficit on highlighting this aspect of forward and backward linkages. This study primarily aimed at to figure out and quantify such linkages of micro enterprises with rest of the economy. This research thus would provide data on such linkages. This information would be of immense use for persons of varied interests including planners, policy makers, researchers and all other having interest in micro enterprises, small and large businesses.

Second, the methodology designed for this study has special edge over many similar studies already conducted in Pakistan. Of the two models used, the Leontief Input-Output Analytic model helped in quantifying the backward linkages of micro enterprises with rest-of-the-economy businesses. The second (econometrics) model, in addition, analyzed various factors responsible for value-addition, especially in micro enterprises. This methodology and its application, and the implementations discussed are expected to provide good methodological background to be followed by other researchers interested in quantitative research. There is a great need to encourage quantitative research in Pakistan, and this study will help to promote this stated objective.

Finally, the findings of the study, conclusions drawn and recommendations presented would help stakeholders to frame and improve their strategies for an overall development of micro enterprises and its expansion and promotion on sustainable basis.

Organization of the Study

Our study is divided into 5 chapters. The first chapter introduces the topic, explains the problem to be investigated into, sets the goal and objectives of the study and concludes, explaining the importance, scope and limitations of the study. In chapter 2 the relevant literature has been presented, giving relevant literature in general, literature relevant to Pakistan's situation and conclusions drawn on the basis of literature reviewed. The third chapter describes the research methodology adopted for data collection and its analysis. Detailed deliberation of the analysis of data and its discussions are presented in chapter 4; this chapter uses mean values and graphical analysis as well as econometric modeling techniques and mathematical programming (Leontief Input-Output Model) for analyzing the data and drawing conclusions regarding phenomenon under study. The final and fifth chapter presents summary, conclusion and policy recommendations. This chapter is followed by bibliography and appendices.

Limitations of the Study

Like any other research study, this piece of research is also not devoid of limitations. Some of limitations are elaborated, as follows.

1. This study is restricted to Peshawar urban market only and, therefore, only those micro and other enterprises are covered which are located in Peshawar.
2. The data base is limited to only 180 observations of micro enterprises, 90 observations of small scale enterprises, 45 observations of medium scale enterprises and 15 cases of large scale enterprises.
3. Further, the data are limited and relevant to only 3 years (2001-2003).
4. Though, this study has analyzed the data, using mean values and graphical analysis coupled with econometric techniques and mathematical programming analyzing techniques; however, such sophisticated techniques have their own limitations best known to researchers.

5. The data used are cross-sectional, collected from the respondents through interview schedule and therefore the reliability of the data depends on limitations and constraints of the respondents.

Formal and Informal Sector and Micro Enterprises

Evolution and Importance of Micro Enterprises

Levy (1989), Young (1993), Chikanda and Sankara (1991), Ali (1991), Khan (1992), Evans and Curran (1991), Kilian (1991) and Leitch et al. (1992) studied formal and informal sector which emphasizes on the role and importance of micro enterprises.

Leitch (1989) described small enterprises as very small business employing a single self-employed person, a family or at the most a few employees and noted that such enterprises were the main source of employment for up to half of the population of most of the developing countries. He further mentioned that in the past, the legal sector was more prevalent in the informal sector and had received inadequate attention, but with the passage of time, this sector got attention of the government and bilateral agencies and non-governmental organizations, which were essential for steps to help it meet the challenges of the world progress operations and ensure that it makes a greater contribution to the development of the Third World.

Young (1993) reported that Grameen Bank was started as a small personal project by a village head in Chittagong University campus, Bangladesh. It started as a group bank which was to grow into a bank owned by the poor (75% of the share was owned by the service borrowers, the remaining 25% by the Government of Bangladesh). In the year 1991 it had 400 000 members. 85% of them were women and were living in 100 000 villages. It had a recovery rate of 98 percent. It was now expanding to 1000 villages. Its organizational structure was described as highly decentralized and it had a participatory decision-making system.

Chapter 2

Review of Literature

This chapter is divided into three sections. In the first section relevant literature is presented and reviewed. The second section has been devoted to studies and researches carried out in Pakistan. In the third section, conclusions are drawn and presented based on the literature reviewed.

Formal and Informal Sector and Micro Enterprises

Size and Importance of Micro Enterprises

Levitsky (1989), Yunus (1989), Chickering and Salahdine (1991), Ali (1991), Nigam (1992), Evers and Cammann (1992), Manig (1993) and Leifheit et al. (1993) studied formal and informal sector micro enterprises putting more emphasis on size and importance of micro enterprises.

Levitsky (1989) described micro enterprises as very small business consisting of a single self-employed person, a family, or at the most a few employees and noted that such enterprises were the main source of livelihood for up to half of the population of most of the developing countries. He further mentioned that, in the past, this vital sector was often referred to as the informal sector and had received inadequate attention, but with the passage of time, this sector got attention of the multilateral and bilateral agencies and non-governmental organizations, who were searching for ways to help improve the effectiveness of these micro enterprise operations and enable them to make a greater contribution to the development of the Third World.

Yunus (1989) reported that Grameen Bank was started as a small personal project in 1976 in a village next to Chittagong University campus, Bangladesh. It struggled through several years to grow into a bank owned by the poor (75% of the shares were owned by the landless borrowers, the remaining 25% by the Government of Bangladesh) for the poor. Today it had 400 000 borrowers, 82% of whom were women and from lending \$2.5 million each month it had a recovery rate of 98 percent. It had 400 branches working in 8000 villages. Its organizational structure was described as highly decentralized and it had a participatory decision making process.

Chickering and Salahdine (1991) mentioned that since the beginning of the 1970s, the informal sector, or underground economy, as it was commonly known in the industrial countries, had become a subject of increasing attention for scholars and policy makers. The role of the informal sector became the subject of heated debate following the publication of Hernando de Soto's 1987 study of the informal sector in Peru. De Soto argued that government institutions and policies were systematically excluding the poor from full participation in the economic and social life of Peru. They wanted to explore, in several Asian and Near Eastern countries, many of the issues De Soto had risen in Peru to ascertain whether or not his work represented an important new theory about developing countries generally. The case studies in their book were concerned with a series of questions and issues relating to the dynamic world of informal micro enterprise. It addressed the importance of the informal sector in economic and social life, identified those involved, attempted to determine which model best described it, the bureaucratic/Newtonian model or the self-governing/entrepreneurial one and looked at the links between policy and informality. The case studies came from Morocco, the Philippines, Sri Lanka, Thailand and Bangladesh.

Ali (1991) while studying the importance of the informal sector in economic development found that there were 15 types of work being undertaken by the women respondents in Multan, with embroidery and tailoring being done by the majority. On average each women was undertaking four different jobs, although the majority were illiterate and had no formal training. They were utilizing their efforts and time up to the maximum, and were contributing 33% to the income of the family. Their main hindrance was the low wages they received

Nigam (1992) noted that home-based women workers in the self-employed and informal sector played a crucial role in the development of the economy, both at the level of the family and at national level. These women were extremely vulnerable to exploitation, and were invisible to society, and were therefore ignored by legislators, planners and policy makers. It was observed that there were more women than men in household employment: rural areas accounted for more household employment; there was a concentration of women in low paid exploitative industries; wages were very low; middlemen sold the final products at very high prices; and women were prone to

exploitation by lack of education and training. Organizing these workers and providing them with education and training were extremely important in ameliorating their conditions and improving their status.

Evers and Cammann (1992) observed that Javanese petty trade, carried out primarily by women, had become paradigmatic for a particular type of economy, which Geertz (1963) had called 'bazaar economy' in contrast to a 'firm type economy'. They mentioned that petty trade was not a sign of economic stagnation, but showed strong adaptive capacity, was efficient in supplying a very rapidly growing population with fresh food and consumer items, and reduced rural-urban migration and the rate of urbanization. The Traders' Dilemma meant that trade required solidarity among traders and social and cultural distance from customers. The dilemma could be solved by (1) immigration; (2) formation of ethnic or religious groups; (3) accumulation of status honor; (4) emergence of cash-and-carry petty trade; and (5) depersonalization of economic relations. Javanese trade emerged as highly differentiated, whilst petty trade was often at the subsistence level with no margin left for sharing or redistribution.

Manig (1993) observed that the establishment of an appropriate institutional infrastructure for supplying credit to the rural population could contribute towards reducing poverty and, thus, towards improving food security. In many developing countries, including Pakistan, formal-legal credit institutions were established in the rural areas for implementing (mostly subsidized) national credit programs. However, the analysis of the credit market showed that a large majority of the rural loans were obtained from informal sources (family, friends, traders, landowners); approximately 89% in 1972, and 73% in 1985. Informal credit as a component of the interpersonal relation network was, in the case of smallholdings in particular, of considerable importance for financing income-increasing activities. This raised the question of whether the formal-legal credit system was not overestimated and inefficient in assuming its function in development policy. In contrast, the informal credit system, which was unjustly underestimated due to prejudices and unawareness, was far better adapted to the multifarious conditions in rural areas. It should be examined whether this market should not be more strongly developed; at least until the formal-legal credit system was in a position to assume its functions adequately.

Leifheit et al. (1993) pointed out that the concept of the small-scale enterprise as a vehicle for development had, in the past, been based on the urban informal sector, neglecting the rural areas. However, between 30% and 50% of rural cash income was generated in the rural non-farm sector, 50% of which enterprises only employed one person and were generally managed as part-time occupations.

Activities, Strength and Weaknesses

Sow (1993), Jeans et al. (1991), Okelo (1989), Mizuno (1993), Goss et al (1989), Esguerra (1993), Aleem & Hoff (1993) and Atidegla & Breth (1994), and Evers & Mehmet (1994) distinguished the activities, strength and weaknesses of micro enterprises.

Sow (1993) studied the growing importance of women's initiatives in peasant strategies, informal sector and businesses, and found new openings and opportunities for women which had an impact on their status, role and participation in production. The changes had brought back the issue of power distribution between the sexes within the family and in society. However, the major problem revealed was that development policies had never established a serious, continuous and sustainable policy towards women's initiatives. Women's participation in development policies remained dominated by insignificant projects in spite of the existence of numerous concrete initiatives, including the emergence from the informal sector of a group of entrepreneurs who dominated that sector. Women's role as active participants in the economy was fully recognized and accepted; this needs to be translated into practice in institutions, in the granting of credit, and in removal of sexual discrimination.

Jeans et al. (1991) discussed the importance of technologies to the survival, growth and expansion of micro enterprises and argued that credit alone was insufficient to generate the productivity increases required for long-term economic growth and poverty alleviation. There was need to transfer technology to project design issues, strengthening commandments, training and marketing assistance. Such transfers could enable small producers to reduce costs (through faster production), increase labor savings, and allow for the substitution of cheaper materials as well as lower fuel costs while increasing process efficiency. Better informed selection and organization of equipment, tools and

labor could, in the long-term, reduce the working and fixed capital requirements of entrepreneurs and help them to use credit more effectively.

Okelo (1989) used the term 'micro enterprise' to refer to very small non-farm income generating units in the informal sector and/or engaged in artisan operations, family business or cottage industries employing five or less persons and with minimum capital assets, and analyzed the problems of enterprise development, particularly those encountered in helping women, and proposed ways in which governments, the business community and donors could assist in enterprise development. He focused attention on constraints to micro enterprise development including shortage of finance, marketing problems, inadequate access to technological information, weak accounting and social values, institutional and legal structures. Means of improving the situation were then outlined. It was argued that African governments and the donor community must adopt a more comprehensive view of looking beyond the traditional sphere of industrial policy and should also include agricultural pricing and income policies as well as general trade and foreign exchange policy.

Mizuno (1993) reported that Indonesia's rural weaving industry, which was developed into a factory production system in the mid-1960s, declined rapidly from the end of the 1960s because foreign companies and Chinese-Indonesian capital invested massively in the textile industry. Faced with a crisis, the rural weaving industry in the village created a new division of labor. Cheaper products made of lower quality thread were channeled by village traders to low-income strata in urban and rural areas across the country. Former factory managers became traders who organized a sub-contracting system with weavers by supplying them with thread, and petty traders now buy weaving products. All weavers in the village became petty commodity producers. The dominance of petty commodity production in place of the factory production system could be explained by the desire of low strata households to be economically independent rather than waged laborers, and by the fact that the factory production system could not be maintained economically. The division of labor in the village was based on the economic differentiation of the villagers. Weavers who were landless or near-landless continued to weave with minimal working capital, and had a multiplicity of occupations, consisting of petty commodity production and wage labor, including labor in the urban informal sector.

Gosses et al. (1989) observed that small enterprise development required rethinking of the issues at hand, re-ordering of priorities, and indeed innovative ways of intervention. This was true for donors, researchers, professionals and practitioners. The analysis of both the supply and demand-side interventions by donors presented a strong case for not only reformulating the way small enterprises develop, but especially the mechanics of any intervention put forward. They concluded that the supply-side approach, depending on the context and particular conditions, had worked only to a limited extent.

Esguerra (1993) found that informal lenders included landlords and cultivators, agricultural commodity traders and input dealers, grain millers, ambulant merchants, retail store owners, fixed-salary employees and occasional moneylenders. Given that different lenders employed different forms of market interlinkage (e.g., labor-credit, land-credit, output-credit) or none at all, a key argument was that informal creditors differed in their abilities to deal with information and enforcement problems in the credit market. Consequently, informal lenders transact only with specific segments of the rural borrowing population about whom they were relatively well-informed and with whom they were capable of enforcing repayment.

Aleem and Hoff (1993) examined the services, costs and charges of informal market money-lenders and found that estimates of the resource costs incurred by informal lenders for screening, pursuing delinquent loans, overheads, and cost of capital (including unrecoverable loans) suggest that lenders' charges were equal to their average cost of lending but exceeded their marginal cost. This finding was consistent with the view that the informal credit market was characterized by excess capacity and monopolistic competition in the presence of imperfect information.

Atidegla and Breth (1994) analyzed the problems of the food-producing sector of Benin where food processing was considered an informal and marginalized business but had demonstrated dynamism and a capacity to adapt to the socioeconomic changes overtaking the country. The increased activity was most notable in the production of Gari (Cassava meal). It was noticed that, in general, the performance of the enterprises depended on strong internal organization, access to capital, a favorable environment, and the goals of the heads of the enterprises. Thus, the individual enterprises seemed to perform better than the collectives. Nonetheless only 25% of the enterprises functioned under optimum

conditions for net gains and returns on investment. This was why the emergence of an effective sector of small and medium enterprises required that constraints be lifted by creating a technologically and socio economically favorable environment, particularly an appropriate credit policy.

Evers and Mehmet (1994) analyzed the economic conditions of the informal trade sector and risk avoidance strategies through a large-scale survey on informal sector trade in Central Java, Indonesia. They reported that petty traders had to solve the 'traders' dilemma' by extracting themselves from the moral obligations of sharing and redistribution to relatives and neighbors. Among the major risk-reduction strategies were: inventory minimization by daily replenishment of stocks; avoidance of long-term credit; and formalization of relations with government agencies. The results showed that petty traders had successfully designed risk-averting or risk avoiding strategies; although they were profit-seekers, cultural reasons forced trading to be carried out under uncertain conditions.

Contributions to Development of Third World

Ifah and Okwute (1994) and Mawuli and Yala(1995) reported the role of micro enterprises in the socio- economic development of the third word countries.

Ifah and Okwute (1994) studied the problems, prospects and socioeconomic contributions of micro enterprises in the North Eastern Nigeria and found that most of the businesses had received their initial capital from either personal or family savings; were less than four years old; had only one or no branches; were not registered or insured; earned over N1000 monthly profits; and were debt-free. The majority of the businesses were open more than nine hours daily; and employed through family sources, on average, three paid workers. The biggest problem facing the micro enterprises was that of finance, followed by government regulations. The authors recommended the establishment of a 'Micro Enterprise Commission' to coordinate various activities provide facilities and establish standards. They concluded that micro enterprises contribute immensely toward revenue and employment generation and skill acquisition and hence would play a vital role in the economic growth and development of Nigeria.

Mawuli and Yala (1995) reported that, as in most developing economies, flourishing small-scale economic activities in agriculture (including fishing) had long existed in

Papua New Guinea, providing informal job opportunities and food for millions of people. With the introduction of cash crops and the onset of urbanization and industrialization, a large number of informal small enterprises had become an integral part of the monetary economy. There was a growing desire to promote a broad-based small enterprise sector to help the problems of unemployment and extreme income deprivation. The Papua New Guinea government has developed a positive discriminatory stance towards small business development, with initiatives including a wide range of programs, grants, subsidies, tax incentives, loans or credits, guarantee schemes, cash crop price support, and extension and training services. However, many programs were short-lived and few had yielded positive returns. No single policy or program could be cited as 'best' for promoting micro enterprises. It was concluded that what was required was flexibility in designing a program package and persistence in its implementation to meet the specific needs of a targeted group, even as their needs changed.

Research Studies Carried Out In Pakistan

Pioneer Studies

There has been very limited research studies carried out on small scale businesses and micro enterprises relating to both formal and informal sector in Pakistan until the late 1980s. Studies on informal sector have specially been lacking in number as well as in providing sufficient information concerning employment pattern, the nature and activities and characteristics of participants in informal sector. Even the Census of Establishment conducted in 1988 did not provide information on investment requirements, marketing bottlenecks and potential areas of the establishments surveyed. Government also remained silent; its policies for trade, credit and tariffs were especially indifferent towards promotion of informal sector (Ghayur, 1990; p.v). The policy makers in the government had their own perspective; they treated the informal sector as an additional source of revenue and mostly tried to bring it under direct taxation without realization that the sector had been contributing significantly through indirect taxation, and direct taxation would adversely affect its development and growth (Ahmad 1990; p.vii)

The researchers in Pakistan got interested in the study of informal sector in the late 1980s and early 1990s when a number of studies including Aftab (1990), Ahmad and Arshad

(1990), Burki (1990), Chaudhry (1990), Ferks, Thomas and Tomesen (1989), Kazi (1987), Kibria (1990), Mahmood (1990) and Nadvi (1990) came to the surface. These earlier studies examined various aspects of the informal sector including wage rates, labor productivity, capital intensity, skill development and constraints on the growth of small scale units. These initial studies also brought out the main characteristics of informal sector activities and constraints on their growth. However, these studies were carried out in isolation from each other, and were based on small sample surveys. Most of these studies, therefore, came up with conflicting evidences and contradictory policy suggestions which reduced the utility of their findings (Kemal and Mahmood, 1998; p.2).

Constraints on Growth of Informal Sector

In September 1990, a national seminar on "Informal Sector of Pakistan" was organized jointly by the Friedrich Ebert Stiftung and Quaid-e-Azam University, Islamabad. Problems of the sector were discussed and the government policies were analyzed. It was concluded that the government policies were either improperly formulated or were at variance with the development of informal sector; the sector was confronted with a number of problems including stagnant technologies, low quality output, low productivity, almost no access to inputs market at rates comparable to formal market, existence of discriminatory policies, almost no access to institutional credit, low and declining vocational technical competence, low managerial competence, long working hours, existence of and exploitation of middle-men, poor working conditions, and absence of informal-informal and informal-formal sectors linkages.

A number of good research articles were presented at the seminar; of special mention are that of Ahmad (1990), Mahmood (1990), Herman (1990), Ghayur (1990), Kibria (1990), Aftab (1990), Khan (1990), Ahmad (1990), Ahmad et al. (1990) and Burki and Khan (1990). Ahmad (1990) advocated that the informal sector by virtue of its size, characteristics and as an absorber of increasing number of entrants into the urban labor market could neither be left alone nor brought under the domain of rules and regulations. He also emphasized for cessation of efforts directed towards bringing this sector under direct taxation on the grounds that it was already contributing significantly through indirect taxes, and therefore direct taxation would effect development and growth of the informal sector adversely. Mehmood (1991) put more emphasis on conducting future

studies on characteristics and size of the informal sector units, conditions under which labor was being absorbed, potential conflicts on the promotion of the informal sector versus the formal one and the role of government concerning constraints on access to resources and markets by the informal sector businesses. He argued that availability of such information would be pre-requisite for the preparation of an effective policy for the development of informal sector. Herman (1990) expressed the view that available data on informal sector was fragmented and offered no chance for aggregation and macro level analysis. He suggested that validity of information on informal sector be enhanced by gathering the data under a wide frame work consisting of as many dimensions as possible.

Kibriya (1990) expressed that the dynamism, initiative and entrepreneurship of the "mistry" or Craftsman had been responsible for a sustained growth and development of engineering industries in the informal sector. He argued that this sector had reached a point where further development required government support and encouraging the fields of technologies and skill up gradation, access to input market and institutional credit, and more importantly cessation of discriminating and discouraging policies. Aftab (1990) reviewed spontaneous emergency of small scale agricultural engineering and informal sector in the sixties and its drastic decline in the seventies and opined that limited technological and organizational experience, weak market connection, lack of access to the capital market, absence of vertical specialization and sub-contracting arrangements acted as constraints in the growth and development of this industry. Khan (1990) pointed out that the size of informal sector female entrepreneurs rose more than that of the formal sector female entrepreneurs.

Ahmad (1990) pointed out that the home based piece-rate workers comprised important segment of the activities of women in the informal sector. These workers were however different from self employed or petty producers as they had no control over the choice of work and wages. Half of such workers were illiterate, three-fourth had six to ten family members; and each contributed to about one-quarter of her family income. Ahmad et al. (1990) estimated income differentials for a variety of activities by level of skills and age. They found income to be positively correlated with the middle and matric levels of education. Burki and Khan (1990) reported that average return for an additional year of

schooling and experience was positive and returns were higher for skilled workers than self-employed. Schooling experience and vocational training had positive and significant inputs upon earning and about one-fourth of earnings were attributed to such variables.

Detailed Studies on Informal Sector

In the early 1990s, Kemal and Mahmood (1993) carried out a detailed study of the informal sector of Pakistan. In order to give a good representation to both production activities (manufacturing, trade, transport and services) and geographical distribution (various provinces), they selected a sample of 1500 units consisting of 50% from manufacturing sector, 20% from services and 15% each from the trade and transport sectors. In total, 900 units were taken from Punjab, 400 from Sind and 100 each from Baluchistan and NWFP. They reported that the informal sector of Pakistan was both large and growing rapidly. Contrary to the general impression that not many educated persons would join the informal sector, as many as 80 percent entrepreneurs in the informal sector had some formal education. As a matter of fact, more than half the workers had at least secondary education and about three percent of the self-employed in the informal sector even had the post-graduate degrees. More than half of the self-employed had received some kind of training. However, most of the entrepreneurs received informal training in the form of Ustad-Shagird (master-trainee); only a small proportion of entrepreneurs had received formal training. The Ustad Shagird system allowed training facilities to all those who did not have sufficient funds to obtain formal training. At the same time Ustad got a very low-paid worker who was willing to put as many hours as a regular worker did. As a matter of fact, a large number of the self-employed worked in the formal sector to accumulate savings before joining the informal sector. Informal sector enterprise were generally owned by the single individuals; jointly owned firms were less than ten percent of the total firms. Almost two-third firms in the informal sector did not own their premises. Subcontracting was practiced mainly in the manufacturing sector; only a few firms in the services sector practice sub-contracting. On average, three quarters of the subcontracting work was done for the formal sector and one-fourth amongst the informal sector firms. While the informal sector was exempted from the payment of sales taxes and excise duties, they paid different kinds of taxes including income tax, professional tax and municipal taxes. As 79% manufactures, 77% traders, 56% entrepreneurs in the

service sector and 12% transporters paid income tax. The workers worked for very long hours. The self employed worked for 59 hours, family helpers for 61 hours, full time workers for 57 hours, casual workers for 64 hours and shagirds for 55 hours per week. It shows that higher productivity in the informal sector was at least partly a reflection of the labor exploitation. Capital labor ratio had been substantially low. Similarly, the capital-output ratio had also been low. On average, the capital-output ratio had been 1.28 which was substantially lower than the average for the economy (3.0). As many as 94 percent firms in the manufacturing sector and 95.6 percent firms in the services sector were not fully utilizing their capital, the average rate of under utilization has been 41.5 percent in the manufacturing sector and 24.6 percent in the services sector. Family savings accounted for more than half the funds while entrepreneurs own savings accounted for about ten percent of total investment in the informal sector. The savings from abroad accounted for 6 percent, loans from banks 8 percent, money lenders 0.05 percent, and reinvested profits about 7 percent of the funds. The prospects of the growth of the informal sector were quite promising. More than half the producers felt that there could be a profitable entry into their activities. Moreover, in view of the bright prospects, the existing units wanted to expand, but the lack of finances, in general, had not allowed them to do so. Lack of raw materials, access to technology and some other factors had also constrained their expansion. The existing structure of incentives seriously distorted the resource allocation. The distortions might be removed by withdrawing the exemptions from payment of sales taxes and excise taxes; and by equalizing the rate of import duty on commercial and industrial users. The rationalization of incentives would promote an efficient informal sector which would allow both the new firms to enter and the existing firms to expand. Non-availability of credit to micro enterprises had been due to two main factors. First, whereas it was more expensive to lend money to small producers due to higher transaction costs, risk, etc., government had been asking the financial institutions to charge lower interest rates. This discouraged the financial institutions to lend to micro enterprises and encouraged the rent-seeking influential persons to pre-empt credit allocated to small producers. Second, the informal sector enterprises did not have the collateral required by the financial institutions. Therefore, the study proposed that the subsidy in terms of interest rate be withdrawn and concessions be provided in terms of

collateral, e.g. hypothecation of raw materials or machinery may be taken as collateral. Sub-contracting needed to be made more profitable by suitable changes in the policy which offset the cost disadvantages. The child labor accounted for about 5 percent of total labor force employed in the informal sector. The phenomenon of child labor might grow further with the informal sector growth and as such some concrete measures need to be taken to eliminate the practice of child labor. The initial steps must include effective enforcement of the legislation regarding minimum age for work in the informal sector. Other steps may include compulsory free education coupled with free lunches which may encourage parents to send their children to schools, and creation of public awareness through media and community contact about the exploitation of child labor.

Iqbal et al. (1998) investigated into the size of the underground economy in Pakistan and found that the size of the overall underground economy increased from Rs.15 billion in 1973 to Rs.1115 billion in 1996. The underground economy, expressed as a percentage of GDP, was 20 percent in 1973, which increased to 51 percent in 1996. The total tax evasion in Pakistan in 1973 was Rs.1.5 billion, which increased to Rs.152 billion in 1996. They also found that the rate of growth in the informal economy was higher than the rate of growth of the formal economy. The cost to society of the large and growing size of the underground activities must be immense. The loss of tax revenues and the demand on public services by underground activities should be an important contributing factor for the high fiscal deficit. The high and uncertain cost of doing business, when the element of discretion exercisable by the public officials was pervasive, should be an important constraint for the private sector-led development strategy. They expressed that economic liberalization; fiscal discipline, enhanced space for the private sector; tax reforms and transparent decision-making would be some of the areas where policy changes needed. Isolated punitive actions would not be helpful.

Kemal and Mahmood (1998a) indicated that the informal sector of Pakistan was both large and growing, and had large potential for generating employment opportunities. They also described the general characteristics of the workers in the informal sector and repeated about the same findings as they reported in their earlier work (Kamel and Mahmood, 1993).

Kemal and Mahmood (1998b) emphasized that, considering the potential of informal sector in generating employment opportunities; it required that this sector be promoted, by removing constraints and bottlenecks. At the same time, some of the informal sector had flourished only because of the tax exemptions and avoidance of labor regulations. Similarly, the workers were exploited in terms of low wages and longer hours of work. It also encouraged child labor and thus constrained the accumulation of human capital in the country. They also expressed that micro enterprises were labor-intensive and, as such with limited availability of capital, they could be effectively utilized to generate productive employment. However, the existing structure of incentives discriminated against the informal sector enterprises. There was a need to rationalize the incentive structure to promote an efficient informal sector. While the exemptions from payment of sales taxes and excise taxes which interfered with efficient-resource allocation be withdrawn, the rate of import duty on commercial and industrial users be equalized so that they do not have to pay higher costs for imported raw materials. Low productivity of workers, especially in the service sectors, had mainly been due to the fact that the workers were using out-dated hand tools. High rates of import duty made the imported tools expensive, while the quality of domestically produced hand tools, due to protection, had been rather poor. Allowing the import of tools freely at minimum duty would help in resolving the problem. The micro enterprises had a large potential to expand, yet due to various constraints, they had failed to realize their potential. Lack of finances had been the major constraint. The institutional credit accounted for a very small proportion of the total investment in the informal sector. The demand for goods produced in the informal sector was major constraining factor. In general, goods produced by the informal sector were of poor quality and sub-standard. Government may consider providing facilities of testing, quality control and gradation against a nominal cost. Besides, same facilities of concessions in import duty be provided to sub-contractors as are provided to those who subcontract. A dissemination centre which helps in integrating the export markets with the micro-enterprises would be quite useful. Provision of the facilities of export finances to indirect exporters would also be helpful.

In his latest work on the growth potential of small and medium industries in Pakistan, Mahmood (1999) defined small and medium industries (SMIs) as those firms which

employed 10 to 49 and 50 to 99 workers, respectively. He pointed out that, in spite of the fact that there had been no explicit government policy framework for SMIs, the significant contribution of SMIs to national production and employment, coupled with important shares in exports, had made them potential source of sustainable growth and development. These SMIs had the capabilities to operate autonomously on the strength of sub contractual relationship with other SMIs and large enterprises. He cautioned that, though the SMIs could play a key role in industrial development of the country, they would face a number of problems in international marketing operations. In the changing global trading environment and launching of policy of economic reforms and liberalization, the SMIs would have to make adjustments to become competitive and efficient.

Conclusions Based On Literature Reviewed

The literature reviewed brings out a number of significant points which might be of some relevance to the people interested in the study and research on various aspects of micro enterprises and informal sector. The points raised are summarized and presented, as follows.

1. Definition of Informal Sector

The term 'urban informal sector' was first used in the early 1970s by the British Anthropologist Keith Hart (1973) while he was studying poor city dwellers in Ghana in 1973. Later on, the term was adopted and extensively used by a number of researchers and scholars in their studies of small scale businesses and micro enterprises which constituted major part of the urban economies but remained unregistered with the government departments for tax purposes. In the earlier literature, the term was used synonymous to such terms as hidden, black, gray, unreported, illegal and underground economy; but with the passage of time, the researchers started expressing mixed and positive attitude towards this sector. Hernando de Soto's 1987 study of the informal sector in Peru caused a great break through in researcher's attitudes towards the informal sector. This study raised a number of good points including the possible positive role the informal sector could play due to its large size relative to the total economy, and the fact that the government institutions and policies, while ignoring the informal sector, were

"systematically excluding the poor from full participation in the economic and social life" of the developing countries.

2. Size and Importance of Formal & Informal Sector Micro Enterprises

A number of researchers pointed out the big size and the relative importance of the informal sector. Feige (1990) estimated that, of the total employed, 60% in Bogota, 40% in Peru, 28% in Mexico and Columbia, 23% in Argentina and 20% in Venezuela were in informal sector. Todaro (1994) found that the slum population in the big cities of developing countries ranged from 26 to 79 percent. Ghate (1992) noted that the informal credit market in Asian countries accounted for 38 to 76 percent of the total market. Fukuchi (1998) reported that urban informal sector accounted for 20-60 percent of the urban employment in many primal cities of the developing world. Levitsky (1989) defined micro enterprises as very small businesses consisting of a single self-employed person, a family, or at the most a few employees and noted that such enterprises were the main source of livelihood for up to half of the population of the most of the developing countries. Manig (1993) reported that a large majority of the rural loans were obtained from informal sources (family, friends, traders, landowners); approximately 89% in 1972, and still 73% in 1985 in Pakistan. Ali (1991) observed that there were 15 types of work being undertaken by the women respondents in Multan (Pakistan), with embroidery and tailoring being done by the majority. On average, each woman was undertaking four different jobs, and majority was illiterate and had no formal training, but they were utilizing their efforts and time up to the maximum, and were contributing 33% to the income of their families

3. Activities, Strength and Weaknesses

In addition to its importance as being a large component of the total economy, a number of studies concentrated on different aspects of various activities of informal sector, its constituents (small scale businesses and micro enterprises) and their strength and weaknesses. Sethuraman (1976), while discussing the complex nature of the informal sector, opined that the informal sector enterprise was the one which complied with one or more of the following conditions: employed ten

person or less; operated on an illegal basis, contrary to government regulations; had family members worked in it; did not observe fixed working hours; operated in semi-permanent or temporary premises; did not depend on formal institutions for credit; distributed its output directly to final consumers; and employees had fewer than six years of schooling.

4. Contribution to Development of the Third World

Some of the studies appeared very optimistic. Levitsky (1989) defined micro enterprises as very small businesses consisting of a single self-employed person, a family, or at the most a few employees and noted that such micro enterprises got attention of the multilateral and bilateral agencies and non-governmental organizations to help improve their effectiveness for a greater contribution to the development of the Third World. Chickering and Salahdine (1991) mentioned that the informal sector or underground economy, as it was commonly known in the industrial countries, had become a subject of increasing attention for scholars and policy makers. Evers and Cammann (1992) observed that Javanese petty trade, carried out primarily by women, was not a sign of economic stagnation, but showed strong adaptive capacity, was efficient in supplying a very rapidly growing population with fresh food and consumer items, and reduced rural-urban migration and the rate of urbanization. Stearns (1988) forecasted that, by the year 2000, the labor force in developing countries was expected to number 2000 million. The agricultural sector, according to one estimate, would be able to supply jobs for only about 8%; the rest would have to earn their living through non-farm activities in rural areas or find employment in the developing world's growing cities. The potential for job creation in the informal sector was therefore immense. Supporting the micro enterprises that make up the informal sector was one of the most effective means of reaching the poorest of the poor and thereby contributing to a more equitable income distribution.

5. Research Studies Carried Out In Pakistan

In Pakistan, there has been very limited research carried out on small scale businesses, micro enterprises and informal sector in the earlier years. The earlier studies have been specially lacking in provision of sufficient information

concerning employment pattern, the nature and activities and characteristics of participants in informal sector. These studies were mostly carried out in isolation from each other, and were based on small sample surveys. Their findings, therefore, came up with conflicting evidences and contradictory policy suggestions.

In the late 1980s and early 1990s, some good studies came up which indicated that the government policies on informal sector were either improperly formulated or were at variance with the development of the sector, and the sector was confronted with a number of problems including stagnant technologies, low quality output, low productivity, low and declining vocational technical competence, and absence of informal-informal and informal-formal sectors linkages. It was emphasized that, considering the potential of informal sector in generating employment opportunities, this sector should be promoted by removing constraints and bottlenecks. The micro enterprises specially have great potential and capabilities to operate autonomously on the strength of sub contractual relationship with other small, medium and large enterprises, and expanded provision of institutional credit facilities would help along with encouragement for export finances to indirect exporters. The informal sector micro enterprises can play a key role in industrial development of the country; however, they would face a number of problems in the changing global trading environment. They need to make adjustments to become competitive and efficient.

Chapter 3

Research Methodology

Literature reviewed on formal and informal sector micro enterprises revealed that these enterprises make large component of the total economy particularly in developing countries with less capital and large labor endowments. This literature further revealed that, though micro enterprises significantly contribute towards the development of the rest of the economy however there has been little research carried out to document such contributions in linkages especially in the context of Pakistan. In this chapter, a methodology is designed that will analyze, how micro enterprises are linked with other businesses. As has been explained in following section, for this very purpose, data will be analyzed through computation of relevant averages along with the related statistics, econometric model and Leontief input-output model as discussed in the following.

This chapter consists of three sections. The first section describes the sample, sample size and the methodology of how sample was drawn. The second section describes the general methodology adopted to describe the sample, with a view to provide general background information regarding entrepreneurs and the enterprises being studied. This section has used mean values, standard deviations and minimum and maximum values along with graphical presentation of the data collected to explain some relevant and important characteristics of both entrepreneurs and enterprises. The third section has explained the specific methodologies used to analyze the major determinants of value-addition in micro enterprises and the linkages found established between micro enterprises and the rest-of-the economy businesses. The two major methodologies used, econometrics model and Leontief Input-Output Linkages model, have been explained in this third section.

3.1 Sampling Framework

The informal & formal sector micro enterprises have loosely been defined in the literature. The literatures have often called informal sector micro enterprises to those very small and micro level businesses, which have less than 10 employees, and are 'illegal' in the sense that they are 'unregistered for tax purposes'. This is not a workable definition because some recent studies have discovered that not all micro enterprises with less than 10 employees are 'unregistered or unreported'; many pay income and sale taxes. For the

purposes of this research, we divided businesses and industries into four groups¹, namely:

1. Micro enterprises: all businesses with less than 10 employees.
2. Small enterprises: all businesses with 10 to 49 employees.
3. Medium enterprises: all businesses with 50 to 99 employees.
4. Large enterprises: all businesses with 100 or more employees.

Our study primarily took micro enterprises, as defined above, as the main theme of our research, and selected 5 cases of each of the 12 'value-added' micro enterprises, identified in the introductory chapter; these include:

1. Furniture and Fixture

- a) Wooden
- b) Iron/steel
- c) Fiber glass
- d) Other materials

2. Mechanical/Engineering-based Products

- a) Auto industry spare parts
- b) Nuts and bolts
- c) Building materials
- d) Others

3. Electric/Gas/Electronic Appliances

- a) Electric appliances
- b) Gas appliances
- c) Electronics appliances
- d) Others

Hence, taking 60 cases, with 3 years data of each, provided 180 observations on micro enterprises.

In addition, 30 cases of small, 15 cases of medium and 5 cases of large businesses were selected for comparison and establishment of linkages. A 3-years data on all such cases gave us 90, 45 and 15 observations on small, medium and large enterprises, respectively.

¹ Our division of businesses into four groups is the same adopted by Mahmood (1999) for his study about growth potential of small and medium industries in Pakistan.

In all, data on 330 observations on all the four types of businesses have been collected. The data pertain to the period 2001-03 were collected during year 2004.

Universe & Research Site

Peshawar, the capital of the North West Frontier Province, has a large cluster of the informal & formal sector enterprises engaged in heterogeneous economic and business activities. Moreover, it has a number of small-to-large businesses and industries established, especially at Hayatabad and Kohat Road Industrial areas. A preliminary survey indicated that it had all the 12 enterprises; we were interested in for this study. Thus, Peshawar market presented a good site to carry out the proposed study.

Data Collection and Analysis Technique

The needed data were collected, using interview schedule, appended as Annexure 1. This interview schedule was pre-tested and modified/improved before going for actual data collection. The pre test was carried out on ten enterprises to evaluate the workability of the interview schedule, clarity of its questions and terminology used. Consequently, some changes were made to make it clear and concise.

Specifically engaged investigators administered data collection under the direct supervision of the researcher.

The collected data were analyzed, using the simple-to-the-most sophisticated analytic techniques, discussed in the following sections.

3.2 Evaluating Determinants of 'Value-Addition' in Micro Enterprises Using Econometric Analytic Techniques

From the literature reviewed in chapter 2 and, more specifically, on the basis of preliminary analysis of data carried out in sections 4.1 through 4.6 in chapter 4, it would appear that value-addition in micro-enterprises might have been influenced by level of investments in the businesses (capital & total investments), volume and expertise of labor engaged (skilled & unskilled labor), entrepreneur's level of education, experience & training, entrepreneur's family experience of the business, year of business establishment, and volumes of purchases and sales made. Accordingly, we specified two econometric models, namely:

$$\text{VATA} = f(\text{PCIT}, \text{PSLT}, \text{EPEA}, \text{TR}, \text{FE}, \text{YTEA}, \text{SJN}, \text{PSST}, \text{POST}, \text{PCST}, \text{PSPT}, \text{POPT}, e) \quad (3.1)$$

$$\text{VAT} = f(\text{CIT}, \text{TIT}, \text{SL}, \text{UL}, \text{ED}, \text{EX}, \text{TR}, \text{FE}, \text{YTE}, \text{SJN}, \text{SST}, \text{SOT}, \text{SCT}, \text{PST}, \text{POT}, e) \quad (3.2)$$

Model 3.1 assumes that value-addition (VA) in micro enterprises, which is defined as the difference between value of finished products sold minus value of raw materials purchased, is determined as function of capital investment-to-total investment ratio (PCIT), skilled labor-to-total labor ratio (PSLT), education-plus-experience (EPEA) of the businessmen involved, training of entrepreneurs, if any (TR), family experience (FE), years of business establishment (YTEA), single or joint venture (SJN), proportions of total sale made to micro enterprises (PSST), other businesses (POST) and consumers (PCST), and proportions of raw material purchases made from micro enterprises (PSPT) and other businesses (POPT). Since a number of explanatory variables (PCIT, PSLT, PSST, POST, PCST, PSPT, POPT) are in ratios, we have also converted value-addition (VA), education-plus-experience (EPEA) and years-of business-establishment (YTEA) in to ratios. All remaining explanatory variables are dummies, like TR = 1 if trained, 0 otherwise; FE = 1 for family experience, 0 otherwise and SJN = 1 if joint venture, 0 otherwise. The variable 'e' is the econometrics error term assumed to be normally distributed with mean zero and variance σ^2 .

Whereas the specification of Model 3.1 provides a good base to further evaluate the important determinants of value-addition and establish linkages between micro-enterprises and rest-of-the-economy-businesses, this specification has certain limitations, including the fact that most of the explanatory variables are in ratios, and the estimated coefficients of such ratios would not express which one of the two components of a ratio (numerator or denominator) would produce positive and which one negative effect. This shortcoming of Model 3.1 has been removed through an extended version in Model 3.2.

Whereas the earlier model includes ratios, along with dummies, as explanatory variables, the latter model replaces the stated ratios (PCIT, PSLT, EPEA, YTEA, PSST, POST, PCST, PSPT & POPT) with their actual components (CIT & TIT; SL & UL; ED & EX; YTE; SST, SOT & SCT; and PST & POT). In this model, VAT is value-addition in thousand rupees, which is assumed to be determined by capital investment (CIT, in

thousand rupees), total investment (TIT; in thousand rupees), skilled (SL) and unskilled (UL) labor, years of education (ED) and experience (EX), years of business establishment (YTE), total sales to micro enterprises (SST) and other businesses (SOT) and total purchases from micro-enterprises (PST) and other businesses (POT). Sales and purchases are also in thousands rupees. All other explanatory variables (TR, FE, SJN & e) are the same as already explained in Model 3.1.

3.3 Establishing Inter-Industry Linkages through Leontief Input-Output Modeling Techniques

To reconfirm some of the findings expected from econometric analytic models specified in (3.1) and (3.2), and also to establish linkages between micro and small, medium and large scale enterprises, we have used the famous *Leontief Input-Output* analytic model, specified in the following paragraphs.

Following Leontief (1986), Childress et al. (1989; pp.341-346) and Parikh & Bailey (1990; pp.167-194), we specify the model, as follows.

Let X_1 , X_2 , X_3 and X_4 be the (values of) outputs of micro, small, medium and large enterprises, respectively, which are further utilized to meet two types of demand, namely: (1) *Derived demand* (demand from different industries/businesses) and (2) *Direct final-consumers' demand*. Leontief Input-Output model specifies the relationship between the outputs X and its derived demand (AX) and direct demand (D) through the following equation.

$$AX + D = X \quad (3.3)$$

$$\begin{aligned} \text{Or} \quad a_{11}X_1 + a_{12}X_2 + a_{13}X_3 + a_{14}X_4 + D_1 &= X_1 \\ a_{21}X_1 + a_{22}X_2 + a_{23}X_3 + a_{24}X_4 + D_2 &= X_2 \\ a_{31}X_1 + a_{32}X_2 + a_{33}X_3 + a_{34}X_4 + D_3 &= X_3 \\ a_{41}X_1 + a_{42}X_2 + a_{43}X_3 + a_{44}X_4 + D_4 &= X_4 \end{aligned} \quad (3.4)$$

Each of $a_{ij}X_i$, in fact, represents the derived demand or the part of the output of X_i used as an input in the production/output of X_j .

Re-arranging (3.3), we get:

$$X - AX = D \quad (3.5a)$$

$$\text{Or } (I - A)X = D \quad (3.5b)$$

$$\text{Or } X = (I - A)^{-1}D \quad (3.5c)$$

Equation (3.5c) represents the Leontief Input-Output model, which says that final-consumers' direct demand D_i determines each industry/business's total output X_i . The beauty of Leontief Input-Output equation actually lies in $(I - A)^{-1}$ matrix and the various coefficients contained therein. These coefficients measure the backward linkages between direct demand for an industry/business's output (D_i) and the outputs (X_i) of the same industry/business, as well as, rest-of-the economy businesses.

For estimating $(I - A)^{-1}$ matrix and its elements, we refer back to equation (3.4), wherein the elements of A matrix are provided. Hence,

$$A = \begin{vmatrix} a_{11} & a_{12} & a_{13} & a_{14} \\ a_{21} & a_{22} & a_{23} & a_{24} \\ a_{31} & a_{32} & a_{33} & a_{34} \\ a_{41} & a_{42} & a_{43} & a_{44} \end{vmatrix} \quad (3.6)$$

where a_{ij} in the first column (a_{11} , a_{21} , a_{31} and a_{41}) show the values of the products of four businesses used in production of one rupee worth of micro enterprise's product. The other a_{ij} under the second, third and fourth columns have the same interpretations, respectively, for small, medium and large enterprises. Substituting values in A-matrix, converting to $(I - A)$ matrix and then taking inverse, would help us estimate $(I - A)^{-1}$ of Leontief Input-Output equation (3.5c), to be interpreted as already discussed. We have estimated $(I - A)^{-1}$ matrices for furniture, manufacturing and electric-appliances micro enterprises in chapter 4.

Chapter 4

Results and Discussion

This chapter is organized in to eight sections. The first two sections describe general characteristics of the micro entrepreneurs and micro enterprises; the first section includes discussions on the age, level of education, skill and its acquisition (formal and informal), experience, social background and supplementary sources of income of micro entrepreneurs, while the second section explains characteristics of micro enterprises in detail, giving information on distribution of such businesses as single and joint venture, whether the business premises is owned or otherwise, years of business establishment, whether sub-contracting and distribution of labor force engaged as skilled and unskilled workers.

Section 3 covers purchases and sources of purchases of micro enterprises, as well as, that of other businesses (small, medium and large). This section, not only, give breakup of purchases, but it also provides a preliminary analysis of such purchases, using averages, standard deviations, minimum-maximum range, coefficient of variations (CV) and graphical analysis. Sales are covered in next two sections (section 4 & 5); the first section specifically talks about sales between various businesses, while an account of 'distribution of sales' (by business and final-consumers) is provided in section 5. Another section (section 6) goes in to details of purchases and sales of selected enterprises (furniture, manufacturing and electric/electronics/gas appliances) and further expands the preliminary analysis for having good background for detailed quantitative analysis in the following sections.

Last two sections (7 & 8) carry out quantitative analysis and present results of econometric analysis and mathematical programming (Input-Output Model) and discussion there on.

4.1 Characteristics of the Entrepreneurs

Various socio-economic factors influence the choice of an entrepreneur for setting up of micro enterprises. The characteristic of an individual such as age, size of the household, level of education, training and experience play an important role in the decision making process of micro entrepreneurs before embarking on the business.

Age of the Entrepreneur

Age of the entrepreneur underlines some of the important factors influencing entrepreneur's decision to join a micro enterprise. If there are relatively younger people in the micro enterprises, it may be taken as a transitional activity prior entry to small business. According to the survey conducted, micro enterprises are a gateway for entering in small and medium scale business. It is also a preferred and permanent business choice as well.

Table 4.1: Percentage Distribution of Entrepreneurs in Different Age Groups

Kind of Business	Average Age								
	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60
Furniture	20.00	10.00	05.00	10.00	25.00	5.00	5.00	15.00	5.00
Manufacturing	20.00	10.00	00.00	10.00	25.00	25.00	-	10.00	-
Electric/electronic/gas appliances	15.00	10.00	00.00	25.00	15.00	15.00	5.00	25.00	5.00
All Businesses	18.33	10.00	01.67	15.00	21.67	10.00	03.33	16.67	3.33

According to above table, only 18.33% of the entrepreneurs fall in the age group of 20-24 which shows that micro enterprise is also a transitional activity for some entrepreneurs before entering other business scales where as 81.67% of the entrepreneurs in micro enterprise fall in age group of 25 and above indicating the micro enterprise a permanent and preferred choice of the business men. As at very early age, individual try for a job in micro enterprises but as soon as they gain the necessary experience and save some money, they quit the job and set up their own business in the micro enterprise sector. However, only the successful entrepreneur continues with micro enterprises.

Size of the Household

Size of the household is virtually considered as an indicator of dependents on the head of the household engaged in micro businesses. Moreover it is one of the factors forcing entrepreneur to work hard for earning decent living for his dependents.

Table 4.2: Percentage Distribution of the Entrepreneurs in the Micro Enterprise by family size

Kind of Business	Numbers of Persons in the Household								
	3	4	5	6	7	8	9	10	Total
Furniture	5.00	03.33	05.00	06.67	08.33	10.00	33.33	28.33	100.00
Manufacturing	10.00	03.33	06.67	5.00	15.00	11.67	26.67	21.67	100.00
Electric/electronic/ gas appliances	-	03.33	08.33	08.33	11.67	13.33	30.00	25.00	100.00
All Businesses	05.00	03.33	06.67	06.67	11.67	11.67	30.00	24.99	100.00

Table 4.2 clearly illustrates that 15.00% of the entrepreneurs have five or less family members and about 85.00% of these entrepreneurs have six or more family members. The survey reveals that a large number of entrepreneurs support their dependents from the micro trade as they are looking after comparatively larger family size from this business activity.

Level of Education

Quality and ability of the entrepreneurs and productivity of labor varies directly with the investment in human capital especially in the form of education. Schooling affects the productivity of the micro trader to a large extent through better communication skill and occupation.

Table 4.3: Percentage Distribution of the Entrepreneurs with Different Level of Education (Year of Schooling)

Kind of Business	Level of Education						Total
	Below Primary 0-2	Primary 3-5	Middle 6-8	Secondary 9-10	Intermediate 11-12	Graduation 13-14	
Furniture	15.00	25.00	05.00	20.00	30.00	5.00	100.00
Manufacturing	20.00	20.00	20.00	15.00	15.00	10.00	100.00
Electric/electronic/ gas appliances	20.00	20.00	5.00	20.00	20.00	15.00	100.00
All Businesses	18.33	21.67	10.00	18.33	21.67	10.00	100.00

In furniture sector 100% of the entrepreneurs are educated with 15% have only two years of schooling, 55.00% up to secondary level, 30% to intermediate and remaining 5% are graduates. In manufacturing sector 100% of the entrepreneurs are educated, out of which 20% have only two years of their formal education. 55% are educated up to secondary level, 15% up to intermediate level and 10% have got education up to the graduation

level. In electric/electronic/ gas appliances sectors again 100% of the entrepreneurs are educated out of which only 15% of the entrepreneurs were lucky to get education up to graduate level with some of them having diplomas from Technical Institutes. On the whole 100.00% of the entrepreneurs are educated, 68.33% have got education up to secondary level and 21.67% were educated up to intermediate level and 10.00 of the micro traders reached up to graduation.

Basic education plays a vital role in the human resource development, as the educated entrepreneurs can utilize their potential optimally. This visible information on micro enterprises shows that 50.00% of the entrepreneurs are educated up to secondary, intermediate and graduation level which reveals that these entrepreneurs are more dynamic and can get rid from becoming a prey to stagnation of skill and knowledge.

Acquisition of Skill

Capital is not a constraint if there are skilled entrepreneurs that can deploy capital production. The major constraint to growth is lack of human capital that can absorb technology and experience. It is the person, which makes the difference and not the assets that they are managing, since assets are only a mean to an end. Expanding good quality general education will take time; islands of excellence can be created, if important skills in different disciplines can be developed so that the growth rate can be pushed up through the utilization of this capital.

As mentioned above human capital formation closely associated with the education, work, experience and training i.e. both formal and informal training. The informal training can be distinguished from the formal training, as it is the productivity enhancing occupation specific knowledge that is particularly acquired in the form of on job training. Generally most of the entrepreneurs in micro enterprises acquire their skill enhancing through on job training.

As the productivity of the entrepreneurs varies positively with the investment in human capital i.e. training (skill acquisition), the data collected for this specific purpose reveals positive signs, as many as 97.22% of the micro entrepreneurs were trained very particularly out of which 89.44% of the entrepreneurs had informal training and only 7.78% had acquired training from particular Institutes.

Table 4.4: Acquisition of Formal and Informal Training (for skill) by the Entrepreneurs

Type of Business	Without Training	Formal Training	Informal Training	Total
Furniture	01.67	08.33	90.00	100.00
Manufacturing	03.33	05.00	91.67	100.00
Electric/electronic/ gas appliances	03.33	10.00	86.67	100.00
All Businesses	02.78	07.78	89.44	100.00

The proportion of entrepreneurs who had some kind of training (both formal and informal) is maximum in furniture sector i.e. 98.33% where as in manufacturing sector 96.67% of the entrepreneurs have got some training and in electric/electronic/gas appliances sector 96.67% of the entrepreneurs are trained.

Experience

Beside education and training, experience of the entrepreneurs is another factor helping them running the enterprise efficiently and successfully. There is positive relationship between labor productivity and experience; the development of skill requires both specialization and experience. With experience the self employed in micro enterprises not only learn new skills quickly but can also improve his old skills. Hence the role of experience is quite vital in the improvement of human capital as well as earnings of the entrepreneurs.

Table 4.5: Percentage Distribution of the Entrepreneurs by Experience

Kind of Business	Year							Total
	2-4	5-7	8-10	11-13	14-16	17-19	20+	
Furniture	-	15.00	10.00	35.00	20.00	20.00	-	100.00
Manufacturing	-	30.00	-	30.00	20.00	20.00	-	100.00
Electric/electronic /gas appliances	-	20.00	30.00	25.00	25.00	-	-	100.00
All Business	-	21.67	13.33	30.00	21.67	13.33	-	100.00

Table 4.5 confirms that almost 100% of the entrepreneurs in value added micro enterprises are experienced persons in their current professions with different level as 35% of entrepreneurs have experienced up to one decade, 51.67% up to 16 years, and only 13.33% of the entrepreneurs have experienced up to 19 years. In furniture sector

75.00% of the entrepreneurs, have more than 10 years experience. This ratio decreases in manufacturing case where 70% of the entrepreneurs have more than 10 years experience. In electric/electronic/gas appliances sector ratio of experience to numbers of years fall drastically as it is only 50% of the entrepreneurs who have more than 10 years of experience.

Social Background

Social background of the entrepreneurs i.e. the education and training of the father helps to ascertain the inter-generational occupational mobility. It also determines the growth potential of a micro enterprise as well.

Table 4.6: Percentage Distribution of the Entrepreneurs by Father's Education

Kind of Business	Educated Fathers	Uneducated Fathers	Total
Furniture	10.00	90.00	100.00
Manufacturing	15.00	85.00	100.00
Electric/ electronic/ gas appliances	20.00	80.00	100.00
All Businesses	15.00	85.00	100.00

The survey conducted reveals the at the educational level of the father does not influence the educational level of the entrepreneurs as broadly speaking only 15% of the entrepreneur's fathers were educated, and 85% of the entrepreneurs were brought up by the fathers who were simply illiterate, where as our 100.00% of the sample entrepreneurs were educated up to different levels.

Table 4.7: Percentage Distribution of the Entrepreneurs by Family Experience

Kind of Business	Experienced Fathers	Inexperienced Fathers	Total
Furniture	15.00	85.00	100.00
Manufacturing	20.00	80.00	100.00
Electric/electronic/gas appliances	10.00	90.00	100.00
All Businesses	15.00	85.00	100.00

Usually the younger generation of a family adopts the family profession because of their introduction and familiarity of the job. As in most of cases children remain attached with their fathers as helpers from early age, but the case of micro enterprises is quite different.

75.00% of the entrepreneurs, have more than 10 years experience. This ratio decreases in manufacturing case where 70% of the entrepreneurs have more than 10 years experience. In electric/electronic/gas appliances sector ratio of experience to numbers of years fall drastically as it is only 50% of the entrepreneurs who have more than 10 years of experience.

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Manufacturing	15.00	85.00	100.00
Electric/ electronic/ gas appliances	20.00	80.00	100.00
All Businesses	15.00	85.00	100.00

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Manufacturing	20.00	80.00	100.00
Electric/electronic/gas appliances	10.00	90.00	100.00
All Businesses	15.00	85.00	100.00

Usually the younger generation of a family adopts the family profession because of their introduction and familiarity of the job. As in most of cases children remain attached with their fathers as helpers from early age, but the case of micro enterprises is quite different.

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All Businesses	15.00	85.00	100.00

Usually the younger generation of a family adopts the family profession because of their introduction and familiarity of the job. As in most of cases children remain attached with their fathers as helpers from early age, but the case of micro enterprises is quite different.

As the data collected shows that 85.00% of the entrepreneurs have not started business in the same field where their fathers were trained and engaged and only 15.00% were in the same fields.

Supplementary Source of Income

Some of the entrepreneurs run more than one business simultaneously to supplement their income, but this proportion is very small.

Table 4.8: Percentage Distribution of the Entrepreneurs by Supplementary Source of Income

Kind of Business	With Supplementary Income	Without Supplementary Income	Total
Furniture	5.00	95.00	100.00
Manufacturing	10.00	93.00	100.00
Electric/ electronic/ gas appliances	5.00	95.00	100.00
All Businesses	6.67	93.33	100.00

The table 4.8 shows that only 6.67% of the entrepreneurs run another business as a part time activity beside their main occupation.

4.2 Characteristics of the Micro Enterprises

Micro enterprises differ significantly from other kinds of businesses with respect of their financial structure and Permanency of their premises. Hence three characteristics of micro enterprises i.e. single and joint ownership, permanency of the premises and the age of the firm have been distinguished in this section.

Single and Joint Venture

As mentioned earlier, micro trade is a business, which is managed in a personalized way by its owner or owners. Moreover, it has only a small share of its market. Given that, micro enterprises typically has little source to institutional sources of finance other than commercial banks and rely heavily upon the personal savings of proprietors, their families and friends. In this context, a business owned and operated by a single individual is usually confronted with a number of problems in its expansion, including the product diversification. However, single owners claim to manage some part of the

micro enterprises. The partnerships are very common in micro enterprises which is very obvious from the table below.

Table 4.9: Percentage Distribution of Entrepreneur in Single & Joint Venture

Kind of business	Single	Joint	Total
Furniture	21.67	78.33	100.00
Manufacturing	18.33	81.67	100.00
Electric/electronic/ gas appliances	06.67	93.33	100.00
All Businesses	15.56	84.44	100.00

Table 4.9 reports that as many as individual proprietors run only 15.56% of the micro enterprises where as 84.44% of enterprises are run under partnership. Financially those enterprises, which were managed by partners, found more sound than the one managed by single owners. Therefore partnership is for the most popular form of micro enterprises in Peshawar area, because it is the fast and simple way of doing business. Moreover, this is the most profit incentive form of trade. As profit incentive is a powerful one and profits represents an excellent way of keeping score in the game of business.

Ownership of Premises

Ownership of premises plays vital role on profit margins, since the ownership of premises has both short as well as long-term impact on business. As the enterprises located in the rented premises always, face the threat that the business may have to be shifted somewhere else

Table 4.10: Percentage Distribution of Micro Enterprises with Respect to Ownership of Premises

Kind of business	Own Premises	Rented Premises	Total
Furniture	25.00	75.00	100.00
Manufacturing	15.00	85.00	100.00
Electric/ electronic / gas appliances	35.00	65.00	100.00
All Businesses	25.00	75.00	100.00

The above table describes that only 25% of the micro enterprises work on their own premises, while 75% of the enterprises are located in rented places. However, there are quite large variations in the proportion of the enterprises owning business premises across different sectors of micro enterprises in conducted survey. As only 15% of the

entrepreneurs own their business premises in manufacturing sector and 25% own business premises in furniture sector while this number increases in electric, electronic and gas appliances sector, where 35% of the enterprises are located in own premises and 65% are in rented places.

Years of Establishment of the Enterprises

Other things remaining the same, the growth rate of the business is positively related with the years of establishment. As the number of years indicate the enterprise in activity.

The table 4.11 suggests that 03.33% of the enterprises are in business activity for more than 17 years. Where 36.67% of the firms are operating business activity for 09 to 17 years and 60.00% of the enterprises are in activity for less than 10 years.

Table 4.11: Percentage Distribution of the Micro Enterprises by Number of Years the Firm has been in Existence

Kind of business	Years					
	3-5	6-8	9-11	12-14	15-17	18 +
Furniture	20.00	35.00	20.00	15.00	05.00	05.00
Manufacturing	30.00	25.00	20.00	20.00	-	05.00
Electric/ electronic/ gas appliances	30.00	40.00	25.00	-	05.00	-
All Business	26.67	33.33	21.67	11.67	03.33	03.33

In furniture sector, 55% of the enterprises are operating for less than 09 years and 45% are doing business for more than 09 years. Similarly, in manufacturing sector, 55% of the enterprises are for more than 09 years and 45% of the firms are for less than 09 years.

The electric/electronic/gas appliances shows little variations in this regard, as only 30% of the sample micro enterprises are in business activity for more than 09 years and 55% are doing business for less than 09 years.

Sub-contracting in the Micro Enterprises

As the research done was mainly about the linkages of micro enterprise with the rest of industry, hence sub-contracting will show the business relations of micro enterprises with the rest of the industry.

The data collected revealed that sub-contracting is the main source of income in micro enterprises, as sub-contracting gives lower cost of production because sub-contracting results in specialization in a particular component production. Usually rest of the industry (i.e., small, medium, large scale industry) sub-contracting in the micro enterprises for a particular component of production or service with the view to save time and avoid labor regulations and micro entrepreneurs sub-contract to overcome the limitations of capital as this is the only way to enter the production process.

The table below suggests that 100% of the micro enterprises in furniture, manufacturing and electric/electronic/gas appliances were engaged in sub-contracting with micro and small scale business.

Table 4.12: Sub-contracting in Micro Enterprises

Kind of Business	Sub-contracting			
	Micro enterprises	Small scale Business	Medium scale Business	Large scale business
Furniture	100	100	100	70
Manufacturing	100	100	95	85
Electric/electronic/ gas appliances	100	100	80	80

While 100% in furniture, 95% in manufacturing and 80% in electric/electronic/gas appliances were engaged in business activity with medium scale business. The data also revealed that 70% in furniture, 85% in manufacturing and 80% in electric/electronic/gas appliances enterprises were doing business with large scale firms. Hence this vital information on micro enterprises suggests strong linkages of micro enterprises with the rest of the industries.

Labor Force in Micro Enterprises

Micro enterprises have excessive capacity of labor absorption as compared to the rest of businesses. Micro enterprises are mostly labor intensive (i.e. most of the work is managed manually) as labor is very scarce for micro enterprises. The distribution pattern of labor force by employment status is not very much different in all the three categories in research carried out

Table 4.13 Distribution of Labor Force in Micro Enterprises

Kind of Business	Number of workers	Skilled workers	Semi-skilled worker	Unskilled workers
Furniture	271	151	40	80
Manufacturing	320	168	57	95
Electric/electronic/gas appliances	226	131	29	66

The above table reveals that in furniture sector total 271 workers are employed, out of which 151 are skilled workers, 40 are semi skilled workers and 80 are unskilled workers. In manufacturing sector, total 320 workers are employed, where 168 workers are skilled, 57 are semi-skilled and 95 are unskilled. In electric/electronic/gas appliances category total 226 workers are employed, where 131 are skilled workers, 29 are semi-skilled workers and 66 are unskilled workers.

Table 4.14: Percentage Distribution of Workers in Micro Enterprises

Kind of Businesses	Skilled	Semi-skilled	Unskilled
Furniture	55	14	29
Manufacturing	52	17	29
Electric/ electronic / gas appliances	57	12	29

The above table shows that in furniture category 55% are skilled, 14% are semi-skilled and 29% are unskilled workers. In manufacturing category 52% are skilled workers, 17% are semi-skilled, and 29% are unskilled workers. In electric/electronic/gas appliances category 57% are skilled workers, where 12% are semi-skilled workers and 29% are unskilled workers

4.3 Purchases of Selected Enterprises

In the following section the purchases pattern of inputs/raw-materials of selected businesses relating to micro enterprises, small, medium and large scale enterprises is provided.

Micro Enterprises

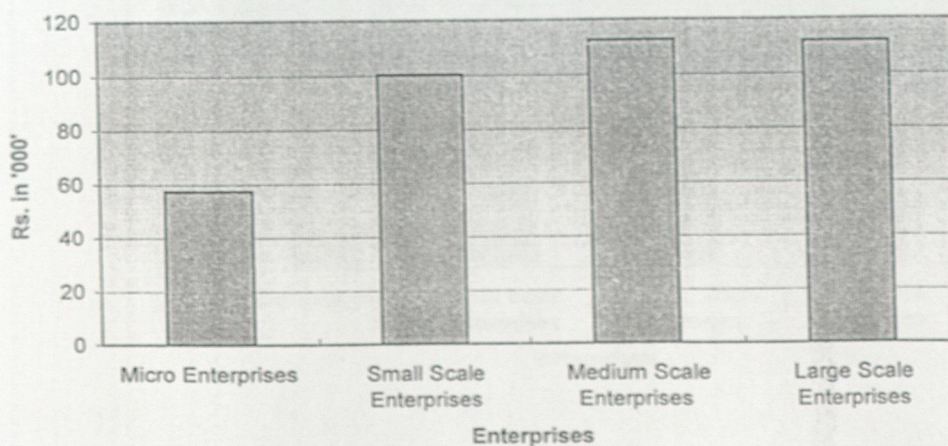
Table 4.15: Purchases of Micro Enterprises during 2001-2003 (Rs. in '000')

Kind of business	Mean value	S.D	Min	Max	C.V
Micro Enterprises	57.43 (15.05)	23.55	17.82	135.47	0.41
Small Scale Enterprises	100.17 (26.25)	52.29	13.63	467.00	0.52
Medium sale Enterprises	112.35 (29.44)	57.98	21.00	283.00	0.52
Large Scale Enterprises	111.67 (29.26)	83.95	19.00	332.63	0.75
All Businesses	381.62 (100.00)	187.94	53.52	925.83	0.49

Note: (1) Figures in Parenthesis are percentages.
(2) Sample size = 60 cases x 3year =180 cases.

Table 4.15 presents the values of purchases of micro enterprises made from other micro, small, medium and large scale enterprises. The major purchases (30%) were made from large scale enterprises, followed by medium scale enterprises (29%), small scale enterprises (26%) and micro enterprises (15%). The mean values of micro enterprise's purchases from micro, small and medium businesses seem to have been more stable than the purchases made from large scale enterprises for the last three years, as is clear from the magnitude of standard deviation (S.D) and co-efficient of variation (C.V).

Figure 4.1: Purchases of Micro Enterprises during 2001-2003 (Rs. in '000')



Small Scale Enterprises

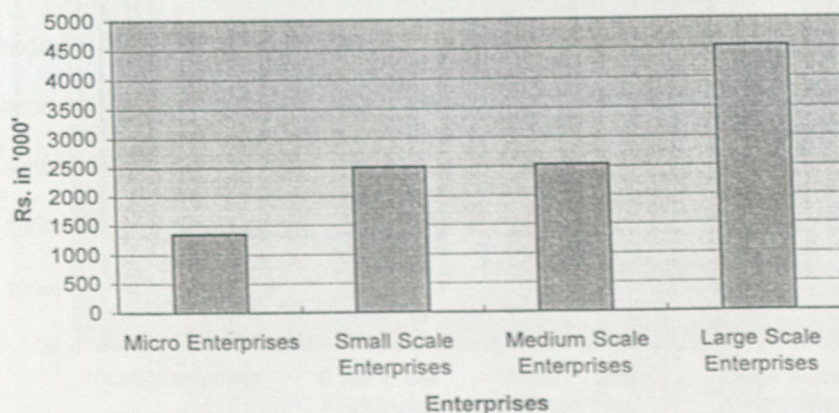
Table 4.16: Purchases of Small Scale Enterprises during 2001-2003 (Rs. in '000')

Kind of business	Mean value	S.D	Min	Max	C.V
Micro Enterprises	1346.03 (12.35)	403.01	400.00	2251.70	0.30
Small scale Enterprises	2503.39 (22.97)	1183.77	1015.00	5621.45	0.47
Medium Scale Enterprises	2533.42 (23.24)	658.77	1000.00	3755.00	0.26
Large scale Enterprises	4516.98 (41.44)	898.35	2327.00	6304.00	0.20
All Businesses	10899.82 (100.00)	1860.93	7015.00	13475.99	0.17

Note: (1) Figures in parenthesis are percentages
(2) Sample size=30x3=90 cases

The scenario outlined in the above table indicates the direction of purchases made by small scale enterprises. The table reflects that the major purchases were made from large scale enterprises (41%) followed by medium scale enterprises (23%), small scale enterprises (23%) and micro enterprises (12%). Hence the above table reveals that the magnitude of purchases made from large scale enterprises appears to be almost '3' times higher than the purchases made from micro enterprises, where it does not show substantial differences for small and medium scale enterprises. As well as, the stability in purchases is concerned, the purchases made from large and medium scale enterprises appears more stable over the last three years than small and micro enterprises.

Figure 4.2: Purchases of Small Scale Enterprises during 2001-2003 (Rs. in '000')



Medium Scale Enterprises

Table 4.17: Purchases of Medium Scale Enterprises during 2001-2003 (Rs.in'000')

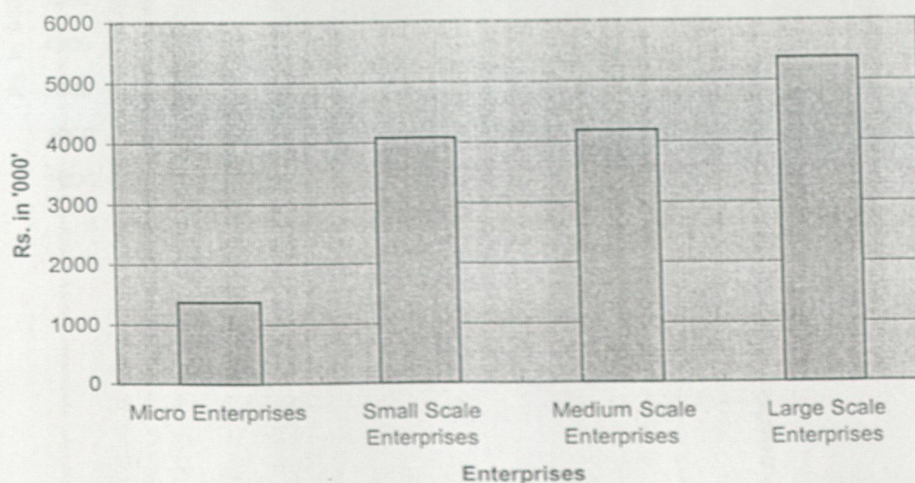
Kind of Business	Mean value	S.D	Min	Max	C.V
Micro Enterprises	1380.82 (9.19)	542.46	750.00	2762.00	0.39
Small Scale Enterprises	4077.62 (27.15)	1828.35	2000.00	8052.00	0.45
Medium Scale Enterprises	4186.50 (27.87)	1367.59	2306.09	6998.00	0.33
Large scale Enterprises	5375.97 (35.79)	1285.43	3560.00	8440.00	0.24
All Businesses	15020.91 (100.00)	4374.24	9650.00	23930.60	0.29

Note: (1) Figures in parenthesis are percentages.

(2) Sample size = $15 \times 3 = 45$ cases.

The above table entails the purchase of medium scale enterprises made from micro, small, medium and large scale enterprises. The above table shows that medium scale enterprises made their major purchase of inputs/raw material from large scale enterprises. The purchases made from medium and small scale enterprises have not been shown any substantial differences. As the purchases made from the large scale enterprises are 36% and that is made from medium scale enterprises are 28%, followed by small scale enterprises (27%) and micro enterprise (9%). Another interesting feature is that purchases made from large scale enterprises seem to be very stable during 2001-2003. The table also reflects that the purchases made from micro enterprises are more stable than the supply of small scale enterprises.

Figure 4.3: Purchases of Medium Scale Enterprises during 2001-2003 (Rs. in'000')



Large Scale Enterprises

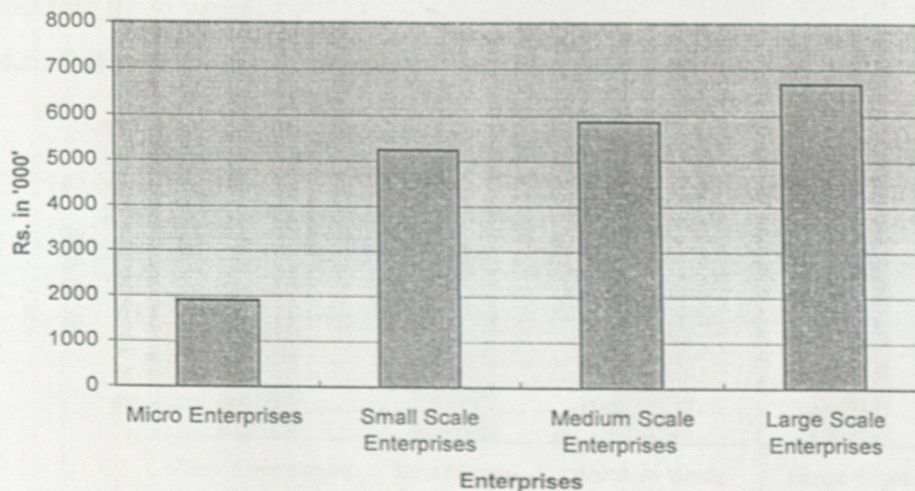
Table 4.18: Purchases of Large Scale Enterprises during 2001-2003 (Rs. in '000')

Kind of Business	Mean value	S.D	Min	Max	C.V.
Micro Enterprises	1903.45 (09.66)	747.12	500.00	3000.00	0.39
Small Scale Enterprises	5241.51 (26.61)	1780.09	2500.00	8446.00	0.34
Medium Scale Enterprises	5863.09 (29.77)	2127.98	3100.00	10200.00	0.36
Large Scale Enterprises	6687.88 (33.96)	1725.06	4300.00	9778.00	0.26
All Businesses	19695.93 (100.00)	6076.11	10494.00	30946.00	0.31

Note: (1) Figures in parenthesis are percentage.
(2) Sample size = $5 \times 3 = 15$ cases

The above table underlines the cross enterprise purchases of large scale business i.e. purchases made from micro, small, medium and large scale enterprises. The table above shows that the share of large scale enterprises in the provision of inputs/raw material to the large scale enterprises is positively high (34%) followed by medium scale enterprises (29%), small scale enterprises (27%) and micro enterprises (10%). The purchase made from large scale enterprises are more stable than the purchases made from medium, small and micro enterprises.

Figure 4.4: Purchases of Large Scale Enterprises during 2001-2003 (Rs. in '000')



4.4 Sales of Selected Enterprises Across Businesses

The section below presents the breakup of sales by micro, small, medium and large scale enterprises to the businesses exclusively.

Micro enterprises

Table 4.19: Sales of Micro Enterprises during 2001-2003 (Rs. in '000')

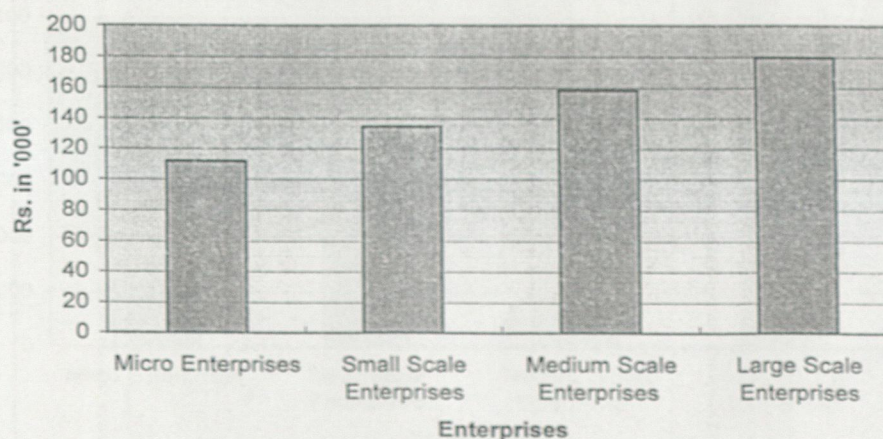
Kind of Business	Mean Value	S.D	Min	Max	C.V.
Micro Enterprise	111.48 (19.10)	59.92	08.00	304.00	0.54
Small Scale Enterprise	134.48 (23.03)	62.98	32.00	471.87	0.47
Medium Scale Enterprises	158.28 (27.12)	91.21	40.00	500.00	0.58
Large Scale Enterprises	179.47 (30.75)	96.25.	96.00	600.00	0.54
All Businesses	583.71 (100.00)	265.10	137.39	1600.00	0.45

Note: (1) Figures in parenthesis are percentage.

(2) Sample size = $60 \times 3 = 180$ cases

The sale of micro enterprises over the period 2001-2003 is shown in the above table. During this period major sales of the output were made to large scale enterprises (31%) followed by medium scale enterprises (27%), small scale enterprises (23%) and micro enterprises (19%). The sales made to small scale enterprises appear to be relatively less stable over last three years.

Figure 4.5: Sales of Micro Enterprises during 2001-2003 (Rs. in '000')



Small Scale Enterprises

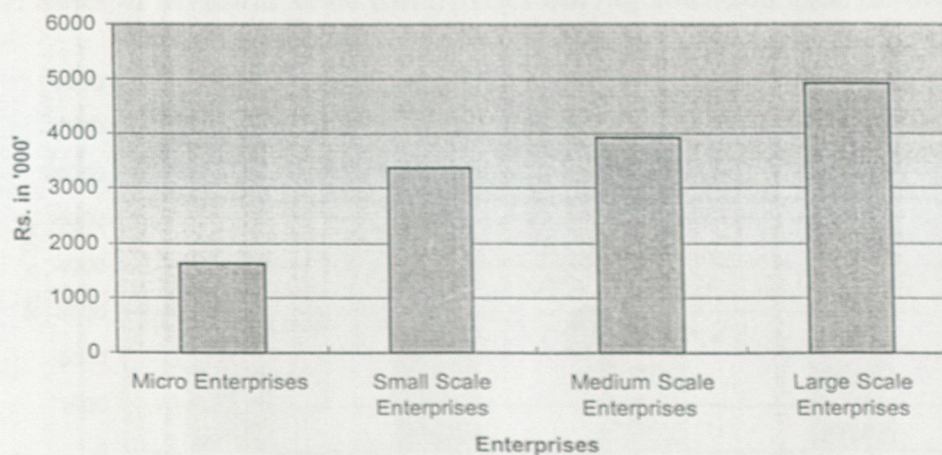
Table 4.20: Sales of Small Scale Enterprises during 2001-2003(Rs in '000')

Kind of Business	Mean Value	S.D.	Min	Max	C.V.
Micro Entreprises	1639.17 (11.82)	561.73	700.00	3000.00	0.34
Small Scale Entreprises	3367.65 (24.29)	502.26	2500.00	4000.00	0.15
Medium Scale Entreprises	3929.98 (28.34)	786.03	1844.90	5295.40	0.20
Large Scale Entreprises	4929.87 (35.55)	1197.22	2410.00	8182.50	0.24
All Businesses	13866.67 (100.00)	2404.12	10000.00	17000.00	0.17

Note: (1) Figures in parenthesis are percentage.
(2) Sample size = $30 \times 3 = 90$ cases.

The above table provides information about the sales pattern of small scale enterprises. The data reveals that small scale enterprises found large market of its output in large scale enterprises, which has been purchased (36%) of the total sale offered by the small scale enterprises, followed by medium scale enterprises (28%), small scale enterprises (24%) and micro scale enterprises (12%). The sale made to medium, small and large scale enterprises are more stable for 2001-2003 than micro scale enterprises, which is clear from standard deviation and co-efficient of variation given in the above table.

Figure 4.6: Sales of Small Scale Enterprises during 2001-2003(Rs in '000')



Medium Scale Enterprises

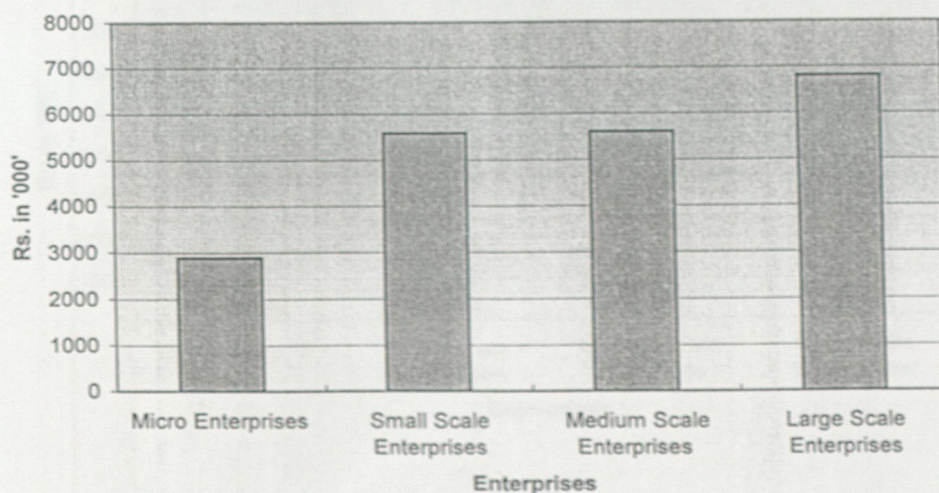
Table 4.21: Sales of Medium Scale Enterprises during 2001-2003(Rs. in '000')

Kind of Business	Mean value	S.D.	Min	Max	C.V.
Micro Scale Enterprises	2891.47 (13.86)	1238.39	972.00	4800.00	0.43
Small Scale Enterprises	5580.32 (26.74)	1372.03	2152.00	8281.00	0.25
Medium Scale Enterprises	5595.55 (26.82)	1273.53	3924.00	8096.00	0.23
Large Scale Enterprises	6799.32 (32.58)	1575.88	3674.00	9836.00	0.23
All Businesses	20866.66 (100.00)	4654.42	13000.00	30000.00	0.22

Note: (1) Figures in parenthesis are percentage.
(2) Sample size = $15 \times 3 = 45$

The above table reflects the contribution of the medium scale enterprises through the sale of its output to the rest of business community including micro, small, medium and large scale enterprises. However the above table shows that the available supply of output produced by medium scale enterprises has considerable diversity in its sale. The highest magnitude of sales went to large scale enterprises (33%) followed by medium (27), small scale enterprises (27%) and micro enterprises (13%). However the sales made to small, medium and large scale enterprises appear to be almost equally stable where the sales made to micro enterprises seems to be less stable than small, medium and large scale enterprises.

Figure 4.7: Sales of Medium Scale Enterprises during 2001-2003(Rs. in '000')



Large Scale Enterprises

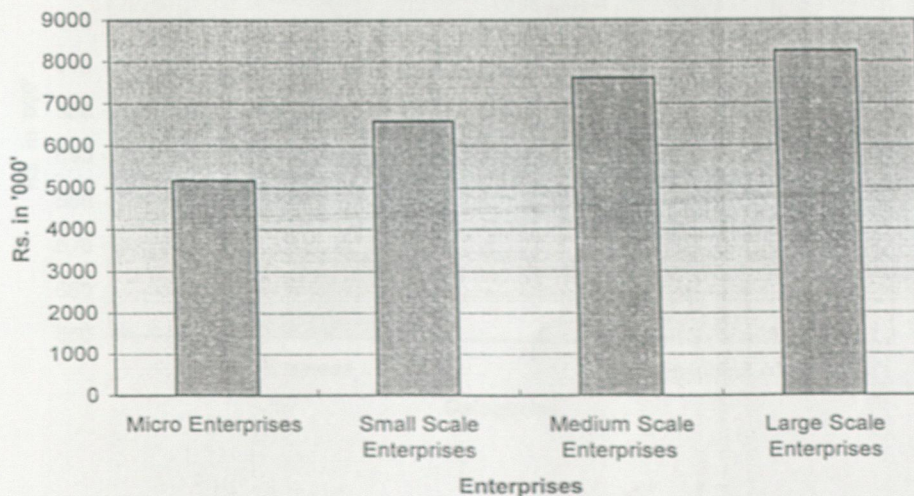
Table 4.22: Sales of Large Scale Enterprises during 2001-2003(Rs. in '000')

Kind of Business	Mean Value	S.D.	Min	Max	C.V.
Micro Scale Enterprises	5175.31 (18.75)	1502.40	2873.70	8938.00	0.29
Small Scale Enterprises	6580.25 (23.84)	1682.04	3997.30	9554.00	0.26
Medium Scale Enterprises	7605.31 (27.56)	1474.30	5573.00	10000.00	0.19
Large Scale Enterprise	8239.13 (29.85)	2350.29	5183.00	12508.00	0.29
All Businesses	27600.00 (100.00)	6208.29	19000.00	41000.00	0.22

Note: (1) Figures in parenthesis are percentage.
(2) Sample size= $5 \times 3 = 15$ cases

The above table reflects the comparison of sales made by large scale enterprises during 2001-2003. The survey conducted reveals that 30% of the net sales were made to large scale enterprises followed by medium scale enterprises (27%), small scale enterprises (24%) and micro scale enterprises (19%). Hence the ratio of sales appears to be more vital for medium scale enterprises, as the sales made to this sector are relatively more stable, this is clear from S.D and C.V.

Figure 4.8: Sales of Large Scale Enterprises during 2001-2003(Rs. in '000')



4.5 Distribution of Sales by Business and Final Consumers

This section highlights the pattern of sales made by micro and other (small, medium, and large) enterprises to the businesses, as well as, final consumers.

Micro Enterprises

Table 4.23: Sales of Micro Enterprises during 2001-2003 (Rs. in '000')

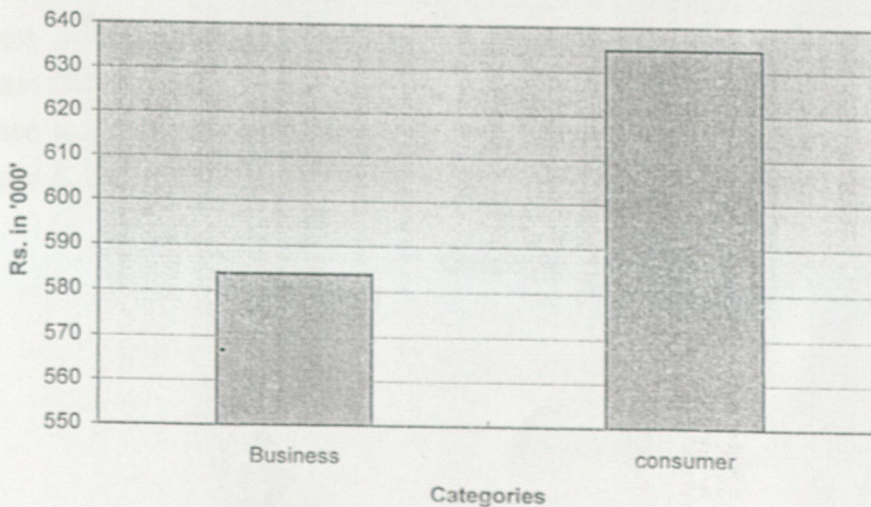
Sold to	Mean Value	S.D	Min	Max	C.V.
Businesses	583.71 (47.90)	265.10	134.00	1600.00	0.45
Consumers	634.85 (52.10)	267.51	137.39	1434.00	0.42
All	1218.56 (100.00)	521.08	296.00	2834.00	0.43

Note: (1) Figures in parenthesis are percentage.

(2) Sample size = $60 \times 3 = 180$ cases

The above table provides breakup of the sales made by micro enterprises to all businesses and final consumers. The data reveal that 48% of total sales went to businesses, including micro enterprises and 52% to final consumers. It appears that sales to final consumers were found relatively more stable than the sales made to businesses.

Figure 4.9: Sales of Micro Enterprises during 2001-2003 (Rs. in '000')



Small Scale Enterprises

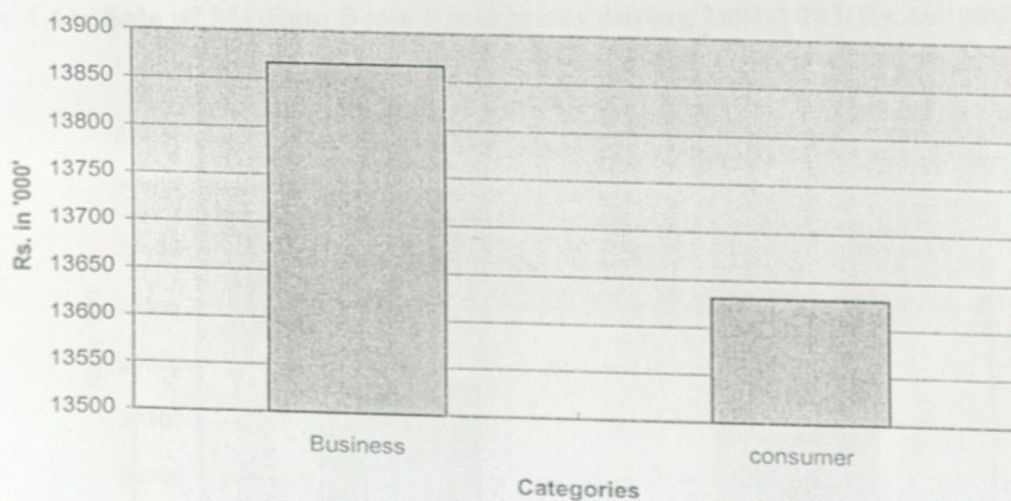
Table 4.24: Sales of Small Scale Enterprises during 2001-2003 (Rs. in '000')

Sold to	Mean Value	S.D.	Min	Max	C.V.
Businesses	13866.67 (50.43)	2404.12	10000.00	17000.00	0.17
Consumers	13631.80 (49.57)	1605.66	11251.50	16000.00	0.12
All	27498.47 (100.00)	3529.44	22000.00	33000.00	0.13

Note: (1) Figures in parenthesis are percentage.
(2) Sample size = $30 \times 3 = 90$ cases.

The above table provides information about the sales pattern of small scale enterprises. It appears that small scale enterprises sold half of the output to businesses sector and half to final consumers; the latter half sales appears to be relatively more stable than sales to businesses.

Figure 4.10: Sales of Small Scale Enterprises during 2001-2003(Rs in '000')



Medium Scale Enterprises

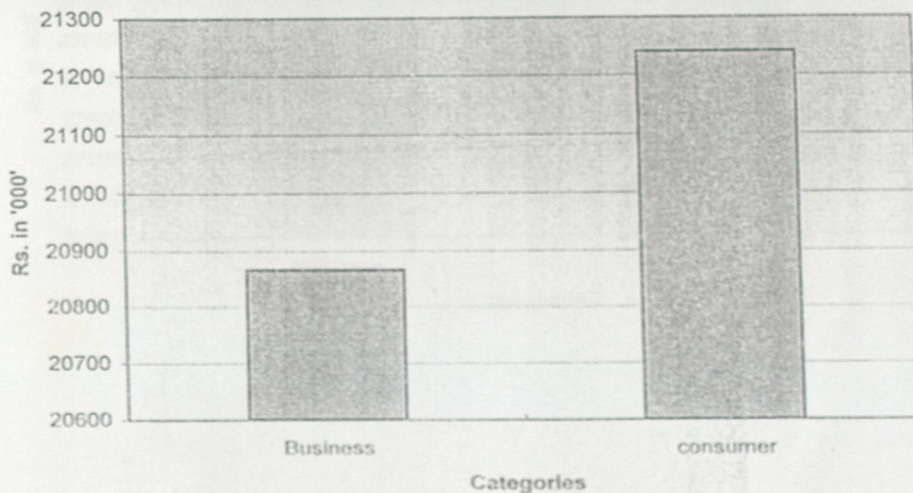
Table 4.25: Sale of Medium Scale Enterprises during 2001-2003(Rs. in '000')

Sold to	Mean value	S.D.	Min	Max	C.V.
Businesses	20866.66 (49.56)	4654.42	13000.00	30000.00	0.22
Consumers	21240.57 (50.44)	4698.37	13712.00	30429.00	0.22
All	42107.23 (100.00)	9349.24	26712.00	60429.00	0.22

Note: (1) Figures in parenthesis are percentage.
(2) Sample size = $15 \times 3 = 45$

The above table reflects the contribution of the medium scale enterprises through the sale of its output to the rest of business community (micro, small, medium and large scale enterprises) as well as final consumers. The above table shows an interesting feature of the sales made by medium enterprises that not only the sales made to businesses (50%) and consumers (50%) is equal in amount but these sales are equally stable as well during 2001-2003.

Figure 4.11: Sale of Medium Scale Enterprises during 2001-2003(Rs. in '000')



Large Scale Enterprises

Table 4.26: Sale of Large Scale Enterprises during 2001-2003(Rs. in '000')

Sold to	Mean Value	S.D.	Min	Max	C.V
Businesses	27600.00 (49.65)	6208.29	19000.00	41000.00	0.22
Consumers	28094.06 (50.44)	6330.78	19164.70	41585.00	0.23
All	55694.06 (100.00)	12536.79	38164.00	82585.00	0.23

Note: (1) Figures in parenthesis are percentage.
(2) Sample size= $5 \times 3 = 15$ cases

The above table reflects the distribution of large scale enterprises sales by businesses and final consumers. It is revealed that the two types of sales are equally divided and have remained equally stable during the study period.

Figure 4.12: Sale of Large Scale Enterprises during 2001-2003(Rs. in '000')

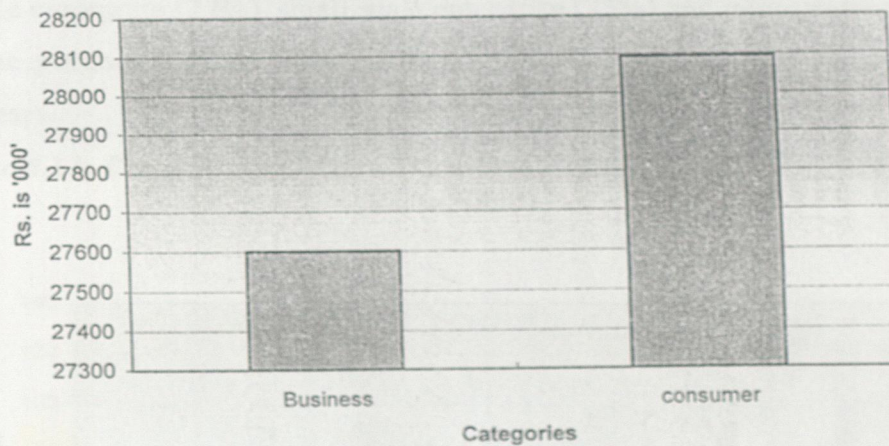


Table 4.28: Sales of Micro Furniture Enterprise during 2001-2003 (Rs. in '000')

Kind of Business	Mean Value	S.D	Min	Max	C.V
Micro Enterprises	76.43 (12.17)	28.96	22	167	0.38
Small Scale Enterprises	104.20 (16.59)	43.03	32	239	0.41
Medium Scale Enterprises	159.41 (25.38)	59.92	75	300	0.38
Large Scale Enterprises	288.00 (45.86)	87.87	96	500	0.31
All Businesses	628.04 (100.00)	185.80	200	1000	0.30

Note: (1) The figures in parenthesis are percentages.
 (2) Sample size= 20x3=60.

The above table shows the sales of micro furniture enterprises. The major sales were made to large scale enterprises (46%) followed by medium scale (25%), small scale (17%) and micro enterprises (12%). The sales pattern also shows that the sales of output made to large scale enterprise were more stable for the period of research work.

Figure 4.14: Sales of Micro Furniture Enterprise during 2001-2003 (Rs. in '000')

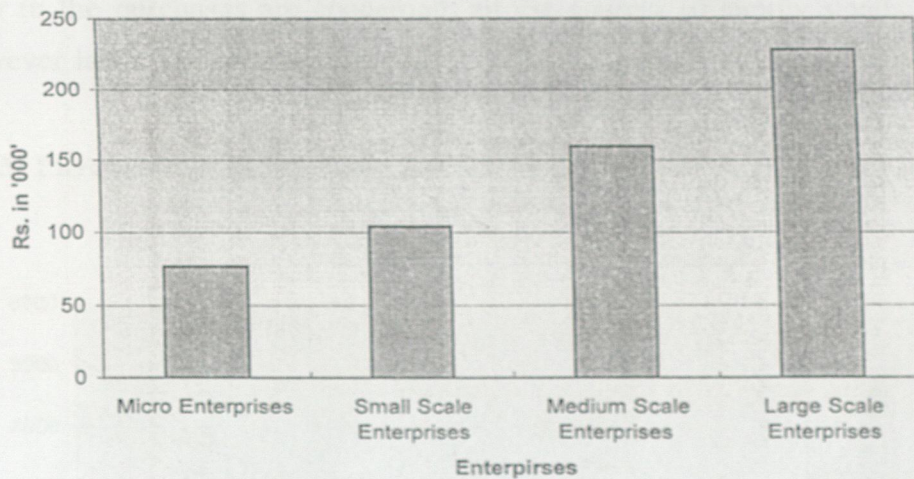


Table 4.28: Sales of Micro Furniture Enterprise during 2001-2003 (Rs. in '000')

Kind of Business	Mean Value	S.D	Min	Max	C.V
Micro Enterprises	76.43 (12.17)	28.96	22	167	0.38
Small Scale Enterprises	104.20 (16.59)	43.03	32	239	0.41
Medium Scale Enterprises	159.41 (25.38)	59.92	75	300	0.38
Large Scale Enterprises	288.00 (45.86)	87.87	96	500	0.31
All Businesses	628.04 (100.00)	185.80	200	1000	0.30

Note: (1) The figures in parenthesis are percentages.
 (2) Sample size= 20x3=60.

The above table shows the sales of micro furniture enterprises. The major sales were made to large scale enterprises (46%) followed by medium scale (25%), small scale (17%) and micro enterprises (12%). The sales pattern also shows that the sales of output made to large scale enterprise were more stable for the period of research work.

Figure 4.14: Sales of Micro Furniture Enterprise during 2001-2003 (Rs. in '000')

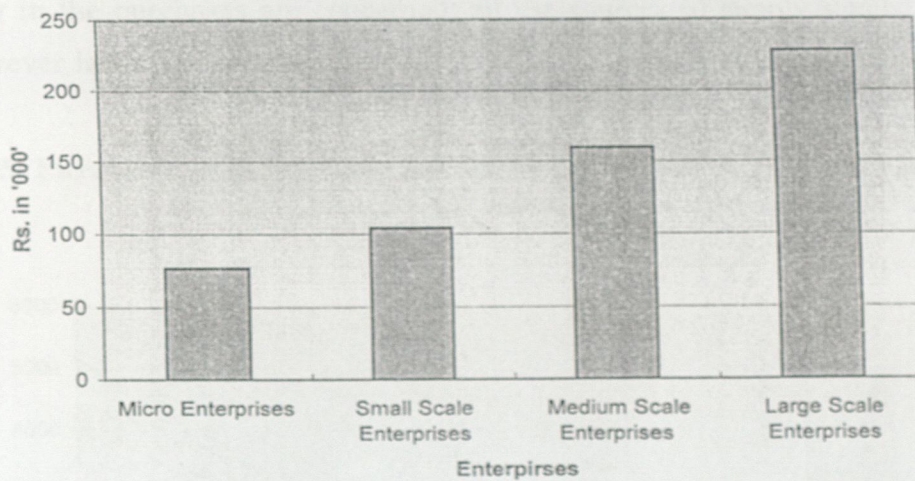


Table 4.29: Purchases of Small Scale Furniture Enterprise during 2001-2003
(Rs. in '000')

Kind of Business	Mean Value	S.D	Min	Max	C.V
Micro Enterprises	1124.00 (10.83)	323.90	400	1607	0.29
Small Scale Enterprises	1993.00 (19.19)	864.90	1015	3850	0.43
Medium Scale Enterprises	2275.00 (21.92)	383.90	1100	3399	0.17
Large Scale Enterprises	4989.00 (48.06)	814.00	3899	6304	0.16
All Businesses	10381.00 (100.00)	1828.00	7015	13347	0.08

Note: (1) The figures in parenthesis are percentages.
(2) Sample size = $10 \times 3 = 30$ cases.

The scenario outlined above indicates the direction of purchases made by Small Scale furniture enterprises. The table reflects that major purchases were made from large scale enterprises (48%) followed by medium scale enterprises (22%), small scale enterprises (20%) and micro enterprises (10%). Therefore, the table reveals that magnitude of purchases made from large scale enterprises is almost half of the total purchase. As well as, stability in the purchases are concerned, all the sources of supply stands to be very stable, however large scale enterprises seems to be more stable than the other sources of supply.

Figure 4.15: Purchases of Small Scale Furniture Enterprise during 2001-2003
(Rs. in '000')

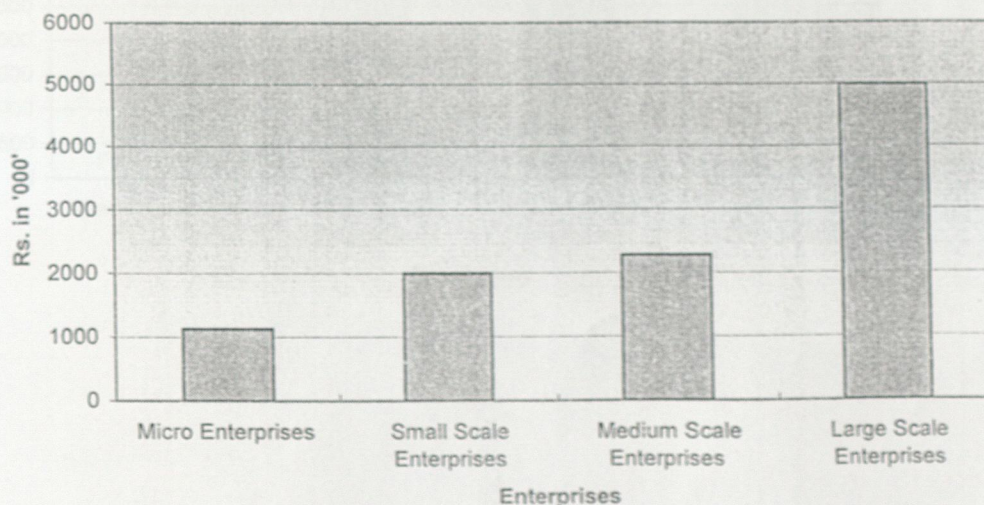


Table 4.30: Sales of Small Scale Furniture Enterprise during 2001-2003
(Rs. in '000')

Kind of Business	Mean Value	S.D	Min	Max	C.V
Micro Enterprises	1409.00 (10.84)	459.20	700	2350	0.33
Small Scale Enterprises	3264.00 (25.11)	503.10	2500	3951	0.15
Medium Scale Enterprises	3569.00 (27.45)	661.30	2500	5000	0.19
Large Scale Enterprises	4758.00 (36.60)	1447.00	2903	8182	0.30
All Businesses	13000.00 (100.00)	3072.00	8063	19483	0.24

Note: (1) The figures in parenthesis are percentages.
(2) Sample size = $10 \times 3 = 30$ cases.

The sale of small scale furniture enterprises for the period 2001-2003 is shown in the above table. During this period major sales of outputs were made to large scale enterprise (37%) followed by medium scale enterprise (27%), small scale enterprise (25%) and micro enterprise (11%). The sales made to the small scale furniture enterprises witnessed to be more stable for the last three years.

Figure 4.16: Sales of Small Scale Furniture Enterprise during 2001-2003
(Rs. in '000')

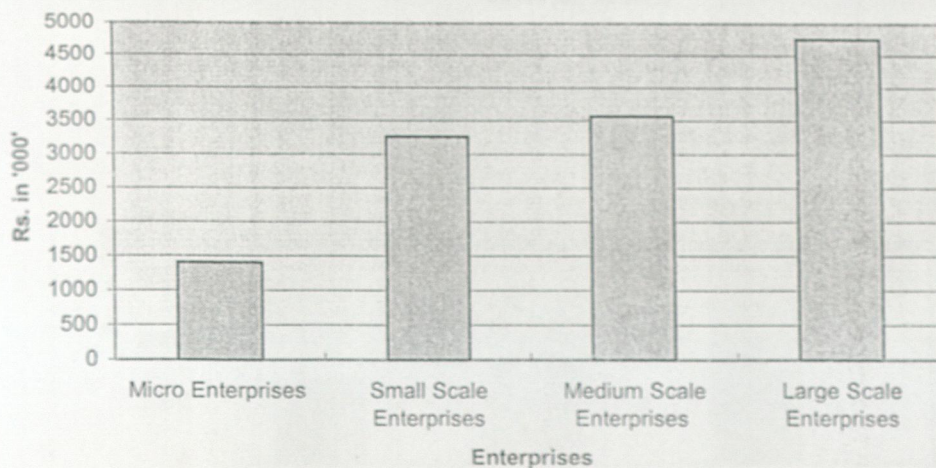


Table 4.31: Purchases of Medium Scale Furniture Enterprises during 2001-2003
(Rs. in '000')

Kind of Business	Mean Value	S.D	Min	Max	C.V
Micro Enterprises	1357.00 (09.09)	724.20	750	2767	0.53
Small Scale Enterprises	4244.00 (28.43)	2021.00	2000	7829	0.48
Medium Scale Enterprises	4264.00 (28.56)	1305.00	2900	6572	0.31
Large Scale Enterprises	5063.00 (33.92)	1218.00	3560	6738	0.24
All Business	14928.00 (100.00)	5056.00	9650	23960	0.34

Note: (1) The figures in parenthesis are percentages.

(2) Sample size = $5 \times 3 = 15$ cases.

The above table mentions the purchase of inputs by medium scale furniture enterprises. The table shows that major purchases were made from large scale enterprises (34%) followed medium scale enterprises (29%), small scale enterprises (28%) and micro enterprises (9%). As well as the stability in purchase is concerned, purchases made from large scale enterprises found to be most stable during 2001-2003.

Figure 4.17: Purchases of Medium Scale Furniture Enterprises during 2001-2003
(Rs. in '000')

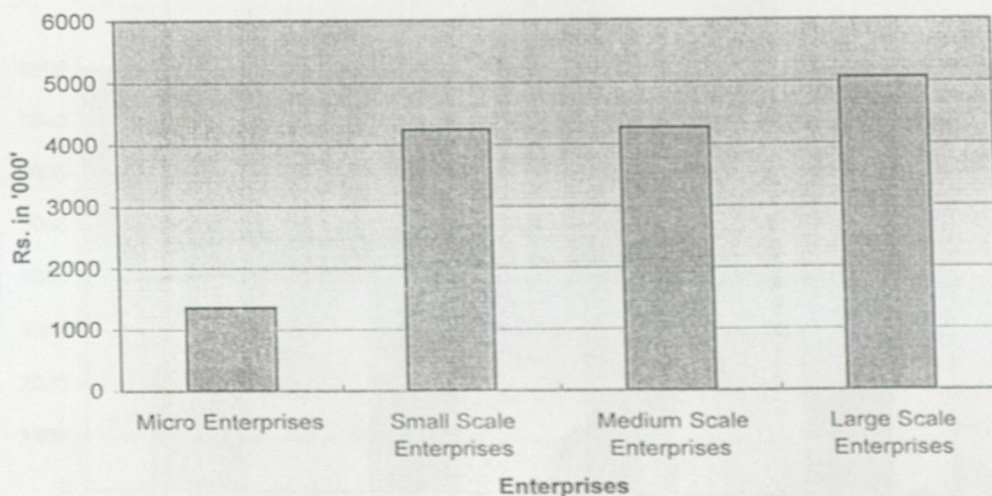


Table 4.32: Sales of Medium Scale Furniture Enterprises during 2001-2003
(Rs. in '000')

Kind of Business	Mean Value	S.D	Min	Max	C.V
Micro Enterprises	2275.00 (11.61)	1066.00	1025	3968	0.47
Small Scale Enterprises	5137.00 (26.21)	1480.00	2152	7171	0.29
Medium Scale Enterprises	5516.00 (28.15)	1906.00	4500	7163	0.35
Large Scale Enterprises	6670.00 (34.03)	1904.00	3674	9836	0.29
All Businesses	19598.00 (100.00)	4792.00	13000	27000	0.24

Note: (1) The figures in parenthesis are percentages.
(2) Sample size = $5 \times 3 = 15$ cases.

The above table entails the sales made by medium scale furniture enterprises from micro, small, medium and large scale enterprises. The above table shows that the medium scale furniture enterprises made their major sales of output to large scale enterprises (34%) followed by medium scale enterprises (28%), small scale enterprises (26%) and micro enterprises (12%). The table also shows that sale made to small and large scale enterprises were equally stable.

Figure 4.18: Sales of Medium Scale Furniture Enterprises during 2001-2003
(Rs. in '000')

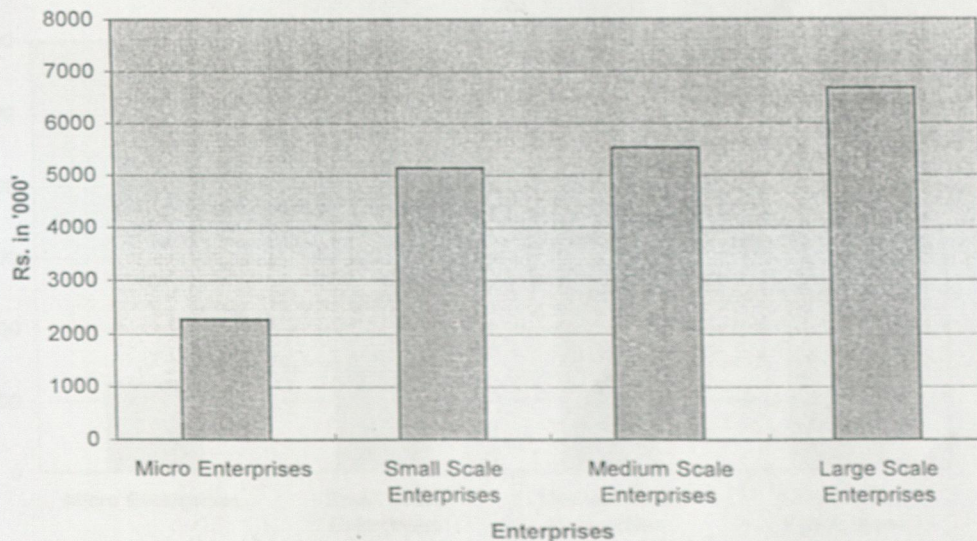


Table 4.33: Purchases of Large Scale Furniture Enterprises during 2001-2003
(Rs. in '000')

Kind of Business	Mean Value	S.D	Min	Max	C.V
Micro Enterprises	1237.00 (08.82)	633.40	500	2050	0.51
Small Scale Enterprises	3574.00 (25.47)	961.20	2500	4500	0.27
Medium Scale Enterprises	4182.00 (29.82)	610.60	3100	4780	0.15
Large Scale Enterprises	5035.00 (35.89)	715.40	4300	6112	0.14
All Businesses	14028 (100.00)	2773.00	10494	16781	0.20

Note: (1) The figures in parenthesis are percentages.
(2) Sample size= $2 \times 3 = 6$.

The above table entails the purchases made by large scale furniture enterprises from the micro, small, medium and large scale enterprises. The above table shows that the large scale furniture enterprises made their major purchase of inputs/raw material from large scale enterprises (35%) followed by medium scale enterprises (30%), small scale enterprises (26%) and micro enterprises (9%). The table also shows that supply made by large & medium scale enterprises was more stable than the other sources of supply during the research period.

Figure 4.19: Purchases of Large Scale Furniture Enterprises during 2001-2003
(Rs. in '000')

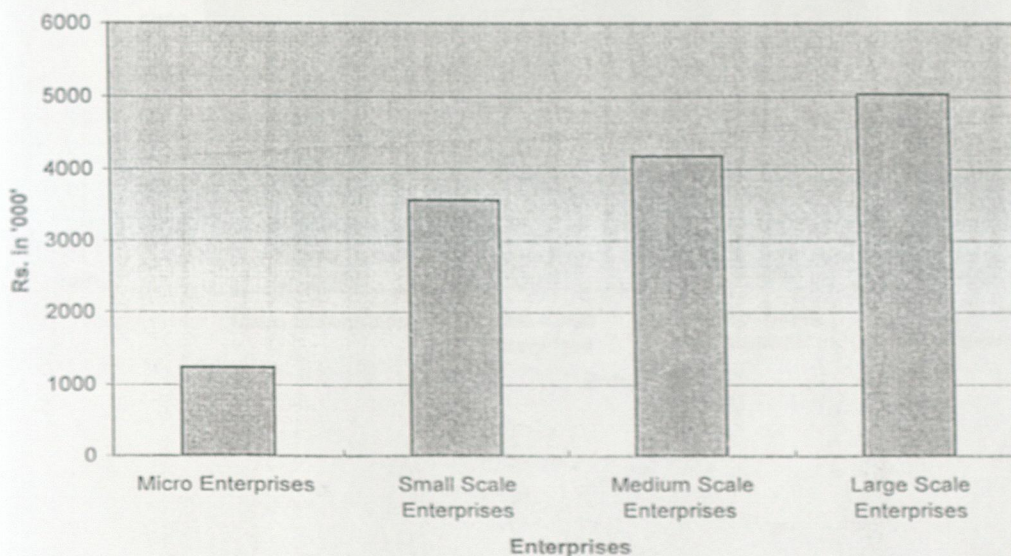


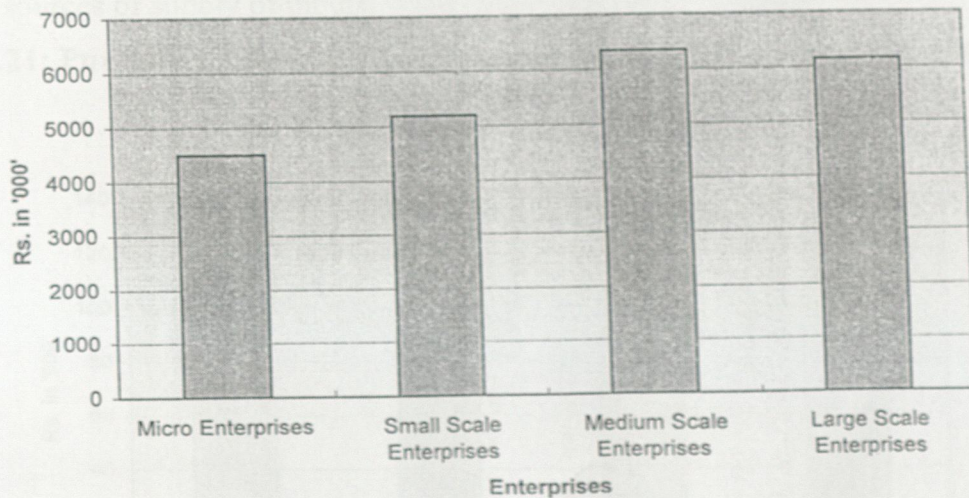
Table 4.34: Sale of Large Scale Furniture Enterprises during 2001-2003
(Rs. in '000')

Kind of Business	Mean Value	S.D	Min	Max	C.V
Micro Enterprises	4491.00 (20.26)	1171.00	2873	5698	0.26
Small Scale Enterprises	5189.00 (23.42)	805.00	3997	6262	0.16
Medium Scale Enterprises	6338.00 (28.59)	602.30	5573	6946	0.10
Large Scale Enterprises	6146.00 (27.73)	814.90	5183	7422	0.13
All Businesses	22164.00 (100.00)	1834.00	19000	24000	0.08

Note: (1) The figures in parenthesis are percentages.
(2) Sample size = $2 \times 3 = 6$

The sale of large scale enterprises over the period 2001-2003 is shown in the above table. During this period major sales were made to medium scale enterprises (29%) followed by large scale enterprises (28%), small-scale enterprises (23%) and micro enterprises (20%). The sale made to medium scale enterprises witnessed to be more stable than the other output markets.

Figure 4.20: Sale of Large Scale Furniture Enterprises during 2001-2003
(Rs. in '000')



Manufacturing Enterprises

Table 4.35: Purchases of Micro Manufacturing Enterprises during 2001-2003
(Rs. in '000')

Kind of Business	Mean Value	S.D	Min	Max	C.V
Micro Enterprises	72.00 (16.39)	19.79	18	92	0.27
Small Scale Enterprises	110.00 (25.04)	45.88	42	232	0.12
Medium Scale Enterprises	130.00 (29.59)	59.85	21	283	0.46
Large Scale Enterprises	127.30 (28.98)	97.89	25	332	0.77
All Businesses	439.30 (100.00)	210.60	60	925	0.98

Note: (1) The figures in parenthesis are percentages.
(2) Sample size = $20 \times 3 = 60$ cases.

The above table represents the values of purchases made by micro manufacturing enterprises. The major purchases were made from medium scale enterprises (30%) followed by large scale enterprise (29%), small scale enterprises (25%) and micro enterprises (16%). The mean value of micro manufacturing enterprises purchases seems unstable for the past three years, which is quite clear from the magnitude of S.D and C.V. Purchases made from other micro enterprises however appears relatively more stable than the other sources of supply of inputs.

Figure 4.21: Purchases of Micro Manufacturing Enterprises during 2001-2003
(Rs. in '000')

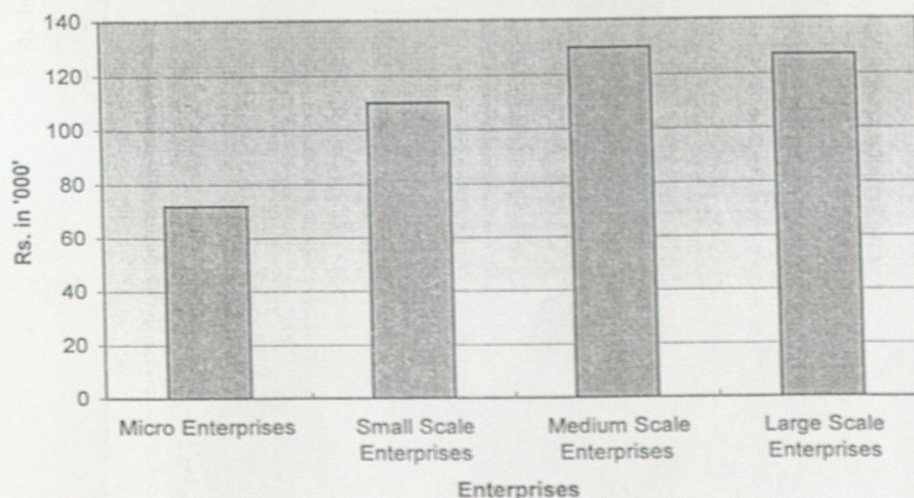


Table 4.36: Sales of Micro Manufacturing Enterprises during 2001-2003
(Rs. in '000')

Kind of Business	Mean Value	S.D	Min	Max	C.V
Micro Enterprises	135.70 (17.04)	66.94	28	304	0.49
Small Scale Enterprises	162.60 (20.42)	81.84	50	471	0.50
Medium Scale Enterprises	207.59 (26.08)	95.79	70	500	0.46
Large Scale Enterprises	290.24 (36.46)	112.92	100	600	0.39
All Businesses	796.13 (100.00)	332.20	164	1600	0.42

Note: (1) The figures in parenthesis are percentages.
(2) Sample size = 20x3=60 cases.

The above table underlines the sales made by micro manufacturing enterprises. The table reflects that major sales were made to large scale enterprises (37%) followed by large scale enterprises (26%), small scale enterprises (20%) and micro enterprises (17%). The sales made to large scale enterprises stands more stable than other markets of sale.

Figure 4.22: Sales of Micro Manufacturing Enterprises during 2001-2003
(Rs. in '000')

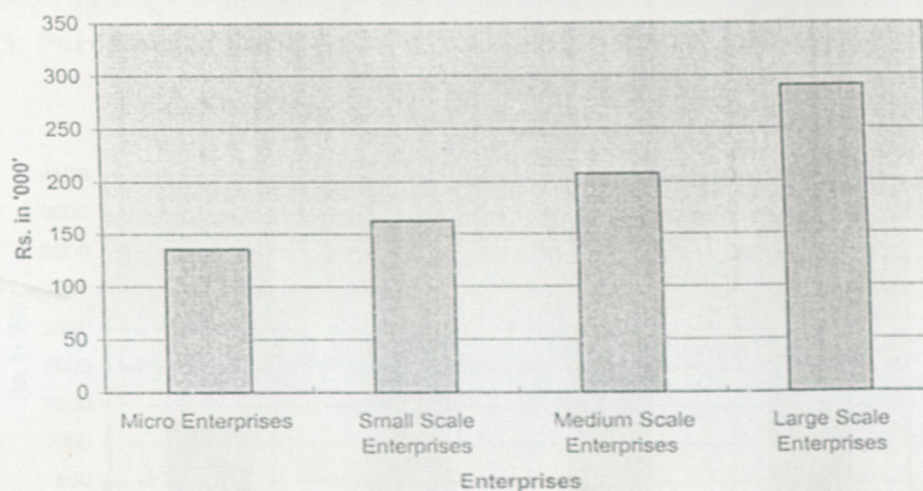


Table 4.37: Purchases of Small Scale Manufacturing Enterprises during 2001-2003
(Rs. in '000')

Kind of Business	Mean Value	S.D	Min	Max	C.V
Micro Enterprises	1260.00 (11.76)	326.9	67	1670	0.26
Small Scale Enterprises	2550.00 (23.80)	1328.00	1015	5621	0.52
Medium Scale Enterprises	2644.00 (24.68)	675.50	1000	3439	0.26
Large Scale Enterprises	4259.00 (39.76)	921.20	2327	5945	0.22
All Businesses	10713.00 (100.00)	1958.00	7015	13475	0.12

Note: (1) The figures in parenthesis are percentages.
(2) Sample size = $10 \times 3 = 30$ cases

The above table entails the purchases of small scale manufacturing enterprises. The above table shows that small scale manufacturing enterprises made their major purchases from large scale enterprises (40%) followed by medium scale enterprise (25%) small enterprises (24%) and micro enterprises (11%). The table also reflects that purchases made from large scale enterprises are more stable than the other sources of supply.

Figure 4.23: Purchases of Small Scale Manufacturing Enterprises during 2001-2003
(Rs. in '000')

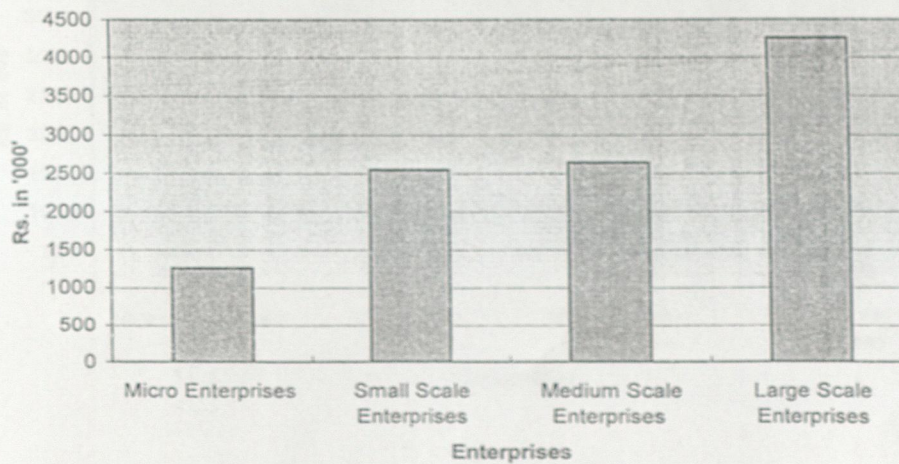


Table 4.38: Sales of Small Scale Manufacturing Enterprises during 2001-2003
(Rs. in '000')

Kind of Business	Mean Value	S.D	Min	Max	C.V
Micro Enterprise	1553.00 (11.68)	525.60	777	2500	0.34
Small Scale Enterprise	3343.00 (25.14)	549.70	2500	4000	0.16
Medium Scale Enterprise	3865.00 (29.06)	948.30	1844	5093	0.25
Large Scale Enterprise	4537.00 (34.12)	1184.0	2410	6500	0.26
All Businesses	13298.00 (100.00)	2692.00	10000	17000	0.20

Note: (1) The figures in parenthesis are percentages.
(2) Sample size = $10 \times 3 = 30$ cases

The above table provides information about the sale pattern of small scale manufacturing enterprises. The data reveals that small scale manufacturing enterprises found large market for its sale in large scale enterprises (34.00%) followed by medium (29%), small (25%) and micro (12) enterprises. The table also reflects that the sales made to small scale enterprises were more stable than the other output markets.

Figure 4.24: Sales of Small Scale Manufacturing Enterprises during 2001-2003
(Rs. in '000')

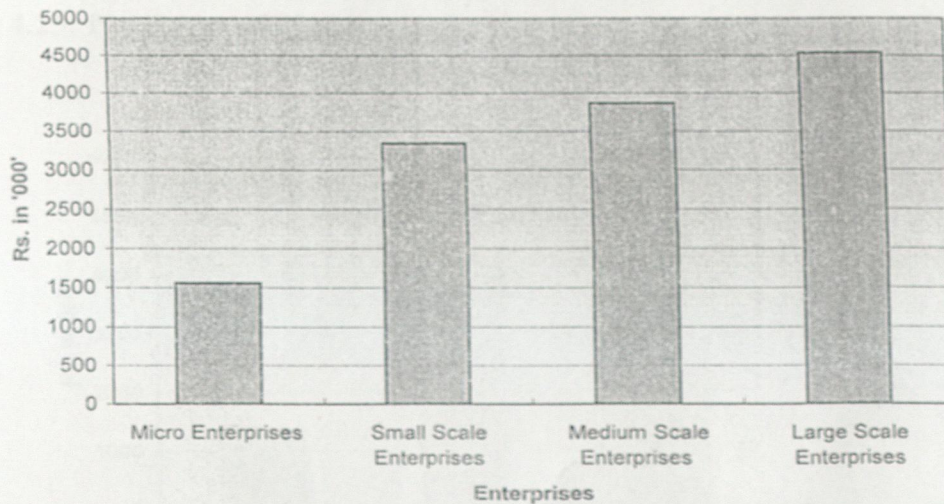


Table 4.39: Purchases of Medium Scale Manufacturing Enterprises during 2001-2003 (Rs. in '000')

Kind of Business	Mean Value	S.D	Min	Max	C.V
Micro Enterprises	1390.00 (09.26)	511.20	800	2230	0.37
Small Scale Enterprises	3977.00 (26.50)	2220.00	2000	8052	0.56
Medium Scale Enterprises	4331.00 (28.86)	1444.00	3000	7030	0.33
Large Scale Enterprises	5309.00 (35.38)	942.70	4050	6447	0.18
All Businesses	15007.00 (100.00)	4076.00	9850	23930	0.27

Note: (1) The figures in parenthesis are percentages.
 (2) Sample size = $5 \times 3 = 15$ cases

The above table provides information about the purchase of inputs made by medium scale manufacturing enterprises. The data reveals that medium scale manufacturing enterprises purchased major portion of the inputs from large scale enterprises (36%), followed by medium scale enterprises (29%), small scale enterprises (26%) and micro enterprises (9%). The purchases made from large scale enterprises were more stable than other sources of supply.

Figure 4.25: Purchases of Medium Scale Manufacturing Enterprises during 2001-2003 (Rs. in '000')

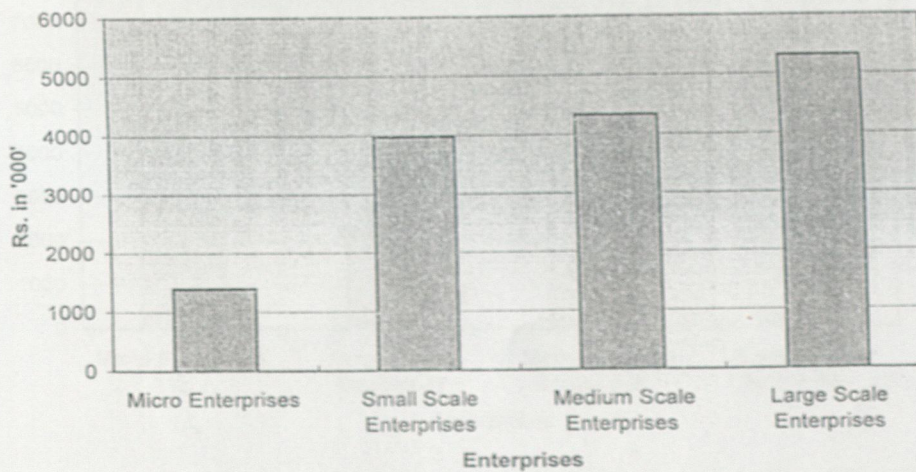


Table 4.40: Sales of Medium Scale Manufacturing Enterprises during 2001-2003
(Rs. in '000')

Kind of Business	Mean Value	S.D	Min	Max	C.V
Micro Enterprises	3173.00 (14.97)	175.00	1252	4638	0.37
Small Scale Enterprises	5834.00 (27.52)	1563.00	3924	8281	0.27
Medium Scale Enterprises	5325.00 (25.12)	1511.00	3924	8066	0.28
Large Scale Enterprises	6865.00 (32.39)	1898.00	4177	9536	0.28
All Businesses	21197.00 (100.00)	5864.00	14000	30000	0.28

Note: (1) The figures in parenthesis are percentages.
(2) Sample size = $5 \times 3 = 15$ cases

The above table shows the sales of medium scale manufacturing enterprises. It reflects that major purchases were made from large scale enterprises (32%) followed by small scale enterprises (28%), medium scale enterprises (25%) and micro enterprises (15%). As well as the stability in purchases is concerned, the most stable purchases were made from small scale enterprises during the period 2001-2003.

Figure 4.26: Sales of Medium Scale Manufacturing Enterprises during 2001-2003
(Rs. in '000')

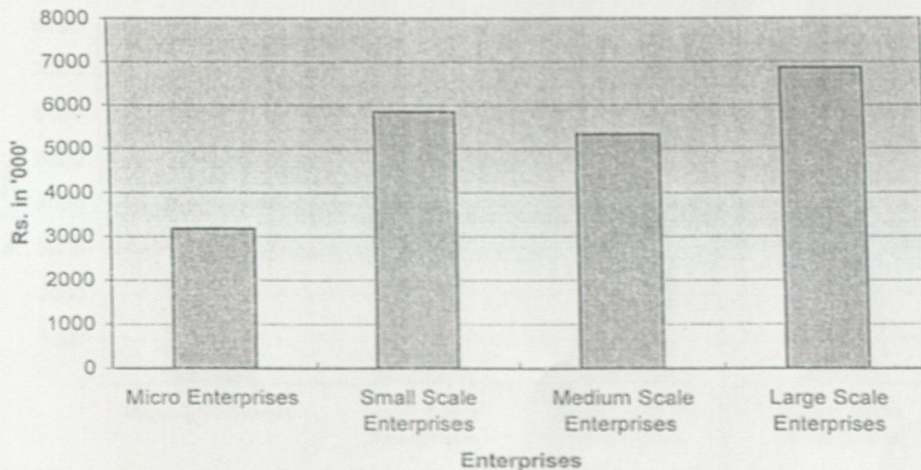


Table 4.41: Purchases of Large Scale Manufacturing Enterprises during 2001-2003(Rs. in '000')

Kind of Business	Mean Value	S.D	Min	Max	C.V
Micro Enterprises	2311.00 (11.20)	513.80	1792	3000	0.22
Small Scale Enterprises	5582.00 (27.05)	397.00	5062	6000	0.07
Medium Scale Enterprises	5649.00 (27.37)	405.10	5000	6000	0.07
Large Scale Enterprises	7096.00 (34.38)	497.00	6210	7499	0.07
All Businesses	20638.00 (100.00)	1057.00	19205	22200	0.05

Note: (1) The figures in parenthesis are percentages.
 (2) Sample size = $2 \times 3 = 6$ cases

The above table reflects the comparison of purchases made by large scale manufacturing enterprises. The survey conducted reveals that 35% of the inputs were purchased from large scale enterprises followed by medium scale enterprises (27%), small scale enterprises (27%) and micro enterprises (11%). The survey conducted reveals an interesting feature that the purchases made by large, medium and small scale manufacturing enterprises were equally stable for the research period.

Figure 4.27: Purchases of Large Scale Manufacturing Enterprises during 2001-2003(Rs. in '000')

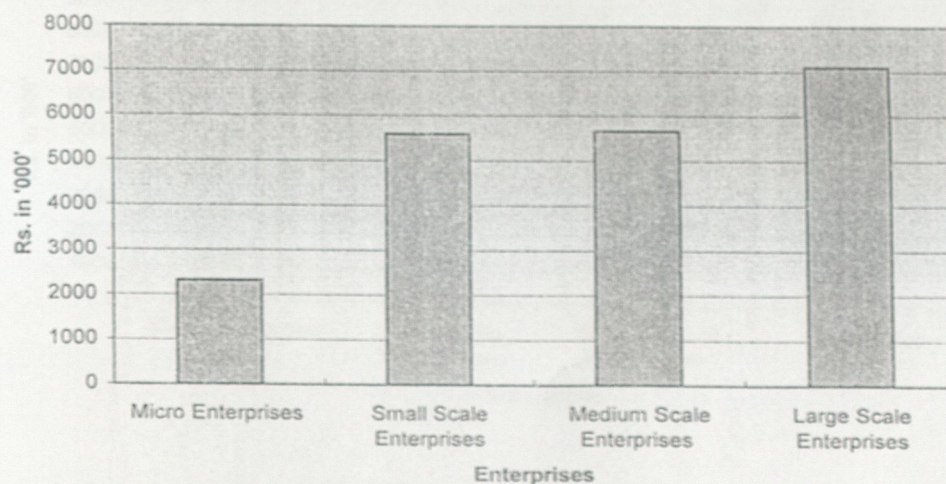


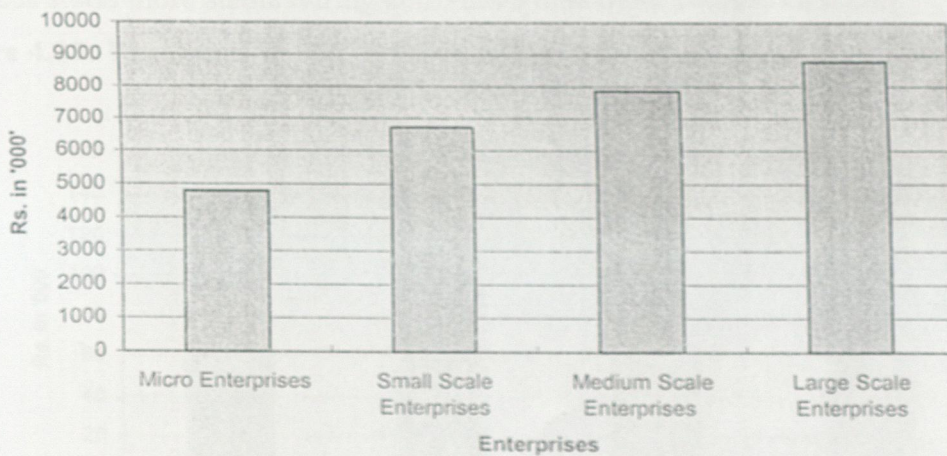
Table 4.42: Sales of Large Scale Manufacturing Enterprises during 2001-2003
(Rs. in '000')

Kind of Business	Mean Value	S.D	Min	Max	C.V
Micro Enterprises	4794.00 (17.02)	614.80	4057	5500	0.13
Small Scale Enterprises	6726.00 (23.88)	1067.00	5426	8050	0.16
Medium Scale Enterprises	7862.00 (27.91)	1078.00	6612	9800	0.14
Large Scale Enterprises	8783.30 (31.00)	1565.80	6900	11400	0.20
All Businesses	28165.00 (100.00)	2316.00	24000	31000	0.08

Note: (1) The figures in parenthesis are percentages.
(2) Sample size = $2 \times 3 = 6$ cases

The above table reflects the comparison of sales made by large scale manufacturing enterprises. The survey shows that 31% of the net sales were made to large scale enterprises followed by medium scale enterprises (28%), small scale enterprises (24%) and micro enterprises (17%). The sales made to medium scale enterprises were more stable during 2001-2003.

Figure 4.28: Sales of Large Scale Manufacturing Enterprises during 2001-2003
(Rs. in '000')



Electric/ Electronics/Gas Appliances

Table 4.43: Purchases of Micro Electric/Electronic/Gas Appliances Enterprises during 2001-2003 (Rs. in '000')

Kind of Business	Mean Value	S.D	Min	Max	C.V
Micro Enterprises	63.82 (14.85)	29.59	17	135	0.46
Small Scale Enterprises	114.40 (26.63)	70.68	35	467	0.62
Medium Scale Enterprises	137.00 (31.89)	44.83	57	219	0.33
Large Scale Enterprises	114.40 (26.63)	40.17	35	200	0.35
All Businesses	429.62 (100.00)	194.00	53	698	0.45

Note: (1) The figures in parenthesis are percentages.
(2) Sample size = 20x3=60 cases

The above table highlights the trend in the purchases made by micro electric/electronic/gas appliances from micro enterprises as well as small, medium and large scale enterprises. These results indicate that major purchases were made from medium scale enterprises (31%), followed by large scale enterprises (27%), small scale enterprises (27%) and micro enterprises (15%). Whereas the purchases made from medium scale enterprises stood more stable during 2001-2003 than other sources of supply.

Figure 4.29: Purchases of Micro Electric/Electronic/Gas Appliances Enterprises during 2001-2003 (Rs. in '000')

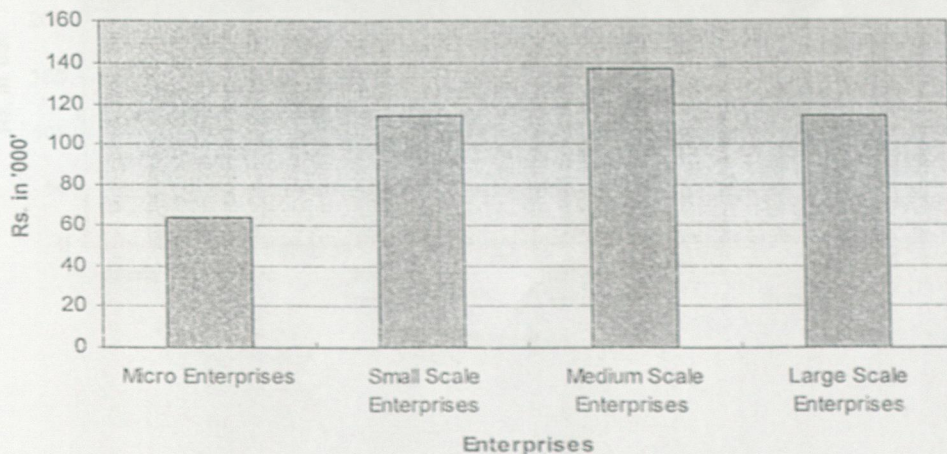


Table 4.44: Sales of Micro Electric/Electronic/Gas Appliances Enterprises during 2001-2003 (Rs. in '000')

Kind of Business	Mean Value	S.D	Min	Max	C.V
Micro Enterprises	123.90 (18.06)	60.02	08	240	0.48
Small Scale Enterprises	135.82 (19.80)	41.05	57	220	0.30
Medium Scale Enterprises	172.12 (25.09)	62.08	40	300	0.36
Large Scale Enterprises	254.12 (37.05)	77.06	150	400	0.30
All Businesses	685.96 (100.00)	232.60	134	1000	0.34

Note: (1) The figures in parenthesis are percentages.
(2) Sample size = $20 \times 3 = 60$ cases

The sales of micro electric/electronic/gas appliances enterprises are shown in the above table. During this period major sales were made to large scale enterprises (37%) followed by medium scale enterprises (25%) and small scale enterprises (20%). Where as 18% of the output is sold out to micro enterprises. However the sales made to small and large scale enterprises were more stable during the research period.

Figure 4.30: Sales of Micro Electric/Electronic/Gas Appliances Enterprises during 2001-2003 (Rs. in '000')

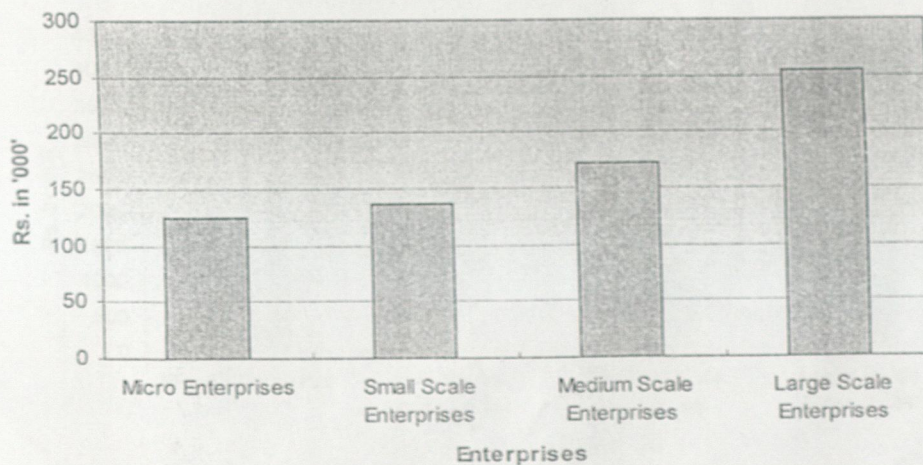


Table 4.45: Purchase of Small Scale Electric/Electronic/Gas Appliances Enterprises during 2001-20003 (Rs. in '000')

Kind of Business	Mean Value	S.D	Min	Max	C.V
Micro Enterprises	1604.00 (14.24)	399.60	800	2251	0.25
Small Scale Enterprises	2675.00 (23.74)	113.57	1015	5621	0.04
Medium Scale Enterprises	2717.00 (24.11)	640.70	1100	3755	0.24
Large Scale Enterprises	4272.00 (37.91)	820.40	2327	5945	0.19
All Businesses	11268.00 (100.00)	1731.69	7015	13475	0.15

Note: (1) The figure in parenthesis is percentages.
 (2) Sample size = 10x3=30 cases

The above table shows the purchase of small scale electric/electronic/gas appliance enterprises. The table shows that major purchases were made from large scale enterprises (38%) followed by medium scale enterprises (24%), small scale enterprises (24%) and micro enterprise (14%). As well as the stability is concerned purchases made from small scale enterprises, found to be very stable during 2001-2003.

Figure 4.31: Purchase of Small Scale Electric/Electronic/Gas Appliances Enterprises during 2001-20003 (Rs. in '000')

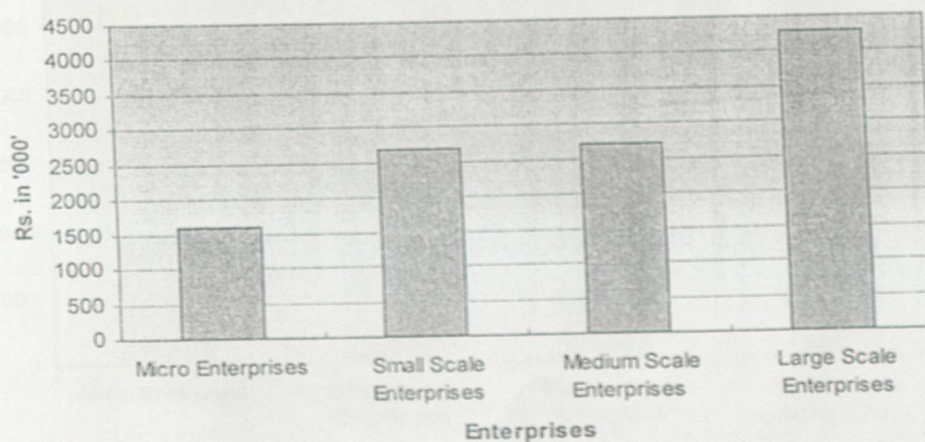


Table 4.46: Sales of Small Scale Electric/Electronic/Gas Appliances Enterprises during 2001-2003 (Rs. in '000')

Kind of Business	Mean Value	S.D	Min	Max	C.V
Micro Enterprises	1954.00 (12.77)	562.60	851	3000	0.29
Small Scale Enterprises	3464.00 (22.64)	423.40	2817	4000	0.12
Medium Scale Enterprises	4354.00 (28.46)	484.30	3252	4000	0.11
Large Scale Enterprises	5526.00 (36.12)	622.80	4100	6740	0.11
All Businesses	15298.00 (100.00)	1118.00	13000	17000	0.07

Note: (1) The figures in parenthesis are percentages.
 (2) Sample size = $10 \times 3 = 30$ cases

The above table reflects that small scale electric/electronic/gas appliances enterprises sold major portion of their output to large scale enterprises (36%) followed by medium scale enterprises (28%), small scale enterprises (23%) and micro enterprises (13%). However, the sales made to medium and large scale enterprises appeared to be more stable.

Figure 4.32: Sales of Small Scale Electric/Electronic/Gas Appliances Enterprises during 2001-2003 (Rs. in '000')

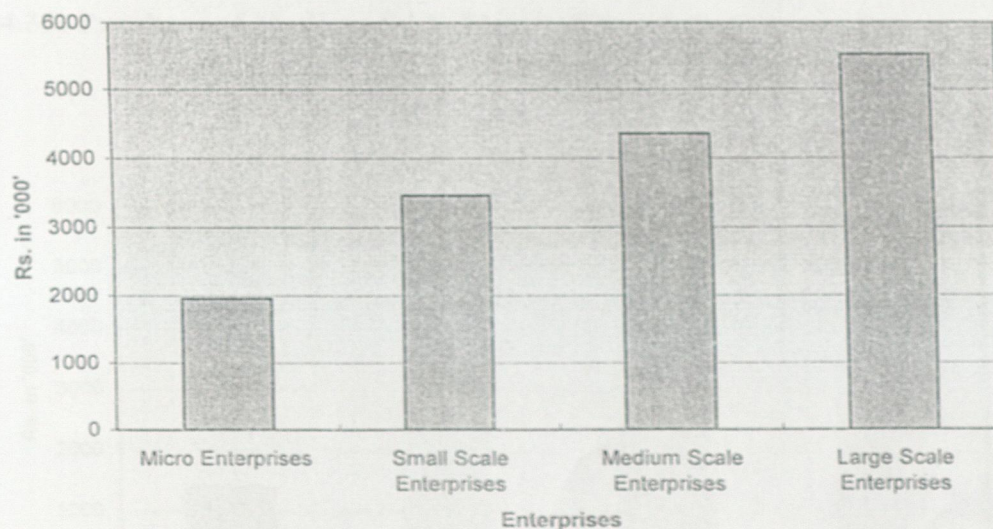


Table 4.47: Purchase of Medium Scale Electric/Electronic/Gas Appliances Enterprises during 2001-2003 (Rs. in '000')

Kind of Business	Mean Value	S.D	Min	Max	C.V
Micro Enterprises	1395.00 (09.22)	371.80	1000	1945	0.26
Small Scale Enterprises	4011.00 (26.53)	1202.00	5050	6050	0.29
Medium Scale Enterprises	4555.00 (30.12)	1049.00	6000	6000	0.23
Large Scale Enterprises	5161.00 (34.13)	1054.00	5500	6370	0.20
All Businesses	15122.00 (100.00)	3127.00	19950	19950	0.20

Note: (1) The figures in parenthesis are percentages.
(2) Sample size = $5 \times 3 = 15$ cases

The above table presents the values of medium scale electric/electronic/gas appliances enterprises. The major purchases were made from large scale enterprises (34%) and medium scale enterprises (30%) followed by small scale enterprises (27%) and micro enterprises (09%). The mean value of large scale, electric, electronic and gas appliances enterprises seems to be very stable for the last three years, which is clear from the magnitude of S.D and C.V. However purchases from medium enterprises appears relatively more stable than other two sources of supply.

Figure 4.33: Purchase of Medium Scale Electric/Electronic/Gas Appliances Enterprises during 2001-2003 (Rs. in '000')

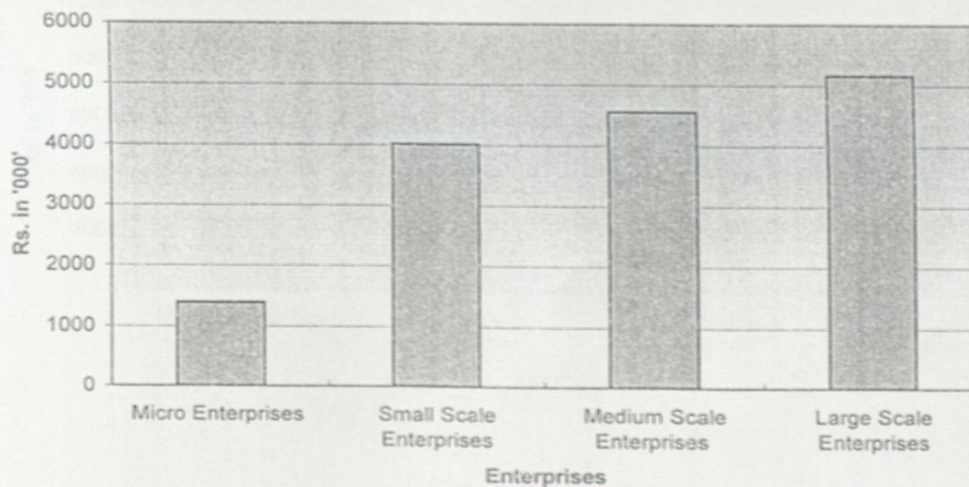


Table 4.48: Sales of Medium Scale Electric/Electronic/Gas Appliances Enterprises during 2001- 2003 (Rs. in '000')

Kind of Business	Mean Value	S.D	Min	Max	C.V
Micro Enterprises	3225.00 (14.72)	1300.00	972	4800	0.40
Small Scale Enterprises	5768.00 (26.32)	980.00	3900	7096	0.17
Medium Scale Enterprises	5944.00 (27.13)	1181.00	4846	8096	0.20
Large Scale Enterprises	6976.00 (31.83)	938.70	5154	9126	0.13
All Businesses	21913.00 (100.00)	3356.00	17000	27726	0.15

Note: (1) The figures in parenthesis are percentages.
(2) Sample size = $5 \times 3 = 15$ cases

The above table provides information about the sales patterns of medium scale electric/electronic/gas appliances enterprises. The data reveals that these enterprises found their larger market of outputs in large scale enterprises (32%) followed by medium scale enterprises (27%), small scale enterprises (26%), and micro enterprises (15%). The standard deviation and co-efficient of variation shows that sale made to different enterprises except micro enterprises remained stable during the period of research.

Figure 4.34: Sales of Medium Scale Electric/Electronic/Gas Appliances Enterprises during 2001-2003 (Rs. in '000')

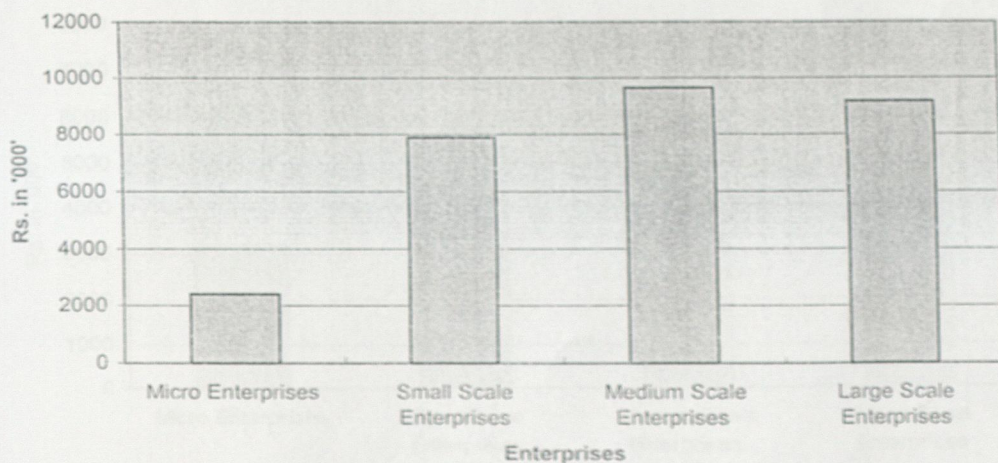


Table 4.49: Purchase of Large Scale Electric/Electronic/Gas Appliances Enterprises during 2001-2003 (Rs. in '000')

Kind of Business	Mean Value	S.D	Min	Max	C.V
Micro Enterprises	2418.00 (08.30)	122.60	2284	2522	0.05
Small Scale Enterprises	7893.00 (27.09)	485.70	7534	8446	0.06
Medium Scale Enterprises	9649.00 (33.12)	492.00	9249	10200	0.05
Large Scale Enterprises	9176.00 (31.49)	975.30	8051	9778	0.11
All Businesses	29136.00 (100.00)	1499.00	19584	22500	0.05

Note: (1) The figures in parenthesis are percentages.
 (2) Sample size = 1x3=3 cases

The table indicates the direction of purchases made by large scale electric/electronic/gas appliances enterprises. The table reflects that major purchases were made from medium scale enterprises (33%) followed by large scale enterprises (32%), small scale enterprises (27%) and micro enterprises (8%). As well as the stability in purchase is concerned, the purchase made from micro and medium scale enterprises appears to be more stable than other sources of supply.

Figure 4.35: Purchase of Large Scale Electric/Electronic/Gas Appliances Enterprises during 2001-2003 (Rs. in '000')

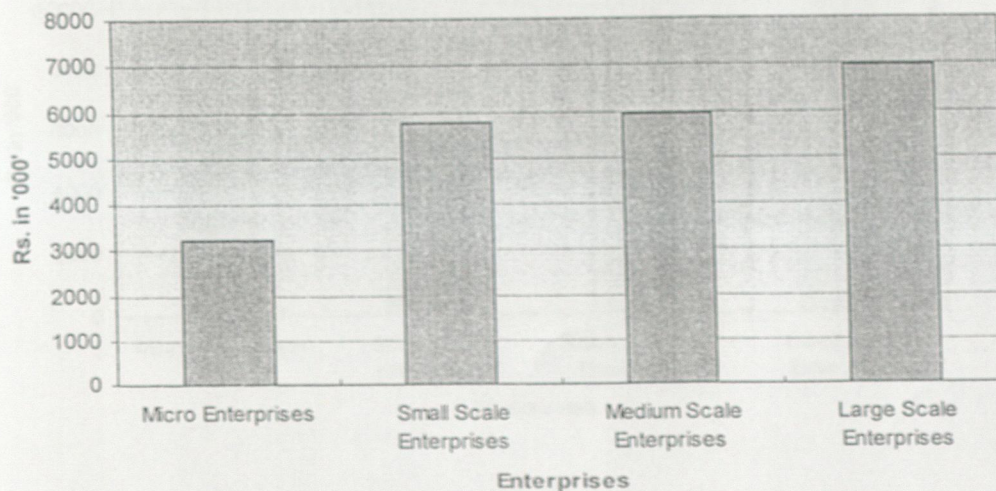


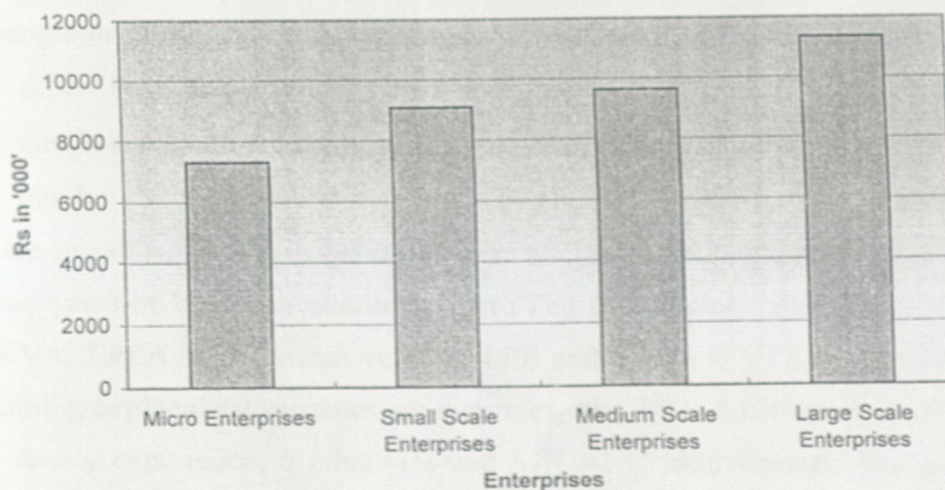
Table 4.50: Sale of Large Scale Electric/Electronic/Gas Appliances Enterprises during 2001-2001(Rs. in '000')

Kind of Business	Mean Value	S.D	Min	Max	C.V
Micro Enterprises	7304.00 (19.56)	1670.00	5600	8938	0.22
Small Scale Enterprises	9069.00 (24.29)	419.40	8825	9554	0.04
Medium Scale Enterprises	9623.00 (25.78)	527.82	9021	1000	0.05
Large Scale Enterprises	11336.00 (30.37)	1571.20	9550	12508	0.13
All Businesses	37333.00 (100.00)	4041.00	33000	41000	0.10

Note: (1) The figures in parenthesis are percentages.
 (2) Sample size = $1 \times 3 = 3$ cases

The table 4.50 reflects the sales of large scale electric/electronic/gas appliances enterprises. The table above shows that highest magnitude of sales went to large scale enterprises (30%) followed by medium scale enterprises (26%), small scale enterprises (24%) and micro enterprises (20%). However, the sales made to small and medium scale enterprises appear to be more stable than other output markets.

Figure 4.36: Sale of Large Scale Electric/Electronic/Gas Appliances Enterprises during 2001-2001(Rs. in '000')



4.7 Micro Enterprise's Value-Addition & Contributing Factors: An Econometric Analysis

From a review of our previous discussions, it appears that value-addition in micro-enterprises may be influenced by level of investments in the businesses (capital & total investments), volume and expertise of labor engaged (skilled & unskilled labor), entrepreneur's level of education, experience & training, family experience, year of business establishment, and volumes of purchases and sales. Accordingly, we specified two econometric models 3.1 and 3.2 in Chapter 3, which are reproduced here for further discussion, as follows:

Model 1

$$\text{VATA} = f(\text{PCIT}, \text{PSLT}, \text{EPEA}, \text{TR}, \text{FE}, \text{YTEA}, \text{SJN}, \text{PSST}, \text{POST}, \text{PCST}, \text{PSPT}, \text{POPT}, e) \quad (4.1)$$

As already elaborated in Chapter 3, the above specification (model 4.1) assumes that value-addition (VA), which is defined as the difference between value of finished products sold minus value of raw materials purchased, is determined as function of capital investment-to-total investment ratio (PCIT), skilled labor-to-total labor ratio (PSIT), education-plus-experience (EPE) of the businessmen involved, training of entrepreneurs, if any (TR), family experience (FE), years of business establishment (YTE), single or joint venture (SJN), proportions of total sale made to micro enterprises (PSST), other businesses (POST) and consumers (PCST), and proportions of raw material purchases made from micro enterprises (PSPT) and other businesses (POPT). Since a number of explanatory variables (PCIT, PSLT, PSST, POST, PCST, PSPT, POPT) are in ratios, we also converted value-addition (VA), education-plus-experience (EPE) and years-of business-establishment (YTE) in to ratios, like $\text{VATA} = \text{VA}/\text{mean value of VA}$, $\text{EPEA} = \text{EPE}/\text{mean value of EPE}$ and $\text{YTEA} = \text{YTE}/\text{mean value of YTE}$. All remaining explanatory variables are dummies, like $\text{TR} = 1$ if trained, 0 otherwise; $\text{FE} = 1$ for family experience, 0 otherwise and $\text{SJN} = 1$ if joint venture, 0 otherwise. The variable 'e' is the econometrics error term, assumed to be normally distributed with mean zero and variance σ^2 .

When VATA is regressed over the explanatory variables included, using the Ordinary Least Squares (OLS) estimation technique, we get empirical results provided in the first

part of Computer-Output, given in Annexure II. An evaluation of the results, based on the study of *Collinearity Statistic (TOL & VIF)* and *Correlation and Coefficient Correlations* matrices, indicate that three explanatory variables (EPEA, YTEA & SJN) are the cause of *Multicollinearity* problem, whereas the standard assumption of OLS estimation technique requires *No Multicollinearity* amongst explanatory variables. Please note that *Tolerance (TOL)* values should be near to one and that of *VIF* less than one for low *Multicollinearity*, while EPEA and YTEA have extreme opposite values. These two variables, along with SJN, also have high correlations and coefficients of correlation amongst themselves, as well as, with a number of other explanatory variables.

This suggests that the results may be improved if such highly correlated variables are dropped. Accordingly, we dropped these variables and got results given in the second part of Computer Output (Annexure II). For further discussions, the results of the two versions of the model are provided, as follows.

Explanatory Variables	Coefficients (t-ratios)	
	Version I	Version II
Constant	-1.9030 (-3.321)	-1.816 (-3.261)
PCIT	-0.2910 (-1.520)	-0.311 (-1.619)
PSLT	0.3570 (1.983)	0.342 (1.898)
EPEA	-0.0696 (-0.325)	Deleted
TR	0.3520 (2.305)	0.418 (2.777)
FE	0.2170 (2.473)	0.280 (4.064)
YTEA	0.2270 (1.718)	Deleted
SJN	0.0152 (0.172)	Deleted
PSST	-1.8430 (-3.014)	-2.178 (-3.621)
POST	Excluded	Excluded
PCST	-0.2850 (-0.397)	-0.480 (-.0666)
PSPT	Excluded	Excluded
POPT	3.0840 (7.384)	3.281 (7.933)
R	0.692	0.677
R ²	0.479	0.458
R ² _{adjusted}	0.448	0.436
F	15.554	20.799
DW	1.607	1.633

Whether such drop of variables is allowed and/or justified? The econometricians have discussed this problem and resolved that such type of drop may be justified if the dropped variables are proved not contributing significantly on the basis of F statistic calculated in the following manner (Gujarati 2003; pp.260-264).

$$F = \left[\frac{\{R^2_{old} - R^2_{new}\} / (\text{No. of additional regressors})}{\{1 - R^2_{old}\} / \{N - \text{No. of parameters in old model}\}} \right]$$

$$F = \left[\frac{\{0.479 - 0.458\} / (3)}{\{1 - 0.479\} / \{180 - 11\}} \right] = 2.333 \quad (4.2a)$$

$$F \text{ (if values of } R^2_{adjusted} \text{ are used)} = 1.212 \quad (4.2b)$$

The $F_{3, 169; .05}$ is calculated at 2.333 (if R^2 is used) and at 1.212 (if $R^2_{adjusted}$ is used). Both values of the calculated F fall below the critical value ($F_{3, 169; .05} = 2.600$), suggesting that drop of three explanatory variables have produced no statistically significant effect on the results in terms of R^2 . Rather, the model, after drop of three explanatory variables, has improved in terms of t-ratios, F statistic and DW value.

The results of our preferred model (version II) suggest that value-addition in micro-enterprises is positively correlated with PSLT, TR, FE, and POPT and negatively correlated with PCIT, PSST and PCST. These results further suggest that two of the earlier-thought important variables (POST & PSPT) seem to have contributed nothing towards value-addition; hence the computer package excluded these variables in the regression process.

Whereas the above model provides a good base to further investigate to workout the linkages between micro-enterprises and rest-of-the-economy-businesses, it still has certain limitations like low values of its calculated R and R^2 . More importantly, most of the explanatory variables are in ratios and coefficients of such ratios do not express which one of the two components of the ratios (numerator or denominator) produces positive and which one negative effect. This shortcoming of Model 4.1 has been removed through an extended specification of the model in the following section.

Model II

$$\text{VAT} = f(\text{CIT, TIT, SL, UL, ED, EX, TR, FE, YTE, SJN, SST, SOT, SCT, PST, POT, e}) \quad (4.3)$$

Model 4.3 is an extension of Model 4.1; whereas the earlier model includes ratios, along with dummies, as explanatory variables, the latter model replaces the stated ratios (PCIT, PSLT, EPEA, YTEA, PSST, POST, PCST, PSPT & POPT) with their actual components (CIT & TIT; SL & UL; ED & EX; YTE; SST, SOT & SCT; and PST & POT). In this model, VAT is value-addition in thousand rupees, which is assumed to be determined by capital investment (CIT), total investment (TIT; in thousand rupees), skilled SL and unskilled (UL) labor, years of education (ED) and experience (EX), years of business establishment (YTE), total sales to micro enterprises (SST) and other businesses (SOT) and total purchases from micro-enterprises (PST) and other businesses (POT). Sales and purchases are also in thousands rupees. All other explanatory variables (TR, FE, SJN & e) are the same as already explained in Model 4.1.

The empirical results of the estimated Model 4.3, provided in the first part of Computer Output II (Annexure III) indicate that, due to the presence of lot of explanatory variables, the chances of *Multicollinearity* between variables increased, and the computer estimation package could not estimate various required diagnostic statistics. In order to minimize the chances of a number of problems including collinearity, we converted the data on dependent variable and all explanatory variables excluding dummies in to the log equivalents, and tried to run the model as *Log-linear*.

The Log-linear formulation gave relatively better results; however, the variables ED, EX, FE, YTE and SJN were found to be statistically insignificant and highly correlated with each other and with a number of other variables. The drop of these five variables, not only, did not affect the values of R^2 and R^2_{adjusted} adversely, but it also helped improve the results in terms of F and DW statistics. These results are reproduced for further discussion, as follows.

$$\begin{aligned} \ln \text{VAT} = & 0.254 + 0.0491 \ln \text{CIT} - 0.105 \ln \text{TIT} + 0.0140 \ln \text{SL} - 0.0225 \ln \text{UL} + 0.0672 \text{TR} \\ & (2.628) \quad (3.582) \quad (-4.348) \quad (1.121) \quad (-1.545) \quad (2.201) \\ & + 0.0867 \ln \text{SST} + 0.466 \ln \text{SOT} + 0.817 \ln \text{SCT} - 0.792 \ln \text{PST} - 0.248 \ln \text{POT} \\ & (7.941) \quad (17.175) \quad (23.556) \quad (-4.767) \quad (-13.487) \end{aligned}$$

$$\begin{aligned} R = 0.992 \quad R^2 = 0.9840 \quad R^2_{\text{adjusted}} = 0.9830 \quad F = 957.280 \\ DW = 1.777 \quad N = 180 \end{aligned} \tag{4.4}$$

(Figures in parenthesis are t-ratios)

The empirical results, given in (4.4), appear to be very good in terms of the usual diagnostic statistics. The multiple $R = .992$ shows that substantial correlation exists between dependent variable VAT and its determinants/explanatory variables (CIT, TIT, SL, UL, TR, SST, SOT, SCT, PST & POT). The values of R^2 , as well as, R^2_{adjusted} indicate that 98% variation in dependent variable has been explained by variations in independent variables. F value is much higher than its critical value ($F_{10, 159} = 957.280 > F_{10, 159; .01} = 2.41$), suggesting a very good overall significance of the estimated model. DW statistics is commonly used to test the presence of Autocorrelation in case of time series data; and additionally, this statistics also indicates if model is mis-specified. The improvement in the value of DW statistics over the previous models indicates that model specification has improved in this latest model. The present value of $DW = 1.777$ exceeds $d_u = 1.767$; hence, the calculated DW falls in no-Autocorrelation zone. More importantly, most of the coefficients of explanatory variables are significant on the basis of t-ratios; it is only one variable (SL), which has lower t-value (1.121) than its critical value ($t = 1.282$) at 10% and two variables (SL & UL), which have lower t-values (1.121 & 1.545) than their critical values ($t = 1.645$) at 5% level of significance. Even, 7 out of 10 explanatory variables are significant at $\alpha = 0.01$, for which critical value is $t = 2.326$.

Interpretation of Estimated Model

The empirical results, given in (4.4), provide a good base to evaluate the various determinants of value-addition in micro enterprise businesses. These suggest that capital investment (CIT) versus total investment (TIT), skilled labor (SL) versus non-skilled labor (UL) and training (TR) of micro-entrepreneurs positively correlate with value-addition. Hence, if motive is to achieve value-addition in micro enterprises, it may be achieved through enhanced investment in capital goods and skills of the labor engaged; training of entrepreneurs would also contribute towards value-addition. The values of standardized coefficients, provided in Computer Output (Annexure II), indicate that, amongst the variables discussed, capital investment has the greatest positive contribution (.056) towards value-addition, followed by training of the entrepreneurs (.024) and skilled labor (.017). Non-capital increase in total investment has the highest negative impact (.108), and is followed by unskilled labor (.019). This suggests that if investment

is to be made, it should only be capital investment; non-capital investment would be counter-productive.

The micro enterprises make three types of sales – sales to micro-enterprises (SST), sales to other businesses (SOT) and sales to final consumers (SCT) directly. All three types of sales are positively related with value-addition. However, SCT accounts for the highest contribution (standardized coefficient = .771), followed by SOT (.549) and SST (.110). This means that value-addition requires more sales to final consumers and other businesses than to micro enterprises.

Purchases, both from other businesses (POT) and micro businesses (PST) are negatively correlated with value-addition. Since higher negativity comes from POT (standardized coefficient = -.329) compared to PST (.077), the enhanced purchases from micro enterprises would help increase value-addition.

4.8 Establishing Inter-Industry Linkages through Leontief Input-Output Modeling Techniques

In spite of a number of limitations (inbuilt in the form of assumptions of fixed production coefficients and constant returns to scale), the Leontief Input-Output model, specified in (3.3) through (3.6) in chapter 3, can be of immense use, especially to reconfirm some of the findings of the econometric analytic techniques used, and more importantly, to establish and evaluate the linkages between micro enterprises and the rest-of-the-economy businesses. Hence, we have used the data on sales of various businesses (given and discussed in sections 4.4 through 4.6) to estimate the Leontief Input-Output models for all micro entrepreneurs (taking them as a single case), as well as, for furniture, manufacturing and electric appliances enterprise cases, separately¹. The needed matrices, including A , $(I - A)$ and $(I - A)^{-1}$, computed for the four aforementioned cases are provided in Annexure 4. The results are interpreted in the following paragraphs.

¹ The Leontief Input-Output model assumes a one-product economy; hence, our application of this model to an overall case may be considered an unrealistic assumption. We have therefore also taken 3 more cases of furniture, manufacturing and electric-appliances to include some more realistic examples in the analysis.

Interpretation of the Estimated $(I - A)^{-1}$ Matrices

1. The elements of the Leontief inverse matrices $(I - A)^{-1}$ of the four cases given in Annexure iv provide the basis for establishing backward linkages. For instance, the entries under each column measure the direct and indirect effects on derived demands of a unit change in the direct final-consumer demand (D_i); entries on main diagonal give direct changes and others entries indirect changes in the matrices.

2. It apparently appears that a Rs.01.00 change in D_1 (direct final-consumer demand in micro enterprise case) brings a direct change of Rs.1.17 in micro enterprises and indirect changes of Rs.3.10, Rs.5.00 and Rs.7.74 in outputs of small, medium and large enterprises, respectively. Backward effects of changes in D_1 seem substantial, relative to the effects of one unit changes in D_2 , D_3 and D_4 (direct final-consumer demands for small, medium and large enterprises' products); the direct effects are Rs.01.24, Rs.01.27 and Rs.01.30, while indirect effects are Rs.00.01, 00.39 and Rs.00.48 in small enterprises case, Rs.00.01, Rs.00.18 and Rs.00.36 in medium enterprises case and Rs.00.01, 00.17 and 00.24 in large enterprises case, respectively.

3. However, for evaluation of the extent of backward linkages and, in particular, for purposes of comparing the relative effects of different final demand increases, it is often suggested to normalize the measure of the strength of the backward linkages (bL_j), using the following formula (Parikh and Bailey, 1990; p. 176).

$$(bL_j) = \left\{ \frac{1}{n} \left(\sum_{i=1}^n r_{ij} \right) \right\} / \left\{ \frac{1}{n^2} \left(\sum_{i=1}^n \sum_{j=1}^n r_{ij} \right) \right\} \quad (4.5)$$

Where r_{ij} are various elements of Leontief Input-Output inverse matrix, while the numerator measures the average impact on the n industries/businesses of a unit change in the direct final-consumer demand for product j and the denominator measures the average impact on the n industries/businesses of a unit change of the direct final-consumer demand for all n products.

Estimating (4.5) for bL_j for an *Overall* micro enterprises case, as well as, for three sub-businesses (furniture, manufacturing and electric-appliances), we get:

	Overall	Furniture	Manufacturing	Electric Appliances
Micro enterprises	2.8753	2.9780	2.7032	3.1201
Small businesses	0.5277	0.3604	0.6457	0.3395
Medium businesses	0.3065	0.3171	0.3338	0.2900
Large businesses	0.2904	0.3445	0.3172	0.2503

The estimated bL_j given above indicate two clear-cut results: first, it is only micro enterprises (involved in all the four businesses studied), which have their estimated $bL_j > 1$, indicating that a unit increase in direct final-consumers demand gives rise to a greater than average impact (almost 3 times of the average impact of all businesses); second, the estimated bL_j in all other business types (small, medium and large enterprises) are less than unity in all businesses (overall, furniture, manufacturing & electric-appliances), indicating that a unit increase in direct demand gives rise to a less than average impact.

4. The Leontief inverse matrices $(I-A)^{-1}$ computed for the four cases (Annexure 4) can also be used to compare various levels of businesses (micro, small, medium & large) on the basis of their labor intensities.

For instance, the businesses under study, on average, employed the following numbers of labor.

	Overall	Furniture	Manufacturing	Electric Appliances
Micro enterprises	4.54	4.67	5.00	3.95
Small businesses	34.53	35.60	35.20	32.80
Medium businesses	82.40	80.40	80.20	86.60
Large businesses	169.93	169.17	167.0	177.33

These businesses, on average, yielded the following outputs (values in '000' Rs).

	Overall	Furniture	Manufacturing	Electric Appliances
Micro enterprises	1218.56	1206.25	1524.34	1284.09
Small businesses	27498.47	26189.00	27026.30	29275.25
Medium businesses	42107.23	39742.20	42713.27	43974.24
Large businesses	55694.06	44645.86	56986.78	75196.00

Using the data on labor employed and outputs obtained, we can compute labor input coefficients (l_j) and labor intensity (LI), using the formulae:

$$l_j = \text{labor employed/output obtained} \quad (4.6)$$

$$LI = l_j(I-A)^{-1} \quad (4.7)$$

Applying (4.6), we obtained l_j , as follows.

	Overall	Furniture	Manufacturing	Electric Appliances
Micro enterprises	0.0037257	0.0037257	0.0032801	0.0030761
Small businesses	0.0012557	0.0013593	0.0013024	0.0011204
Medium businesses	0.0019569	0.0020230	0.0018776	0.0019693
Large businesses	0.0028715	0.0037910	0.0029305	0.0023582

Applying (4.7), we obtained LI, as follows:

	Overall	Furniture	Manufacturing	Electric Appliances
Micro enterprises	0.04026	0.04515	0.03199	0.04336
Small businesses	0.00374	0.00402	0.00386	0.00365
Medium businesses	0.00376	0.00408	0.00367	0.00383
Large businesses	0.00445	0.00594	0.00454	0.00368

Micro enterprises appear to have been the most labor-intensive businesses ($LI = 0.04026$) compared to small, medium and large businesses ($LI = (0.00374, 0.00376, 0.00445)$), in an overall case, as well as, in the three individual businesses (furniture, manufacturing & electric-appliances) studied.

Amongst the three businesses, furniture and electric-appliances micro enterprise businesses seem to be more and equally labor intensive than manufacturing micro enterprise businesses. In case of small businesses, furniture business is the most labor intensive, followed by manufacturing and electric-appliances businesses. In case of medium and large, furniture businesses again take the lead; however, electric-appliance businesses are on the second position in medium businesses and manufacturing businesses are on second position in the large businesses.

4.9 Micro Enterprises' Contribution towards Employment Generation, Skill Development, Capital Formation and Family Welfare

Employment Generation & Skill Development

An earlier section (4.2) has already presented a detailed analysis of the employment generated and skilled development carried out in various micro enterprises under study. In addition to the entrepreneurs involved, the micro enterprises have provided employment to 4 – 5 persons (mean value = 4.54) per micro business.

Micro enterprises have also provided good opportunities for skill development to both employers and employees. In addition to 8 years of schooling and 12 years of business experience, which each entrepreneur on average has on his credit, majority (97%) of the entrepreneurs have also got some sort of formal or informal training. Of the workers engaged, 30% are unskilled, while 70% have got their skilled developed in one or another aspect of running micro enterprises.

Capital Formation

Table 4.51 provides a comparison of investments (capital, non-capital & total) made in micro enterprises at the time of inception with its present levels (2001-03 averages) and estimates additions therein occurred over a period of 7.25 years (average time of micro enterprises establishment).

Table 4.51: Micro Enterprises' Capital Formation (Rs.in '000')

Kind of Business	Mean Value (% of Total Investment)		
	Capital Investment	Recurring Investment	Total Investment
Furniture			
Original	45.67 (34.08)	88.32 (65.92)	133.99 (100)
Now	73.09 (36.95)	124.70 (63.05)	197.79 (100)
Addition (in %)	27.42 (.60.00)	36.38 (41.19)	63.80 (47.62)
Manufacturing			
Original	36.99 (32.59)	76.51 (67.41)	113.50 (100)
Now	92.11 (47.01)	103.83 (52.99)	195.94 (100)
Addition (in %)	62.12 (167.94)	27.32 (35.71)	82.44 (72.63)
Electric/electronic/ gas appliances			
Original	26.77 (30.00)	62.46 (70.00)	89.23 (100)
Now	54.09 (32.37)	113.00 (67.63)	167.09 (100)
Addition (in %)	27.32 (102.05)	50.50 (80.92)	77.86 (87.26)
All Businesses			
Original	109.43 (32.50)	227.29 (67.50)	336.72 (100)
Now	219.29 (39.10)	341.55 (61.90)	560.82 (100)
Addition (in %)	109.86 (100.39)	114.26 (50.27)	224.10 (66.6)

It appears that micro enterprises, on average, have increased their total investments by 66.60%, including a 100% increase in capital and 50% increase in non-capital recurring expenses. It is worth mentioning that increases in capital investments have been higher than non-capital in all the three areas of furniture, manufacturing and electronic appliance micro enterprises. However, increase in manufacturing micro enterprises has been the highest (167.94%), followed by electric-appliance (102.05%) and furniture (60.00%).

It is also found that micro enterprises have increased their proportion of capital investment from the initial level of 32.50% to the present level of 39.10% of the total investments. Manufacturing is presently the most capital-intensive sector with capital investment of 47%, followed by furniture (37%) and electric-appliances (32%).

Family Welfare

Table 4.52 provides data on value-addition, business expenses and entrepreneurs' savings (computed on annual and monthly basis) from various businesses under study.

Table 4.52: Micro Enterprises' Contribution towards Family Welfare (Rs. in '000')

Kind of Business	Value-addition	Business expenses	Entrepreneurs' Saving on annual basis (available to be used for family welfare)	Entrepreneurs' Saving on monthly basis (available to be used for family welfare)
Furniture	730.57	110.45	620.12	51.68
Manufacturing	898.04	190.36	707.68	58.97
Electric/electronic/gas appliances	771.34	136.47	634.87	52.91

It appears that each of the micro enterprises contributes Rs.52 thousands to Rs.59 thousands to family welfare on monthly basis.

Chapter 5

Summary Conclusion and Recommendations

This chapter is organized in to three sections. The first section summarizes the findings of the analysis carried out. The second section draws conclusions based on the findings. The last section presents recommendations based on the findings and conclusions drawn.

5.1 Summary of Findings

1. Of the total micro entrepreneurs investigated, 18% fell under 25 years of age and 82% above 25 years; on average, an entrepreneur had 40 years of age. Only 15% had family experience of the same business, suggesting that majority of the entrepreneurs selected their businesses on their own choices. On average, entrepreneurs had 12 years of experience of running the businesses; the experiences ranged between 5 to 19 years. Present businesses were established between 2 to 19 years, with a mean value of 7.25 years. On the whole, 100.00% of the entrepreneurs were educated; however, the average education level was found 8 years. Only 8% had formal training of the same business; 89% got informal training of various kinds, leaving 3% without any type of training.
2. As far as businesses are concerned, 16% were being run by single entrepreneurs and 84% as joint ventures, with other partners. One-fourth businesses were located at owned premises and 75% on rented locations. Almost all micro enterprises practiced subcontracting.
3. On average, a micro enterprise employed 4.54 laborers, with a 70:30 skilled and unskilled labor proportion. A total of Rs.560.82 thousands were found invested in each micro enterprise with 39:61 capital and non-capital investments.
4. Of the average total purchases of Rs.381.62 thousands per annum, 15% were made from micro businesses, 26% from small, 30% from medium and 29% from large enterprises. Purchases remained fairly stable for an overall micro enterprises business (coefficient of variation $CV = 0.49$). Purchases from

enterprises and small and medium businesses also remained relatively smoother ($CV = 0.41, 0.52 \text{ \& } 0.52$) than the ones made from large businesses ($CV = 75$).

5. Of the total sale of Rs.1218.56 thousands per annum, around 48% was made to businesses (derived demand) and remaining 52% to final consumers (direct demand). Both types of demands seem stable; however, the derived demand from businesses appears to be relatively less stable ($CV = 0.45$) than that of direct demand from final consumers (0.42). Of the total sale of Rs.583.71 thousands to businesses, 19%, 23%, 27% and 31% were made to micro, small, medium and large enterprises, respectively.
6. As far as micro furniture, manufacturing and electric-appliance producing businesses are concerned; their purchases stood at Rs.388.92 thousands, Rs.439.30 thousands, and Rs.429.62 thousands per annum, respectively. Their respective sales to businesses and final consumers were Rs.628.04 thousands and Rs.578.21 thousands, Rs.796.13 thousands and Rs.728.21, and Rs.685.96 thousands and Rs.598.13 thousands.
7. Micro enterprises, on average, gave rise to Rs.836.94 thousands per annum as value-addition. Value-addition ranged between Rs.212.98 thousands and Rs.1908.17 thousands. It remained fairly stable ($CV = 0.4348$) over the 2001-2003 period.
8. Econometric analysis (log-linear model) found that capital investment-versus-total investment, skilled labor-versus-unskilled labor and training (TR) of micro-entrepreneurs were positively correlated with value-addition. Hence, if motive is to achieve value-addition in micro enterprises, it might be achieved through enhanced investment in capital goods and skills of the labor engaged; training of entrepreneurs would also positively contribute towards value-addition. The values of standardized coefficients of the stated explanatory variables indicated that capital investments had the greatest positive contribution (0.056) towards value-addition, followed by training of the entrepreneurs (0.024) and skilled labor (0.017). Non-capital increase in total investment had the highest negative impact (-0.108), and was followed by

unskilled labor (0-.019). Results suggest that if more investments are to be made, it should have only be the capital investments; non-capital investment would be counter-productive.

9. The micro enterprises made three types of sales – sales to micro-enterprises, sales to all other businesses (small, medium and large enterprises) and sales to final consumers. All three types of sales were found positively related with value-addition. However, sales to final-consumers accounted for the highest contribution, followed by the sales-to-other businesses and sales-to-micro enterprises. Purchases, both from other businesses and micro businesses were negatively correlated with value-addition, being the cost items. Since higher negativity came from purchases-from-other businesses compared to the purchases-from-micro enterprises, the enhanced purchases from micro enterprises would help increase value-addition.
10. The Leontief Input-Output modeling technique further reinforced some of the results of econometrics estimation already discussed. The Leontief inverse matrices $(I-A)^{-1}$, computed for micro enterprises as a whole, as well as, for individual cases of furniture, manufacturing and electric-appliances businesses, provided basis to establish and evaluate backward linkages (bL_j). Following Leontief equation $\{X = (I-A)^{-1}D\}$, results implied that a Rs.01.00 change of direct demand D_1 (final-consumer demand in micro enterprises) would bring a direct change of Rs.1.17 in the output of micro enterprises and indirect changes of Rs.3.10, Rs.5.00 and Rs.7.74 in the outputs of small, medium and large businesses, respectively. Backward effects of changes in D_1 remained substantial, relative to the effects of unit changes in D_2 , D_3 and D_4 (direct demands for small, medium and large enterprises' products); the direct effects were estimated at Rs.01.24 (for small), Rs.01.27 (for medium) and Rs.01.30 (for large business), while indirect effects had been Rs.00.01 (for micro), Rs.00.39 (for medium) and Rs.00.48 (for large business) in small enterprises case, Rs.00.01 (for micro), Rs.00.18 (for small) and Rs.00.36 (for large business) in medium enterprises case and Rs.00.01 (for micro), 00.17 (small) and 00.24 (for medium business) in large enterprises case.

11. A more appropriate measure of the extent of backward linkages, namely: $bL_j = \{(1/n) \sum_{i=1}^n r_{ij}\} / \{(1/n^2) \sum_{i=1}^n \sum_{j=1}^n r_{ij}\}$, often suggested for purposes of comparison (Parikh and Bailey, 1990; p. 176), was also employed. The estimated bL_j indicated two clear-cut results: first, it was only the micro enterprises involved in all the four businesses studied (overall, furniture, manufacturing & electric-appliances), which had their estimated $bL_j > 1$, indicating that a unit increase in direct final demand gave rise to a greater than average impact (almost 3 times of the average impact of all businesses); and second, the estimated bL_j in all other business types (small, medium and large enterprises) were found less than unity in all businesses (overall, furniture, manufacturing & electric-appliances), indicating that a unit increase in direct demand gave rise to a less than average impact.
12. The Leontief inverse matrices $(I-A)^{-1}$ computed for the four cases (overall, furniture, manufacturing & electric-appliances) were further used to compare various levels of businesses (micro, small, medium & large) on the basis of their labor intensities (LI). The results found micro enterprises to be the most labor-intensive businesses (LI = 0.04026) compared to small, medium and large businesses (LI = (0.00374, 0.00376, 0.00445), in an overall case, as well as, in the three individual businesses (furniture, manufacturing & electric-appliances) studied. Amongst the three businesses, furniture and electric-appliances micro enterprise businesses seemed to be more and equally labor intensive than manufacturing micro enterprise businesses. In case of small businesses, furniture business was the most labor intensive, followed by manufacturing and electric-appliances businesses. In case of medium and large businesses, furniture business again took the lead; however, electric-appliance businesses were on the second position in medium businesses and manufacturing businesses were on second position in the large businesses.
13. Micro enterprises had contributed positively towards capital formation. On average, these enterprises increased their total investments by 66.60%, including a 100% increase in capital and 50% increase in non-capital

recurring expenses. Increases in capital investments had been higher than non-capital in all the three areas of furniture, manufacturing and electronic appliance micro enterprises. However, increase in manufacturing micro enterprises had been the highest (167.94%), followed by electric-appliance (102.05%) and furniture (60.00%). It is further found that micro enterprises had increased their proportion of capital investment from the initial level of 32.50% to the present level of 39.10% of the total investments.

5.2 Conclusions

1. Micro enterprises appear to be the most contributory business medium amongst all the businesses types studied. First, in addition to the entrepreneurs involved, micro enterprises provide employment to 4 – 5 persons per micro business; these have been found the most labor-intensive businesses compared to small, medium and large enterprises. Hence, micro enterprises provide good labor absorbing facility in a populous country like Pakistan. Second, Micro enterprises contribute positively towards capital formation. On average, these increased their total investments by 66.60%, including a 100% increase in capital and 50% increase in non-capital recurring expenses. It is further found that micro enterprises had increased their proportion of capital investment from the initial level of 32.50% to the present level of 39.10% of the total investments. Third, contribution of micro enterprise towards value addition is the highest (value-addition of Rs.2.19 for every rupee spent on raw-material purchases) compared to other businesses (Rs.01.52, Rs.01.80 and Rs.01.82 for small, medium and large enterprises, respectively). Fourth, micro enterprises contribute, on average, Rs.52 thousands to Rs.59 thousands to family welfare on monthly basis. Finally, all stated contributions of micro enterprises justify priority treatment to micro enterprise sector, on both public and private basis.
2. On the basis of the results of econometric modeling and Leontief Input-Output linkages techniques used, it appears that capital investments yield the greatest positive contribution towards value-addition, followed by training of the entrepreneurs and improvement of skills of the labor engaged. Second, the sales to

final-consumers account for the highest contribution, followed by the sales-to-other businesses and sales-to-micro enterprises. Third, purchases, both from other businesses and micro enterprises, being the cost items, are negatively related with value-addition; however, since higher negativity comes from purchases-from-other businesses compared to the purchases-from-micro enterprises, the enhanced purchases from micro enterprises would help increase value-addition.

5.3 Recommendations

1. The empirically tested contributions of micro enterprises towards employment generation, capital formation, greater value-addition relative to other businesses and income contributions towards family welfare justify special treatment for micro enterprises. It is therefore recommended that establishment and development of micro enterprises be given priority.
2. It is recommended that more investments be made in capital goods and machinery, as well as, in the development and improvement of employees' skills, as the pay offs of these two factors are better than that of non-capital investments and unskilled laborers employed.
3. It is recommended to put emphasis on the training of the entrepreneurs themselves, specifically in the areas and disciplines, in which they are or they wish to be involved.
4. It is recommended that, without ignoring the importance of sales-to-businesses, sales-to-final-consumers be given special care, as this type of sale accounts for high contribution towards value-addition.
5. It is recommended that purchases, both from other businesses and micro enterprises, be specially dealt with. Special care should be given to purchases-from-micro enterprises, without ignoring the importance of purchases-from-other businesses.

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Status of Business (Please specify)

Kind of Business

Furniture and Fixtures

- a. Wood
- b. Iron/Steel
- c. Fibre glass
- d. Other material

Mechanical Engineering Based Products

- a. Auto industry parts
- b. Non auto parts
- c. Building related
- d. Other

Electrical/Electronic Appliances

- a. Electrical
- b. Electronic
- c. Electronic components
- d. Other

Annexure 1

Questionnaire/Interview Schedule

1. Name: _____

Address: _____

2. Nature of Business (Please Specify)

A. Kind of Business:

I. Furniture and Fixture

- a. Wooden
- b. Iron/Steel
- c. Fibre glass
- d. Other materials

II Mechanical/Engineering-based Products

- a. Auto industry spare parts
- b. Nuts and bolts
- c. Building materials
- d. Others

III Electric/Gas/Electronic Appliances

- a. Electric appliances
- b. Gas appliances
- c. Electronics appliances
- d. Others
- e.

2 Size of Business

- a. Micro Business (Less than 10 employees): _____
- b. Small Business (10 to 49 employees): _____
- c. Medium Business (50 to 99 employees): _____
- d. Large Business (100 or more employees): _____

3. Owner's Household Status

a. Household Composition.

	Age	Education	Income	Source of income
Himself/Herself				
Wife/Husband				
Sons				
Daughters				
Mother				
Father				
Brother/Sister				
Any other				
Please Specify				

b. Household's Monthly Expenditure

Rs. _____

c. How are monthly expenses met?

- i. From your income Rs. _____
- ii. From other's income Rs. _____
- iii. Other sources (please Rs. _____
Specify the source).

d. Do you own the house or reside in a rented house?

i. Owned _____

ii. Rented _____

If owned

Inherited _____

Purchased Rs. _____

If Rented

Rent per month is Rs. _____

e. Do you have your own transport

i. For personal use _____

ii. For business use _____

4. Owners Business Status

a. How did you start this business?

i. Inherited _____ When _____

ii. Self-Started _____ When _____

b. Do you wholly/partly own this business?

i. Sole Owner _____

ii. Partnership _____

iii. Percentage share of punters _____

c. i. Total Assets in the business yours _____

ii. Of punters _____

iii. Total liabilities Rs. _____

iv. Net worth Rs. _____

5. Capital Generation

- a. i. What was your business worth when Started Rs. _____ Years _____
- ii. What is your business worth now _____ Rs. _____
- iii. What physical change have you got
 - iii-a Extension in space/rooms: how much _____ Rs. _____
 - iii-b Furniture and fixture how much _____ Rs. _____
 - iii-c Equipments & machinery how much _____ Rs. _____

(Please enlist maximum items of equipment and machinery added)

6. Employment Generation

- (a) No. of employees when business started _____
- (b) Present strengthen of employees _____
- (c) Particular of employees:

Position/ Designation	Age	Kind of Employment			Length of Employment	Pay in Rs.	Mode of Payment
		Skilled	Semi-Skilled	Ordinary			

7. Skill Generation

a) Does your business need some special skill to be possessed by your employee?

Yes _____ No _____

If yes what are these skills?

i. _____

ii. _____

iii. _____

iv. _____

b) Have you hired skilled labor or imparted training on them.

i. Hired already skilled labor No _____

ii. Imparted training on them No _____

c) Details of employees you have trained.

i. Trained, left and joined other business No. _____

ii. Trained, left and started own business No. _____

iii. Trained and still working with you No. _____

Total _____

d) Have you made any other contribution in the field of skill generation?

i. _____

ii. _____

iii. _____

iv. _____

8. Your Business Linkages.

a. What are major goods/products you deal in?

b. Breakup of your major raw materials/inputs you purchased during 2001-2003

i Micro Business

ii Business

iii Medium Business

iv Large Business

c. Breakup of your sales to during 2001-2003.

i. Micro-enterprises

ii. Small Business

iii. Medium Business

iv. Large Business

v. Other sales (Directly to the)

(Personal or through retailers or distributors other than the above)

Total

Rs.

9. Approximate Business expenses and revenues (per month in Rs.)

a. Your shop /business monthly rent _____

Estimated rent, if shop is owned. _____

b. Electricity bill _____

c. Telephone bill _____

d. Natural Gas bill _____

e. Total Number of labors employed _____

Total wage bill _____

f. Total monthly purchase (inputs/products) _____

g. Total monthly sale of all products _____

h. Approximate net revenue _____

Annexure 2

Regression

Descriptive Statistics

	Mean	Std. Deviation	N
VATA	1.0000	.4349	180
PCIT	.4067	.1332	180
PSLT	.6845	.1428	180
EPEA	1.0000	.2585	180
TR	.9722	.1648	180
FE	.1500	.3581	180
YTEA	1.0000	.3923	180
SJN	.8444	.3634	180
PSST	9.760E-02	4.419E-02	180
POST	.3784	6.058E-02	180
PCST	.5240	3.483E-02	180
PSPT	.1698	6.235E-02	180
POPT	.8302	6.235E-02	180

Correlations

	VATA	PCIT	PSLT	EPEA	TR	FE	YTEA	SJN	PSST	POST	PCST	PSPT	POPT	
Pearson Correlation	VATA	1.000	-.080	.273	.403	.155	.254	.419	-.254	-.314	.324	-.166	-.555	.555
	PCIT	-.080	1.000	-.020	.063	.076	-.063	.002	.036	-.234	.141	.051	.063	-.063
	PSLT	.273	-.020	1.000	.112	-.053	-.026	.072	-.097	-.217	.222	-.110	-.256	.256
	EPEA	.403	.063	.112	1.000	.205	.466	.881	-.515	-.263	.288	-.167	-.224	.224
	TR	.155	.076	-.053	.205	1.000	.071	.170	-.073	.085	-.095	.058	-.032	.032
	FE	.254	-.063	-.026	.466	.071	1.000	.407	-.592	-.040	.078	-.085	.007	-.007
	YTEA	.419	.002	.072	.881	.170	.407	1.000	-.443	-.252	.284	-.173	-.228	.228
	SJN	-.254	.036	-.097	-.515	-.073	-.592	-.443	1.000	.113	-.123	.070	.100	-.100
	PSST	-.314	-.234	-.217	-.263	.085	-.040	-.252	.113	1.000	-.824	.164	.187	-.187
	POST	.324	.141	.222	.288	-.095	.078	.284	-.123	-.824	1.000	-.694	-.214	.214
	PCST	-.166	.051	-.110	-.167	.058	-.085	-.173	.070	.164	-.694	1.000	.135	-.135
	PSPT	-.555	.063	-.256	-.224	-.032	.007	-.228	.100	.187	-.214	.135	1.000	-1.000
	POPT	.555	-.063	.256	.224	.032	-.007	.228	-.100	-.187	.214	-.135	-1.000	1.000
Sig. (1-tailed)	VATA		.143	.000	.000	.019	.000	.000	.000	.000	.000	.013	.000	.000
	PCIT	.143		.397	.202	.156	.202	.492	.318	.001	.029	.249	.199	.199
	PSLT	.000	.397		.068	.238	.365	.168	.098	.002	.001	.070	.000	.000
	EPEA	.000	.202	.068		.003	.000	.000	.000	.000	.000	.013	.001	.001
	TR	.019	.156	.238	.003		.172	.011	.167	.129	.102	.219	.336	.336
	FE	.000	.202	.365	.000	.172		.000	.000	.295	.149	.130	.465	.465
	YTEA	.000	.492	.168	.000	.011	.000		.000	.000	.000	.010	.001	.001
	SJN	.000	.318	.098	.000	.167	.000	.000		.065	.050	.176	.091	.091
	PSST	.000	.001	.002	.000	.129	.295	.000	.065		.000	.014	.006	.006
	POST	.000	.029	.001	.000	.102	.149	.000	.050	.000		.000	.002	.002
	PCST	.013	.249	.070	.013	.219	.130	.010	.176	.014	.000		.035	.035
	PSPT	.000	.199	.000	.001	.336	.465	.001	.091	.006	.002	.035		.000
	POPT	.000	.199	.000	.001	.336	.465	.001	.091	.006	.002	.035	.000	
N	VATA	180	180	180	180	180	180	180	180	180	180	180	180	180
	PCIT	180	180	180	180	180	180	180	180	180	180	180	180	180
	PSLT	180	180	180	180	180	180	180	180	180	180	180	180	180
	EPEA	180	180	180	180	180	180	180	180	180	180	180	180	180
	TR	180	180	180	180	180	180	180	180	180	180	180	180	180
	FE	180	180	180	180	180	180	180	180	180	180	180	180	180
	YTEA	180	180	180	180	180	180	180	180	180	180	180	180	180
	SJN	180	180	180	180	180	180	180	180	180	180	180	180	180
	PSST	180	180	180	180	180	180	180	180	180	180	180	180	180
	POST	180	180	180	180	180	180	180	180	180	180	180	180	180
	PCST	180	180	180	180	180	180	180	180	180	180	180	180	180
	PSPT	180	180	180	180	180	180	180	180	180	180	180	180	180
	POPT	180	180	180	180	180	180	180	180	180	180	180	180	180

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	POPT, FE, TR, PCIT, PCST, PSLT, PSST, YTEA, SJN, EPEA		Enter

a. Tolerance = .000 limits reached.

b. Dependent Variable: VATA

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.692 ^a	.479	.448	.3230	1.607

a. Predictors: (Constant), POPT, FE, TR, PCIT, PCST, PSLT, PSST, YTEA, SJN, EPEA

b. Dependent Variable: VATA

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16.223	10	1.622	15.554	.000 ^a
	Residual	17.627	169	.104		
	Total	33.851	179			

a. Predictors: (Constant), POPT, FE, TR, PCIT, PCST, PSLT, PSST, YTEA, SJN, EPEA

b. Dependent Variable: VATA

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-1.903	.573		-3.321	.001		
	PCIT	-.291	.192	-.089	-1.520	.130	.893	1.120
	PSLT	.357	.180	.117	1.983	.049	.881	1.135
	EPEA	-6.96E-02	.215	-.041	-.325	.746	.189	5.282
	TR	.352	.153	.133	2.305	.022	.919	1.088
	FE	.217	.088	.179	2.473	.014	.590	1.695
	YTEA	.227	.132	.205	1.718	.088	.216	4.620
	SJN	1.518E-02	.088	.013	.172	.863	.568	1.761
	PSST	-1.843	.612	-.187	-3.014	.003	.798	1.253
	PCST	-.285	.718	-.023	-.397	.692	.932	1.073
	POPT	3.084	.418	.442	7.384	.000	.859	1.164

a. Dependent Variable: VATA

Excluded Variables^b

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
1	POST	. ^a				.000		.000
	PSPT	-3321.929 ^a	-.707	.481	-.054	1.399E-10	7.1E+09	1.399E-10

a. Predictors in the Model: (Constant), POPT, FE, TR, PCIT, PCST, PSLT, PSST, YTEA, SJN, EPEA

b. Dependent Variable: VATA

Coefficient Correlations

Mode		POPT	FE	TR	PCIT	PCST	PSLT	PSST	YTEA	SJN	EPEA
1	Correlatio POP	1.000	.113	-.028	.098	.067	-.202	.098	-.061	.026	-.049
	FE	.113	1.000	.020	.070	.039	.090	-.049	.002	.466	-.151
	TR	-.028	.020	1.000	-.088	-.069	.046	-.148	.009	-.022	-.133
	PCIT	.098	.070	-.088	1.000	-.069	.055	.262	.123	-.034	-.135
	PCS	.067	.039	-.069	-.069	1.000	.054	-.107	.039	.041	.029
	PSLT	-.202	.090	.046	.055	.054	1.000	.161	.089	.086	-.083
	PSS	.098	-.049	-.148	.262	-.107	.161	1.000	.071	-.010	.059
	YTEA	-.061	.002	.009	.123	.039	.089	.071	1.000	-.025	-.823
	SJN	.026	.466	-.022	-.034	.041	.086	-.010	-.025	1.000	.193
	EPEA	-.049	-.151	-.133	-.135	.029	-.083	.059	-.823	.193	1.000
	Covarianc POP	.174	39E-03	80E-03	59E-03	99E-02	52E-02	12E-02	38E-03	91E-04	37E-03
FE	39E-03	04E-03	85E-04	82E-03	89E-03	20E-03	65E-03	94E-05	04E-03	84E-03	
TR	80E-03	85E-04	35E-02	58E-03	53E-03	57E-03	38E-02	37E-04	03E-04	37E-03	
PCIT	59E-03	82E-03	58E-03	77E-02	46E-03	85E-03	70E-02	16E-03	79E-04	57E-03	
PCS	99E-02	89E-03	53E-03	46E-03	.515	84E-03	70E-02	31E-03	87E-03	28E-03	
PSLT	52E-02	20E-03	57E-03	85E-03	84E-03	41E-02	72E-02	23E-03	59E-03	22E-03	
PSS	12E-02	65E-03	38E-02	70E-02	70E-02	72E-02	.374	74E-03	50E-04	16E-03	
YTEA	38E-03	94E-05	37E-04	16E-03	31E-03	23E-03	74E-03	49E-02	94E-04	33E-02	
SJN	91E-04	04E-03	03E-04	79E-04	87E-03	59E-03	50E-04	94E-04	67E-03	47E-03	
EPEA	37E-03	84E-03	37E-03	57E-03	28E-03	22E-03	16E-03	33E-02	47E-03	04E-02	

a. Dependent Variable: VATA

Collinearity Diagnostics

Mod	Dimens	Eigenvalu	Condition Index	Variance Proportions										
				Constan	PCIT	PSLT	EPEA	TR	FE	YTEA	SJN	PSST	PCST	POPT
1	1	9.518	1.000	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	2	.944	3.176	.00	.00	.00	.00	.00	.45	.00	.01	.00	.00	.00
	3	.213	6.680	.00	.02	.00	.00	.00	.11	.02	.02	.38	.00	.00
	4	.122	8.827	.00	.16	.00	.01	.00	.30	.05	.16	.19	.00	.00
	5	55E-02	10.731	.00	.52	.00	.00	.00	.08	.01	.40	.11	.00	.00
	6	50E-02	12.637	.00	.12	.30	.00	.00	.00	.08	.20	.05	.00	.00
	7	90E-02	18.147	.00	.10	.29	.00	.52	.01	.04	.05	.18	.00	.00
	8	47E-02	24.038	.01	.03	.36	.00	.46	.01	.01	.07	.05	.05	.05
	9	54E-03	32.955	.00	.01	.00	.97	.01	.01	.77	.04	.00	.01	.01
	10	46E-03	44.782	.00	.02	.04	.00	.00	.01	.00	.00	.03	.36	.57
	11	39E-03	85.937	.98	.01	.01	.01	.01	.02	.00	.04	.01	.57	.37

a. Dependent Variable: VATA

Casewise Diagnostics^a

Case Number	Std. Residual	VATA
173	3.606	1.68

a. Dependent Variable: VATA

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	4.475E-02	1.6884	1.0000	.3011	180
Residual	-.7108	1.1646	-8.45E-17	.3138	180
Std. Predicted Value	-3.173	2.287	.000	1.000	180
Std. Residual	-2.201	3.606	.000	.972	180

a. Dependent Variable: VATA

Regression

Variables Entered/Removed^b

Model	Variables Entered	Variables Removed	Method
1	POPT, FE, TR, PCIT, PCST, PSLT ^a , PSST ^a		Enter

a. Tolerance = .000 limits reached.

b. Dependent Variable: VATA

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.677 ^a	.458	.436	.3265	1.633

a. Predictors: (Constant), POPT, FE, TR, PCIT, PCST, PSLT, PSST

b. Dependent Variable: VATA

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.518	7	2.217	20.799	.000 ^a
	Residual	18.333	172	.107		
	Total	33.851	179			

a. Predictors: (Constant), POPT, FE, TR, PCIT, PCST, PSLT, PSST

b. Dependent Variable: VATA

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-1.816	.557		-3.261	.001		
	PCIT	-.311	.192	-.095	-1.619	.107	.910	1.099
	PSLT	.342	.180	.112	1.898	.059	.897	1.114
	TR	.418	.150	.158	2.777	.006	.969	1.032
	FE	.280	.069	.231	4.064	.000	.978	1.023
	PSST	-2.178	.601	-.221	-3.621	.000	.843	1.186
	PCST	-.480	.721	-.038	-.666	.507	.945	1.058
	POPT	3.281	.414	.470	7.933	.000	.895	1.117

a. Dependent Variable: VATA

Excluded Variables

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
1	POST ^a					.000		.000
	PSPT ^a	2327.091 ^a	-.496	.621	-.038	.435E-10	7.0E+09	1.435E-10

a. Predictors in the Model: (Constant), POPT, FE, TR, PCIT, PCST, PSLT, PSST

b. Dependent Variable: VATA

Coefficient Correlations

Model		POPT	FE	TR	PCIT	PCST	PSLT	PSST	
1	Correlations	POPT	1.000	.027	-.074	.099	.090	-.214	.152
		FE	.027	1.000	-.086	.080	.081	.038	.063
		TR	-.074	-.086	1.000	-.106	-.047	.038	-.104
		PCIT	.099	.080	-.106	1.000	-.068	.045	.274
		PCST	.090	.081	-.047	-.068	1.000	.052	-.136
		PSLT	-.214	.038	.038	.045	.052	1.000	.172
		PSST	.152	.063	-.104	.274	-.136	.172	1.000
	Covariances	POPT	.171	.737E-04	-4.58E-03	.875E-03	.672E-02	-1.60E-02	.779E-02
		FE	.737E-04	.750E-03	-8.94E-04	.065E-03	.024E-03	.682E-04	.599E-03
		TR	-4.58E-03	-8.94E-04	.263E-02	-3.05E-03	-5.09E-03	.023E-03	-9.44E-03
		PCIT	.875E-03	.065E-03	-3.05E-03	.686E-02	-9.40E-03	.549E-03	.170E-02
		PCST	.672E-02	.024E-03	-5.09E-03	-9.40E-03	.520	.806E-03	-5.90E-02
		PSLT	-1.60E-02	.682E-04	.023E-03	.549E-03	.806E-03	.252E-02	.862E-02
PSST	.779E-02	.599E-03	-9.44E-03	.170E-02	-5.90E-02	.862E-02	.362		

a. Dependent Variable: VATA

Collinearity Diagnostics

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions								
				Constant	PCIT	PSLT	TR	FE	PSST	PCST	POPT	
1	1	6.857	1.000	.00	.00	.00	.00	.00	.00	.00	.00	.00
	2	.835	2.866	.00	.00	.00	.00	.97	.00	.00	.00	.00
	3	.178	6.210	.00	.09	.01	.00	.00	.61	.00	.00	.00
	4	4.77E-02	9.577	.00	.73	.11	.00	.01	.12	.00	.00	.00
	5	2.00E-02	14.637	.00	.11	.51	.38	.01	.15	.00	.00	.00
	6	7.58E-02	19.750	.01	.03	.32	.61	.00	.04	.04	.04	.04
	7	9.94E-03	37.055	.00	.02	.04	.00	.00	.05	.37	.54	.54
	8	3.50E-03	71.267	.98	.01	.01	.01	.01	.01	.58	.42	.42

a. Dependent Variable: VATA

Casewise Diagnostics^a

Case Number	Std. Residual	VATA
160	3.033	2.12
173	3.776	1.68

a. Dependent Variable: VATA

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	6.676E-02	1.6467	1.0000	.2944	180
Residual	-.7151	1.2326	2.899E-17	.3200	180
Std. Predicted Value	-3.170	2.196	.000	1.000	180
Std. Residual	-2.190	3.776	.000	.980	180

a. Dependent Variable: VATA

Annexure 3

Regression

Descriptive Statistics

	Mean	Std. Deviation	N
VAT	836.9389	363.9568	180
CIT	219.2903	104.7640	180
TIT	560.8179	252.2605	180
SL	3.2000	1.7605	180
UL	1.3389	.6087	180
ED	8.0833	2.5781	180
EX	12.0167	2.6834	180
TR	.9722	.1648	180
FE	.1500	.3581	180
YTE	7.2500	2.8439	180
SJN	.8444	.3634	180
SST	111.4749	59.9212	180
SOT	472.2362	239.4550	180
SCT	634.8488	267.5153	180
PST	57.4309	23.5477	180
POT	324.1901	170.1719	180

Correlations

	VAT	CIT	TIT	SL	UL	ED	EX	TR	FE	YTE	SJN	SST	SOT	SCT	PST	POT
Pearson Cr VA	1.000	.637	.803	.719	.427	.369	.426	.155	.254	.419	-.254	.544	.910	.957	.472	.772
CIT	.637	1.000	.678	.601	.396	.368	.380	.123	.109	.357	-.235	.147	.682	.606	.380	.550
TIT	.803	.678	1.000	.642	.397	.329	.416	.054	.183	.395	-.290	.445	.852	.851	.680	.881
SL	.719	.601	.642	1.000	.531	.385	.377	-.039	.218	.389	-.300	.386	.697	.691	.405	.609
UL	.427	.396	.397	.531	1.000	.178	.195	-.128	.201	.251	-.114	.177	.438	.416	.380	.366
ED	.369	.368	.329	.385	.178	1.000	.951	.176	.477	.844	-.529	.085	.404	.356	.209	.339
EX	.426	.380	.416	.377	.195	.951	1.000	.228	.445	.896	-.490	.158	.450	.416	.285	.393
TR	.155	.123	.054	-.039	-.128	.176	.228	1.000	.071	.170	-.073	.153	.058	.119	.012	-.011
FE	.254	.109	.183	.218	.201	.477	.445	.071	1.000	.407	-.592	.179	.217	.227	.095	.169
YTE	.419	.357	.395	.389	.251	.844	.896	.170	.407	1.000	-.443	.150	.445	.410	.286	.388
SJN	-.254	-.235	-.290	-.300	-.114	-.529	-.490	-.073	-.592	-.443	1.000	-.106	-.275	-.271	-.272	-.270
SST	.544	.147	.445	.386	.177	.085	.158	.153	.179	.150	-.106	1.000	.326	.554	.343	.472
SOT	.910	.682	.852	.697	.438	.404	.450	.058	.217	.445	-.275	.326	1.000	.874	.578	.868
SCT	.957	.606	.851	.691	.416	.356	.416	.119	.227	.410	-.271	.554	.874	1.000	.598	.868
PST	.472	.380	.680	.405	.380	.209	.285	.012	.095	.286	-.272	.343	.578	.598	1.000	.725
POT	.772	.550	.881	.609	.366	.339	.393	-.011	.169	.388	-.270	.472	.868	.868	.725	1.000
Sig. (1-tailed VA	.000	.000	.000	.000	.000	.000	.000	.019	.000	.000	.000	.000	.000	.000	.000	.000
CIT	.000	.000	.000	.000	.000	.000	.000	.050	.073	.000	.001	.024	.000	.000	.000	.000
TIT	.000	.000	.000	.000	.000	.000	.000	.237	.007	.000	.000	.000	.000	.000	.000	.000
SL	.000	.000	.000	.000	.000	.000	.000	.304	.002	.000	.000	.000	.000	.000	.000	.000
UL	.000	.000	.000	.000	.000	.009	.004	.043	.003	.000	.064	.009	.000	.000	.000	.000
ED	.000	.000	.000	.000	.009	.000	.000	.009	.000	.000	.000	.129	.000	.000	.002	.000
EX	.000	.000	.000	.000	.004	.000	.000	.001	.000	.000	.000	.017	.000	.000	.000	.000
TR	.019	.050	.237	.304	.043	.009	.001	.172	.011	.167	.020	.219	.055	.434	.442	.012
FE	.000	.073	.007	.002	.003	.000	.000	.172	.000	.000	.008	.002	.001	.101	.012	.000
YTE	.000	.000	.000	.000	.000	.000	.000	.011	.000	.000	.023	.000	.000	.000	.000	.000
SJN	.000	.001	.000	.000	.064	.000	.000	.167	.000	.000	.078	.000	.000	.000	.000	.000
SST	.000	.024	.000	.000	.009	.129	.017	.020	.008	.023	.078	.000	.000	.000	.000	.000
SOT	.000	.000	.000	.000	.000	.000	.000	.219	.002	.000	.000	.000	.000	.000	.000	.000
SC	.000	.000	.000	.000	.000	.000	.000	.055	.001	.000	.000	.000	.000	.000	.000	.000
PS	.000	.000	.000	.000	.000	.002	.000	.434	.101	.000	.000	.000	.000	.000	.000	.000
PO	.000	.000	.000	.000	.000	.000	.000	.442	.012	.000	.000	.000	.000	.000	.000	.000
N	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180
CIT	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180
TIT	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180
SL	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180
UL	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180
ED	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180
EX	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180
TR	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180
FE	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180
YTE	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180
SJN	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180
SST	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180
SOT	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180
SC	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180
PS	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180
PO	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180

Variables Entered/Removed^b

Model	Variables Entered	Variables Removed	Method
1	POT, TR, FE, UL, SST, YTE, CIT, SJN, PST, SL, ED, SCT, TIT, SOT, EX		Enter

a. All requested variables entered.

b. Dependent Variable: VAT

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	1.000 ^a	1.000	1.000	1.647E-04	2.032

a. Predictors: (Constant), POT, TR, FE, UL, SST, YTE, CIT, SJN, PST, SL, ED, SCT, TIT, SOT, EX

b. Dependent Variable: VAT

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23711156	15	1580743.720	5.8E+13	.000 ^a
	Residual	4.449E-06	164	2.713E-08		
	Total	23711156	179			

a. Predictors: (Constant), POT, TR, FE, UL, SST, YTE, CIT, SJN, PST, SL, ED, SCT, TIT, SOT, EX

b. Dependent Variable: VAT

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-2.26E-04	.000		-1.846	.067		
	CIT	6.790E-08	.000	.000	.199	.843	.381	2.627
	TIT	2.573E-07	.000	.000	1.911	.058	.131	7.613
	SL	9.511E-06	.000	.000	.798	.426	.345	2.902
	UL	8.22E-06	.000	.000	-.314	.754	.596	1.676
	ED	-1.75E-05	.000	.000	-.945	.346	.066	15.089
	EX	6.788E-05	.000	.000	1.842	.067	.050	20.092
	TR	-1.45E-05	.000	.000	-.172	.864	.777	1.288
	FE	.525E-05	.000	.000	.325	.746	.535	1.868
	YTE	-1.18E-05	.000	.000	-1.178	.240	.186	5.364
	SJN	4.733E-05	.000	.000	.994	.322	.506	1.976
	SST	1.000	.000	.165	3390439	.000	.485	2.061
	SOT	1.000	.000	.658	6727603	.000	.120	8.359
	SCT	1.000	.000	.735	7843759	.000	.130	7.675
	PST	-1.000	.000	-.065	-1192262	.000	.389	2.574
	POT	-1.000	.000	-.468	-4469652	.000	.105	9.564

a. Dependent Variable: VAT

Coefficient Correlations

Max	POT	TR	FE	UL	SST	YTE	CIT	SJN	PST	SL	ED	SCT	TIT	SOT	EX	
1	Correl: PO	.000	.221	.093	.129	-.193	-.043	.200	-.026	-.414	.128	-.221	-.234	-.376	-.427	.180
	TR	.221	1.000	.014	.166	-.167	.043	-.157	.005	-.081	.160	.080	-.164	.057	-.078	-.149
	FE	.093	.014	1.000	-.216	-.172	-.007	.149	.489	.133	.125	-.133	-.024	-.041	-.106	.043
	UL	.129	.166	-.216	1.000	.038	-.110	-.123	-.174	-.276	-.305	.053	-.055	.048	-.058	.015
	SST	-.193	-.167	-.172	.038	1.000	.038	.154	-.088	.034	-.257	.166	-.388	-.046	.403	-.129
	YTE	-.043	.043	-.007	-.110	.038	1.000	.016	.021	.005	-.061	.103	-.019	.089	-.020	-.537
	CIT	.200	-.157	.149	-.123	.154	.016	1.000	.022	.053	-.155	-.182	-.016	-.399	-.183	.118
	SJN	-.026	.005	.489	-.174	-.088	.021	.022	1.000	.213	.130	.174	-.002	.081	-.081	-.085
	PST	-.414	-.081	.133	-.276	.034	.005	.053	.213	1.000	.066	.129	.061	-.146	.151	-.104
	SL	.128	.160	.125	-.305	-.257	-.061	-.155	.130	.066	1.000	-.226	-.127	-.069	-.214	.188
	ED	-.221	.080	-.133	.053	.166	.103	-.182	.174	.129	-.226	1.000	.003	.332	.061	-.842
	SC	-.234	-.164	-.024	-.055	-.388	-.019	-.016	-.002	.061	-.127	.003	1.000	-.139	-.390	.011
	TIT	-.376	.057	-.041	.048	-.046	.089	-.399	.081	-.146	-.069	.332	-.139	1.000	-.104	-.309
	SO	-.427	-.078	-.106	-.058	.403	-.020	-.183	-.081	.151	-.214	.061	-.390	-.104	1.000	-.059
	EX	.180	-.149	.043	.015	-.129	-.537	.118	-.085	-.104	.188	-.842	.011	-.309	-.059	1.000
	Covari: PO	E-14	E-12	E-13	E-13	E-14	E-14	E-15	E-13	E-14	E-13	E-13	E-15	E-14	E-14	E-13
	TR	E-12	E-09	E-11	E-10	E-12	E-11	E-12	E-11	E-12	E-10	E-10	E-12	E-13	E-13	E-10
	FE	E-13	E-11	E-09	E-10	E-12	E-12	E-12	E-09	E-12	E-11	E-10	E-13	E-13	E-13	E-11
	UL	E-13	E-10	E-10	E-10	E-13	E-11	E-13	E-10	E-12	E-11	E-11	E-13	E-13	E-13	E-12
	SST	E-14	E-12	E-12	E-13	E-14	E-13	E-15	E-12	E-15	E-13	E-13	E-14	E-15	E-14	E-13
	YTE	E-14	E-11	E-12	E-11	E-13	E-10	E-14	E-11	E-14	E-12	E-11	E-14	E-13	E-14	E-10
	CIT	E-15	E-12	E-12	E-13	E-15	E-14	E-14	E-13	E-15	E-13	E-13	E-16	E-14	E-15	E-13
	SJN	E-13	E-11	E-09	E-10	E-12	E-11	E-13	E-09	E-12	E-11	E-10	E-15	E-13	E-13	E-11
	PST	E-14	E-12	E-12	E-12	E-15	E-14	E-15	E-12	E-13	E-13	E-12	E-15	E-14	E-14	E-12
	SL	E-13	E-10	E-11	E-11	E-13	E-12	E-13	E-11	E-13	E-10	E-11	E-13	E-13	E-13	E-11
	ED	E-13	E-10	E-10	E-11	E-13	E-11	E-13	E-10	E-12	E-11	E-10	E-15	E-13	E-13	E-10
	SC	E-15	E-12	E-13	E-13	E-14	E-14	E-16	E-15	E-15	E-13	E-15	E-14	E-15	E-15	E-14
	TIT	E-14	E-13	E-13	E-13	E-15	E-13	E-14	E-13	E-14	E-13	E-13	E-15	E-14	E-15	E-13
	SO	E-14	E-13	E-13	E-13	E-14	E-14	E-15	E-13	E-14	E-13	E-13	E-15	E-15	E-14	E-13
	EX	E-13	E-10	E-11	E-12	E-13	E-10	E-13	E-11	E-12	E-11	E-10	E-14	E-13	E-13	E-10

^aDependent Variable: VAT

Collinearity Diagnostics

Mc	Dim	env	vande	nsta	Variance Proportions													
					CIT	TIT	SL	UL	ED	EX	TR	FE	YTES	JNS	STB	OTB	CTP	STP
1	1	801	000	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	922	869	.00	.00	.00	.00	.00	.00	.00	.00	.40	.00	.01	.00	.00	.00	.00	.00
3	421	723	.00	.00	.00	.01	.00	.00	.00	.00	.05	.00	.03	.00	.01	.00	.00	.01
4	220	924	.00	.04	.00	.00	.00	.00	.00	.00	.04	.01	.01	.29	.00	.00	.00	.00
5	164	169	.00	.01	.00	.06	.30	.00	.00	.00	.06	.01	.04	.01	.00	.00	.01	.01
6	124	569	.00	.00	.01	.19	.00	.00	.00	.00	.14	.01	.04	.16	.00	.00	.08	.01
7	106	412	.00	.14	.00	.00	.24	.00	.00	.00	.12	.01	.08	.00	.01	.00	.12	.00
8	-.02	848	.00	.40	.00	.07	.01	.00	.00	.01	.01	.01	.13	.07	.03	.01	.06	.02
9	-.02	952	.01	.03	.00	.52	.27	.00	.00	.02	.03	.04	.00	.10	.01	.01	.21	.00
10	-.02	633	.02	.14	.00	.02	.08	.00	.00	.20	.10	.06	.38	.03	.05	.05	.11	.00
11	-.02	361	.02	.09	.61	.01	.02	.00	.00	.00	.00	.02	.02	.03	.16	.04	.24	.01
12	-.02	387	.02	.05	.13	.01	.02	.07	.00	.05	.01	.29	.01	.02	.01	.03	.04	.28
13	-.02	518	.00	.01	.00	.00	.00	.01	.00	.03	.00	.01	.01	.21	.49	.83	.00	.00
14	-.02	171	.00	.05	.09	.04	.00	.06	.01	.20	.02	.22	.01	.05	.21	.02	.10	.60
15	-.03	817	.71	.02	.02	.02	.04	.07	.00	.47	.01	.09	.22	.01	.02	.01	.01	.01
16	-.03	239	.23	.02	.12	.05	.00	.79	.99	.01	.01	.23	.01	.02	.01	.00	.01	.05

Dependent Variable: VAT

Casewise Diagnostics^a

Case Number	Std. Residual	VAT
27	-5.782	616.38
132	10.738	238.36

a. Dependent Variable: VAT

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	212.9801	1908.1730	836.9389	363.9568	180
Residual	-9.52E-04	1.769E-03	3.379E-14	1.584E-04	180
Std. Predicted Value	-1.714	2.943	.000	1.000	180
Std. Residual	-5.782	10.738	.000	.962	180

a. Dependent Variable: VAT

Regression

Descriptive Statistics

	Mean	Std. Deviation	N
VAT	6.6848	.4193	170
CIT	5.3278	.4829	170
TIT	6.2829	.4293	170
SL	1.0754	.5218	170
UL	.2681	.3581	170
ED	2.0487	.3588	170
EX	2.4764	.2273	170
TR	.9765	.1520	170
FE	.1471	.3552	170
YTE	1.9331	.3928	170
SJN	.8353	.3720	170
SST	4.6161	.5311	170
SOT	6.0860	.4936	170
SCT	6.4177	.3959	170
PST	4.0081	.4061	170
POT	5.6927	.5573	170

Correlations

	VAT	CIT	TIT	SL	UL	ED	EX	TR	FE	YTE	SJN	SST	SOT	SCT	PST	POT
Pearson C VA	1.000	.605	.734	.652	.362	.259	.337	.138	.242	.353	-.207	.411	.909	.954	.454	.681
CIT	.605	1.000	.673	.584	.284	.240	.269	.082	.115	.282	-.171	.039	.626	.590	.346	.493
TIT	.734	.673	1.000	.619	.310	.213	.321	-.008	.207	.330	-.256	.336	.819	.829	.697	.832
SL	.652	.584	.619	1.000	.510	.246	.255	-.088	.210	.312	-.212	.189	.654	.646	.394	.511
UL	.362	.284	.310	.510	1.000	.070	.093	-.185	.255	.189	-.085	.081	.387	.351	.270	.233
ED	.259	.240	.213	.246	.070	1.000	.943	.203	.409	.803	-.441	.013	.281	.245	.118	.189
EX	.337	.269	.321	.255	.093	.943	1.000	.260	.421	.898	-.443	.086	.359	.328	.192	.251
TR	.138	.082	-.008	-.088	-.185	.203	.260	1.000	.064	.161	-.069	.157	.010	.078	-.049	-.060
FE	.242	.115	.207	.210	.255	.409	.421	.064	1.000	.395	-.622	.175	.222	.238	.114	.146
YTE	.353	.282	.330	.312	.189	.803	.898	.161	.395	1.000	-.409	.067	.391	.346	.237	.268
SJN	-.207	-.171	-.256	-.212	-.085	-.441	-.443	-.069	-.622	-.409	1.000	-.088	-.241	-.237	-.238	-.214
SS	.411	.039	.336	.189	.081	.013	.086	.157	.175	.067	-.088	1.000	.214	.437	.219	.329
SO	.909	.626	.819	.654	.387	.281	.359	.010	.222	.391	-.241	.214	1.000	.912	.607	.828
SC	.954	.590	.829	.646	.351	.245	.328	.078	.238	.346	-.237	.437	.912	1.000	.610	.822
PS	.454	.346	.697	.394	.270	.118	.192	-.049	.114	.237	-.238	.219	.607	.610	1.000	.737
PO	.681	.493	.832	.511	.233	.189	.251	-.060	.146	.268	-.214	.329	.828	.822	.737	1.000
Sig. (1-tailr VA	.000	.000	.000	.000	.000	.000	.000	.037	.001	.000	.003	.000	.000	.000	.000	.000
CIT	.000	.000	.000	.000	.000	.001	.000	.145	.067	.000	.013	.306	.000	.000	.000	.000
TIT	.000	.000	.000	.000	.000	.003	.000	.456	.003	.000	.000	.000	.000	.000	.000	.000
SL	.000	.000	.000	.000	.000	.001	.000	.127	.003	.000	.003	.007	.000	.000	.000	.000
UL	.000	.000	.000	.000	.000	.184	.113	.008	.000	.007	.136	.147	.000	.000	.000	.001
ED	.000	.001	.003	.001	.184	.000	.000	.004	.000	.000	.000	.434	.000	.001	.062	.007
EX	.000	.000	.000	.000	.113	.000	.000	.000	.000	.000	.000	.133	.000	.000	.006	.000
TR	.037	.145	.456	.127	.008	.004	.000	.000	.202	.018	.186	.021	.449	.157	.262	.220
FE	.001	.067	.003	.003	.000	.000	.000	.202	.000	.000	.000	.011	.002	.001	.069	.029
YTE	.000	.000	.000	.000	.007	.000	.000	.018	.000	.000	.000	.191	.000	.000	.001	.000
SJN	.003	.013	.000	.003	.136	.000	.000	.186	.000	.000	.000	.126	.001	.001	.001	.003
SS	.000	.306	.000	.007	.147	.434	.133	.021	.011	.191	.126	.000	.003	.000	.002	.000
SO	.000	.000	.000	.000	.000	.000	.000	.449	.002	.000	.001	.003	.000	.000	.000	.000
SC	.000	.000	.000	.000	.000	.001	.000	.157	.001	.000	.001	.000	.000	.000	.000	.000
PS	.000	.000	.000	.000	.000	.062	.006	.262	.069	.001	.001	.002	.000	.000	.000	.000
PO	.000	.000	.000	.000	.001	.007	.000	.220	.029	.000	.003	.000	.000	.000	.000	.000
N	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170
CIT	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170
TIT	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170
SL	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170
UL	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170
ED	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170
EX	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170
TR	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170
FE	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170
YTE	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170
SJN	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170
SS	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170
SO	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170
SC	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170
PS	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170
PO	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170

Variables Entered/Removed^b

Model	Variables Entered	Variables Removed	Method
1	POT, TR, FE, UL, SST, ED, CIT, SJN, SL, PST, YTE, SOT, TIT, SCT, EX		Enter

a. All requested variables entered.

b. Dependent Variable: VAT

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.992 ^a	.984	.983	5.535E-02	1.769

a. Predictors: (Constant), POT, TR, FE, UL, SST, ED, CIT, SJN, SL, PST, YTE, SOT, TIT, SCT, EX

b. Dependent Variable: VAT

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	29.241	15	1.949	636.367	.000 ^a
	Residual	.472	154	3.063E-03		
	Total	29.713	169			

a. Predictors: (Constant), POT, TR, FE, UL, SST, ED, CIT, SJN, SL, PST, YTE, SOT, TIT, SCT, EX

b. Dependent Variable: VAT

Coefficient Correlations

Mo	POT	TR	FE	UL	SST	ED	CIT	SJN	SL	PST	YTE	SOT	TIT	SCT	EX	
1 Correl:	PO	.000	.131	.046	.182	-.130	-.215	.137	-.018	.132	-.369	-.033	-.337	-.337	-.096	.179
	TR	.131	.000	-.002	.167	-.124	.181	-.198	-.010	.082	-.075	.174	.011	.162	-.139	-.269
	FE	.046	-.002	.000	-.257	-.101	.048	.086	.551	.061	.124	-.015	-.008	-.058	-.035	-.007
	UL	.182	.167	-.257	.000	-.039	.030	-.030	-.162	-.317	-.185	-.093	-.148	.058	.019	.037
	SS	.130	-.124	-.101	-.039	.000	.102	.236	-.033	-.050	.121	.032	.471	-.130	-.514	-.077
	ED	.215	.181	-.048	.030	.102	.000	-.190	.082	-.243	.000	.362	.090	.378	-.019	-.872
	CIT	.137	-.198	.086	-.030	.236	-.190	.000	.018	-.161	.188	-.086	-.057	-.483	.055	.176
	SJN	.018	-.010	.551	-.162	-.033	.082	.018	.000	.057	.165	.029	-.008	.023	-.018	-.020
	SL	.132	.082	.061	-.317	-.050	-.243	-.161	.057	.000	.055	-.140	-.089	-.179	-.127	.226
	PS	.369	-.075	.124	-.185	.121	.000	.188	.165	.055	.000	-.101	.103	-.293	-.029	.054
	YTE	.033	.174	-.015	-.093	.032	.362	-.086	.029	-.140	-.101	.000	-.034	.202	.008	-.710
	SO	.337	.011	-.008	-.148	.471	.090	-.057	-.008	-.089	.103	-.034	.000	-.044	-.691	-.083
	TIT	.337	.162	-.058	.058	-.130	.378	-.483	.023	-.179	-.293	.202	-.044	.000	-.093	-.377
	SC	-.096	-.139	-.035	.019	-.514	-.019	-.055	-.018	-.127	-.029	.008	-.691	-.093	.000	.024
	EX	.179	-.269	-.007	.037	-.077	-.872	.176	-.020	.226	.054	-.710	-.083	-.377	.024	.000
Covari	PO	E-04	E-05	E-05	E-05	E-05	E-04	E-05	E-06	E-05	E-04	E-05	E-04	E-04	E-05	E-04
	TR	E-05	E-03	E-06	E-05	E-05	E-04	E-05	E-06	E-05	E-05	E-04	E-05	E-04	E-04	E-04
	FE	E-05	E-06	E-04	E-05	E-05	E-05	E-05	E-04	E-05	E-05	E-06	E-06	E-05	E-05	E-05
	UL	E-05	E-05	E-05	E-04	E-06	E-05	E-06	E-05	E-05	E-05	E-05	E-05	E-05	E-06	E-05
	SS	E-05	E-05	E-05	E-06	E-04	E-05	E-05	E-06	E-06	E-05	E-06	E-04	E-05	E-04	E-05
	ED	E-04	E-04	E-05	E-05	E-05	E-03	E-04	E-05	E-04	E-07	E-04	E-04	E-04	E-05	E-03
	CIT	E-05	E-05	E-05	E-06	E-05	E-04	E-04	E-06	E-05	E-05	E-05	E-05	E-04	E-05	E-04
	SJN	E-06	E-06	E-04	E-05	E-06	E-05	E-06	E-04	E-05	E-05	E-05	E-06	E-06	E-06	E-05
	SL	E-05	E-05	E-05	E-05	E-06	E-04	E-05	E-05	E-04	E-05	E-05	E-05	E-05	E-05	E-04
	PS	E-04	E-05	E-05	E-05	E-05	E-07	E-05	E-05	E-05	E-04	E-05	E-05	E-04	E-05	E-05
	YTE	E-05	E-04	E-06	E-05	E-06	E-04	E-05	E-05	E-05	E-05	E-05	E-04	E-05	E-04	E-03
	SO	E-04	E-05	E-06	E-05	E-04	E-04	E-05	E-06	E-05	E-05	E-05	E-04	E-05	E-04	E-04
	TIT	E-04	E-04	E-05	E-05	E-05	E-04	E-04	E-06	E-05	E-04	E-04	E-05	E-04	E-05	E-04
	SC	E-05	E-04	E-05	E-06	E-04	E-05	E-05	E-06	E-05	E-05	E-06	E-04	E-05	E-03	E-05
	EX	E-04	E-04	E-05	E-05	E-05	E-03	E-04	E-05	E-04	E-05	E-03	E-04	E-04	E-05	E-03

^aDependent Variable: VAT

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.267	.127		2.099	.037		
	CIT	.635E-02	.014	.053	3.305	.001	.395	2.531
	TIT	-.944E-02	.026	-.097	-3.572	.000	.141	7.097
	SL	.402E-02	.013	.017	1.079	.282	.395	2.534
	UL	-.222E-02	.015	-.019	-1.462	.146	.613	1.632
	ED	.289E-02	.044	.028	.754	.452	.074	13.504
	EX	-.630E-02	.094	-.034	-.669	.505	.040	25.251
	TR	.193E-02	.032	.030	2.522	.013	.743	1.345
	FE	-.882E-05	.017	.000	-.005	.996	.517	1.934
	YTE	-.906E-03	.028	-.008	-.327	.744	.153	6.552
	SJN	.298E-02	.016	.012	.825	.410	.530	1.888
	SST	.742E-02	.011	.111	7.914	.000	.527	1.899
	SOT	.476	.028	.560	17.179	.000	.097	10.321
	SCT	.813	.035	.768	23.361	.000	.095	10.483
	PST	-.765E-02	.017	-.074	-4.504	.000	.381	2.625
	POT	-.254	.019	-.337	-13.414	.000	.163	6.130

a. Dependent Variable: VAT

Coefficient Correlations

Mo	POT	TR	FE	UL	SST	ED	CIT	SJN	SL	PST	YTE	SOT	TIT	SCT	EX	
1 Correl:	PO	.000	.131	.046	.182	-.130	-.215	.137	-.018	.132	-.369	-.033	-.337	-.337	-.096	.179
	TR	.131	.000	-.002	.167	-.124	.181	-.198	-.010	.082	-.075	.174	.011	.162	-.139	-.269
	FE	.046	-.002	.000	-.257	-.101	.048	.086	.551	.061	.124	-.015	-.008	-.058	-.035	-.007
	UL	.182	.167	-.257	.000	-.039	.030	-.030	-.162	-.317	-.185	-.093	-.148	.058	.019	.037
	SS	.130	-.124	-.101	-.039	.000	.102	.236	-.033	-.050	.121	.032	.471	-.130	-.514	-.077
	ED	.215	.181	-.048	.030	.102	.000	-.190	.082	-.243	.000	.362	.090	.378	-.019	-.872
	CIT	.137	-.198	.086	-.030	.236	-.190	.000	.018	-.161	.188	-.086	-.057	-.483	.055	.176
	SJN	.018	-.010	.551	-.162	-.033	.082	.018	.000	.057	.165	.029	-.008	.023	-.018	-.020
	SL	.132	.082	.061	-.317	-.050	-.243	-.161	.057	.000	.055	-.140	-.089	-.179	-.127	.226
	PS	.369	-.075	.124	-.185	.121	.000	.188	.165	.055	.000	-.101	.103	-.293	-.029	.054
	YTE	.033	.174	-.015	-.093	.032	.362	-.086	.029	-.140	-.101	.000	-.034	.202	.008	-.710
	SO	.337	.011	-.008	-.148	.471	.090	-.057	-.008	-.089	.103	-.034	.000	-.044	-.691	-.083
	TIT	.337	.162	-.058	.058	-.130	.378	-.483	.023	-.179	-.293	.202	-.044	.000	-.093	-.377
	SC	-.096	-.139	-.035	.019	-.514	-.019	-.055	-.018	-.127	-.029	.008	-.691	-.093	.000	.024
	EX	.179	-.269	-.007	.037	-.077	-.872	.176	-.020	.226	.054	-.710	-.083	-.377	.024	.000
Covari	PO	E-04	E-05	E-05	E-05	E-05	E-04	E-05	E-06	E-05	E-04	E-05	E-04	E-04	E-05	E-04
	TR	E-05	E-03	E-06	E-05	E-05	E-04	E-05	E-06	E-05	E-05	E-04	E-05	E-04	E-04	E-04
	FE	E-05	E-06	E-04	E-05	E-05	E-05	E-05	E-04	E-05	E-05	E-06	E-06	E-05	E-05	E-05
	UL	E-05	E-05	E-05	E-04	E-06	E-05	E-06	E-05	E-05	E-05	E-05	E-05	E-05	E-06	E-05
	SS	E-05	E-05	E-05	E-06	E-04	E-05	E-05	E-06	E-06	E-05	E-06	E-04	E-05	E-04	E-05
	ED	E-04	E-04	E-05	E-05	E-05	E-03	E-04	E-05	E-04	E-07	E-04	E-04	E-04	E-05	E-03
	CIT	E-05	E-05	E-05	E-06	E-05	E-04	E-04	E-06	E-05	E-05	E-05	E-05	E-04	E-05	E-04
	SJN	E-06	E-06	E-04	E-05	E-06	E-05	E-06	E-04	E-05	E-05	E-05	E-06	E-06	E-06	E-05
	SL	E-05	E-05	E-05	E-05	E-06	E-04	E-05	E-05	E-04	E-05	E-05	E-05	E-05	E-05	E-04
	PS	E-04	E-05	E-05	E-05	E-05	E-07	E-05	E-05	E-05	E-04	E-05	E-05	E-04	E-05	E-05
	YTE	E-05	E-04	E-06	E-05	E-06	E-04	E-05	E-05	E-05	E-05	E-05	E-04	E-05	E-04	E-06
	SO	E-04	E-05	E-06	E-05	E-04	E-04	E-05	E-06	E-05	E-05	E-05	E-04	E-05	E-04	E-04
	TIT	E-04	E-04	E-05	E-05	E-05	E-04	E-04	E-06	E-05	E-04	E-04	E-05	E-04	E-05	E-04
	SC	E-05	E-04	E-05	E-06	E-04	E-05	E-05	E-06	E-05	E-05	E-06	E-04	E-05	E-03	E-05
	EX	E-04	E-04	E-05	E-05	E-05	E-03	E-04	E-05	E-04	E-05	E-03	E-04	E-04	E-05	E-03

^aDependent Variable: VAT

Variables Entered/Removed^b

Model	Variables Entered	Variables Removed	Method
1	POT, TR, UL, SST, CIT, SL, PST, SOT, TIT, SCT ^a		Enter

- a. All requested variables entered.
 b. Dependent Variable: VAT

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.992 ^a	.984	.983	5.526E-02	1.777

- a. Predictors: (Constant), POT, TR, UL, SST, CIT, SL, PST, SOT, TIT, SCT
 b. Dependent Variable: VAT

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	29.228	10	2.923	957.280	.000 ^a
	Residual	.485	159	3.053E-03		
	Total	29.713	169			

- a. Predictors: (Constant), POT, TR, UL, SST, CIT, SL, PST, SOT, TIT, SCT
 b. Dependent Variable: VAT

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.254	.097		2.628	.009		
	CIT	1.905E-02	.014	.056	3.582	.000	.413	2.420
	TIT	-.105	.024	-.108	-4.348	.000	.167	5.973
	SL	1.401E-02	.012	.017	1.121	.264	.425	2.352
	UL	-2.25E-02	.015	-.019	-1.545	.124	.666	1.501
	TR	5.715E-02	.031	.024	2.201	.029	.839	1.191
	SST	3.669E-02	.011	.110	7.941	.000	.537	1.861
	SOT	.466	.027	.549	17.175	.000	.101	9.946
	SCT	.817	.035	.771	23.556	.000	.096	10.436
	PST	-7.92E-02	.017	-.077	-4.767	.000	.397	2.518
	POT	-.248	.018	-.329	-13.487	.000	.173	5.791

a. Dependent Variable: VAT

Coefficient Correlations

Model		POT	TR	UL	SST	CIT	SL	PST	SOT	TIT	SCT
1	Correlatic POT	1.000	.198	.215	-.109	.096	.092	-.385	-.318	-.281	-.107
	TR	.198	1.000	.201	-.147	-.167	.132	-.061	-.039	.072	-.132
	UL	.215	.201	1.000	-.071	-.009	-.325	-.173	-.166	.054	.011
	SST	-.109	-.147	-.071	1.000	.271	-.022	.134	.477	-.188	-.522
	CIT	.096	-.167	-.009	.271	1.000	-.222	.185	-.038	-.450	-.058
	SL	.092	.132	-.325	-.022	-.222	1.000	.039	-.083	-.099	-.131
	PST	-.385	-.061	-.173	.134	.185	.039	1.000	.104	-.313	-.025
	SOT	-.318	-.039	-.166	.477	-.038	-.083	.104	1.000	-.097	-.695
	TIT	-.281	.072	.054	-.188	-.450	-.099	-.313	-.097	1.000	-.092
	SCT	-.107	-.132	.011	-.522	-.058	-.131	-.025	-.695	-.092	1.000
	Covarian POT	58E-04	11E-04	39E-05	19E-05	17E-05	01E-05	17E-04	59E-04	25E-04	79E-05
	TR	11E-04	13E-04	37E-05	39E-05	36E-05	20E-05	10E-05	25E-05	93E-05	40E-04
	UL	39E-05	37E-05	15E-04	13E-05	76E-06	90E-05	19E-05	56E-05	07E-05	72E-06
	SST	19E-05	39E-05	13E-05	32E-04	52E-05	33E-06	36E-05	15E-04	97E-05	98E-04
	CIT	17E-05	36E-05	76E-06	52E-05	75E-04	30E-05	37E-05	41E-05	49E-04	78E-05
	SL	01E-05	20E-05	90E-05	33E-06	30E-05	51E-04	39E-06	33E-05	99E-05	39E-05
	PST	17E-04	10E-05	19E-05	36E-05	37E-05	39E-06	59E-04	72E-05	26E-04	41E-05
	SOT	59E-04	25E-05	56E-05	15E-04	41E-05	33E-05	72E-05	76E-04	37E-05	54E-04
	TIT	25E-04	93E-05	07E-05	97E-05	49E-04	99E-05	26E-04	37E-05	55E-04	68E-05
	SCT	79E-05	40E-04	72E-06	38E-04	78E-05	39E-05	41E-05	54E-04	68E-05	03E-03

a. Dependent Variable: VAT

Collinearity Diagnostics

Mod	Dimens	Eigenvalu	Condition Index	Variance Proportions										
				Constant	CIT	TIT	SL	UL	TR	SST	SOT	SCT	PST	POT
1	1	10.213	1.000	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	2	.629	4.030	.00	.00	.00	.01	.59	.00	.00	.00	.00	.00	.00
	3	.113	9.511	.00	.00	.00	.60	.31	.00	.00	.00	.00	.00	.00
	4	4E-02	22.029	.00	.00	.00	.05	.02	.74	.00	.00	.00	.01	.01
	5	3E-02	30.286	.00	.04	.00	.02	.00	.02	.51	.00	.00	.01	.00
	6	9E-03	40.953	.04	.17	.00	.00	.00	.15	.01	.00	.00	.28	.02
	7	6E-03	59.284	.10	.03	.00	.09	.01	.02	.00	.04	.00	.43	.16
	8	5E-03	53.853	.32	.53	.00	.13	.00	.00	.11	.01	.01	.03	.01
	9	6E-04	04.817	.26	.00	.02	.07	.06	.04	.03	.24	.04	.17	.63
	10	2E-04	24.373	.11	.23	.97	.01	.00	.00	.03	.00	.00	.06	.17
	11	6E-04	97.973	.18	.00	.00	.01	.00	.01	.30	.71	.95	.00	.00

a. Dependent Variable: VAT

Casewise Diagnostics^a

Case Number	Std. Residual	VAT
89	6.145	7.35
170	-5.329	5.36
171	-3.097	6.16
173	-3.733	7.25

a. Dependent Variable: VAT

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	5.5000	7.5632	6.6848	.4159	170
Residual	-.2944	.3395	3.448E-16	5.360E-02	170
Std. Predicted Value	-2.849	2.112	.000	1.000	170
Std. Residual	-5.329	6.145	.000	.970	170

a. Dependent Variable: VAT

Annexure 4

Over All

Micro	Small	Medium	Large	
0.9148500E-01	0.4890000E-02	0.3759000E-02	0.3222000E-02	Micro
1.345170	0.1224670	0.9333300E-01	0.8851700E-01	Small
2.372858	0.2029320	0.1328880	0.1220830	Medium
4.247070	0.2392950	0.1806180	0.1479360	Large

Micro	Small	Medium	Large	
0.9085150	-0.4890000E-02	-0.3759000E-02	-0.3222000E-02	Micro
-1.345170	0.8775330	-0.9333300E-01	-0.8851700E-01	Small
-2.372858	-0.2029320	0.8671120	-0.1220830	Medium
-4.247070	-0.2392950	-0.1806180	0.8520640	Large

Micro	Small	Medium	Large	
1.165543	0.1000424E-01	0.7487543E-02	0.6519493E-02	Micro
3.099811	1.244539	0.1822062	0.1671174	Small
5.004855	0.3864010	1.266647	0.2405509	Medium
7.741059	0.4812920	0.3569925	1.304042	Large

Furniture Enterprises

Micro	Small	Medium	Large	
0.6336200E-01	0.3979000E-02	0.4011000E-02	0.6451000E-02	Micro
1.168083	0.1246320	0.8980400E-01	0.1065720	Small
2.886010	0.1961510	0.1387950	0.1493990	Medium
3.723109	0.1981370	0.1594780	0.1376610	Large

Micro	Small	Medium	Large	
0.9366380	-0.3979000E-02	-0.4011000E-02	-0.6451000E-02	Micro
-1.168083	0.8753680	-0.8980400E-01	-0.1065720	Small
-2.886010	-0.1961510	0.8612050	-0.1493990	Medium
-3.723109	-0.1981370	-0.1594780	0.8623390	Large

Micro	Small	Medium	Large	
1.150549	0.9674497E-02	0.8453907E-02	0.1126730E-01	Micro
2.933293	1.243283	0.1816519	0.2070652	Small
5.684771	0.3847404	1.285687	0.3128183	Medium
6.692739	0.3985871	0.3160076	1.313711	Large

Manufacturing Enterprises

Micro	Small	Medium	Large	
0.8902200E-01	0.5945000E-02	0.4860000E-02	0.5093000E-02	Micro
1.016190	0.1216180	0.9004000E-01	0.7961500E-01	Small
2.081557	0.2135660	0.1246690	0.1204670	Medium
3.144968	0.2450430	0.1840650	0.1541240	Large

Micro	Small	Medium	Large	
0.9109780	-0.5945000E-02	-0.4860000E-02	-0.5093000E-02	Micro
-1.016190	0.8783820	-0.9004000E-01	-0.7961500E-01	Small
-2.081557	-0.2135660	0.8753310	-0.1204670	Medium
-3.144968	-0.2450430	-0.1840650	0.8458760	Large

Micro	Small	Medium	Large	
1.168081	0.1299616E-01	0.9853441E-02	0.9659500E-02	Micro
2.313797	1.239480	0.1729861	0.1552290	Small
4.156673	0.4014049	1.257665	0.2419207	Medium
5.917717	0.4947334	0.3604191	1.315732	Large

Electric/Electronics/Gas Appliances Enterprises

Micro	Small	Medium	Large	
0.9648900E-01	0.4639000E-02	0.3914000E-02	0.3379000E-02	MICRO
1.521700	0.1183250	0.9901300E-01	0.7348800E-01	Small
2.511506	0.1970260	0.1351700	0.9277100E-01	Medium
5.688070	0.3097840	0.2188330	0.1507530	Large

Micro	Small	Medium	Large	
0.9035110	-0.4639000E-02	-0.3914000E-02	-0.3379000E-02	Micro
-1.521700	0.8816750	-0.9901300E-01	-0.7348800E-01	Small
-2.511506	-0.1970260	0.8648300	-0.9277100E-01	Medium
-5.688070	-0.3097840	-0.2188330	0.8492470	Large

Micro	Small	Medium	Large	
1.188182	0.1037984E-01	0.8216413E-02	0.6523315E-02	Micro
3.544129	1.246786	0.1950414	0.1432959	Small
5.399574	0.3809613	1.273324	0.1935465	Medium
10.64235	0.6224839	0.4542865	1.323349	Large